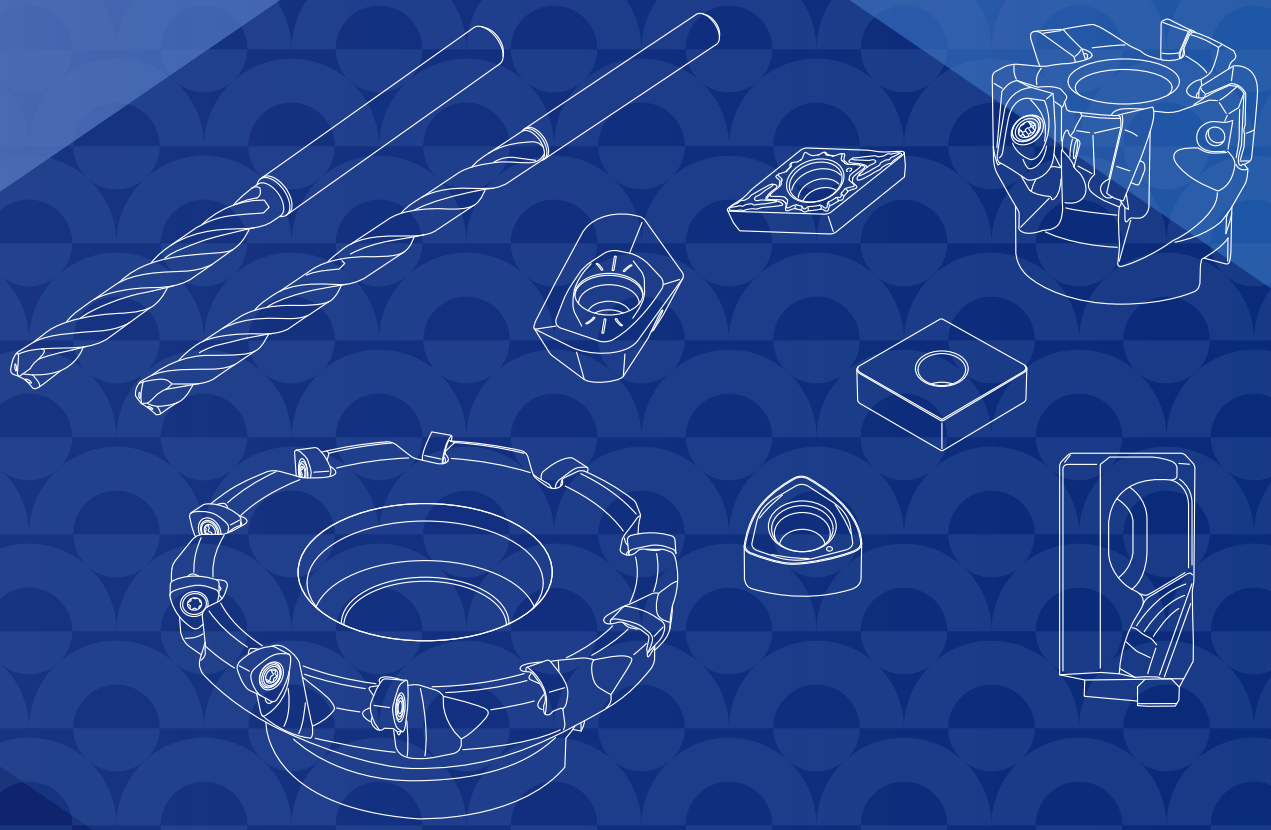
2025 - 2026
General Catalog for North America

SUMITOMO

CARBIDE - CBN - DIAMOND

PERFORMANCE CUTTING TOOLS



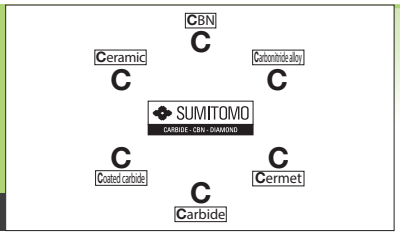
A Grades
B Inserts
C Toolholders
D Small Parts Machining
E Boring Bars
F Grooving Tools
Cut-Off Tools
Threading Tools
G Tooling Systems
Polygon Shank
Cartridges
H Milling Cutters
Modular Tools
I Endmills
J Drills
Reamers
K Carbide Materials
L CBN - SUMIBORON
PCD - SUMIDIA
Binderless PCD
SUMICRYSTAL
Spare Parts
Technical Guidance
References
Index
A.L.M.T.

SUMITOMO ELECTRIC GROUP

SUMITOMO ELECTRIC

CONTENTS

A — Grades
A1 to A37



- Grades for Turning
- Grades for Milling
- Grade Comparison Chart
- Chipbreaker and Grade Selection Guide
  - Steel Turning
  - Stainless Steel Turning
  - Cast Iron Turning
  - Exotic Alloy Turning
  - Non-Ferrous Metal Turning
  - Hardened Steel Turning
  - Small Lathes
- Coated Carbide
- Cermet
- Carbide
- CBN
- Polycrystalline Diamond
- Ceramics
- Material Properties

B — Inserts
B1 to B135

- Indexable Insert Identification Table
- Grade Comparison Chart
  - Coating, Cermet
  - Cemented Carbide, Ceramics
  - CBN, Polycrystalline Diamond
- Chipbreaker Comparison Chart
- Chipbreaker Selection
- Negative Inserts
- Positive Inserts
- Ceramic Negative Inserts (With Hole/Without Hole)
- Ceramic Positive Inserts (Without Hole)
- Ceramic SG (SumiNotch) and Ceramic LNGX
- Precautions when Using Wiper Inserts

C — Toolholders
C1 to C62

- External Toolholder Series
- Toolholder Identification and Cutting Edge Position Dimension
- Negative Insert Applicable Holders
- Positive Insert Applicable Holders
- T-REX Tool Holders
- Tool Holders for Aluminum Wheel Turning
- Double Clamp Tool Holders

D — Small Parts Machining
D1 to D34

- Small Lathe Selection
- General Features of Small Lathes
- Insert Grade Selection
- Chipbreaker Selection
- External Holders
  (Refer to Chapters E / F for Boring Bars / Grooving Tools / Cut-Off Tools)

E — Boring Bars
E1 to E75

- Selection Guide for Boring Tools
- Boring Tools Identification Table
- Selection Guide for Boring Tools
- Boring Tools Series
- Multi-functional Small Lathe Tools
  Twin Head Holder
- For Bottom Facing
- For Profiling
- For Through Boring
- For Shoulder Milling
- For Very Small Diameter / Small Diameter Turning

F — Grooving / Cut-off Threading
F1 to F86

- Grooving Tool Series Selection Guide
- Grooving Tools
  - Triangular Insert for Shallow Grooves (External/Internal)
  - For External/Internal and Facing
  - For Hardened Steel
- Cut-off Toolholder Series Selection Guide
- Cut-Off Tools
  - SumiGrip Jr. / SumiGrip
  - Small Diameter Cut-Off Tool Holders
- Threading Tool Series Selection Guide
- Basics of Threading
- Threading Tools
  - SSTE / SSTI
  - For External/Internal Diameters

G — Tooling Systems / Polygon Shank / Cartridges
G1 to G32

- General Features of Tooling Systems
- ICTM HSK Tooling Systems
- Polygonal Taper Shank SumiPolygon
- Modular Taper Shank Supported by 2 Faces
- HSK Tooling Systems Supported by 2 Faces
- Smart Damper
- IGETALLOY ABS System
- Micro Units
- Cartridge Units
- Boring Quills / Carbide Line Boring Bars

A Insert Grades
B Indexable Insert
C External Holders
D Tools for Small Lathes
E Boring Bars
F Grooving Tools / Cut-Off Tools / Threading Tools
G Tooling Systems / Cartridges
H Milling Cutters / Modular Tools / Milling Cutters (Special Purpose)
I Endmills
J Drills / Reamers
K Carbide Materials / Brazed Tools
L CBN - SUMIBORON
M PCD - SUMIDIA / Binderless PCD / SUMICRYSTAL
N Parts / Technical Guidance / References
O Index
A.L.M.T.

- Milling Cutter Selection Guide
- Grades for Milling
- Cutter Identification Table
- Insert Catalog No. Nominal
- Face Milling
- Shoulder Milling
- High Feed Milling
- Multi-purpose (WMM)
- Radius Milling
- R/3D Profiling
- Groove / T-Slot
- Chamfering
- Non-ferrous Metal Milling
- High-speed Cast Iron Milling
- Modular Tools
- Special Purpose Cutters
  - Goalmill Series
- Discontinued Milling Cutters

H Milling Cutters / Modular Tools — H1 to H262

- Selection Guide
- Cutting Edge Length List by Diameter
- Endmill Coating Grades
- Square / Radius Endmills (Coated)
- Ballnose Endmills (Coated)
- AURORA Coat Endmills
- SUMIDIA Coated Endmills
- Non-ferrous Metal Milling
- Milling of Exotic Alloys
- Milling of CFRP
- Cemented Carbide and Hard Brittle Material
- Binderless PCD Endmills
- CBN Endmills for Hardened Steel
- PCD Endmills for Non-Ferrous Metals

I Endmills — I1 to I122

- Drill Selection Guide
- Application Range of Major Drills
- Drill Coating
- General-purpose
- For Spot Facing
- For Deep Hole Drilling
- For Extra Small Hole Drilling
- For Deep Drilling/Pocketing
- For Medium to Large
- Diameter Drilling
- For Non-ferrous Metal Milling
- For Drilling of Heat-Resistant Alloys
- For Milling of CFRP
- For Drilling of Thin Sheets
- Indexable Insert/Head Type
- Reamers
- HSS

J Drills Reamers — J1 to J164

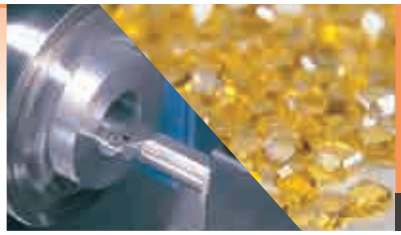
- Carbide Material Features and Applications
  - Plate Blanks
  - Rod Blanks
  - Special Rod Blanks
- JIS Type Inserts for Carbide Tool Holders
- JIS Type Carbide Tool Holders
- Jig Boring Tools IJB Type

K Carbide Materials — K1 to K12

- CBN - SUMIBORON Series
- Coated CBN - SUMIBORON Series
- Guidance for CBN - SUMIBORON Grades
  - Hardened Steel Cutting
  - Cast Iron Cutting
  - Sintered Component Machining
  - Machining of Rolls / Hard Facing Alloys / Heat-Resistant Alloys
  - Titanium Alloy Cutting
- Inserts
  - CBN - SUMIBORON Insert Series
  - Stock Table for CBN - SUMIBORON Indexable Inserts
- Holders
  - CBN - SUMIBORON Toolholder Series
- Cutters / Endmills
  - CBN - SUMIBORON Mill Series
  - CBN - SUMIBORON Endmill Series

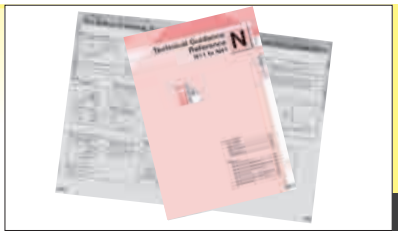
L CBN - SUMIBORON — L1 to L132

- PCD - SUMIDIA Series
- Binderless PCD Series
- Inserts
  - PCD Insert Identification Table
  - Stock Table for PCD Indexable Inserts
  - Stock Table for Binderless PCD Indexable Inserts
- Holders
  - SUMIDIA Tool Holder Series
- Cutters / Endmills
  - SUMIDIA - PCD Cutter Series
  - SUMIDIA - PCD Endmills
- Drills
  - SUMIDIA - PCD Drills
- SUMICRYSTAL



M PCD - SUMIDIA / Binderless PCD / SUMICRYSTAL — M1 to M35

- Spare Parts
  - Screws, Eccentric Pins, and Lever Pins
  - Shims, Clamps, Rings and Pins
  - Drawing Pins, Nuts, and Wrenches
- Technical Guidance
  - Turning Edition
  - Milling Edition
  - Endmilling Edition
  - Drilling Edition
  - CBN Edition
- References
  - SI Unit Conversion List
  - Metals Symbols Chart (Excerpt)
  - Steel and Non-Ferrous Metal Symbols Chart (Excerpt)
  - Hardness Scale Comparison Chart
  - Standard of Tapers
  - Fitting Tolerances
  - Surface Roughness



N Spare Parts / Technical Guidance / References — N1 to N78

- A.L.M.T. Diamond Cutting Tools
  - Ultra-Precision Cutting Tool UPC Series
  - New D Tool Series
  - PCD Reamer Rotating Tools

A.L.M.T. Diamond Cutting Tools — AL1 to AL13

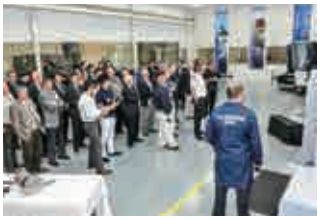
O Index — O1 to O6

Z — Z1 to Z5

Contact us at training@sumicarbide.com for more information.

THE TEC
TOOL ENGINEERING CENTER

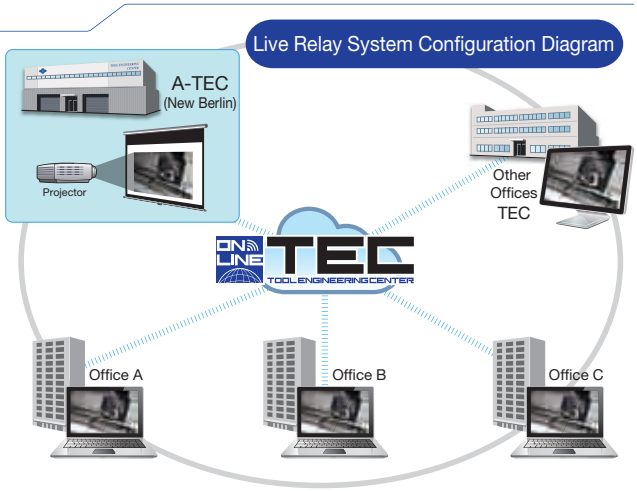
USA Office	▶Americas Tool Engineering Center (A-TEC)
Japan Offices	▶ Itami Tool Engineering Center (I-TEC) ▶ Yokohama Tool Engineering Center (Y-TEC) ▶ Hokkaido Tool Engineering Center (Hi-TEC) ▶Tohoku Tool Engineering Center (My-TEC) ▶Tokai Tool Engineering Center (T-TEC) ▶Kyushu Tool Engineering Center (K-TEC)
International Offices	▶European Design & Engineering Center (E-DEC) / Germany ▶Thailand Tool Engineering Center (Ti-TEC) / Thailand ▶Indonesian Tool Engineering Center (In-TEC) / Indonesia ▶China Tool Engineering Center (C-TEC) / China ▶Motherson Tool Engineering Center (M-TEC) / India



Online TEC

Live Relay Example (1) (Lecture)

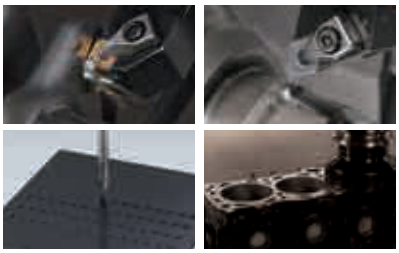
Live Relay Example (2)
(Technical Consultation)



Live relays in which cutting videos can be viewed from remote locations in real time with two-way communication are possible. When time or distance makes a visit to a Tool Engineering Center difficult, customers can view live relays at their own sites and receive evaluations as requested.

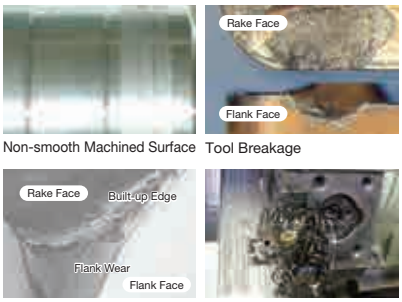
Seminars

Test Cutting



We have a range of machine tools and measurement instruments available to conduct various test cutting in order to support the requirements of our various customers.

■ Machining Failure Examples



Non-smooth Machined Surface

Tool Breakage

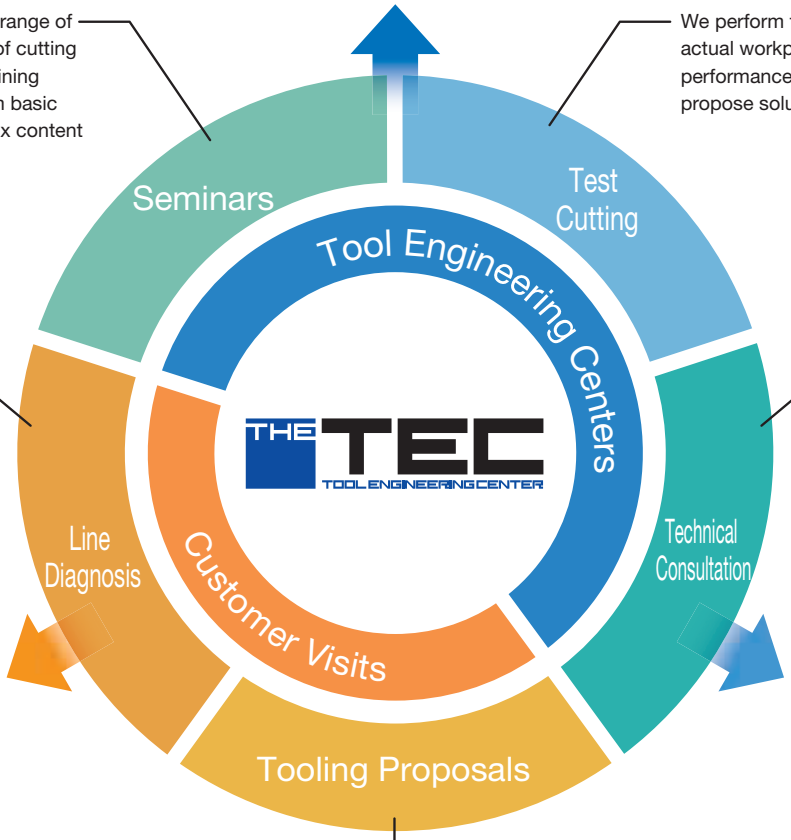
Tool Wear and Cutting Edge Structure

Unsatisfactory Chip Control

Supporting the Development of Knowledge and Technology

Acquire a wide-range of understanding of cutting tools and machining technology from basic through complex content

We perform test cutting on customers' actual workpieces and use the latest performance evaluation technology to propose solutions



Support of machining improvement activities through investigation of the current machining lines, proposals for improvements and test cutting

Troubleshooting and technology proposals based on the latest tool information and machining databases

We also can help solve problems by visiting your production site

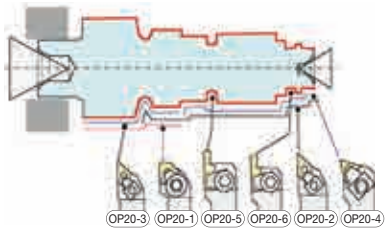
Proposing solutions to your problems

Proposals for solutions to potential problems, estimating tool life for tooling and tool selections for newly established production lines

Line Diagnosis

Technical consultation and line diagnosis are performed in order to propose the ideal solutions to our customers.

Tooling Proposals



We propose optimal tools, cutting conditions, estimated tool life and machining times.

Technical Consultation

Improvements are proposed based on investigation of various tool damage and machining databases.

Contact your local sales office for details.

Dimension symbols are compliant with ISO13399

The following table shows ISO13399-compliant dimension symbols. Content corresponding to the sample symbols/notations are shown below. Tool shape diagrams and stock charts use the symbols and notation examples from the table below. Please contact Sumitomo Engineering Dept. for more details regarding ISO13399.

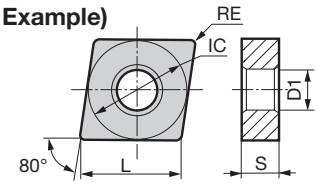
(1) Inserts (For Turning / For Milling)

Symbol	Notation Example	Description
AN	Main Blade Relief Angle	Clearance angle major
APMX	Undercut Depth, Maximum Depth of Cut	Depth of cut maximum
BS	Wiper	Wiper edge length
CDX	Machining Groove Depth, Depth of Cut	Cutting depth maximum
CHW	Chamfering	Corner chamfer width
CW	Width of Cut	Cutting width
D1	Bore Dia.	Fixing hole diameter
DMIN	Min. Bore Dia.	Minimum bore diameter
IC	Inscribed Circle	Inscribed circle diameter
INSL	Length	Insert length
L	Cutting Edge Length, Overall Length, Length	Cutting edge length
PDX	X Direction	Profile distance ex
PDY	Y Direction	Profile distance ey
PNA	Thread Ridge, Thread Ridge Angle	Profile included angle
RE	Nose Radius	Corner radius
RER	Nose Radius	Right side corner radius
REL	Nose Radius	Left side corner radius
S	Thickness	Insert thickness
W1	Height, Width	Insert width
WF	Cutting Edge, Cutting Edge Distance	Functional width

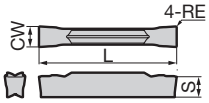
(2) Tool Holders For Turning

Symbol	Notation Example	Description
APMX	Undercut Depth	Depth of cut maximum
B	Width	Shank width
BD	Body Dia., Cutting Edge	Body diameter
CDX	Machining Groove Depth, Depth of Cut	Cutting depth maximum
CRKS	Screw	Connection retention knob thread size
DC	Work Dia.	Cutting diameter
DCB	Shank Dia.	Connection bore diameter
DCON	Dia., Mounting Dia.	Connection diameter
DCSFMS	Mounting	Contact surface diameter machine side
DMIN	Min. Bore Dia.	Minimum bore diameter
DMM	Shank Dia.	Shank diameter
DN	Neck Diameter	Neck diameter
GAMF	Rake Angle	Rake angle radial
GAMP	Rake Angle	Rake angle axial
H	Height	Shank height
HBH	Offset, Step	Head bottom offset height
HBKL	Head	Head back offset length
HBKW	Step	Head back offset width
HBL	Offset, Bottom Offset	Head bottom offset length
HF	Cutting Edge Height	Functional height
KDP	Groove Depth	Groove depth
KWW	Groove Width	Keyway width
LF	Overall Length, Overhang	Functional length
LH	Head, Head Length	Head length
LHD	Head	Head lengh
LS	Shank Length	Shank length
LSCX	Clamping Length, Cutting Edge	Clamping length maximum
LU	Usable Length	Usable length
LUX	Effective Overhang	Usable length maximum
WF	Cutting Edge, Cutting Edge Distance	Functional width

(Turning Insert Example)



(Grooving Insert Example)



(External Holder Example)

Fig 1

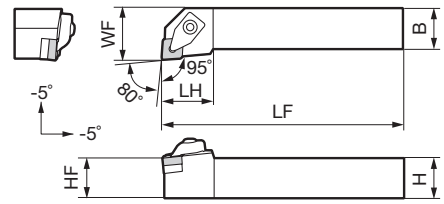
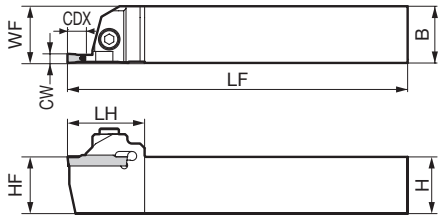


Figure shows right-hand (R) tool.

(Grooving Tool Holder Example)

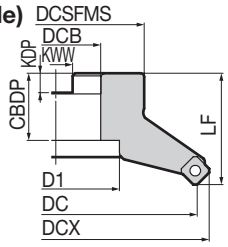


*1 The symbols in the above table are compliant with ISO13399 and do not include symbols unique to our company.
*2 As symbols under review are not included, these may change over time.

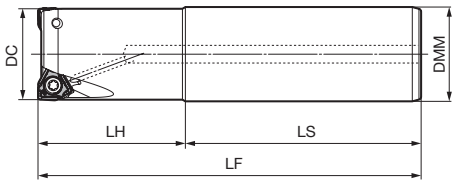
(3) Cutters / Indexable Endmills

Symbol	Notation Example	Description
APMX	Max. Depth of Cut	Depth Of Cut Maximum
BD	O.D.	Body Diameter
BDX	Max. O.D.	Body Diameter Maximum
CBDP	Mounting Depth	Connection Bore Depth
CRKS	Screw	Connection Retention Knob Thread Size
CW	Width	Cutting Width
DBC	Hole Position	Connection Bore Diameter
DC	Dia., Cutter Dia.	Cutting Diameter
DCB	Bore Dia.	Connection Bore Diameter
DCON	Mounting Dia.	Connection Diameter
DCSFMS	Boss	Contact Surface Diameter Machine Side
DCX	Max. Dia., Cutter Dia.	Cutting Diameter Maximum
DMM	Shank	Shank Diameter
DN	Diameter	Neck Diameter
H	Width	Shank Height
KDP	Keyway Depth	Groove Depth
KWW	Keyway Width	Keyway Width
LBX	Length	Body Length Maximum
LF	Height	Functional Length
	Overall Length	Functional Length
	Effective Length, Overhang	Functional Length
LH	Head	Head Length
LS	Shank	Shank Length
LU	Length	Usable Length
OAL	Overall Length	Overall Length
RMPX	Maximum Ramping Angle	Maximum Ramping Angle
SNT	Key Groove Width	Keyway Width
THUB	Thickness	Hub Thickness

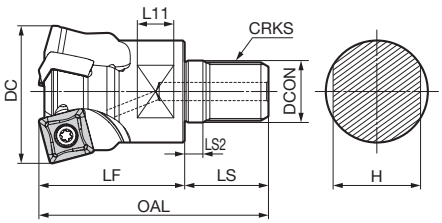
(Shell Type Example)



(Shank Type Example)



(Modular Type Example)



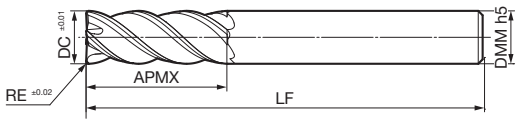
(4) Endmills

Symbol	Notation Example	Description
APMX	Cutting Edge Length	Depth Of Cut Maximum
CHW	Chamfering	Corner Chamfer Width
DC	Dia.	Cutting Diameter
DMM	Shank Dia.	Shank Diameter
DN	Head Dia.	Neck Diameter
LF	Overall Length	Functional Length
LFS	Neck Length	Functional Length Secondary
LU	Neck Length	Usable Length
RE	Radius	Corner Radius

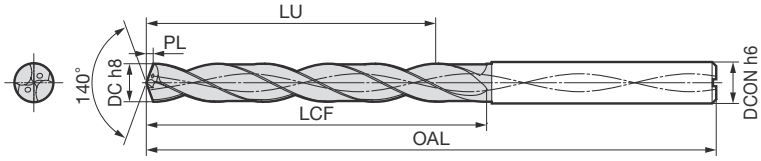
(5) Drills / Reamers

Symbol	Notation Example	Description
BD	Diameter	Body Diameter
BDX	Diameter	Body Diameter Maximum
CW	Machining Width	Cutting Width
DC	Dia.	Cutting Diameter
DCB	Shank Dia., Bore Dia.	Connection Bore Diameter
DCON	Shank Dia.	Connection Diameter
DCSFMS	Flange Dia., Boss	Contact Surface Diameter Machine Side
DF	Diameter	Flange Diameter
DMM	Shank Dia.	Shank Diameter
LBX	Body	Body Length Maximum
LCF	Flute Length	Length Chip Flute
LF	Shoulder Length, Length	Functional Length
LFA	Bolt	A Dimension On Lf
LFS	Length	Functional Length Secondary
LH	Neck Length	Head Length
LPR	Overhang Length	Protruding Length
LS	Shank	Shank Length
LU	Effective Length	Usable Length
LUX	Neck Length	Usable Length Maximum
OAL	Overall Length	Overall Length
PL	Tip	Point Length
WBTHK	Web Thickness	Web Thickness

(Endmill Example)



(Drill Example)



Notice

Thank you for using the Sumitomo Electric Carbide, Inc, Cutting Tool General Catalog

- This catalog presents the major items in the Sumitomo Cutting Tools product line.
  The catalog is organized as follows:
  (1) Cutting Tool Grade
  (2) Cutting Tool Products (Carbide)
  (3) CBN - SUMIBORON / PCD -SUMIDIA Products

  • Ask for our individual product brochures with most current product information or visit www.sumicarbide.com to download digital versions.

- This catalog is current as of July 2020.

- As a result of our ongoing research, products may reflect enhancements in quality, performance, and specifications not listed in this catalog. Please take note of this.

- To order CBN - SUMIBORON / PCD - SUMIDIA products, contact your nearest Sumitomo Electric Carbide, Inc. Sales Representative or distributor. For inquiries or other requests, feel free to contact your nearest sales office.

Stock Symbols

- The following symbols indicate whether products are in stock.

Stock Symbols	●: Standard stocked item ★: Worldwide Warehouse Item ▲: Limited Avaibility Item, made to order, or discontinued (please confirm stock availability).	Blank: Made-to-order item — mark: Not available

Meaning of Icons

Common

New : New item to Sumitomo Electric Carbide, Inc.

Grade

ISO classification of work material:

Holders

Example:

Milling Cutters

Example:

Max. Depth of Cut (Inch cutters will show inch dimensions)

Cutting edge angle
(not listed for ballnose blade types)

Drill

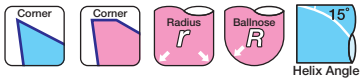
Example:

L/D (Example) | Internal Coolant Supply | Indexable

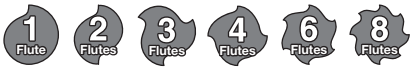
Endmills

Coating Type (Example):

Shape:



No. of teeth:



Application (Example):

Safety Notes

- Refer to Z4 & Z5 for the Carbide Tool Product Safety Pamphlet.

Grades A

Inserts B

Toolholders C

Small Parts Machining D

Boring Bars E

Grooving
Cut-Off
Threading F

Tooling Systems
Polygon Shank
Cartridges G

Milling Cutters
Modular Tools H

Endmills I

Drills
Reamers J

Carbide Materials K

CBN - SUMIBORON L

PCD - SUMIDIA
Binderless PCD
SUMICRYSTAL M

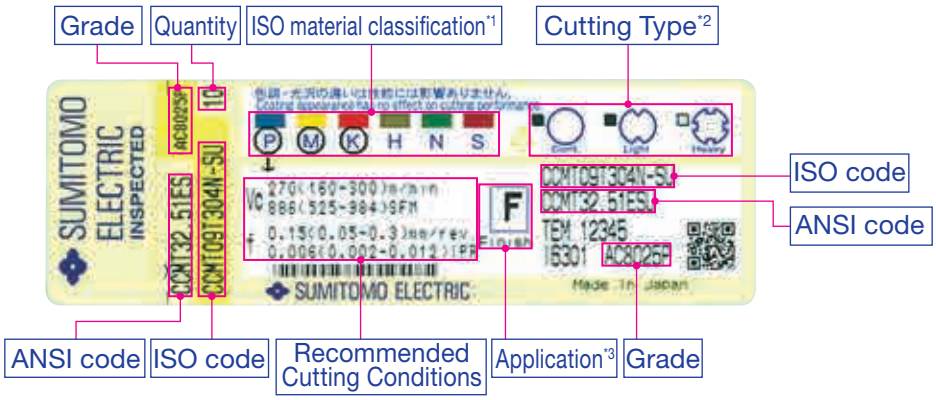
Spare Parts
Technical Guidance
References N

Index O

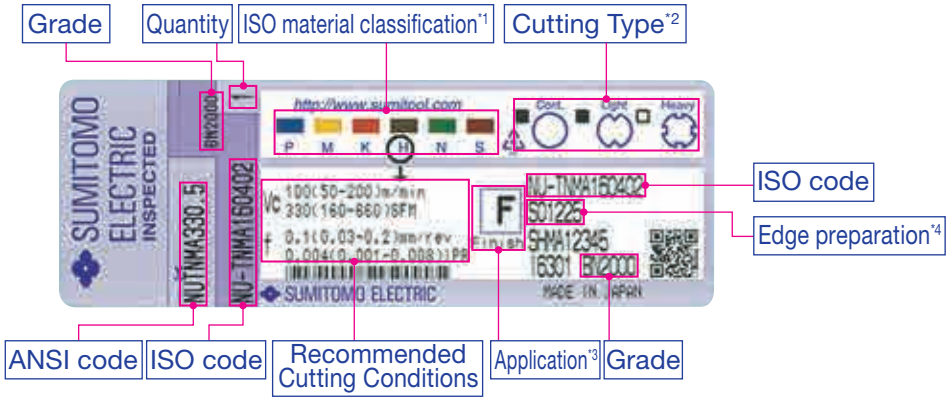
A.L.M.T.

Examples of Insert Labeling

Carbide / Cermet Inserts



CBN - SUMIBORON / PCD - SUMIDIA Inserts



*1 ISO material classification

- P Steel
- M Stainless Steel
- K Cast Iron
- H Hardened Steel
- N Non-ferrous Metal
- S Exotic Alloy

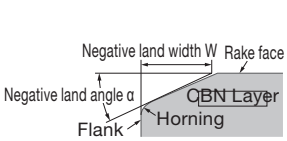
*2 Cutting Type

- Cont. Continuous
- Light General
- Heavy Interrupted

*3 Application

- **F** Finishing
- **M** Medium cutting
- **R** Rough cutting

*4 Edge preparation (CBN - SUMIBORON)



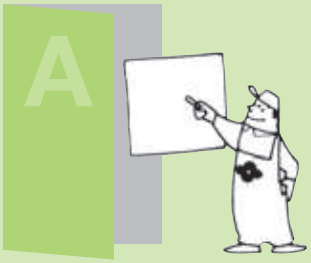
S 0 1 2 2 5

- Negative land angle
- Negative land width
- Edge shape T: Negative land
  S: Negative land + honing

Eg: S01225
→Negative land 25°/0.12 mm width, honed

Insert Grades A

A1 to A37



Grades for Turning A2
Grades for Milling A3
Grade Comparison Chart
(CVD / PVD Coated Grades) A4
(Cermet, Cemented Carbide, Ceramic) A6
(CBN, Polycrystalline Diamond) A7
Chipbreaker Comparison Chart A8

Chipbreaker and Grade Selection Guide
For Steel Turning A10
For Stainless Steel Turning A14
For Cast Iron Turning A16
For Exotic Alloy Turning A18
For Hardened Steel Turning A20
For Non-Ferrous Metal Turning A22
For Small Lathes A24

Coated Carbide A26
Cermet A29
Carbide A30
CBN A32
Polycrystalline Diamond A34
Ceramic A36
Material Properties A37

Grades for Turning

P General Steel (Carbon Steel, Alloy Steel), Mild Steel

Classification — Wear Resistance ← → Fracture Resistance

Work Material	—	P01	P10	P20	P30	P40
Coated Carbide (A26)		AC8015P	AC8020P	AC8025P	AC8035P	
		AC810P	AC820P		AC830P	
For Small Lathes (A24)			AC1030U			
			AC530U			
Coated Cermet (A29)		T1500Z		T2500Z		
Cermet (A29)	T1000A		T1500A	T2500A		
Cemented Carbide (A30)			ST10P	ST20E	A30	
Ceramic (A36)						
Uncoated CBN / Coated CBN (A32)						

M Stainless Steel

Classification — Wear Resistance ← → Fracture Resistance

Work Material	—	M01	M10	M20	M30	M40
Coated Carbide (A26)			AC6020M	AC6030M	AC6040M	
				AC630M		
For Small Lathes (A24)				AC1030U		
				AC530U		
Coated Cermet (A29)						
Cermet (A29)		T1000A	T1500A			
Cemented Carbide (A30)						
Ceramic (A36)						
Uncoated CBN / Coated CBN (A32)						

K Cast Iron

Classification — Wear Resistance ← → Fracture Resistance

Work Material	—	K01	K10	K20	K30
Coated Carbide (A26)		AC4010K	AC4015K	New AC4125K	
				AC420K	
					AC8025P
For Small Lathes (A24)				AC1030U	
				AC530U	
Coated Cermet (A29)					
Cermet (A29)		T1000A			
Cemented Carbide (A30)			G10E		
Ceramic (A36)	NB90S				
Uncoated CBN / Coated CBN (A32)	New BN7125			BNC8115	
				BNS8125	
		BN500			
	BNC500	(Dedicated for Ductile Cast Iron)			

S Exotic Alloy

Classification — Wear Resistance ← → Fracture Resistance

Work Material	—	S01	S10	S20	S30
Coated Carbide (A26)		AC5005S			
		AC5015S			
			AC5025S		
		AC510U			
			AC520U		
Cemented Carbide (A30)		EH510			
			EH520		
Ceramic (A36)					
Coated CBN (A32)					
Uncoated CBN (A32)	NCB100				
	New BN7125				
			BNS8125		

H Hardened Steel

Classification — Wear Resistance ← → Fracture Resistance

Work Material	—	H01	H10	H20	H30
Coated Carbide (A26)			AC5005S		
			AC503U		
Cemented Carbide (A30)					
Ceramic (A36)			NB100C		
Coated CBN (A32)	New BNC2105				
		BNC2115			
			BNC2125		
					BNC300
		BNC2010			
			BNC2020		
Uncoated CBN (A32)	BN1000				
			BN2000		
					BN350

N Non-Ferrous Metal

Classification — Wear Resistance ← → Fracture Resistance

Work Material	—	N01	N10	N20	N30
Carbide (A30)			DL1000		H1
PCD (A34)		DA90			
			DA150		
			DA1000		

Powdered Metal

Classification — Wear Resistance ← → Fracture Resistance

Work Material	—	01	10	20	30
Coated Carbide (A26)			AC5005S		
Cermet (A29)		T1000A			
Uncoated CBN (A32)		BN7115			
		New BN7125			

Cemented Carbides and Hard Brittle Materials

Classification — Wear Resistance ← → Fracture Resistance

Work Material	—	01	10	20	30
PCD (A34)		NPD10			
			DA90		

: 1st Recommended Grade / : 2nd Recommended Grade : CVD Coating : PVD Coating Blank: Uncoated

Work Material	P General Steel (Carbon Steel, Alloy Steel), Mild Steel						M Stainless Steel						K Cast Iron				
Classification	Wear Resistance ← → Fracture Resistance						Wear Resistance ← → Fracture Resistance						Wear Resistance ← → Fracture Resistance				
	—	P01	P10	P20	P30	P40	—	M01	M10	M20	M30	M40	—	K01	K10	K20	K30
Coated Carbide (A26)			ACU2500						ACU2500						ACU2500		
		XCU2500						ACM100						ACK2000			
							New ACS2500										
		ACP2000															
							New ACS3000								ACK3000		
			ACP3000														
									ACM200					ACK100			
			ACP100														
											ACM300						
															ACK200		
				ACP200				ACK300									
					ACP300				ACP300							ACK300	
Cermet (A29)			T2500A						T2500A								
			T250A						T250A								
				T4500A							T4500A						
Cemented Carbide (A30)				A30N								A30N			G10E		
Uncoated CBN Coated CBN (A32)														New BN7125			
																BNC8115	
																BNS8125	

Work Material	S Exotic Alloy						H Hardened Steel					N Non-Ferrous Metal				
Classification	Wear Resistance ← → Fracture Resistance						Wear Resistance ← → Fracture Resistance					Wear Resistance ← → Fracture Resistance				
	—	S01	S10	S20	S30	S40	—	H01	H10	H20	H30	—	N01	N10	N20	N30
Coated Carbide (A26)			ACU2500											DL1000		
				New ACS2500												
				New ACS3000												
		ACM100														
			ACM200													
					ACM300											
			ACK300											DL2000		
Cemented Carbide (A30)				EH520											H1	
															H20	
Uncoated CBN (A32)								BN2000	BN350							
PCD (A34)												DA1000				

: 1st Recommended Grade / : 2nd Recommended Grade : CVD Coating : PVD Coating Blank: Uncoated

Grade Comparison Chart

■ CVD Coated Grades

Application	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	MOLDINO	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning	P Steel	P05	**AC8015P** **AC810P**	UE6105 MC6115	T9105 T9205	CA510 CA5505	HG8010		GC4305 GC4205	KCP05 KCP05B	TP0501 TP0500	WPP05S WPP05 WPP01	IC8005 IC8150 IC9015	TT8105
		P10	**AC8020P** **AC8015P** **AC810P**	MC6115 MC6015 UE6110	T9105 T9115 T9205 T9215	CA510 CA515 CA5515	HG8010	CP7	GC4415 GC4305 GC4315 GC4215	KCP10 KCP10B	TP1501 TP1500	WPP10S WPP10 WPP10G	IC8150 IC8080 IC9015 IC9150 IC9080	TT8115 TT8115B
		P20	**AC8020P** **AC8025P** **AC820P**	MC6025 MC6125 UE6020	T9115 T9125 T9215 T9225	CA025P CA525	GM25 HG8025 GM8020	CP7	GC4425 GC4325 GC4225	KCP25 KCP25B	TP2501 TP2500	WPP20S WPP20 WPP20G	IC8150 IC8250 IC9015 IC9150 IC9250	TT5100 TT8125 TT8125B
		P30	**AC8035P** **AC830P** **AC6030M** **AC630M**	MC6035 UE6035	T9125 T9135 T9235	CA025P CA525 CA530	GM25 GM8035		GC4325 GC4335 GC4235	KCP30 KCP30B	TP3501 TP3500	WPP30S WPP30 WPP30G	IC8080 IC9350	TT7100 TT8135
		P40	**AC8035P** **AC830P** **AC6030M** **AC630M**	MC6035	T9135 T9235 T6130	CA530 CA5535	GX30 GM8035		GC4335 GC4235 GC30	KCP40 KCP40B	TP3501 TP3500		IC9350	TT7100
	M Stainless Steel / S Exotic Alloy	M10 S10	**AC6020M**	MC7015 MV9005 US7020 US905	T6215 T9115 T9215	CA6515	HS9105		GC2015 GC1515 S05F S205	KCM15	TM1501		IC9250 IC520M	TT9215 TT3005
		M20 S20	**AC6020M** **AC6030M** **AC630M**	MC7025 US7020	T6120 T9125 T9215	CA6525	HG8025 HS9115		GC2025 GC1515	KCM25	TP2501 TM2000 TM2501		IC9025 IC9325 IC4050	TT5100 TT9225
		M30	**AC6030M** **AC630M** **AC8035P** **AC830P**	MC7025 US735	T6130	CA6535	GM8035 GX30 GM25		GC2035 GC235	KCM35	TP3501 TM3501 TM4000		IC9350 IC4050 IC635	TT9235
		M40	**AC6030M** **AC630M**	US735					GC235 GC2035		TM4000			TT7800
	K Cast Iron	K05	**AC4010K**	MC5005 MC5105 UC5105 UC5115	T505 T5105	CA310 CA4505 CA4010	HX3505	CP1	GC3205 GC3210	KCK05	TK0501 TK1001	WKK10S WAK10	IC5005	TT7005 TT7505
		K10	**AC4010K** **AC4015K**	MC5005 MC5015 MC5020 MC5115 UC5105 UC5115	T515 T5105 T5115	CA315 CA4505 CA4515 CA4115	HX3305 HX3515 HG8010	CP1	GC3210	KCK15	TK1001 TK1501	WKK10S WKK20S WAK10 WAK20	IC5100 IC9150 IC4100	TT7015
		K20	**AC4015K** **AC4125K** **AC420K** **AC425K** **AC8025P**	MC5015 MC5125 UC5115 UE6110	T515 T5115 T5125	CA320 CA4515 CA4120 CA4115	HX3515 GM8020		GC3225	KCK15 KCK20 KCP25C	K2001	WKK20S WAK20 WAK30	IC9150 IC5100 IC4100	TT7015
For Milling	P Steel	P10	**ACP2000** **ACP100**	F7030 MC7020 MV1020	T3130				GC4220 GC4330	KCPM20	MP1501 MP1500 MP2501 MP2500	WKP25S WKP25 WKP35S WKP35G	IC4100 IC5400 IC9015 IC8080 IC9080 IC5100	TT7080 TT7515 TT9300
		P20	**ACP2000** **ACP100**	F7030 MC7020 MV1020	T3130 T3225		GX2140		GC4330 GC4340	KSPM20 KCPK30	MP2501 MP2500	WKP25S WKP25 WKP35S WKP35G	IC8080 IC9080 IC9250	TT7400
		P30	**ACP2000** **ACP100**				GX2160		GC4340	KCPK30 KCPM30			IC9250 IC4050	TT7800 TT8525
	M Stainless Steel	M10	**ACM200**							KCPM20				
		M20	**ACM200**	F7030 MC7020 MV1020	T3130 T3225	CA6535	GX2160 AX2040		GC2040	KCPM20 KCPM30	MP2500 MP2501 MS2500	WMP45G WSM45X		TT7800 TT8525
		M30	**ACM200**							KCPM20 KCPM30	MP2500 MP2501 T350M		IC5820	TT7800 TT8525
	K Cast Iron	K10	**ACK2000** **ACK200**		T1215					KCK15			IC5100	TT6800
		K20	**ACK2000** **ACK200**	MC520 MV1020 MC5020 F5010 F5020	T1115 T1215	CA420M	GX2120		GC3330 GC3220 GC3225 GC3020 GC3040	KC915M KC930M KC935M	MP1501 MK1500	WAK15 WKP25S WKP35S WKP35G	IC5100 DT7150 IC4010 IC4050 IC4100	TT6800

■ PVD Coated Grades

Application	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	MOLDINO	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning	P Steel	P10	**AC1030U** **ACZ150** **AC5005S** **AC5015S** **AC5025S** **AC520U**	VP15TF MS6015	AH110 AH120 AH710 AH725	PR915 PR930 PR1005 PR1215 PR1225 PR1705		TM1 VM1 DT4 DM4	GC1525	KCU10 KC5510	TS2000	WSM10	IC507 IC807 IC907	
		P20	**AC1030U** **AC5025S** **AC520U** **AC530U**	VP15TF VP20RT	AH120 AH725 AH3135	PR1225 PR1425 PR1725	IP2000	TM1 TM4 VM1 QM3 DM4	GC15 GC1125 GC1525	KCU25 KC5525	TS2500	WSM20	IC507 IC807 IC907	TT9030
		P30	**AC1030U** **AC530U**	VP15TF VP20RT	AH120 AH725 SH730 AH730	PR1425 PR1525 PR1535	IP3000 CY250	QM3	GC1125				IC328 IC928	TT8020 TT9030
		P40	**AC1030U**			PR660	IP3000		GC4335 GC4235				IC830	TT8020

Grade Comparison Chart

Application	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	MOLDINO	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning	M Stainless Steel / S Exotic Alloy	M10 S10	**AC5005S AC5015S AC5025S AC510U AC520U ACZ150**	MP9005 MP9015 VP15TF VP05RT VP10RT	AH110 AH710 AH725 AH905 AH6225 AH8005	PR005S PR015S PR915 PR1025 PR1215 PR1225 PR1305 PR1310	IP050S IP100S JP9105 JP9115	TM1 VM1 DT4 DM4 ZM3 ST4	H5D6 GC1105 GC1115	KCS10 KCS10B KC5510 KCU10	TH1000 TS2000	WSM01 WSM10 WSM10S	IC804 IC807 IC808 IC907 IC908	TT3005 TT3010 TT5080 TT8010
		M20 S20	**AC5015S AC5025S AC1030U AC520U**	MP9015 MP9025 VP15TF VP20RT VP20MF UP20M MS7025 MS9025	AH630 AH120 AH725 AH6225 AH8015	PR015S PR915 PR930 PR1025 PR1125 PR1215 PR1225 PR1325 PR1725	IP100S HS9115	DT4 DM4 ZM3 QM3 TM4 ST4	GC15 GC1115 GC1125	KC5525 KCU25 KC5025	TS2500	WSM20 WSM20S	IC330 IC806 IC808 IC830 IC908 IC928	TT3020 TT8010 TT8020 TT9030
		M30	**AC5025S AC6040M AC1030U AC520U AC530U**	MP7035 VP15TF VP20MF MS7025 MS9025	AH630 AH645 AH725 AH6235	PR1125 PR1525 PR1535		QM3 TM4 DT4 DM4	GC1125			WSM30 WSM30S	IC328 IC330 IC830 IC840 IC882	TT8020
		M40	**AC6040M AC1030U AC530U**	MP7035 VP15TF MS6015 MS7025	AH645 AH6235	PR1125 PR1535	GX30						IC830 IC928	TT8020
	K Cast Iron	K10	**AC1030U AC510U ACZ150 AC5015S**	VP10RT	AH110 AH120	PR905	HX3305 HG3305 HG3315 HX3515 HG8010 TH315 ATH10E		GC15				IC810	TT9030
		K20	**AC1030U AC510U ACZ150 AC5015S AC5025S**	VP10RT VP20RT VP15TF	AH120	PR905		DM4 QM3						TT9030
		K30	**AC1030U AC530U**	VP15TF VP20RT	AH110 AH120 AH725								IC830 IC908 IC910 IC928	
For Milling	P Steel	P10	**ACU2500 ACP200**	VP15TF MP6120	AH110 AH120 AH710 AH725	PR1225	PN215 PN15M JP4105 JP4115 JP4120 CY9020	DT4 DM4	GC1010	KC505M KC510M KC515M KCKP10	F25M			TT2510 TT7080
		P20	**ACP3000 ACU2500 ACP200 ACP300**	VP15TF VP20RT MP6120 MP6130 UP20M	AH9030 AH120 AH725 AH3035 AH3225	PR1525 PR1225 PR1230 PR830	JP4120 CY150 CY9020 JS4045	TM4 DT4 DM4	GC1010 GC1025	KC522M KC525M KCSM30 SP6519	MP3000 F30M F32M F40M	WSM35 WSM35S	IC808 IC810 IC908 IC910	TT7080 TT9030 TT9080
		P30	**ACP3000 ACU2500 ACP200 ACP300**	VP15TF VP30RT MP6130 UP20M	AH3035 AH3135 AH3225 AH120 AH130 AH140 AH725	PR1525 PR1230 PR830	JS4045 JS4060 CY25 CY150 CY250 CY250V HC844 PTH30E	DM4 TM4 ZM3	GC1030 GC1130 GC2030	KC725M KC735M KC525M KC530M KCPM40 KCSM30 SP6519 X400	F40M T60M MP3000	WSM35 WSM35S WSP45 WSP45G WSP45S	IC328 IC330 IC830 IC928	TT8080 TT8020 TT8525B
		P40	**ACP3000 ACU2500 ACP300**	VP30RT	AH140		JS4060 JM4160 PTH40H			KC725M KC735M KCPM40		WSP45 WSP45G WSP45S	IC830 IC845 IC928	TT8020 TT8080 TT8525B
	M Stainless Steel / S Exotic Alloy	M10	**ACM100 ACU2500 ACK300 ACP300**	MP9120 VP15TF	AH110 AH120 AH330 AH725 AH8005 AH8015	PR1210 PR1225	CY9020 JP4120 PN08M PN15M PN208 PN215	DT4 DM4 ZM3	GC1010 GC1025 GC1030 GC1130	KC515M SP4019 SP6519			IC808 IC908	
		M20	**ACS2500 ACU2500 ACP300**	MP7030 MP7130 MP9030 MP9120 MP9130 UP20M VP15TF VP20RT	AH120 AH130 AH330 AH725 AH3225 AH8015	PR1210 PR1225 PR1525 PR830	JP4120 CY150 JS1025	DT4 DM4 ZM3	S30T	KC522M KC525M SP4019 SP6519 X700	F25M F30M F32M MP3000 MS2050 MM4500	WSM35 WSM35S	IC328 IC330 IC808 IC830 IC840 IC908 IC928	TT9080 TT9030
		M30	**ACM300 ACS2500 ACS3000**	MP7030 MP7130 MP7140 MP9030 MP9130 MP9140 UP20M VP15TF VP20RT	AH130 AH140 AH330 AH725 AH3135	PR1525 PR1535 PR830	JM4160 PTH30E JS1025	DT4 DM4 ZM3	GC2030 GC1040 S30T	KC522M KC525M KC530M KC725M KC735M KCPM40 KCSM30 KCSM40 X700	F30M F32M F40M MP2050 MS2050	WSM35 WSM35S WSP45 WSP45G WSP45S	IC328 IC330 IC830 IC840 IC882 IC928	TT8020 TT8080 TT9080
		M40	**ACM300 ACS3000**	MP7140 MP9140 VP30RT	AH140	PR1535	JM4160 PTH40H			KC725M KCPM40 KCSM40		WSP45 WSP45G WSP45S	IC328 IC330 IC882	TT8020 TT8080
	K Cast Iron	K05	**ACK3000**	MP8010	AH110 AH710		TH303 TH308 ATH80D PTH08M		GC1010	KCKP10 SP4019	MH1000			
		K10	**ACK3000 ACU2500**	MP8010	AH110 AH120 AH330 AH710	PR1210	ATH10E TH315 CY100H		GC1010 GC1020	KC514M KC515M KC520M KCK20 KCK20B SP4019 SP6519	MH1000		IC810 IC910	TT7080 TT7515
		K20	**ACK3000 ACU2500 ACK300**	MP8010 VP15TF	AH110 AH120 AH330 GH330	PR1210 PR1510	JP4120 PTH13S CY100H CY9020	DM4	GC1020 GC1025	KC514M KC524M KCK20 KCK20B SP6519	MK2050 MK3000	WKK25S	IC808 IC810 IC830 IC908 IC910 IC928	TT6080 TT7515
		K30	**ACK3000 ACU2500 ACK300**	VP15TF VP20RT	AH725 AH120 AH330 GH110 GH130 GH330	PR1510 PR1210	JS4045 CY150 CY250		GC1025 GC1030 GC1130	KC520M KC522M KC524M	MK2050		IC830 IC810 IC910 IC928	TT6080

Grade Comparison Chart

■ Cermet *mark indicates coated cermet

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning	P Steel	P10	**T1500Z* T1000A T1500A**	AP25N* NX2525 NX3035 VP25N*	GT720* GT9530* J9530* NS520	TN30,PV30*,TN60 TN6010,TN610 PV710*,PV7005* PV7010*	CZ25* CH550	Q15* Z15* T15 C7Z*	CT5015	KT125 HTX KT1120			IC20N IC30N IC520N	PV3030 PV3010 CT3000
		P20	**T1500Z* T2000Z* T2500Z* T3000Z* T1500A T2500A**	AP25N* NX2525 NX3035 MP3025*	NS530 NS730 GT530* GT730* AT9530* NS9530 GT9530* J9530*	TN60,TN6020 TN620,PV60* TN90 PV7020* PV7025* PV720	CZ25* CH550	T15 C7Z* C7X	GC1525*	KT6215 KT315* KT175 KT5020*	CM CMP C15M TP1020		IC20N IC30N IC520N IC530N	CT7000
		P30	**T2500A T3000Z***	MX2525 MP3025* VP45N*	NS9530 GT9530* AT9530*	TN620 PV7025* PV90* PV720		N40 C7X						
	K Cast Iron	K10	**T1000A**	AP25N* VP25N* NX2525	GT720* GT9530* NS9530 J9530* NS520	TN30 PV30* TN610 TN6010 PV710* PV7005* PV7010*	CH550		CT5015	KT125 HTX				PV3030 CT3000
For Milling	P Steel	P30	**T2500A T250A T4500A**	NX2525 MX3030 NX4545 VP45N*	NS540 NS740	TN90 TC60M TN100M	MZ1000* MZ2000* MZ3000* CH7030 CH7035		CT530	KT530M* KTPK20*	C15M		IC30N	

■ Cemented Carbide

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/ Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning / For Milling	P Steel	P10	**ST10P**		TH10		WS10		S1P					
		P20	**ST20E**	UTi20T	KS20		EX35		SMA	K125M			IC07 IC50M	UF10
		P30	**A30 A30N**	UTi20T	KS15F UX30	PW30	EX35 EX40		SM30				IC54 IC28	P30
		P40	**ST40E**		TX40		EX45		S6				IC54 IC28	
	M Stainless Steel	M10	**EH510**		TH10		EX35 WA10B	KM1	H10A	KU10,K313 K68,KYSM10	890		IC07,IC20 IC08	
		M20	**EH520**	UTi20T	KS20		EX35		H13A	K313 K68	HX 883		IC07,IC20 IC08	UF10
		M30	**A30 A30N**	UTi20T	UX30				H10F SM30				IC28	
	K Cast Iron	K01	**H2 H1**	HTi05T	KS05F		WH01 WH05			KU10,K313 K68,K115M			IS8	
		K10	**H1 EH510**	HTi10	TH10	KW10 GW15	WH10	KM1	H13A	KU10,K313 K68,K115M K110M KY3500	890		IC20,IS8	K10
		K20	**G10E,H10E EH520**	UTi20T	KS15F KS20	GW25	WH20	KM3	H13A	KMF KY3500 KYHS10	890 883 HX		IC20 IS8	
		K30	**G10E,H10E**	UTi20T			WH30			KY3500	883			
	S Exotic Alloy	S10 S20	**EH510 EH520**	RT9005 RT9010 MT9015 TF15	TH10 KS05F KS15F KS20	SW05,SW10 SW25,KW10 GW15	WH10		H10A H10F H13A	KU10,K313 K68,KMF K110M,KYHS10 K1025	HX H25		IC20,IC07 IC08,IC28	K10
	Micro-fine Grained Carbide	Z01	**F0**	SF10,MF07 MF10,TBA16A	F,MD1508 MD08F		NM08						IC07	UF1A
		Z10	**AFU XF1**	HTi10 MF20	M,MD10 MD05F,MD07F	FW30	NM15		6UF,8UF PN90,H6FF		890		IC07	UF1A
		Z20	**AF0 AF1**	TF15 MF30	EM10,MD20 MD15		BRM20 EF20N		12UF		890 883		IC08	UF10
		Z30	**A1**		UM		NM25		N6F,H10F		883		IC08	

■ Ceramic

Applications	Work Material	Sumitomo Electric	Tungaloy	Kyocera	NTK	Sandvik	Kennametal	TaeguTec
For Turning / For Milling	H Hardened Steel	**NB100C**	WG300 LX11	A66N A65 KT66 PT600M	HC4,HC7 ZC7,WA1	GC6050 CC650 CC670	KY1615 KY4300	AB20 AB2010
	K Cast Iron	**NB90S**	LX11,LX21 CXC73,FX105 CX710	A65,A66N KA30,KS500 KS6000,KT66 PT600M CS7050,KS6050	HC1,HW2,HC2,HC6 HC7,WA1,SX1,SX2 SP2,SX9,SX8	CC620,CC650 CC6090 GC1690	KY1615,KY1310 KY1320,KY3500 KY4300	AW120,AB30 AS500,AS10 SC10

Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Grade Comparison Chart

■ CBN

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	NTK	Chukyo	Sandvik	Kennametal	SECO Tools	ISCAR
For Turning / For Milling	K Cast Iron	K01	**NCB100** **BNC500*** **BN7000** **BN500**	MB710 MB5015	BX910 BX930 BX870	KBN475 KBN60M	B30 B16		CB50 CB7525	KB1340		IB50 IB85
		K10	**BN7000** **BN500**	MB710,MB730 MB5015,MB4020	BX470,BX480 BX950	KBN60M KBN900	B23 B16	HB55,HB56 HB569 HB580,HB57	CB7925		CBN200,CBN300 CBN300P,CBN400C	IB55 IB90
		K20	**BN7000** **BNS800**	MB730,MB4020 MB4120,MBS140	BX470,BX480 BXC90,BX90S	KBN900		HB56,HB569 HB580,HB57				
		K30	**BNS800**	MB4120,MBS140 BC5030	BXC90 BX90S			HB57		KB5630	CBN500	
	S Exotic Alloy	S01	**NCB100** **BN7000**	MB730 MB4020 MB4120	BX940,BX950 BX470,BX480 M714B			HB55 HB580 HB52		KB5630 KB1340		IB85 IB05S IB10S
	H Hardened Steel	H01	**BNC2010** **BNC100** **BN1000** **BN2000** **BNX10**	BC8105 BC8110 MBC010 MB810 MB8110	BXM10 BX310	KBN05M KBN10M KBN510	B5K B52	HB55 HB550 HB580 HB590	CB7105	KB5610	CH0550 CBN10 CBN100 CBN060K	IB05H IB50 IB10HC
		H10	**BNC2010** **BNC2020** **BNC160** **BNC200** **BN2000**	BC8110 BC8120 MBC020 MB8025 MB8110 MB825	BXM10 BX330 BX530	KBN05M KBN25M KBN525	B5K B6K B52 B36	HB55 HB59 HB550 HB580 HB52	CB7015 CB7115 CB20	KBH20 KB5610 KB5625	CBN10 CBN100 CBN150 CBN060K CBN160C	IB10H IB55 IB25HA
		H20	**BNC2020** **BNC200** **BNX20**	BC8120,BC8020 MBC020 MB8025,MB8120	BXA20 BXM20 BX360	KBN30M KBN35M KBN900	B36 B40 B6K	HB57,HB59 HB590 HB580	CB7025 CB7125 CB50	KBH20 KB5625 KB5630	CH2540 CBN150 CBN160C	IB20H,IB20HC IB25H,IB25HC
		H30	**BNC300** **BN350** **BNX25**	BC8130 MB8130 MB835	BXM20 BXA20 BXC50 BX380	KBN30M KBN35M KBN900	B40	HB57 HB580	CB7135 CB7525	KB5630	CH3515	IB90

*mark: For ductile cast iron cutting

■ Polycrystalline Diamond

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	NTK	Chukyo	Sandvik	Kennametal	SECO Tools	ISCAR
For Turning / For Milling	N Non-Ferrous Metal	N01	**DA1000** **DA90**	MD205	DX180 DX160	KPD001	PD1		CD05 CD10	KD1400		ID5
		N10	**DA1000** **DA150**	MD205 MD220	DX140	KPD001 KPD010 KPD230	PD2	HD100 HD30 HD60	CD1810	KD1400 KD1425	PCD05 PCD10	ID5
		N20	**DA1000** **DA2200**	MD220 MD230	DX120 DX110	KPD230 KPD250	PD2	HD100 HD30 HD50		KD1400 KD1425	PCD05 PCD20	
		N30	**DA1000** **DA2200**	MD2030 MD230	DX110			HD30,HD50 HD700 HD100		KD1400	PCD05 PCD30 PCD30M	

Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Chipbreaker Comparison Chart

■ Negative Type Inserts

Work Material	Applications	Sumitomo	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
P Steel	Fine Cutting	**EFA**	FH	TF	GP			QF	FF	FF1		SF	
		EFL,EFB	FS,FY	NS,ZF	XP,XF,VF	FE	WM			FF2	FP5		FA
	Finishing	**ELU,EFE**	SA,SY	NM	PP,XQ,CQ	BE	ZF1	LC	FN		NF3		FG
		ESU	SH	TS,TSF	HQ	CE,B,BH	UL,WV	XF,MF	CT	MF2		NF	FC
	Finishing (Wiper Edge)	**ELUW**		AFW,FW	WP			WL,WP		W-FF2			
		ESEW	SW	ASW,SW	WQ			WF,WMX	FW	W-MF2	NF	WF	WS
	Finishing to Light Cutting	**ESE,SX**	LP	AS,ZM	CJ,XS	AB,CT	ZW1,WR	PF,KF	LF,33		MP3,NS6	F3P,TF	
	Medium Cutting	**EGU**(EUG)	MA,MV	TM,TQ	HS,PS	AH	ZP	XM,QM PMC	P,MG	M3		GN	ML,MP MC
		EGE,EUX	MH,MP	DM,AM	PQ,GS PT,PG	AE,AY	Z5	PM,SM KM,HM	MN,MP1		MP5,NM4 NM6	RF,LF	PC,MT
	Medium Cutting (Wiper Edge)	**EGUW**	MW					WM	MW,RW	W-M3	NM	WG	WT
	Roughing	**EMU,EME**	RP,GH	TH,S	HT,GT PH	RE,AR	G	PR,XMR KR	RP	M5,MR7	RP5,NM9 RP7	M3P,NR	RT
		EMX,EMP	HAS,MT	CH					RN	MR6			
	Heavy Cutting	**EHG**	HZ,HX,HL	THS,TRS	PX, Standard	TE,UE		QR	RM,MR	R4,R5,M6	NR6,NRF	NM	RX
		EHP	HH,HXD,HR	65				HR,SR	RH	R7,MR7	NR8	TNM	RH
		EHU,EHW	HV			H							HT,HD HY
		EHF	HCS	TUS		HX,HE		MR		RR9	NRR	R3P	HZ
M Stainless Steel	Finishing	**ESU,EEF**	LM,SH	SS	MQ,GU	SE,MP	ZF1	MF	FP,FS,LF	MF2	NF4		EA,SF
	Light to Medium Cutting	**EEX,EEG**	GM,MS	SF,SA	MS,MU	PV	ZP	23	MS	MF1,M1		TF,VL	EM
	Medium Cutting	**EGU**	MM	SM		DE		MM,MMC SMR	MP	MF3,M3	NM4	M3M PP	ET
	Roughing	**EHM**	ES,1M,2M,HL	S					UP	MF4,MF5	NR4,RM5		VF
		EEM,EMU	RM,GH,HM	SH	TK			MR,MRR		M5,MR3,MR4		MR	SU
K Cast Iron	Light Cutting	**ENZ**	LK,MA,MK	CM,CF	Standard, C	V,VA		KF	UN	M4	NM5	GN	MT
	Medium Cutting	**EGZ**(EUX), **EME**	GK,RK,GH	Standard, CH, 33	ZS,GC KG,KH	Y,RE		KM,KR KRR		MR7	RK5,RK7		RT
N Non-Ferrous Metal	Finishing	**RAX / LAX**		P	AH				MS				
S Exotic Alloy	Finishing	**EEF**	LS,FJ	HRF				SF,SGF			NFT		
	Medium Cutting	**EEG,EEX**	MS,MJ	HMM,SA,HRM		VI		SM,SMC			NMT		
	Roughing	**EMU,EEM**	RS,GJ					SMR			NRT		
H Hardened Steel	Finishing	**FV***		HP*									
	Light Cutting	**LV***	BF*	HF*	HH*,HL*								
	Medium to Roughing	**EGH**											
	Carburised Layer Removal	**SV***	BM*	HM*	HD*			HGR*					

( ) indicates a discontinued item. *mark indicates CBN / PCD tool breaker

Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Chipbreaker Comparison Chart

■ Positive Type Inserts

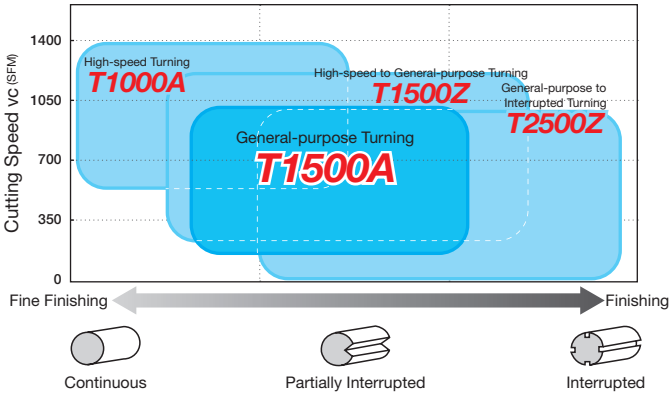
Work Material	Applications	Sumitomo	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
P Steel	Fine Finishing / Finishing	**EFF**		01	CF		AMX,FG						
	Finishing	**EFC**	FJ,AM	JRP,JTS	GF,VF P,PF		AM3,AZ7	UM		GT-F1	FM4		
		EFB,ELU (EFP,EFK)	FP,FM FV,SQ	PSF,PF,23 SS,JSS	GP,XP,PP MQ,DP	JQ,MP	ZR	PF,UF MF,XF	11,UF,MF KF,XF	FF1	FP4	PF	FA,FX
	Finishing (Wiper Edge)	**ELUW**	SW		WP			WF	FW	W-F1	PF	WF	WT
		SDW						WK,WM	MW	W-F2		WG	
	Finishing to Light Cutting	**MESI**	SMG	JS	CK		YL,1L						SA
	Light Cutting	**ELB,ESU** (ENK,ENF)	LP,LM SV,MQ	PSS,PS,TS TJS,CM	HQ,XQ GK	JE	AZ8,AM2 AM5	PM,UM XM	LF	F1	MP4,MM4 FP6	SM,14	FG,PC
		(M)EFM			GQ, SK, Standard		AF1,CL		MP	MF2			
	Light to Medium Cutting	**EGU**	Blank	PS, PM	HQ			PM, UM			PM5		
		EMU	MP,MM MK,MV	PM				PR,UR,MMC MPC,XR	MF	F2,M3 M5	PM5,RP4 RM4	19	MT,PMR
M Stainless Steel	Fine Finishing / Finishing	**MEFF**											
	Finishing	**MEFC**	FM,FV	PSF,PF SS,JSS			AZ7,AM3	MF,XF	11,UF	FF1	FM4	PF	FA,FX
	Finishing to Light Cutting	**MESI**	SMG				YL,1L	UF	LF,FP				FG
	Light Cutting	**ELB,ESU**	LM,SV		MQ,HQ		AM5,CL	MM	MP	F1,MF2	MM4,PS5	SM	PC
	Light to Medium Cutting	**EMU**	MM, MV, Blank	PM				UM,MR XR,UR	MF	F2,M3 M5	PM5,RM4		MT,PMR
K Cast Iron	Fine Finishing / Finishing	**MEFF**			CF								
	Finishing	**EFC**		CF				KF,XF	11,UF		FK6		
	Light to Medium Cutting	**EMU**	MK				AF1,FM	KM,UM,XR	FP,LF MF,MP	M5	MK4,RK4		MT
N Non-Ferrous Metal	Finishing	**NAG,AW,AY**	AZ	AL,PP	AH			AL	HP	AL	PM2	AS,AF	FL
	Finishing to Light Cutting	**LD*,GD***											SA
S Exotic Alloy	Fine Finishing / Finishing	**MEFF**			CF								
	Finishing	**MEFC,MESI**	FS	PSS	PP,MQ			WF,MF					
	Light to Medium Cutting	**ESU,EGU**	LS,MS	PS,PM	HQ,GK			UM,PM		MF2,R2 R3	FV4,MV4		
H Hardened Steel	Finishing	**FV***		HP*									
	Light Cutting	**LV***	BF*										

( ) indicates a discontinued item. *mark indicates CBN / PCD tool breaker

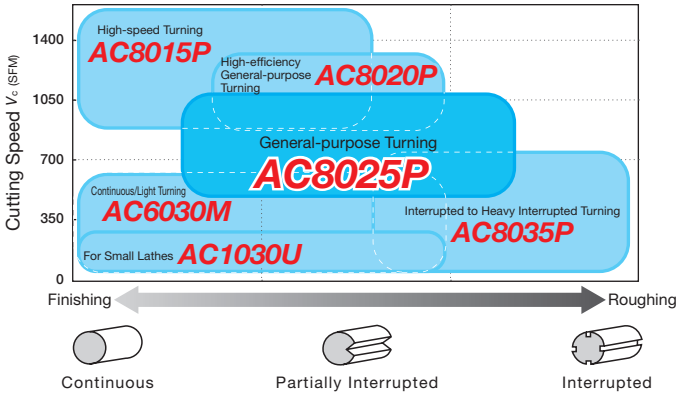
Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Grades

- Fine Cutting to Finishing (Cermet)

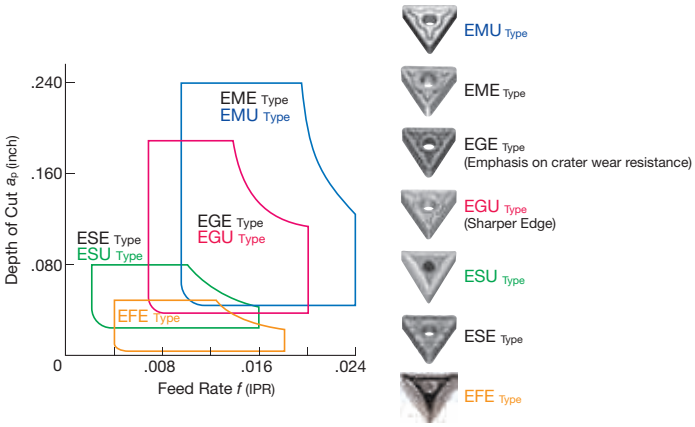


- Finishing to Roughing (Coated Carbide)

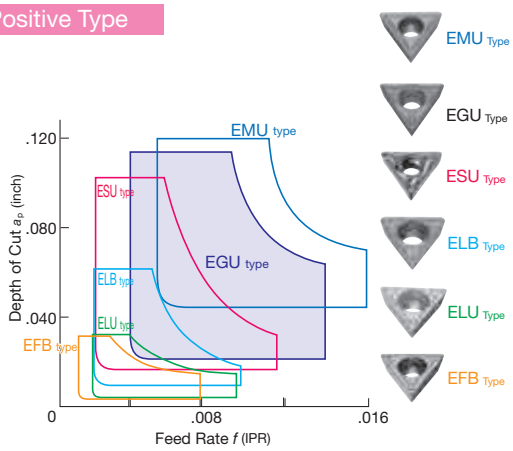


Main Chipbreakers

Negative Type



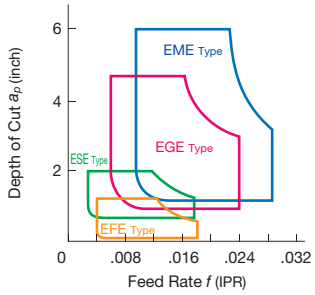
Positive Type



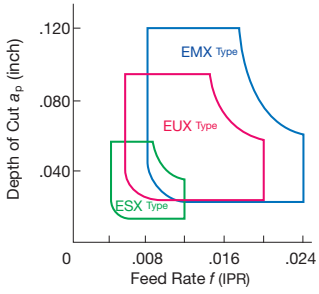
Sub-Chipbreakers

Negative Type

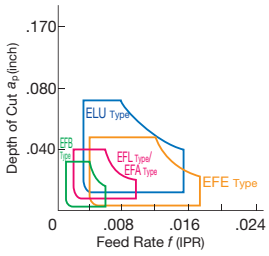
Chipbreakers for High-efficiency Machining



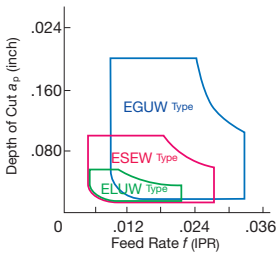
Strong Cutting Edge Chipbreakers



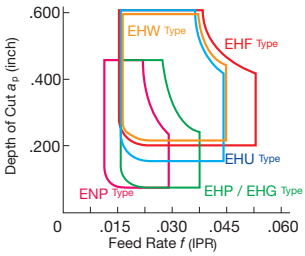
Chipbreakers for Shallow Depth of Cut



Wiper Insert



Chipbreakers for Heavy Cutting



Grades T1000A / T1500A / T1500Z / T2500Z

T1000A : High-hardness cermet with outstanding wear resistance and toughness. Creates high dimensional accuracy for continuous steel machining or finishing of powdered metal or cast iron.

T1500A : A general-purpose cermet made from hard grains with different grain sizes, delivering functionality that provides an excellent balance of wear resistance and toughness, along with good surface finish quality.

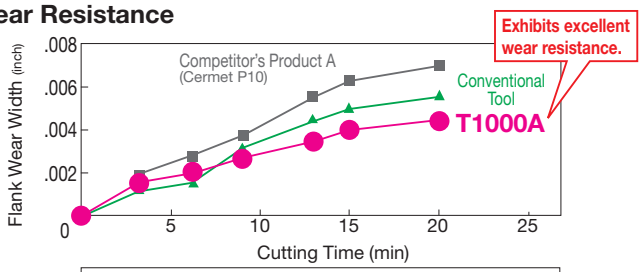
T1500Z : Incorporates Brilliant Coat® PVD coating with excellent lubricity to provide better wear resistance and consistent surface finishes in low-speed cutting applications such as machining of small products or low carbon steel.

T2500Z : Features Brilliant Coat® PVD coating along with optimized substrate for doubling breakage resistance in moderate to interrupted cutting applications.

Performance

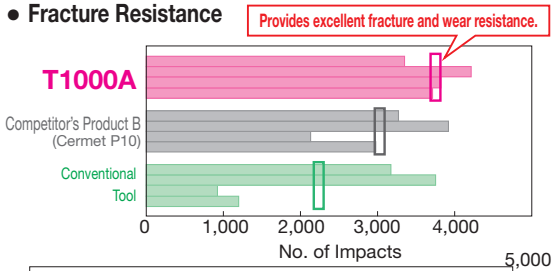
T1000A

• Wear Resistance



Part Material: 4135 Insert: CNMG432ESU
Cutting Conditions: v_c=1,050 SFM, f=0.008 IPR a_p=.060", Dry

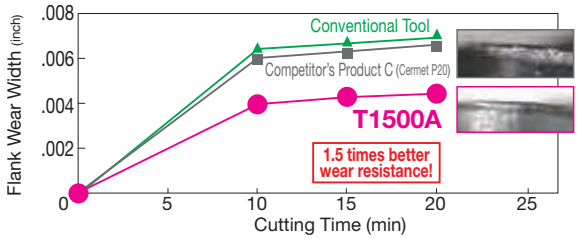
• Fracture Resistance



Part Material: 4135 Insert: CNMG432ESU
Cutting Conditions: v_c=755 SFM, f=0.008 IPR, a_p=.040", Wet

T1500A

• Wear Resistance



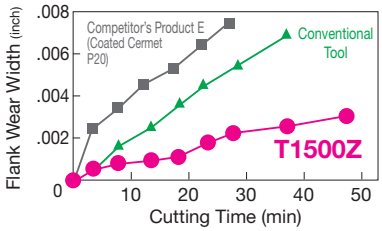
Part Material: 4135 Insert: CNMG432ESU
Cutting Conditions: v_c=755 SFM, f=0.008 IPR, a_p=.040", Wet

• Machined Surface Quality

Part Material: 1045 Insert: DNMG431ELU
Cutting Conditions: v_c=490 SFM, f=0.005 IPR, a_p=0.004", Wet

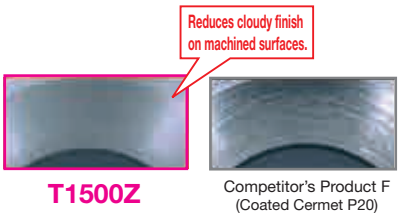
T1500Z

• Wear Resistance



Part Material: 4135 Insert: CNMG432ESU
Cutting Conditions: v_c=755 SFM, f=0.008 IPR, a_p=.040", Wet

• Machined Surface Quality



Part Material: 8620H Insert: DNMG432ESU
Cutting Conditions: v_c=490 SFM, f=0.008 IPR, a_p=.040", Wet

Part Material: STKM13A Insert: CNMG432ESU
Cutting Conditions: v_c=330 SFM, f=0.006 IPR, a_p=.040", Wet

Recommended Cutting Conditions

Part Material	Cutting Process	Chipbreaker	Grade	Cutting Conditions Min. - Max.		
				Depth of Cut a_p (inch)	Feed Rate f (IPR)	Cutting Speed v_c (SFM)
Mild Steel	Fine Finishing	EFB / EFL	T1500Z	.008 - .040	.002 - .010	490 - 1500
(SS400 and others)	Finishing	EFE / ELU	T3000Z	.012 - .070	.003 - .015	490 - 1500
Carbon Steel	Fine Finishing	EFB / EFA	T1500A	.008 - .040	.002 - .010	330 - 1200
Alloy Steel	Finishing	EFE / ESU	T1500A	.020 - .080	.003 - .015	330 - 1200
(S45C, SCM435, and others)	Medium	EGU	T1500Z	.030 - .160	.006 - .020	330 - 1200
Hard Steel	Fine Finishing	EFB / EFA	T1000A	.008 - .040	.002 - .010	165 - 1000
Alloy Steel	Finishing	EFE / ESU	T1500Z	.020 - .080	.003 - .015	165 - 1000
(SCM440H and others)	Medium	EGU	T1500Z	.030 - .160	.006 - .020	165 - 1000

Grades

ABSOTECH AC8015P / ABSOTECH AC8020P / ABSOTECH AC8025P / ABSOTECH AC8035P / ABSOTECH AC1030U

Covers a wide range of machining applications from high-speed to interrupted cutting and small lathes

AC8015P : Development of crater damage is suppressed by controlling the orientation of the alumina crystal grains. Achieves long, stable tool life during high-speed and high feed cutting.

AC8020P: Alumina coating with even higher strength balances outstanding stability and wear resistance in turning mill-scale on forged material. Gold-colored coating makes used corners easily identifiable.

AC8025P : Our 1st recommended grade for turning steel. Surface smoothing technology significantly suppresses adhesion of work material components. Achieves long, stable tool life with various cutting speeds and work materials.

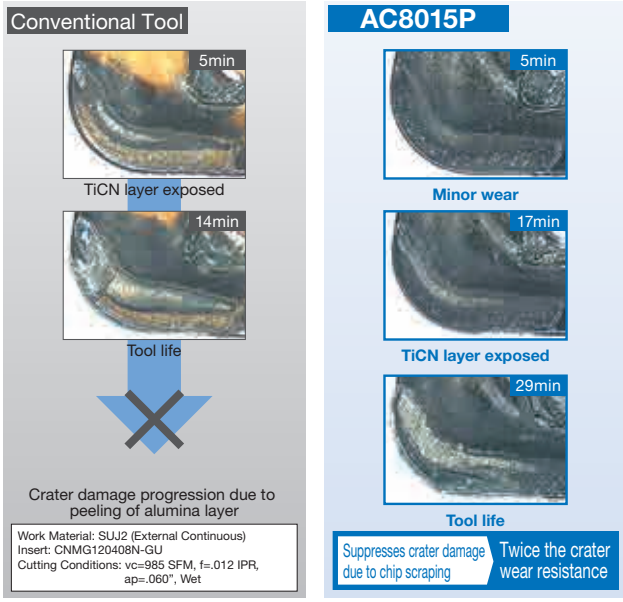
AC8035P : Tensile stress removal of the coating layer greatly improves fracture resistance. Achieves long, stable tool life during heavy interrupted cutting.

AC1030U : Employs a new PVD coating, and a dedicated tough carbide substrate. High-quality cutting edge grade suppresses adhesion and micro-chipping, realizing excellent machined surface quality.

Performance

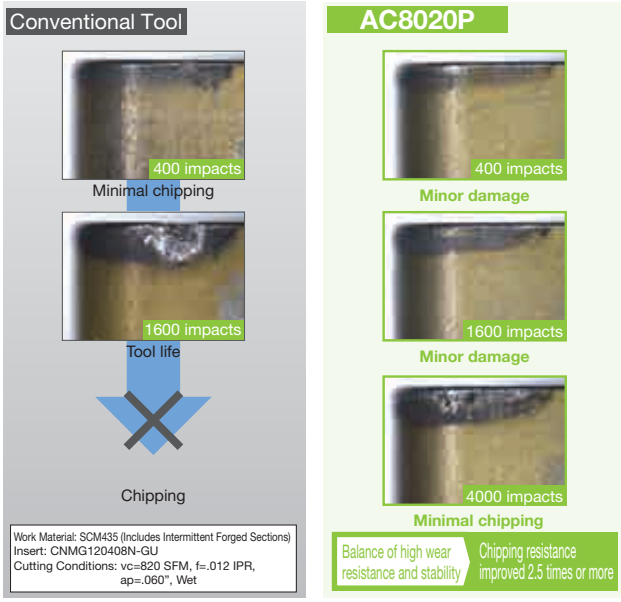
AC8015P

● Alumina crystal grain orientation control technology suppresses crater damage due to chip abrasion



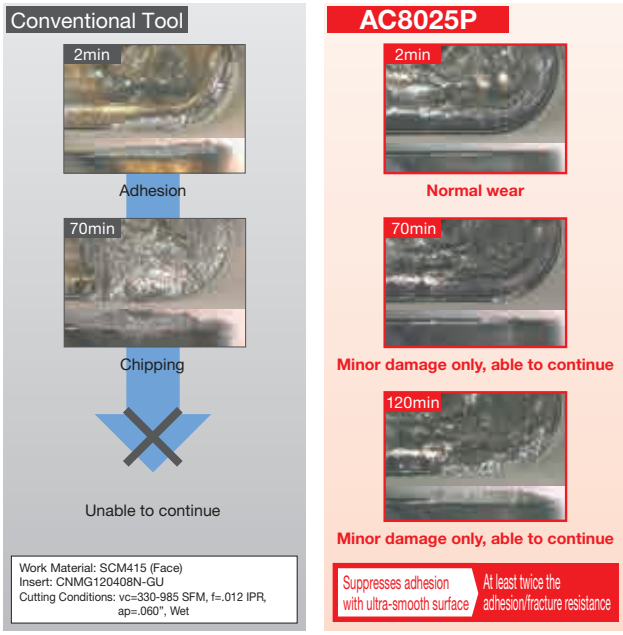
AC8020P

● Alumina coating with even higher strength suppresses chipping



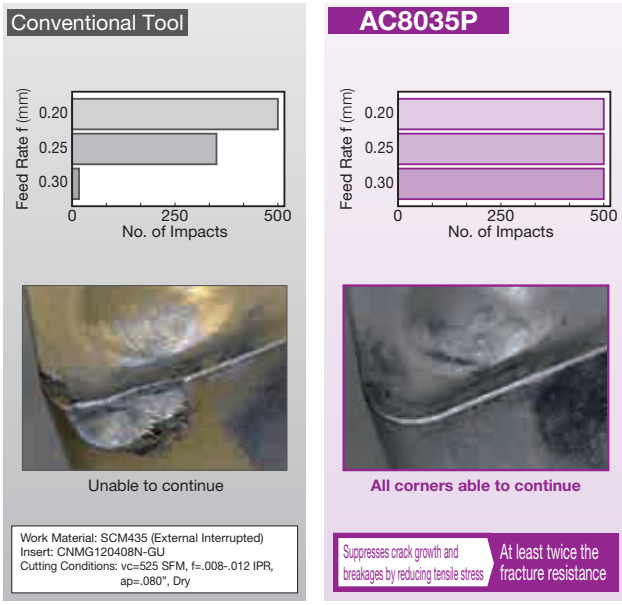
AC8025P

● Surface smoothing treatment significantly suppresses adhesion and chipping



AC8035P

● Special surface treatment reduces tensile stress in the coating layer, significantly suppressing breakages



Application Guide

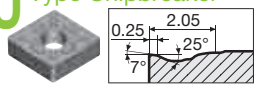
*Chipbreaker dimensions in mm

1st Recommended Grade

AC8025P

+

EGU Type Chipbreaker



	Chipbreakers for High-efficiency Machining		Main Chipbreakers	Strong Cutting Edge Chipbreakers
Finishing to Shallow Depth of Cut	EFE Type (1.40, 0.70, 20°)	ESE Type (0.1, 1.5, 17°, 5°)	ESU Type (1.3, 13°)	ESX Type (0.2, 1.35, 15°, 3°)
General-purpose	EGE Type (2.0, 0.25, 23°, 3°)		EGU Type (0.25, 2.05, 25°, 7°) 1st Recommended	EUX Type (0.25, 2.0, 15°)
Roughing to Large Depth of Cut	EME Type (0.3, 2.4, 4°)		EMU Type (0.3, 2.5, 20°, 4°)	EMX Type (0.2, 2.3, 0.4, 20°, 15)

Better Wear Resistance

High-speed Machining **AC8015P**

To improve tool life	EFE Type (1.40, 0.70, 20°)
To improve machining efficiency	ESE Type (0.1, 1.5, 17°, 5°)

Better Toughness

Interrupted Machining **AC8035P**

To improve tool life	EGU Type (0.25, 2.05, 25°, 7°)
To improve machining stability	EUX Type (0.25, 2.0, 15°)

Better Performance

High Efficiency **AC8020P**

To increase feed rate	EGE Type (2.0, 0.25, 23°, 3°)	To increase cutting speed	EGU Type (0.25, 2.05, 25°, 7°)

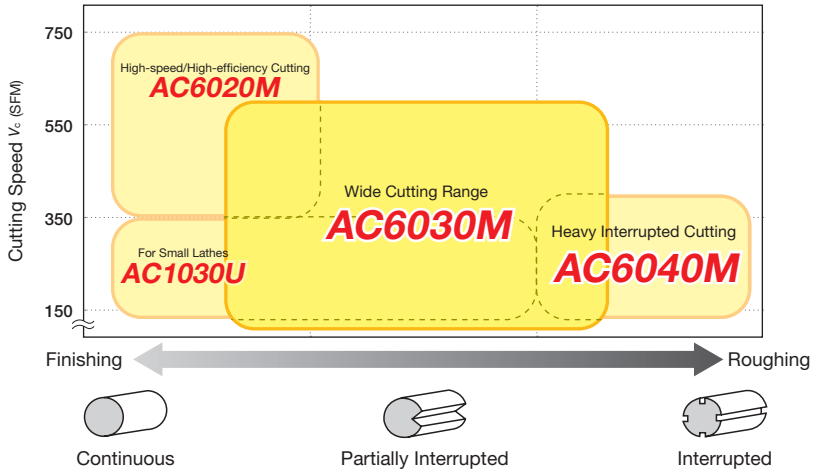
Dimensions in mm

P Steel Recommended Cutting Conditions

(Red text indicates 1st recommendation)

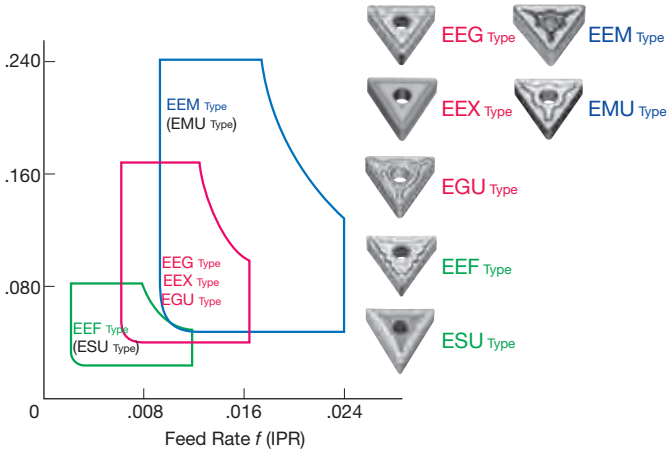
Workpiece Material	Cutting Process	Chipbreaker	Grade	Cutting Conditions Min. - Max. Depth of Cut a_p (inch)	Feed Rate f (IPR)	Cutting Speed v_c (SFM)
Mild Steel (SS400 and others)	Fine Finishing	EFB	**T1500Z**	.008 - .040	.002 - .010	330 - 1500
	Finishing	EFE	**AC8015P**	.020 - .060	.004 - .016	850 - 1600
	Medium	**EGU**	**AC8025P**	.040 - .160	.008 - .020	650 - 1200
	Rough	EMU	**AC8035P**	.060 - .240	.012 - .024	450 - 800
Carbon Steel Alloy Steel (S45C, SCM435, and others)	Fine Finishing	EFB	**T1500Z**	.008 - .040	.002 - .010	330 - 1100
	Finishing	EFE	**AC8015P**	.020 - .060	.004 - .016	700 - 1400
	Medium	**EGU**	**AC8020P**	.040 - .160	.008 - .020	500 - 850
	Rough	EMU	**AC8035P**	.060 - .240	.012 - .024	350 - 600
Hard Steel Alloy Steel (SCM440H and others)	Fine Finishing	EFB	**T1500Z**	.008 - .040	.002 - .010	160 - 900
	Finishing	EFE	**AC8015P**	.020 - .060	.004 - .016	550 - 1100
	Medium	**EGU**	**AC8020P**	.040 - .160	.008 - .020	400 - 750
	Rough	EMU	**AC8035P**	.060 - .240	.012 - .024	300 - 550

Grades

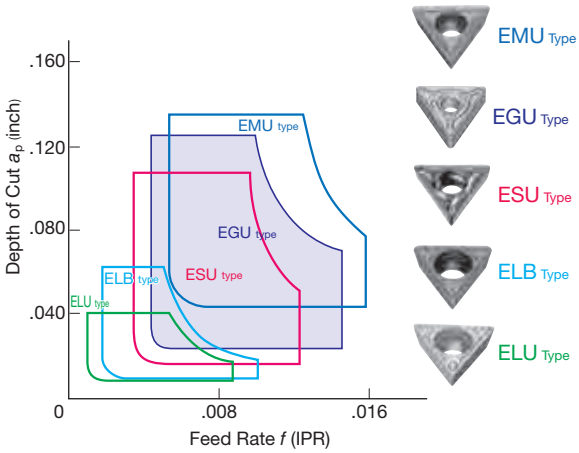


Chipbreakers

Negative Type



Positive Type



Refer to the Tools for Small Lathes chapter D7 for the Chipbreaker Selection Guide for ground (G Class) inserts.

Recommended Cutting Conditions

(Red text indicates 1st recommendation)

Workpiece Material			Cutting Process	Chipbreaker	Grade	Cutting Conditions Min. - Max.		
						Depth of Cut a_p (inch)	Feed Rate f (IPR)	Cutting Speed V_c (SFM)
Cr-based	Ferritic	SUS405, SUS410L, SUS430, SUS430F, SUS434, SUS447FJ1	Finishing	EEF(ESU)	**AC6020M**	.020 - .080	.002 - .010	550 - 1000
			Medium	EEG/EGU/EEX	**AC6030M**	.040 - .160	.004 - .015	450 - 900
			Rough	EEM	**AC6040M**	.060 - .240	.008 - .025	450 - 450
	Martensitic	SUS403, SUS410, SUS420J2,SUS420F, SUS440F	Finishing	EEF(ESU)	**AC6020M**	.020 - .080	.002 - .010	400 - 900
			Medium	EEG/EGU/EEX	**AC6030M**	.040 - .160	.004 - .015	300 - 750
			Rough	EEM	**AC6040M**	.060 - .240	.008 - .025	250 - 650
Cr/Ni-based	Austenitic	SSU304, SUS304L, SUS316, SUS316L, SUS303, SUS321	Finishing	EEF(ESU)	**AC6020M**	.020 - .080	.002 - .010	400 - 900
			Medium	EEG/EGU/EEX	**AC6030M**	.040 - .160	.004 - .015	300 - 750
			Rough	EEM	**AC6040M**	.060 - .240	.008 - .025	250 - 650
	Duplex (Austenitic/ Ferritic)	SUS329J1, SUS329J3L, SSU329J4L	Finishing	EEF(ESU)	**AC6020M**	.020 - .080	.002 - .010	300 - 650
			Medium	EEG/EGU/EEX	**AC6030M**	.040 - .160	.004 - .015	250 - 600
			Rough	EEM	**AC6040M**	.060 - .240	.008 - .025	225 - 525
	Deposition Hardened Structures	SUS630, SUS631, SUS632J1	Finishing	EEF(ESU)	**AC6020M**	.020 - .080	.002 - .010	300 - 525
			Medium	EEG/EGU/EEX	**AC6030M**	.040 - .160	.004 - .015	225 - 500
			Rough	EEM	**AC6040M**	.060 - .240	.008 - .025	150 - 400

Grades

ABSOTECH AC6020M / ABSOTECH AC6030M / ABSOTECH AC6040M / ABSOTECH AC1030U

AC6020M : Combines a high-hardness carbide substrate with excellent wear resistance and a new CVD coating with improved coating strength to achieve both excellent wear resistance and fracture resistance. Achieves long, stable tool life during high-speed cutting.

AC6030M : Our 1st recommended grade for turning of stainless steel, achieving long and stable machining. Drastically reduces the abnormal damage common in stainless steel machining, thanks to the improved coating strength and excellent adhesion.

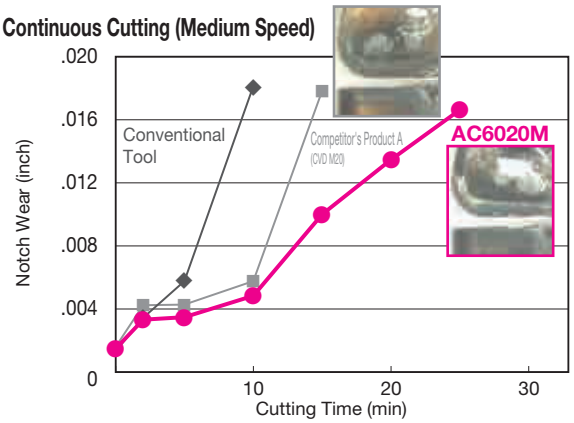
AC6040M : Drastically improves reliability in the unstable cutting range, thanks to the excellent adhesion and peel-off resistance of the new PVD coating as well as the improved fracture resistance of the dedicated carbide substrate.

AC1030U : High-quality cutting edge grade suppresses adhesion and micro-chipping, realizing excellent machined surface quality.

Performance

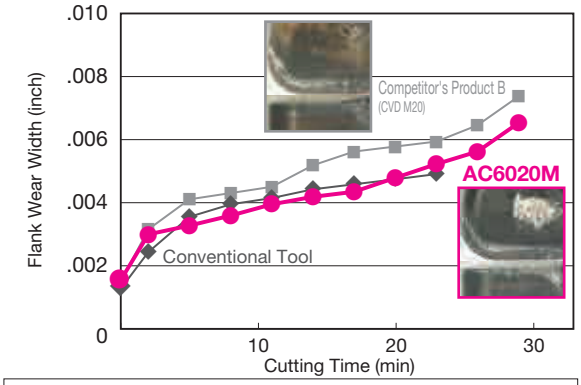
AC6020M

• Continuous Cutting (Medium Speed)



Workpiece Material: 316L Insert: CNMG432EGU
Cutting Conditions: v_c=490 SFM, f=0.012 IPR, a_p=.080", Wet

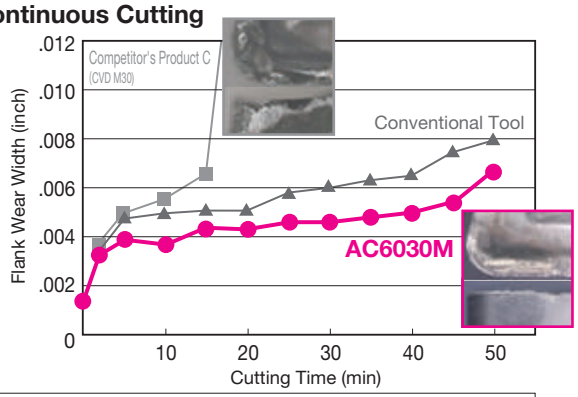
• Continuous Cutting (High Speed)



Workpiece Material: 316L Insert: CNMG432EGU
Cutting Conditions: v_c=656 SFM, f=0.012 IPR, a_p=.080", Wet

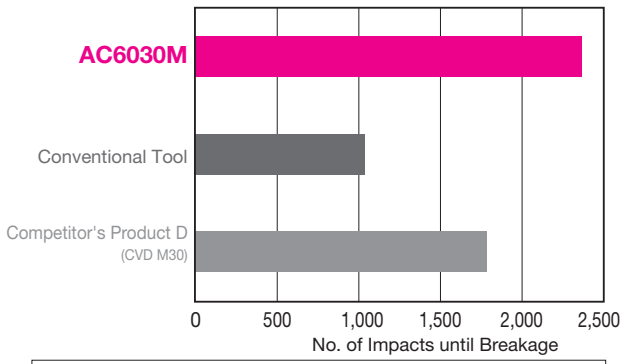
AC6030M

• Continuous Cutting



Workpiece Material: 316 Insert: CNMG432EEX
Cutting Conditions: v_c=656 SFM, f=0.008 IPR, a_p=.080", Wet

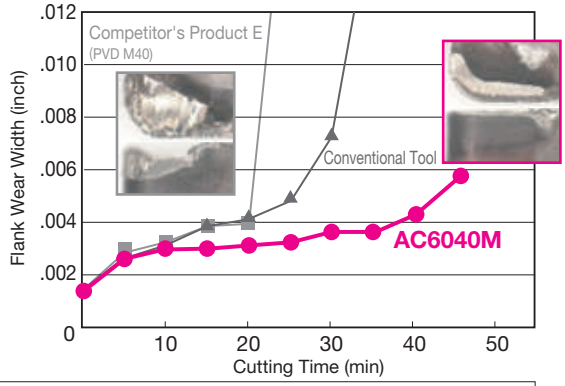
• Interrupted Cutting



Workpiece Material: 316 Insert: CNMG432EGU
Cutting Conditions: v_c=330 SFM, f=.004 IPR, a_p=0.04", Wet

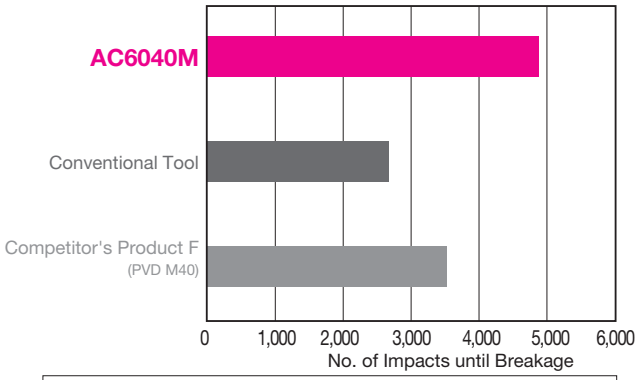
AC6040M

• Continuous Cutting



Workpiece Material: 316 Insert: CNMG432EGU
Cutting Conditions: v_c=490 SFM, f=.008 IPR, a_p=.080", Wet

• Interrupted Cutting



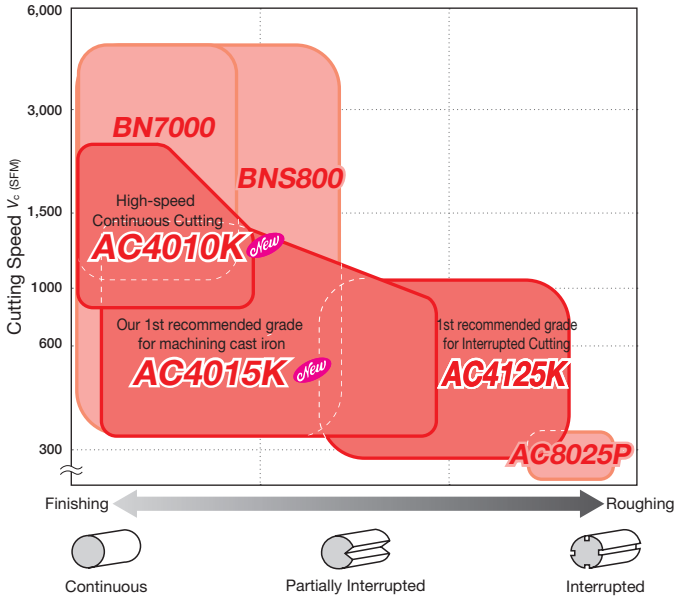
Workpiece Material: 316 Insert: CNMG432EGU
Cutting Conditions: v_c=755 SFM, f=.009 IPR, a_p=.030", Dry

Cast Iron

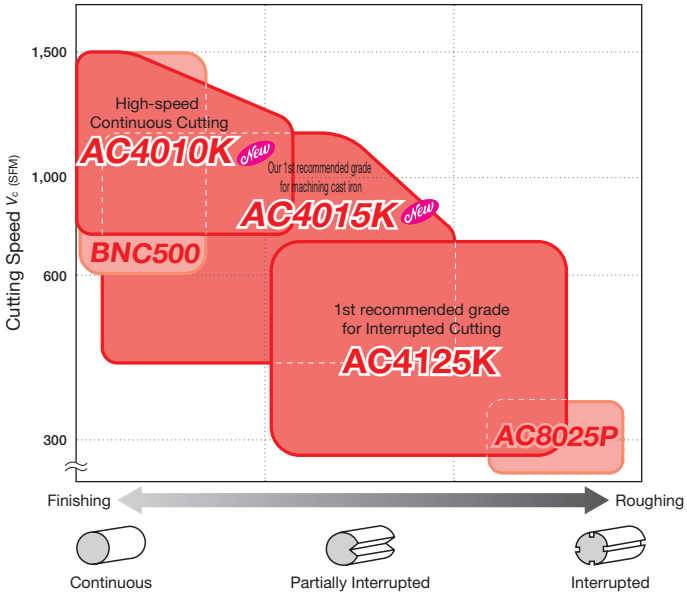
Grades

CBN Coated SUMIBORON BNC500 / SUMIBORON BN7000 / Solid SUMIBORON BNS800 ··· L7

• FC (Gray Cast Iron)

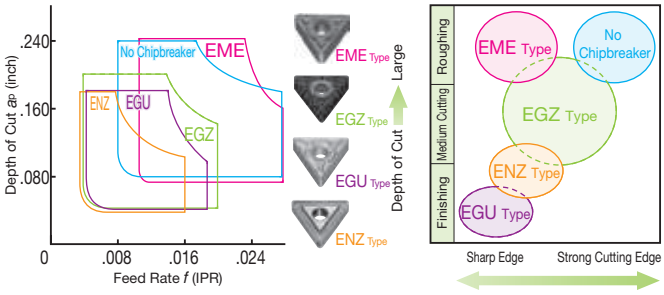


• FCD (Ductile Cast Iron)

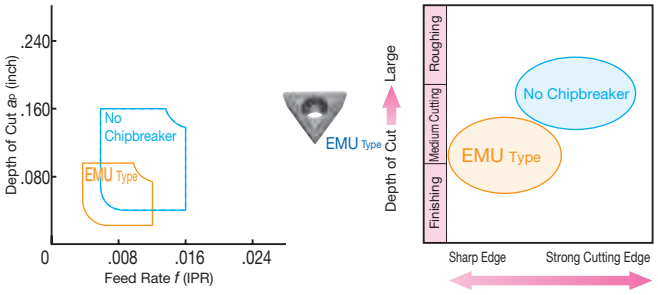


Chipbreakers

Negative Type



Positive Type



K Cast Iron Recommended Cutting Conditions

(Red text indicates 1st recommendation)

Work Material	Application	Grade	Cutting Conditions Min. - Max.		
			Depth of Cut ap (inch)	Feed Rate f (IPR)	Cutting Speed (vc) (SFM)
Gray Cast Iron (example: FC250)	Continuous to General	AC4010K	.020 - .236	.004 - .016	655 - 2300
	Interrupted	AC4015K	.020 - .236	.004 - .020	590 - 1475
	Heavy Interrupted	AC4125K	.020 - .236	.004 - .024	490 - 985
Ductile Cast Iron (example: 60-40-18)	Continuous	AC4010K	.020 - .236	.004 - .016	590 - 1475
	General to Interrupted	AC4015K	.020 - .236	.004 - .020	525 - 1310
	Heavy Interrupted	AC4125K	.020 - .236	.004 - .024	395 - 820
High-strength Ductile Cast Iron (example: 100-70-03)	Continuous	AC4010K	.020 - .236	.004 - .016	525 - 1310
	General to Interrupted	AC4015K	.020 - .236	.004 - .020	460 - 1150
	Heavy Interrupted	AC4125K	.020 - .236	.004 - .024	260 - 720

Grades

ABSOTECH AC4010K / ABSOTECH AC4015K / ABSOTECH AC4125K / AC420K

AC4010K : Our 1st recommended grade for machining gray cast iron.
Adopts an ultra-thick new CVD coating to realise ultra-high-speed machining at V_C = 2,300 SFM.

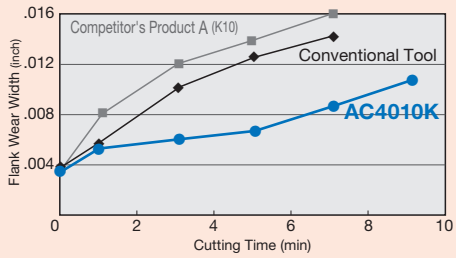
AC4015K : Our 1st recommended grade for ductile cast iron.
New high-adhesion, high-strength CVD coating realises both wear resistance and chipping resistance.

AC420K : Superior fracture resistance, providing excellent stability in interrupted unstable cutting and when cutting mill-scaled work.

Performance

AC4010K/AC4015K Wear Resistance

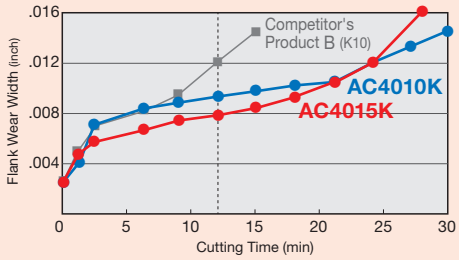
• Gray Cast Iron

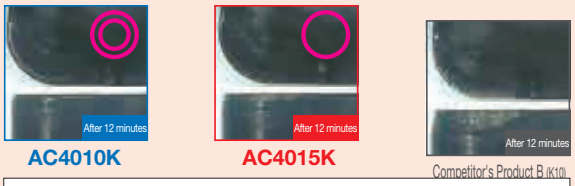


AC4010K | Conventional Tool | Competitor's Product A (K10)

Workpiece Material: FC250 Continuous Insert: CNMG432EGZ
Cutting Conditions: v_c=1,970 SFM, f=0.016 IPR, a_p=.080", Dry

• Ductile Cast Iron



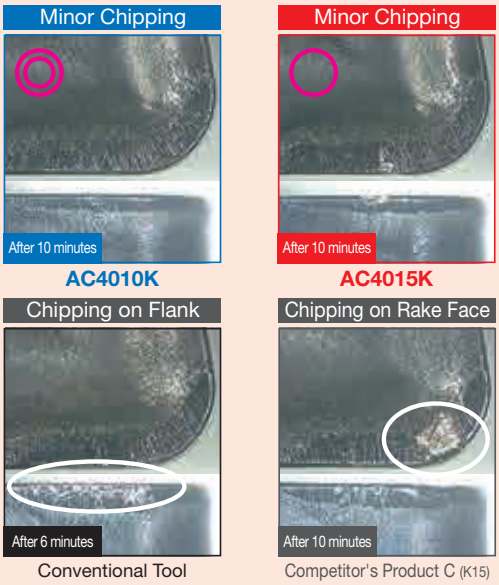


AC4010K | AC4015K | Competitor's Product B (K10)

Workpiece Material: FCD700 Continuous Insert: CNMG432EGZ
Cutting Conditions: v_c=460 SFM, f=0.012 IPR, a_p=.060", Wet

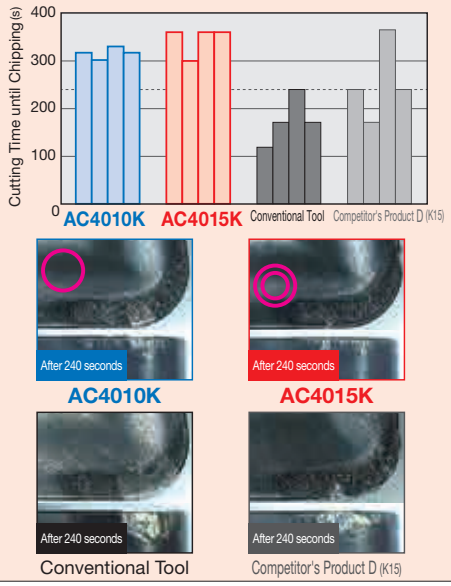
AC4010K/AC4015K Chipping Resistance

• Gray Cast Iron



Workpiece Material: FC250 Interrupted Insert: CNMG432EGZ
Cutting Conditions: v_c=1,300 SFM, f=0.012 IPR, a_p=.080", Wet

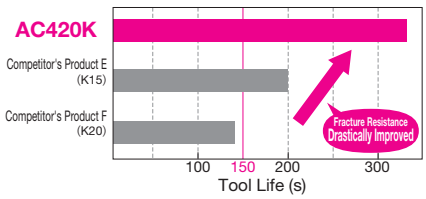
• Ductile Cast Iron



Workpiece Material: FCD450 Interrupted Insert: CNMG432EGZ
Cutting Conditions: v_c=1,475 SFM, f=0.012 IPR, a_p=.060", Wet

AC420K Fracture Resistance

FCD450 Grooved (Heavy Interrupted Acceleration Test)

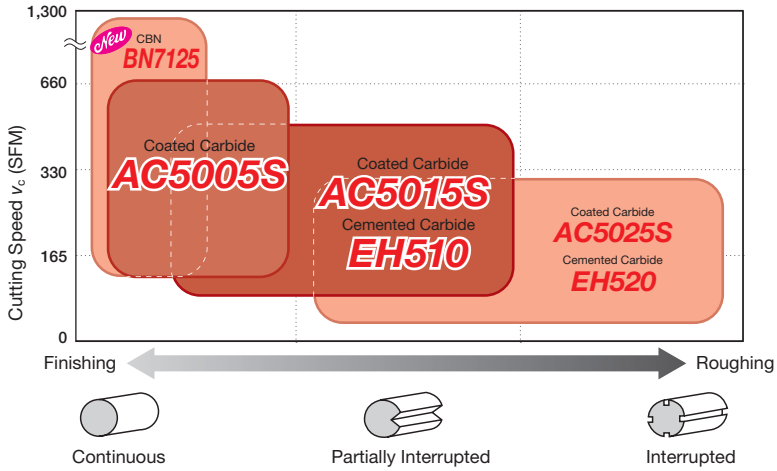


Cutting Edge Wear Comparison (After 150s)

AC420K | Competitor's Product E (K15) | Competitor's Product F (K20)

Workpiece Material: FCD450 Interrupted Insert: CNMG432EGZ
Cutting Conditions: v_c=1,150 SFM, f=0.010 IPR, a_p=060", Wet

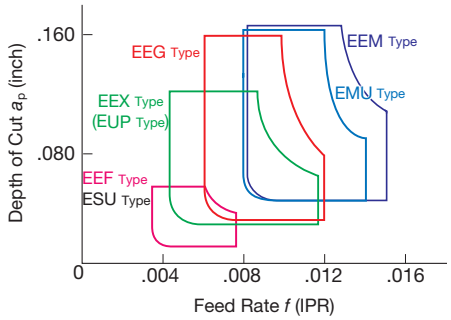
Grades



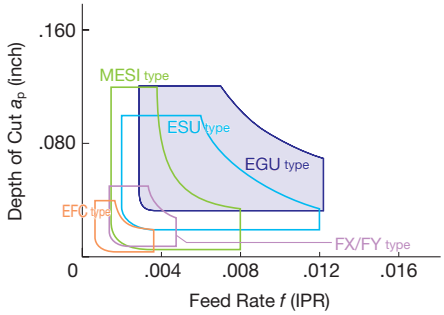
CBN SUMIBORON BN7000 ··· L10

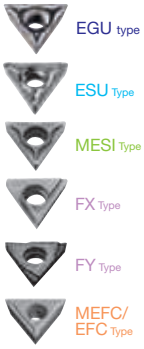
Chipbreakers

Negative Type



Positive Type





S Exotic Alloy Recommended Cutting Conditions

(Red text indicates 1st recommendation)

Work Material	Cutting Process	Chipbreaker	Grade	Cutting Conditions Min. - Max.		
				Depth of Cut a_p (inch)	Feed Rate f (IPR)	Cutting Speed v_c (SFM)
Heat-Resistant Alloy (Ni-based Material, Fe-based Material, Co-based Material)	Finishing	EEF	AC5005S, AC5015S, AC5025S	.008 - .060	.004 - .008	165 - 400
	Light	EEX	AC5005S, AC5015S, AC5025S	.020 - .120	.004 - .012	130 - 350
	Medium	EEG	AC5005S, AC5015S, AC5025S	.020 - .160	.006 - .012	130 - 350
	Rough	EMU/EEM	AC5015S, AC5025S	.040 - .160	.008 - .016	100 - 300
Titanium Alloy (Pure Titanium (99.5%), $\alpha+\beta$ Alloy)	Finishing	EEF(ESU)	EH510 (AC5005S, AC5015S)	.008 - .060	.004 - .008	165 - 300
	Light	EEX	AC5005S, AC5015S	.020 - .100	.004 - .010	130 - 250
	Medium	EEG	EH510 (AC5005S, AC5015S)	.020 - .140	.006 - .012	130 - 250
	Rough	EMU/EEM	AC5025S	.040 - .140	.008 - .012	100 - 165

Grades

ABSOTECH AC5005S / ABSOTECH AC5015S / ABSOTECH AC5025S / EH510 / EH520

- New PVD coated grade with excellent wear and thermal resistance

AC5005S: High-speed, high-efficiency grade with excellent high-thermal strength and outstanding wear resistance in high-efficiency turning.

AC5015S : Our 1st recommended grade for turning exotic alloys as it realizes stable tool life with high-speed, high-efficiency machining.

AC5025S : High-toughness grade for realizing stable tool life for interrupted cutting machining or mill-scaled work.

- Dedicated carbide grades with excellent thermal, wear and fracture resistance for machining titanium alloys

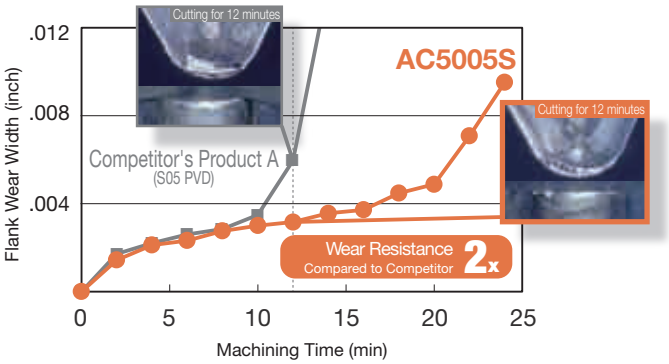
EH510 : General-purpose grade for titanium machining that features excellent wear and thermal resistance. For applications from roughing to finishing.

EH520 : Tough grade for titanium machining with excellent fracture and thermal resistance. Perfect for interrupted cutting and mill-scaled work.

Performance

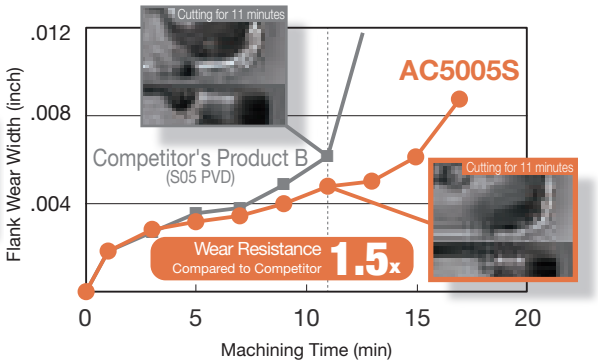
AC5005S

● Wear Resistance (High-speed)



Work Material: Inconel 718 (44HRC) Insert: DNMG150408
Cutting Conditions: vc= 330 SFM, f= .006 IPR, ap= .002", Wet

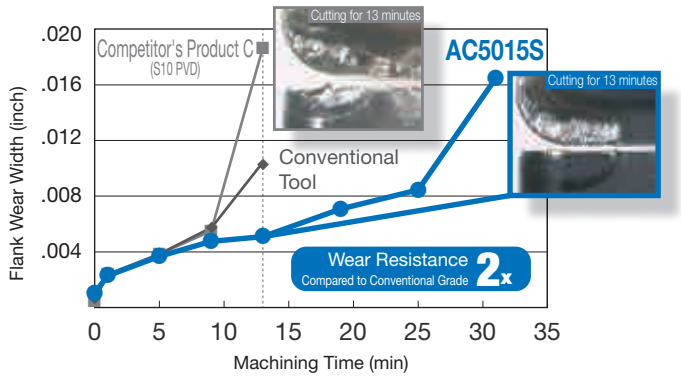
● Wear Resistance (High-feed)



Work Material: Inconel 718 (44HRC) Insert: CNMG120408
Cutting Conditions: vc= 165 SFM, f= .010 IPR, ap= .059", Wet

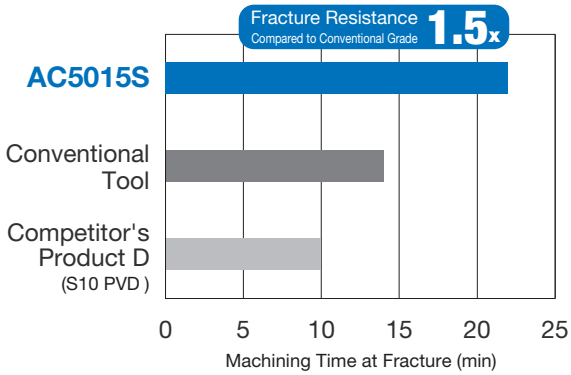
AC5015S

● Wear Resistance



Workpiece Material: Inconel 718 (44HRC)
Insert: CNMG432EEX
Cutting Conditions: v_c=130 SFM, f=0.004 IPR, a_p=.060", Wet

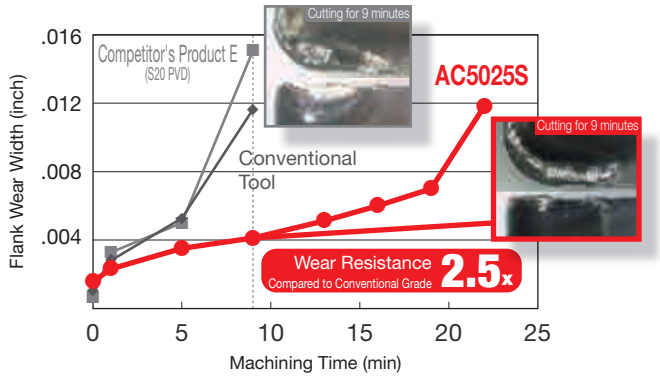
● Fracture Resistance



Workpiece Material: Hastelloy (22HRC)
Insert: CNMG432EEX
Cutting Conditions: v_c=165 SFM, f=0.004 IPR, a_p=.060", Wet

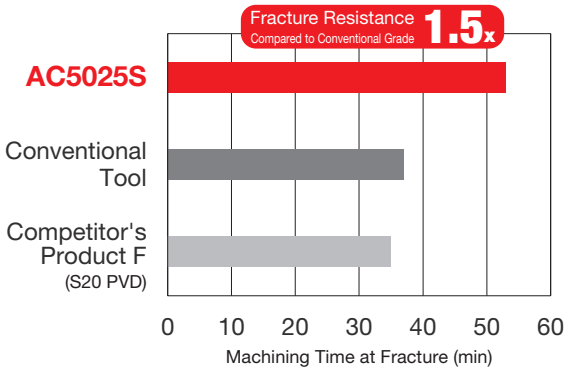
AC5025S

● Fracture Resistance



Workpiece Material: Hastelloy (22HRC)
Insert: CNMG432EEX
Cutting Conditions: v_c=130 SFM, f=0.004 IPR, a_p=.060",Wet

● Wear Resistance

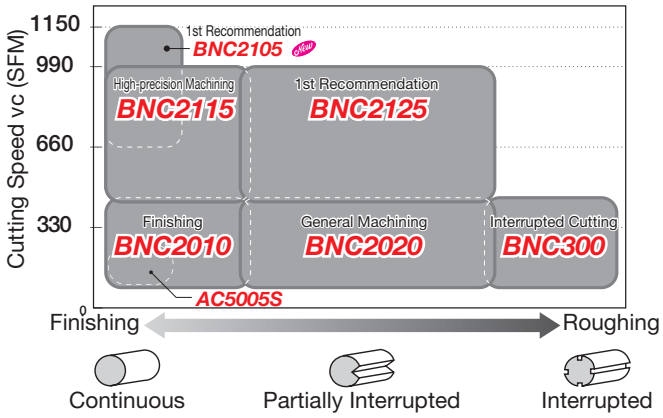


Workpiece Material: Inconel 718 (44HRC)
Insert: CNMG432EEX
Cutting Conditions: v_c=165 SFM, f=0.004 IPR, a_p=.060", Wet

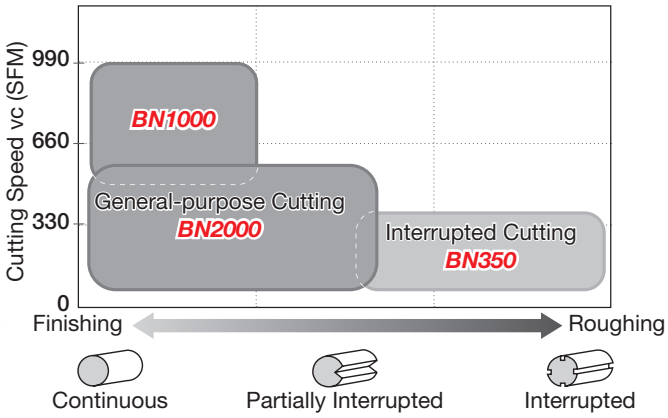
Hardened Steel

Grades

● Coated CBN - SUMIBORON, Coated Carbide



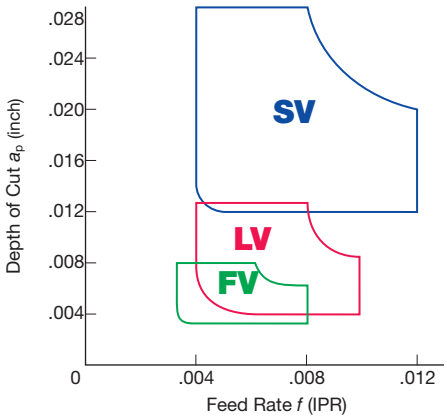
● Uncoated CBN - SUMIBORON

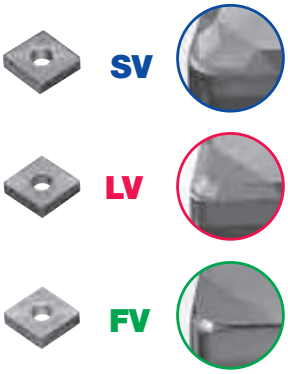


CBN SUMIBORON ••• L2

Chipbreakers

LV / **FV** Chipbreaker : For chip control during finishing of hardened steel
SV Chipbreaker : For chip control during carburised layer removal





CBN CBN - SUMIBORON Break Master ••• L26

Recommended Cutting Conditions

(Red text indicates 1st recommendation)

Cutting Process	Grade	Cutting Conditions (Min. - Max.)		
		Depth of Cut a_p (inch)	Feed Rate f (IPR)	Cutting Speed v_c (SFM)
Continuous Cutting	BNC2105	.001 - .008	.001 - .006	490 - 1150
	BNC2115	.001 - .014	.001 - .010	360 - 1000
	BNC2010	.001 - .014	.001 - .010	160 - 590
	BN1000	.001 - .008	.001 - .006	400 - 1000
	AC5005S	.001 - .040	.001 - .004	130 - 330
General Cutting	BNC2125	.001 - .014	.001 - .008	360 - 1000
	BNC2020	.001 - .020	.001 - .016	160 - 590
	BN2000	.001 - .012	.001 - .008	160 - 660
Interrupted Cutting	BNC300	.001 - .012	.001 - .008	160 - 500
	BN350	.001 - .012	.001 - .008	160 - 500

Grades

New BNC2105 / BNC2115 / BNC2125 / BN1000 / BN2000

BNC2105 / BNC2115 / BNC2125

BNC2105: Grade for high-speed finishing.
Stable performance in high-speed machining of hardened steel, thanks to outstanding wear resistance.

BNC2115: High-precision grade realizing long tool life with excellent surface roughness and stable machining.
Maintains excellent surface roughness thanks to a coating with high notch wear resistance and tough CBN substrate.

BNC2125: 1st recommended grade, balancing excellent wear resistance and fracture resistance in hardened steel machining.
Along with a tough CBN substrate, the coating combines wear resistance and toughness to achieve long, stable tool life even in high-efficiency and interrupted machining.

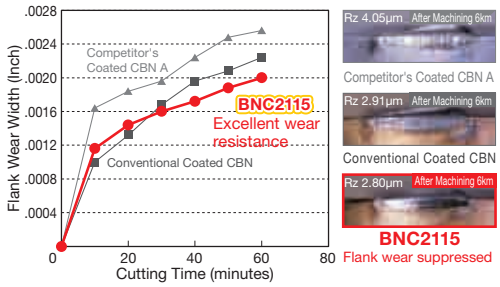
BN1000: For high-speed machining, BN1000 provides the highest wear resistance of all uncoated SUMIBORON grades, improving fracture resistance while maintaining an emphasis on wear resistance.

BN2000: General-purpose grade for general hardened steel machining with a high degree of fracture and wear resistance.

Performance

BNC2115

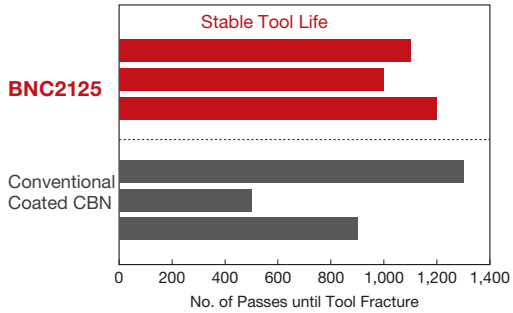
● Wear Resistance (Continuous Cutting)



Work Material: SCM415H (58 to 62HRC)
Tool Cat. No.: 4NC-DNGA150408
Cutting Conditions: vc= 656 SFM, f= .004 IPR, ap= .006", Wet

BNC2125

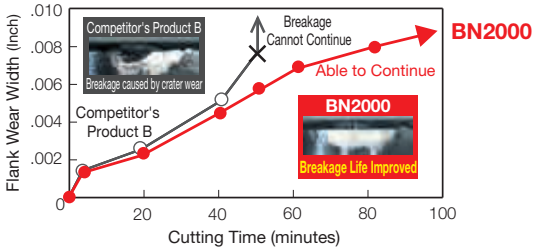
● Fracture Resistance (High-load Cutting)



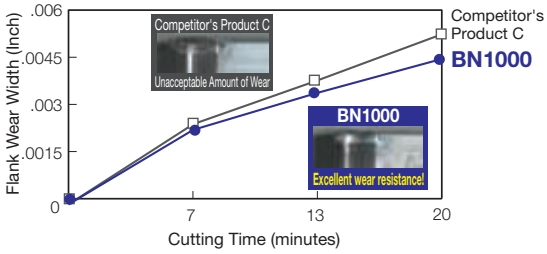
Work Material: SUJ2 (58 to 62HRC)
Tool Cat. No.: 4NC-DNGA150408
Cutting Conditions: vc= 492 SFM, f= .006 IPR, ap= .020", 63m/times Wet

BN1000 / BN2000

● Wear Resistance (Continuous Cutting)

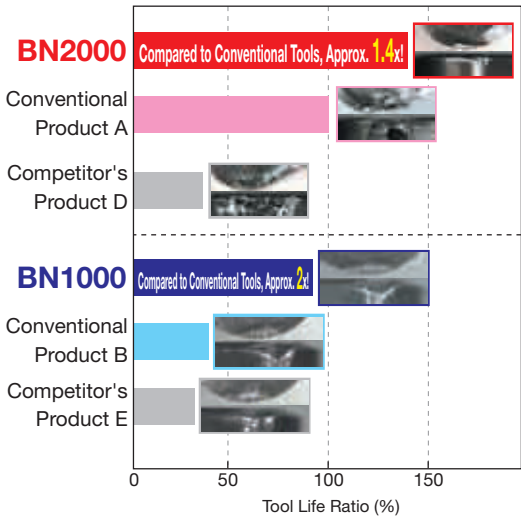


Work Material: SCM415H Round Bar (58 to 62HRC)
Insert: 2NU-CNGA120408
Cutting Conditions: v_c=330 SFM, f=.004 IPR, a_p=0.008", Dry



Part Material: SUJ2 Bearing Steel Round Bar (62HRC)
Insert: 2NU-CNGA120408
Cutting Conditions: v_c=492 SFM, f=.004 IPR, a_p=.008", Dry

● Chipping Resistance (Interrupted Cutting)
(Conventional Tool A as 100%)

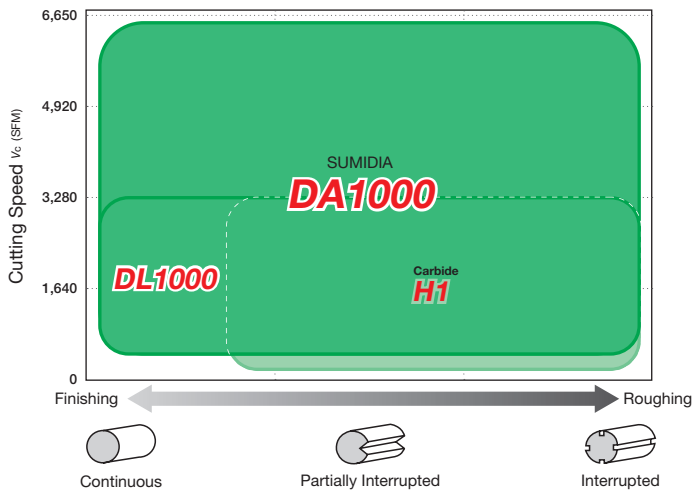


Part Material: SCM415H 8V Grooved (58-62HRC)
Insert: 2NU-CNGA120408
Cutting Conditions: v_c=492 SFM, f=.004 IPR, a_p=.008", Dry

Non-Ferrous Metal

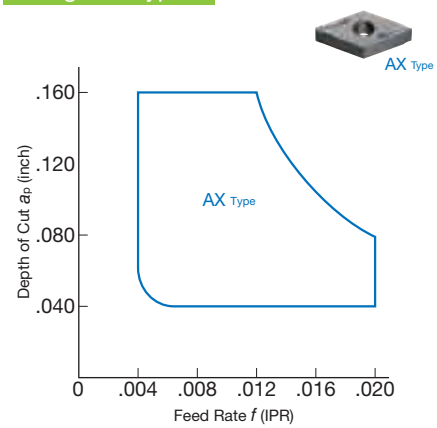
Grades

SUMIDIA DA1000 ··· M6

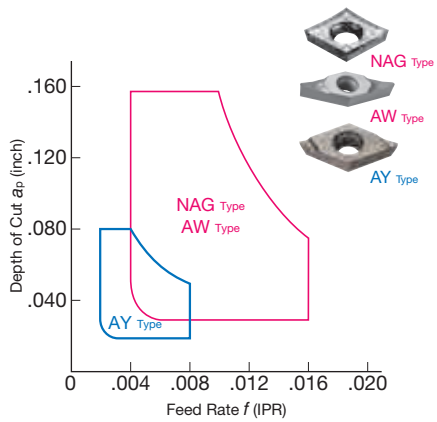


Main Chipbreakers

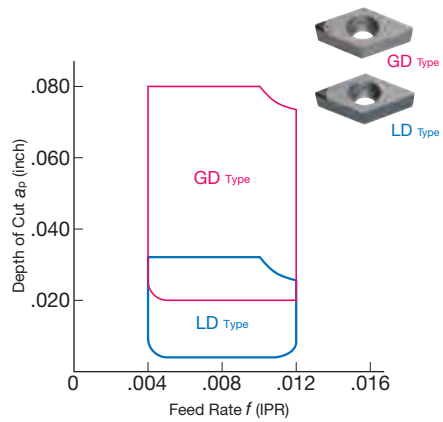
Negative Type



Positive Type



Positive Type (PCD)

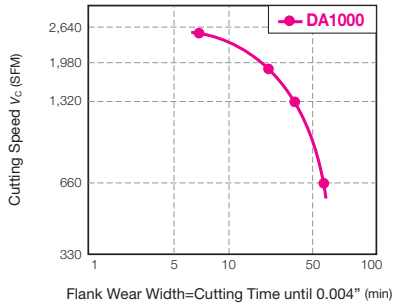


Recommended Cutting Conditions

Cutting Process	Application	Grade	Cutting Conditions (Min. - Max.)		
			Depth of Cut a_p (inch)	Feed Rate f (IPR)	Cutting Speed V_c (SFM)
Continuous Cutting General Cutting Interrupted Cutting	SUMIDIA	**DA1000**	.004 - .120	.002 - .008	up to 6,500
	Carbide	**H1**	.012 - .200	.004 - .020	up to 3,300
	Carbide	**DL1000**	.012 - .200	.004 - .020	up to 3,500

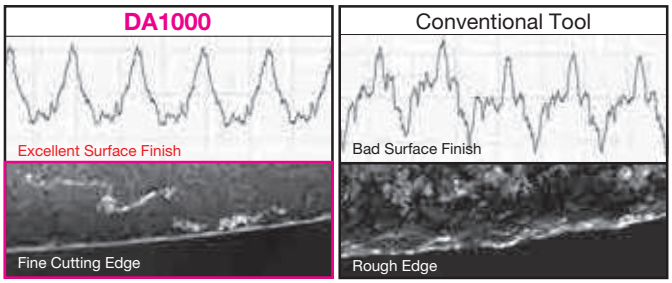
Performance

● Wear Resistance



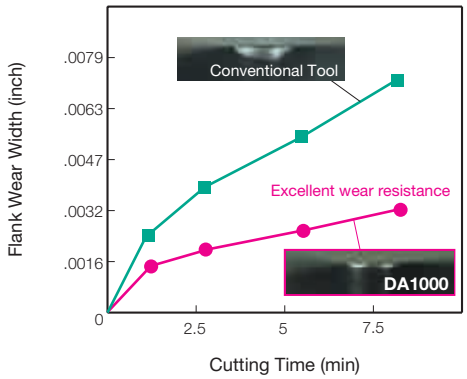
Workpiece Material: 17% Si-Al Alloy
Insert: TPGN321
Cutting Conditions: v_c=656 to 2,624 SFM, f=0.005 IPR, a_p=0.020", Wet

● Cutting Edge Surface Roughness Comparison



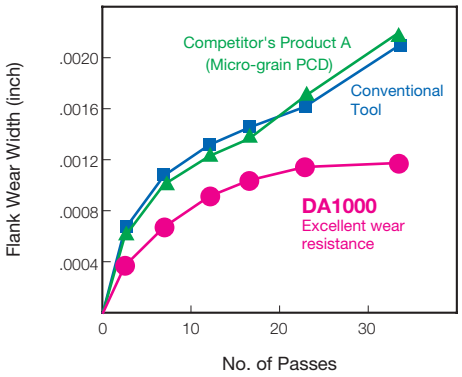
Workpiece Material: 17% Si-Al Alloy
Insert: TPGA321
Cutting Conditions: v_c=3,280 SFM, f=0.006 IPR, a_p=0.008", Wet

● Wear Resistance in Turning Applications



Workpiece Material: 17% Si-Al Alloy
Insert: TPGN321
Cutting Conditions: v_c=2,620 SFM, f=0.005 IPR, a_p=0.020", Wet

● Wear Resistance in Milling Applications



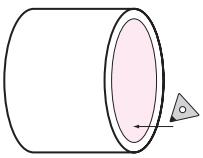
Workpiece Material: ADC12 (12% Si-Al Alloy)
Insert: NF-SNEW1204ADFR
Cutting Conditions: v_c=6,560 SFM, f=0.006 IPR, a_p=.120", Wet

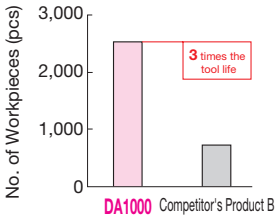
Application Examples

DA1000

[Copper Alloy Bushing]

Stable surface roughness with no cutting edge breakage (3.2S).
Tool life improved to 3 times that of conventional models.



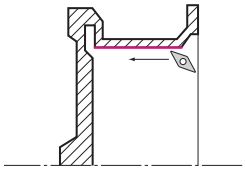


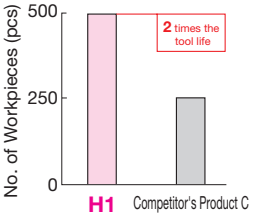
Insert: NF-TPGN322
Cutting Conditions: v_c=984 SFM f=0.0028 IPR, a_p=0.003", Wet

H1

[ADC12 Aluminum Wheel]

Excellent adhesion resistance.
Longer tool life.



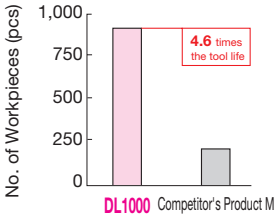


Insert: VCGT332NAG
Cutting Conditions: v_c=7,216 SFM, f=0.010 IPR, a_p=.080", Wet

DL1000

[7075 Aluminum Bearing Housing]

Cutting distance increased 4.6x vs Competitor M



Insert: DCGT32.51-NAG
Cutting Conditions: v_c=1500 SFM f=0.006 IPR, a_p=0.100", Wet

For Small Lathes

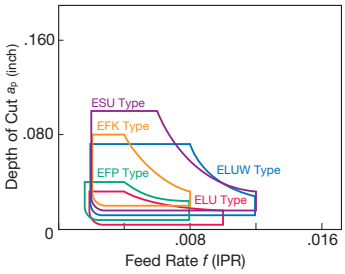
Grades

Insert Grade	Application Range: High-precision	Finishing to Light Cutting	Medium Cutting	Work Material: P General Steel	M Stainless Steel	K Cast Iron	S Heat-Resistant Alloy	H Hardened Steel	N Non-Ferrous Metal
Coated Carbide (PVD)	ACZ150			◎	◎				○
	New AC5015S			○	◎	○	◎		
	New AC5025S			○	◎	○	◎		
	AC530U			◎	◎	○	○		○
	AC1030U			◎	◎	○	○		○
Uncoated Cermet Coated Cermet	T1000A			◎	○	◎			
	T1500A/T1500Z			◎	○	○			
Carbide	BL130			○	○	○			○
		H1/DL1000		○	○	○			◎
		EH510		○	○	○	◎		○
CBN (SUMIBORON)		BN1000/BN2000						◎	
		New BN7125				◎	○		
PCD (SUMIDIA)	DA1000								◎

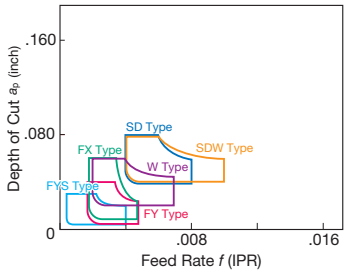
◎ 1st Recommendation ○ 2nd Recommendation

Chipbreakers

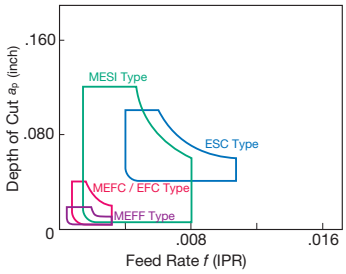
• M Class Finishing to Light Cutting



• G Class Ground Type



• M Class Molded Type



Recommended Cutting Conditions

(Red text: 1st recommendation, blue text: 2nd recommendation)

Tool Grade \ Material	P Free-Cutting Steel		P Carbon Steel		M Stainless Steel		S Heat-Resistant Alloy		H Hardened Steel		N Aluminum Alloy		N Brass	
	v_C (SFM)	f (IPR)	v_C (SFM)	f (IPR)	v_C (SFM)	f (IPR)	v_C (SFM)	f (IPR)	v_C (SFM)	f (IPR)	v_C (SFM)	f (IPR)	v_C (SFM)	f (IPR)
ACZ150	165 to 650	.001 to .004	165 to 500	.0005 to .003	165 to 500	.0005 to .002					230 to 1000	.002 to .008	230 to 1000	.002 to .008
AC5015S	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 650	.001 to .004	100 to 350	.001 to .004					230 to 1000	.002 to .008
AC5025S	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 650	.001 to .004	100 to 350	.001 to .004					230 to 1000	.002 to .008
AC530U	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 650	.001 to .004							230 to 1000	.002 to .008
AC1030U	165 to 500	.001 to .006	165 to 500	.001 to .004	165 to 500	.001 to .004							230 to 1000	.002 to .008
T1000A	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 500	.001 to .004								
T1500A	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 500	.001 to .004								
T1500Z	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 500	.001 to .004								
BN1000									400 to 1000	.001 to .006				
BN2000									165 to 650	.001 to .008				
BN7125							165 to 650	.001 to .004						
DA1000											230 to 1,000	.001 to .004	230 to 1,000	.001 to .004

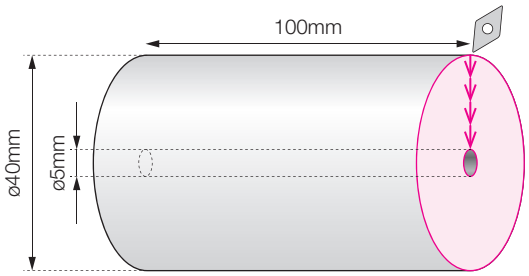
Grade

ABSOTECH
AC1030U

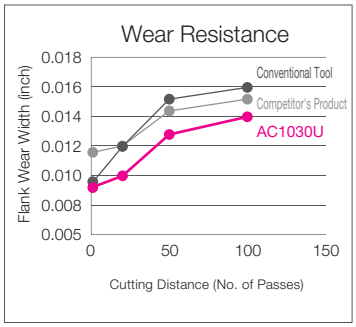
Employs a new PVD coating, and a dedicated tough carbide substrate.
High-quality cutting edge grade suppresses adhesion and micro-chipping, realizing excellent machined surface quality.

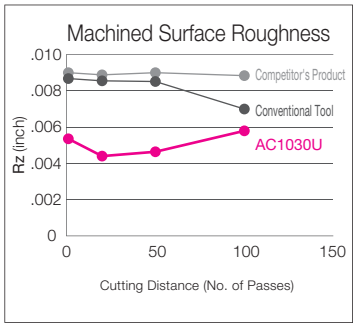
Performance

AC1030U



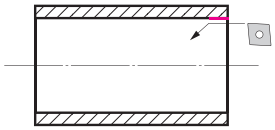
Workpiece Material: SUS304 Insert: DCGT32.50.5RFY
Cutting Conditions: v_c=330 SFM, f=0.002 IPR, a_p=0.004", Wet (Oil-based)

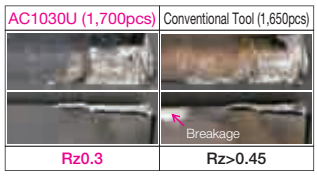




Application Examples

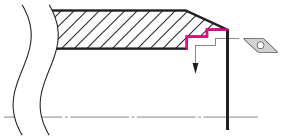
[STKM12C-EC Pipe]

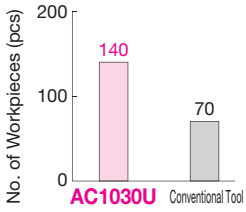




Insert: CCGT21.50LFX
Cutting Conditions: v_c=645 SFM, f=0.0015 IPR, a_p=0.015"

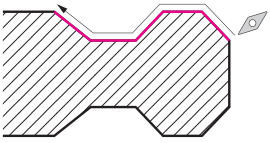
[S45C Shaft Stator]

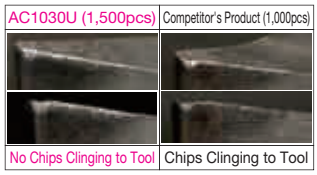




Insert: VCGT220.5RFX
Cutting Conditions: v_c=640 SFM, f=0.0047 IPR, a_p=0.007-0.010" Wet

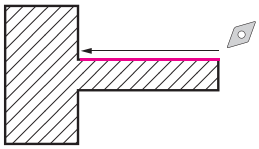
[SUS304 Body Valve]

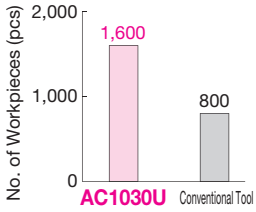




Insert: VCGT220RFY
Cutting Conditions: v_c=105 SFM, f=0.001 IPR, a_p=0.008", Wet

[SUS430 Sensor Housing]





Insert: DCGT32.51MEFC
Cutting Conditions: v_c=165 SFM, f=0.0025 IPR, a_p=0.008"

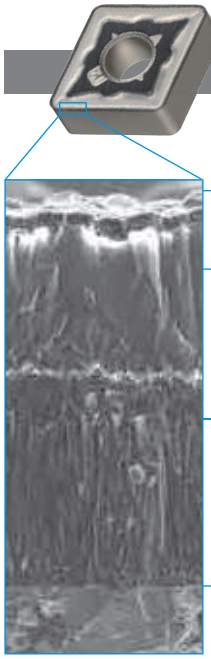
Coated Carbide

Sumitomo's Coating Series combines a proprietary tough cemented carbide substrate with a multi-layered coating for use in high-speed, high-efficiency applications on a wide range of workpiece materials including steel, cast iron and exotic alloys.

Features

ABSOTECH® : New coating technology that realizes absolute stability

CVD



Special Surface Treatment: Chipping resistance and adhesion resistance are significantly improved by special surface treatments applied to suit the application

High Strength Alumina Layer: Significantly improves the coating strength by controlling crystal growth direction

High Hardness Micro-Grain TiCN Layer: Significantly improves the coating hardness by using a fine and uniform crystal structure

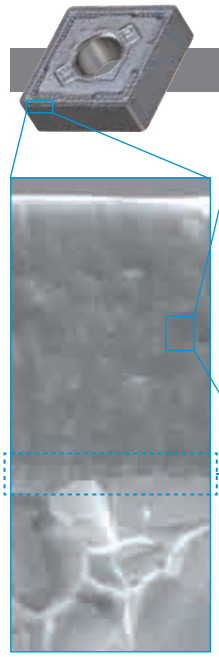
High Adhesion Technology: Significantly improves adhesion strength through a smooth interface between the coating and carbide substrate

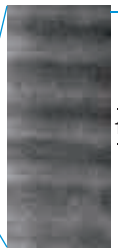
- Suppresses abnormal damage such as chipping and adhesion. Stable machining is achieved in various situations.
- Next-level high strength and high hardness coating is achieved. Achieves long, stable tool life even in high-efficiency machining.

■ Applicable Grades:

(For Steel Turning)	AC8015P, AC8025P, AC8035P
(For Stainless Steel Turning)	AC6020M, AC6030M
(For Cast Iron Turning)	AC4010K, AC4015K
(For Milling)	ACP2000, ACK2000

PVD





Our proprietary super multi-layered coating structure: Advanced nanotechnology enables nanometre-level thickness (1 nanometre is one billionth of a metre) Hardness, thermal resistance and toughness are significantly improved by alternately layering one thousand layers of super thin films

Cross Section of Cutting Edge Coating TEM Structure

High Adhesion Technology: Significantly improves adhesion strength through advanced control technology at the interface of the coating and carbide substrate

- Optimised coating composition according to application. Achieves stable machining regardless of the work material.
- Significantly improves chipping resistance by improving coating adhesion strength. Stable machining is realised even under high load conditions.

■ Applicable Grades:

(For Stainless Steel Turning)	AC6040M
(For Exotic Alloy Turning)	AC5015S, AC5025S
(For Small Lathes)	AC1030U
(For Milling)	ACU2500, ACP3000, ACK3000

Brilliant Coat® PVD

Brilliant Coat provides excellent lubricity for higher quality machining

- PVD coating with excellent wear resistance and lubricity
- Suppresses reactions with work material and realises beautiful machined surfaces

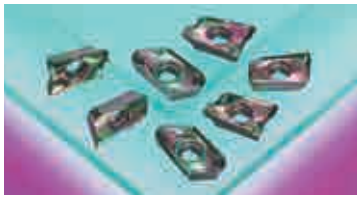
Brilliant Coat — Conventional coating

Workpiece Material: STKM13A
Insert: CNMG432ELU
Cutting Conditions: v_c=330 SFM
f=0.006 IPR
a_p=.040", Wet

■ Applicable Grade: (For Steel Turning) T1500Z

AURORA Coat (DLC: Diamond Like Carbon) PVD

Using our proprietary PVD process technology, we have developed a hydrogen-free DLC coating that is extremely hard, flat and smooth.



- Comparison of Cutting Edge Adhesion after Cutting ADC12

AURORA Coat — Uncoated Carbide

Workpiece Material: ADC12
Cutting Conditions: v_c= 1,000 SFM
f_z = 0.006 IPT
a_p= .200"
a_e= .200", Dry

- Second only to diamond in terms of hardness, this flat and smooth coating has a low coefficient of friction and provides excellent adhesion resistance to deliver better machined surface quality
- Can be used for high-speed, high-efficiency cutting of aluminum alloys, copper alloys, resins and more

■ Applicable Grades:

(For Milling)	DL1000, DL2000
(For Endmilling)	DL1000, DL1200
(For Drilling)	DL1300, DL1500

Characteristic Values

For Turning (CVD)

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating Type	Coating Thickness (μm)	Features	Old Grades
P Steel	**AC810P**	91.0	2.2	Super FF Coat	18	· For high-speed and high-efficiency machining of steel · Grade emphasizing wear resistance for high- to medium-speed cutting	AC700G
	AC8015P	91.0	2.3	Absotech	14	· For high-speed and high-efficiency machining of steel · Crystal orientation control technology is used to drastically suppress the advancement of crater wear, achieving long, stable tool life during high-speed and high feed cutting	AC810P
	AC820P	90.1	2.2	Super FF Coat	14	· General-purpose grade with a superior balance of fracture and wear resistance	AC2000
	AC8020P	90.5	2.2	ABSOTECH	18	· Our 1st recommended grade for turning mill-scale on forged material · Alumina coating with even higher strength balances outstanding stability and wear resistance in turning mill-scale work	AC820P
	AC8025P	90.1	2.3	Absotech	12	· Our 1st recommended grade for turning steel · Smooth surface treatment suppresses abnormal damage from adhesion/chipping while realizing stable tool life over a wide range of work materials and cutting speeds	AC820P
	AC830P	89.4	2.6	Super FF Coat	8	· For interrupted machining of steel · Tough grade with an emphasis on fracture resistance	AC3000
	AC8035P	89.4	2.6	Absotech	9	· For interrupted machining of steel · Coating layer tensile stress removal technology greatly improves fracture resistance and achieves long, stable tool life during heavy interrupted cutting	AC830P
M Stainless Steel	**AC610M**	91.0	2.2	Super FF Coat	5	· For high-speed machining of stainless steel · Grade emphasizing wear resistance for high-efficiency machining	–
	AC6020M	90.1	2.3	Absotech	5	· For high-speed machining of stainless steel · Adopts a high-hardness carbide substrate and new coating to realize excellent wear resistance and fracture resistance, resulting in stable long tool life in high-speed machining	AC610M
	AC6030M	89.5	2.7	Absotech	5	· Our 1st recommended grade for turning stainless steel · Drastically reduces the occurrence of abnormal damage in stainless steel machining and achieves long and stable tool life thanks to the new coating	AC630M
	AC630M	89.5	2.7	Super FF Coat	5	· General-purpose grade with a superior balance of fracture and wear resistance for stainless steel machining · Supports continuous and light cutting of steel with low cutting speeds	AC304
K Cast Iron	**AC405K**	92.0	2.4	Super FF Coat	18	· For high-speed cast iron milling · Grade emphasizing wear resistance for high- to medium-speed cutting	AC410K
	AC4010K	91.1	2.5	Absotech	20	· Our 1st recommended grade for turning gray cast iron · For high-speed cast iron milling · New thick coating realizes stable long tool life even with ultra-high-speed machining of gray cast iron at V_C = 700 m/min	AC405K
	AC4015K	91.1	2.5	Absotech	16	· Our 1st recommended grade for turning ductile cast iron · New high-adhesion, high-strength coating realizes high wear resistance and chipping resistance for stable long tool life over a wide range of cutting conditions	AC415K
	AC415K	91.1	2.5	Super FF Coat	18	· General-purpose grade with a superior balance of fracture and wear resistance	AC410K
	AC420K	91.1	2.5	Super FF Coat	12	· Designed as a grade with emphasis on fracture resistance and chipping resistance, outstanding stability is realized with heavy interrupted cutting and unstable cutting of cast iron	AC700G

For Milling (CVD)

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating Type	Coating Thickness (μm)	Features	Old Grades
P Steel	**ACP100**	89.3	3.1	Super FF Coat	6	· For high-speed machining of steel · Grade emphasizing wear resistance for high-speed machining	AC230
	ACP2000	89.5	3.2	Absotech	10	· For high-speed machining of steel · Stable long tool life with high-speed machining is realized by adopting a tough carbide substrate and a new coating with excellent thermal crack resistance	ACP100
M Stainless Steel	**ACM200**	89.8	3.4	Super FF Coat	6	· For machining high-hardness stainless steel · Adopts newly developed high-strength cemented carbide with excellent wear resistance and thermal resistance, realizing outstanding stability when machining hardened stainless steel	AC230
K Cast Iron	**ACK100**	92.0	2.4	Super FF Coat	6	· For high-speed cast iron milling · Adopts a high-hardness substrate as a grade with high wear resistance	–
	ACK200	91.7	2.5	Super FF Coat	6	· For high-speed cast iron milling · Adopts a tough carbide substrate as a grade with excellent wear resistance and thermal crack resistance	AC211
	ACK2000	91.7	3.1	Absotech	10	· For high-speed cast iron milling · Stable long tool life with high-speed machining is realized by adopting a tough carbide substrate and a new coating with excellent thermal resistance	ACK100 ACK200

Coated Carbide

Characteristic Values

For Turning (PVD)

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating type	Coating Thickness (μm)	Features	Old Grades
P Steel	**T1500Z** (Cermet)	92.0	2.2	Brilliant Coat*	3	· For finishing of steel · Adopts Brilliant Coat for excellent lubricity and higher machined surface quality	T2000Z
	T2500Z (Cermet)	91.8	2.4	Brilliant Coat*	3	· For finishing of steel · The use of Brilliant Coat with excellent lubricity and a tough cermet substrate realizes excellent machined surface quality and superb stability	T3000Z
	AC530U	91.4	3.3	Super ZX Coat	3	· For interrupted machining of steel and stainless steel · Adopts a micro-grained tough carbide substrate and super multi-layered coating to realize outstanding fracture resistance	ACZ310
M Stainless Steel	**AC6040M**	91.6	3.8	ABSOTECH	3	· Our 1st recommended grade for interrupted machining of stainless steel · New coating with excellent adhesion resistance and peel-off resistance, together with the tough carbide substrate, realize stable tool life in heavy interrupted machining	AC530U
S Exotic Alloy	**AC5005S**	93.1	2.8	ABSOTECH	5	· Grade for high-speed and high-efficiency machining of exotic alloys · The use of a dedicated carbide substrate with great high-temperature strength realizes excellent wear resistance in high-speed, high-efficiency machining	—
	AC510U	92.6	2.6	Super ZX Coat	3	· For continuous to partially interrupted machining of exotic alloys · Grade with an emphasis on wear resistance and thermal resistance for continuous machining of exotic alloys · Can also be used for interrupted machining of cast iron	EH510Z EH10Z
	AC5015S	92.7	3.2	ABSOTECH	5	· Our 1st recommended grade for turning exotic alloys · Adopts a carbide substrate with excellent thermal resistance and a new coating with excellent wear resistance and chipping resistance, realizing stable long tool life over a wide range of cutting conditions	AC510U
	AC520U	91.7	3.0	Super ZX Coat	3	· For interrupted machining of exotic alloys · Grade with an emphasis on fracture resistance for interrupted machining of exotic alloys · Also suitable for interrupted machining of stainless steel	EH520Z EH20Z
	AC5025S	91.8	3.6	ABSOTECH	5	· For partially interrupted to interrupted machining of exotic alloys · Adopts a carbide substrate with excellent fracture resistance and a new coating with excellent wear resistance and chipping resistance, realizing stable long tool life under unstable cutting conditions	AC520U
H Hardened Steel	**AC503U**	93.2	1.7	Super ZX Coat	3	· For roughing of hardened steel · Adopts a high-hardness carbide substrate and super multi-layered coating to realize outstanding wear resistance	—
For Small Lathes	**AC1030U**	91.6	3.8	ABSOTECH	2	· Our 1st recommended grade for high-precision machining · Adopts a new coating with excellent adhesion resistance and peel-off resistance which realizes outstanding stability and machined surface quality due to the improved cutting edge quality	—
	ACZ150	91.4	3.3	ZX Coat	1	· For high-precision machining · Adopts an ultra-thin coating and micro-grain tough carbide substrate to realize excellent machined surface quality	—

For Milling (PVD)

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating type	Coating Thickness (μm)	Features	Old Grades
P Steel	**ACU2500**	91.6	3.8	ABSOTECH	3	· General-purpose grade covering steel, stainless steel, and cast iron machining · Adopts a carbide substrate with excellent fracture resistance and wear resistance, plus a new coating with excellent wear resistance and chipping resistance, realizing stable long tool life on various work materials	—
	ACP200	89.5	3.2	(New) Super ZX Coat	3	· Our 1st recommended grade for steel applications · General-purpose grade with an excellent balance of wear and fracture resistance · Also suitable for machining stainless steel	ACZ330
	ACP300	89.3	3.1	(New) Super ZX Coat	3	· For interrupted machining of steel · Tough grade with an emphasis on fracture resistance · Also suitable for interrupted machining of stainless steel	ACZ350
	ACP3000	89.5	3.2	ABSOTECH	3	· Our 1st recommended grade for milling steel · Carbide substrate with excellent thermal crack resistance, plus a new coating with excellent wear resistance and chipping resistance, realizes stable long tool life over a wide range of cutting conditions	ACP200 ACP300
M Stainless Steel	**ACM100**	91.4	3.3	(New) Super ZX Coat	3	· For high-speed machining of stainless steel · Adopts high-hardness micro-grained carbide substrate and super multi-layered coating to realize outstanding wear resistance	ACZ310
	ACM300	89.8	3.4	(New) Super ZX Coat	3	· Our 1st recommended grade for milling stainless steel · Adopts high-strength carbide substrate and super multi-layered coating for next-level wear resistance and fracture resistance	—
K Cast Iron	**ACK300**	91.4	3.3	(New) Super ZX Coat	3	· General-purpose grade with an excellent balance of wear and fracture resistance	ACZ310
	ACK3000	91.7	3.1	ABSOTECH	3	· Our 1st recommended grade for milling cast iron · Adopts a high thermal conductivity carbide substrate and a new coating with excellent wear resistance and chipping resistance, realizing stable long tool life over a wide range of cast iron machining operations	ACK300
N Non-Ferrous Metal	**DL1000**	92.9	2.1	AURORA Coat (DLC)	0.5	· Grade for milling non-ferrous metal, utilizing DLC coat with a low coefficient of friction and excellent adhesion resistance	—
	DL2000	91.6	3.8	AURORA Coat (DLC)	0.5	· Grade for milling non-ferrous metal, utilizing DLC coat with a low coefficient of friction and excellent adhesion resistance	—
S Exotic Alloy	New **ACS2500**	90.8	4.2	ABSOTECH	3	· First recommendation for titanium alloy applications · Carbide substrate with excellent wear and adhesion resistance, coupled with a chipping-resistant coating, balances excellent wear and fracture resistance	ACZ310
	New **ACS3000**	89.8	3.4	ABSOTECH	3	· Suitable for a wide range of exotic alloy machining applications · Realizes superb stability due to a high-toughness carbide substrate with a highly chipping-resistant coating	—

*Brilliant Coat may appear a slightly different color or luster due to light interference, but these variations do not affect the performance.

Various grades and expanded range of inserts meet a wide range of finishing needs.

Lineup includes wear-resistant T1000A, general-purpose T1500A, general-purpose coated cermet T1500Z, T2500Z and tough T2500A grades.
Expanded lineup for a wide variety of finishing applications.

Features

Uncoated

T1000A

High-hardness grade with superior wear resistance

- Improved wear and fracture resistance
- Solid solution hard phase reduces reaction with steel
- Perfect for high-speed continuous finishing of steel, cast iron, and powdered metal

Uncoated

T1500A

A general-purpose grade that provides both wear and fracture resistance with higher-quality surface finishes

- Mixing hard phases of different functionality grain size and composition improves balance of wear and fracture resistance.
- Improved cutting edge treatment technology provides beautiful finished machined surfaces.

Uncoated

T2500A

Tough grade with excellent fracture resistance and thermal crack resistance

- Fine, uniform grain structure greatly improves toughness
- Improves thermal crack resistance due to the high thermal conductivity and realizes stable, long tool life

Coated

T1500Z & T2500Z

General-purpose coated grade that employs our proprietary Brilliant Coat* PVD coating with excellent lubricity

- Excellent wear resistance provides long tool life.
- Reduces adhesion of work material for beautiful finished machined surfaces.

Characteristic Values

For Turning

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating Type	Coating Thickness (μm)	Features	Old Grades
P Steel / K Cast Iron	**T1000A**	93.3	1.8	—	—	· For continuous machining of steel · High-hardness grade with superior wear resistance · Supports finishing of cast iron and sintered metals	T110A
	T1500A	92.0	2.2	—	—	· Our 1st recommended cermet grade for turning steel · General-purpose grade with an excellent balance of wear and fracture resistance, achieving an excellent machined surface over a wide range of cutting conditions	T1200A
	T2500A	91.8	2.4	—	—	· For interrupted machining of steel · Fine, uniform grain structure greatly improves toughness, realizing long tool life and excellent surface finishes even with interrupted cutting	—
	T1500Z	92.0	2.2	Brilliant Coat® *	3	· Adopts Brilliant Coat for excellent lubricity and higher machined surface quality	T2000Z
	T2500Z	92.0	2.4	Brilliant Coat® *	3	· For finishing steel · High toughness & high thermal conductivity · High efficiency machining with good surface finish	—
	T3000Z	91.3	2.4	ZX Coat	3	· For interrupted machining of steel · Grade with a tough substrate for interrupted finishing	—

For Milling

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating Type	Coating Thickness (μm)	Features	Old Grades
P Steel / M Stainless Steel	**T1500A**	92.0	2.2	—	—	· For finishing of steel and stainless steel · Excellent balance of wear and fracture resistance, achieving excellent machined surface quality over a wide range of cutting conditions	T1200A
	T250A	91.4	2.1	—	—	· For finishing of steel and stainless steel ·Tough grade with enhanced crack spread resistance	—
	T2500A	91.8	2.4	—	—	· For finishing of steel and stainless steel · Fine, uniform grain structure greatly improves toughness, realizing long tool life and excellent surface finishes	T250A
	T4500A	91.0	2.3	—	—	· For finishing of steel and stainless steel · Tough grade with excellent fracture resistance and reduced thermal cracking	—

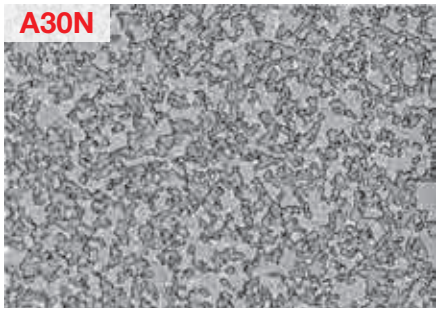
*Brilliant Coat may appear a slightly different color or luster due to light interference, but these variations do not affect the performance.

Cermet

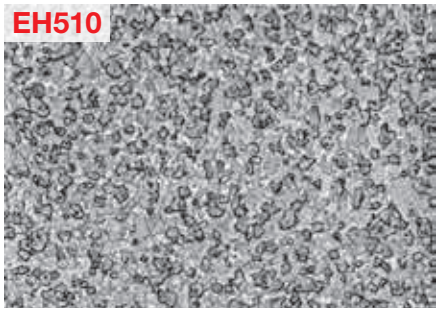
IGETALLOY cemented carbides have a solid history and a wide variety of grades to suit many different applications. They are widely used and appreciated for their superior performance.

The IGETALLOY range consists of cemented carbide grades with various characteristics that correspond to the cutting tool application. This is achieved by varying the carbide components: the WC structure (main component) and additives such as TiC, TaC, and Co (binder).
The wide selection of IGETALLOY grades provides excellent wear resistance and toughness in various cutting conditions.

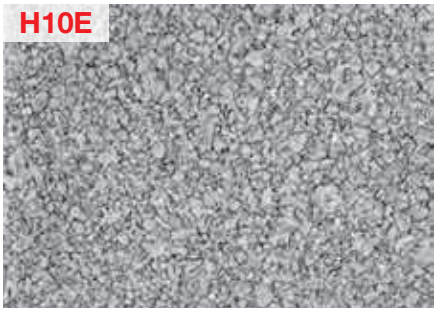
● For Steel



● For Stainless Steel



● For Cast Iron



Characteristic Values

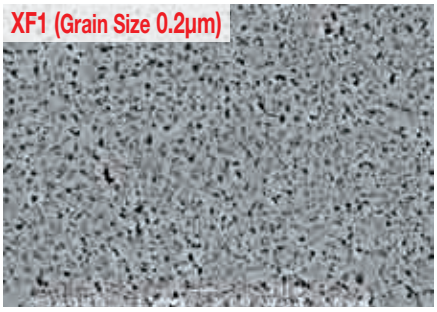
Work Material	Grade	Hardness (HRA)	TRS (GPa)	Thermal Conductivity (W/m·°C)	Young Modulus (GPa)	Compressive Strength (GPa)	Linear-Thermal Expansion Coefficient (x 10^{-6}/°C)
P Steel	ST10P	92.1	1.9	25	470	4.9	6.2
	ST20E	91.8	1.9	42	550	4.8	5.2
	A30	91.3	2.1	35	520	–	5.2
	A30N	91.2	2.2	35	520	–	–
	ST40E	90.4	2.6	75	–	–	–
M Stainless Steel	EH510	92.6	2.6	76	–	–	–
	EH520	91.7	3.0	78	–	–	–
	A30	91.3	2.1	35	520	–	5.2
	A30N	91.0	2.4	35	–	–	–
K Cast Iron	BL130	94.3	2.9	56	–	–	–
	H2	93.2	1.8	105	600	6.1	4.4
	H1	92.9	2.1	109	650	6.1	4.7
	EH510	92.6	2.6	76	–	–	–
	H10E	92.3	2.0	67	–	–	–
	EH520	91.7	3.0	78	–	–	–
	G10E	91.1	2.2	105	620	5.7	–
N Non-Ferrous Metal	H1	92.9	2.1	109	650	6.1	4.7
	H20	91.6	3.8	–	–	–	–
S Exotic Alloy	EH510	92.6	2.6	76	–	–	–
	EH520	91.7	3.0	78	–	–	–

The IGETALLOY micro-fine grained carbide series provides micro-fine grain structure at a world-class level to deliver superior performance in small drills and other tools.

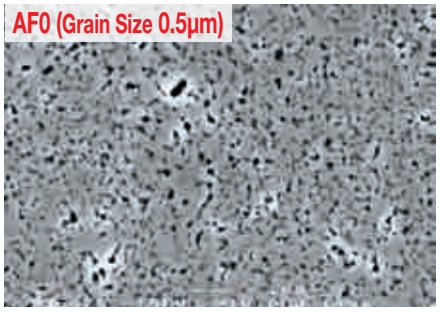
IGETALLOY micro-fine grained cemented carbides feature a WC structure between 0.2 and 1μm and are extremely strong and hard. They also provide excellent sharpness and superb surface quality on machined surfaces.
These features provide excellent performance in a variety of applications from ø0.1mm PCB drills and endmill materials to thin-bladed slitters and precision moulds.

● Ultra-fine Grained Carbide

XF1 (Grain Size 0.2μm)

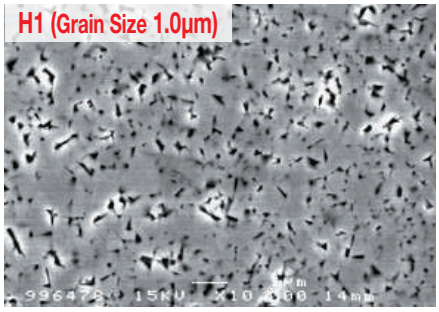


AF0 (Grain Size 0.5μm)



● Micro-grained Carbide

H1 (Grain Size 1.0μm)



Characteristic Values

Classification	Grade	Properties					Features	Applications
		Grain Size (μm)	Co Content (wt%)	TRS (GPa)	Hardness (HRA)	Hardness HV (GPa)		
Ultra-fine Grained Carbide	**XF1**	0.2	9.0	4.0	93.5	19.2	World highest-level micro-grain size ultra-fine grained carbide	Microdrills, Very Small Diameter Drills
	AF1	0.5	12.0	4.4	92.5	17.3	World highest-level strength in ultra-fine grained carbide	Microdrills, Mini-tools, Punches
	AF0	0.5	10.0	4.1	93.0	18.0	Tough, wear-resistant ultra-fine grained carbide	Microdrills, Routers
	AFU	0.5	8.0	3.8	93.6	19.4	Wear-resistant ultra-fine grained carbide	PCB Drills, Endmills for High-Hardness Materials
Micro-fine Grained Carbide	**A1**	0.7	13.0	3.2	91.4	15.6	Tough micro-fine grained carbide	Endmills, Taps, Drills for Cast Iron, Punches
	KH12	0.7	10.0	4.0	92.4	17.2	Micro-fine grained carbide with excellent wear resistance and toughness	Endmills, Drills for Steel
	F0	0.7	5.0	2.0	93.6	20.1	Micro-fine grained carbide with superior wear resistance	PCB Drills, Routers
Micro-grained Carbide	**KH03**	1.0	10.0	3.3	91.4	15.2	Micro-grained carbide with excellent strength and toughness	Moulds/Dies, Drills, Endmills
	KH05	1.0	13.0	3.5	90.4	13.6	Tough, micro-grained carbide	Moulds/Dies
	H1	1.0	5.0	2.1	92.9	17.7	Micro-grained carbide with superior wear resistance	Drills for Cast Iron and High-Hardness, Reamers
	EH10	1.2	6.0	3.4	92.4	17.3	Micro-grained carbide with a balance of hardness and strength	Drills for Exotic Alloy, Reamers
	ZF16	1.0	6.0	3.5	93.0	18.6	Wear- and chipping-resistant micro-grained carbide for high-speed machining	PCB Drills

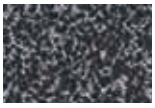
Carbide Materials ••• ☞K2

CBN

High hardness and thermal resistance for machining hardened steel and hard cast iron. High-speed finishing of gray cast iron with long tool life is also possible.

In 1977, Sumitomo Electric Hardmetal successfully developed a revolutionary CBN sintered tool called SUMIBORON®. The main component in SUMIBORON® is cubic boron nitride with a special ceramic binder sintered under super high pressure and temperature. Compared to other conventional tool materials, CBN has higher hardness and excellent thermal resistance. With these distinct characteristics, SUMIBORON® can perform machining of hardened steel, hard cast iron and exotic alloys which was previously only done by grinding. Excellent efficiency and longer tool life can also be achieved from high-speed finishing of cast iron.

Features

Structure Features	Structure	CBN Content	Hardness (GPa)	Grades	Work Materials/Applications	Features
Pure CBN particles, firmly bonded		High	54	NCB100	Cast Iron, Titanium Alloy, Pure Titanium, Cobalt-chrome Alloy, Cemented Carbide, Cermet	· Containing no binder, its structure of directly bonded nano- to sub-micron CBN particles provides high hardness and thermal conductivity, making it highly efficient with a longer tool life when machining exotic alloys such as titanium alloys and cobalt-chrome alloys
Mainly CBN grains fused together				BN7125 New BN7115 BNC8115 BNS8125	Cemented Carbide, Chilled Cast Iron, Ni-Hard Cast Iron, Sintered Ferrous Alloy, Heat-Resistant Alloy	· High CBN content. Structure consists of strongly fused CBN grains · Suited to cutting cast iron, heat-resistant alloy, cemented carbide and other high-hardness materials
Mainly CBN grains held together with a binder		Low	27	BN1000/BN2000/BN350 BNX10/BNX20/BN500 BNC2115/BNC2125/BNC2105 New BNC2010/BNC2020/BNC300 BNC100/BNC160/BNC200/BNC500	Alloy Steel, Case Hardened Steel, Carbon Tool Steel, Bearing Steel, Die Steel, Ductile Cast Iron	· CBN grains are fused together strongly with a special ceramic binder · Strong CBN binding provides superior wear resistance and toughness when cutting hardened steel and cast iron

Grade Map

Part Material	Application	High-speed Cutting	Finishing to Light Cutting	Medium Cutting		Rough to Heavy Cutting
H Hardened Steel	Classification	–	H01	H10	H20	H30
	Coated SUMIBORON®	BNC2105				
			BNC2115			
				BNC2125		
			BNC2010			
				BNC2020		BNC300
		BNC100		BNC160		
				BNC200		
	Uncoated SUMIBORON®	BN1000				
			BN2000			
		BNX10			BNX20	BN350
Sintered Alloy	Classification	–	01	10	20	30
	Uncoated SUMIBORON®	BN7115				
			BN7125			
K Cast Iron	Classification	–	K01	K10	K20	K30
	Coated SUMIBORON®	BNC500*			BNC8115	
	Uncoated SUMIBORON®	NCB100				
			BN500			
		BN7125				
					BNS8125	
S Exotic Alloy	Classification	–	S01	S10	S20	S30
	Uncoated SUMIBORON®	NCB100				
			BN7125			
				BNS8125		

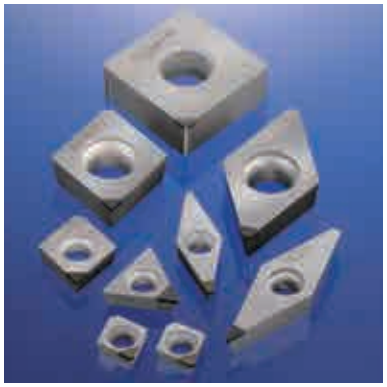
Characteristic Values

Work Material	Grade	Binder	CBN Content (%)	Grain Size (μm)	Hardness HV (GPa)	TRS (GPa)	Main Coating Components	Coating Thickness (μm)	Features
H Hardened Steel	**BNC2105**	TiCN	45 to 50	3	30 to 32	1.1 to 1.2	TiAlN Super Multi-layered Coating	3	Grade with excellent wear resistant coating and a CBN substrate ideal for high-speed finishing applications.
	BNC2115	TiN	60 to 65	3	31 to 33	1.3 to 1.4	TiAlSiN Super Multi-layered Coating	3	Utilizing a coating with exceptional notch wear resistance and a tough CBN substrate to achieve stable and excellent surface finish.
	BNC2125	TiN	65 to 70	4	33 to 35	1.5 to 1.6	TiAlBN Super Multi-layered Coating	3	Combination of a tough CBN substrate and a coating that has a balance of wear resistance and toughness, to achieve even more stable machining.
	BNC2010	TiCN	50 to 55	2	30 to 32	1.1 to 1.2	TiCN Multi-layered Coating	2	Improved wear resistance from coating and substrate, achieves excellent and consistent surface finish.
	BNC2020	TiN	70 to 75	5	34 to 36	1.4 to 1.5	TiAlN Multi-layered Coating	2	Utilising a tough substrate along with a highly wear-resistant and adhesive coating layer, to achieve long tool life in general-purpose to high-efficiency machining.
	BNC300	TiN	60 to 65	1	33 to 35	1.5 to 1.6	TiAlN	1	Suitable for finishing of workpieces with a mixture of continuous and interrupted cutting portions.
	BNC100	TiN	40 to 45	1	29 to 32	1.0 to 1.1	TiAlN/TiCN	3	Grade suitable for high-speed finishing thanks to highly wear-resistant coating.
	BNC160	TiN	60 to 65	3	31 to 33	1.2 to 1.3	TiAlN/TiCN	3	Achieves stable, high-precision finishing of hardened steel.
	BNC200	TiN	65 to 70	4	33 to 35	1.4 to 1.5	TiAlN	3	A tough CBN substrate and a coating with high wear resistance provide a long tool life.
	BN1000	TiCN	40 to 45	1	27 to 31	0.9 to 1.0	—	—	Grade with ultimate wear and fracture resistance, suitable for high-speed cutting.
	BN2000	TiN	50 to 55	2	31 to 34	1.1 to 1.2	—	—	General-purpose grade for hardened steel machining with a high degree of fracture and wear resistance.
	BNX20	TiN	55 to 60	3	31 to 33	1.0 to 1.1	—	—	Grade with excellent crater wear resistance, suitable for high-efficiency cutting under high-temperature conditions.
	BN350	TiN	60 to 65	1	33 to 35	1.5 to 1.6	—	—	Grade with the highest cutting edge strength, suitable for heavy interrupted cutting.
	BNX10	TiCN	40 to 45	3	27 to 31	0.9 to 1.0	—	—	Highly wear-resistant grade, suitable for high-speed continuous machining.
K Cast Iron / Sintered Alloy	**BN7115**	Co Compound	90 to 95	1	41 to 44	2.2 to 2.3	—	—	Grade suitable for finishing of sintered alloys that combines the highest cutting edge sharpness with fracture resistance.
	BN7125	Co Compound	90 to 95	2	41 to 44	1.9 to 2.0	—	—	General-purpose grade with excellent wear resistance, fracture resistance, and thermal shock resistance, suitable for machining of cast iron and exotic alloys
	BNS8125	Al Alloy	85 to 90	8	39 to 42	0.95 to 1.15	—	—	Grade with 100% solid CBN structure that exhibits excellent wear and fracture resistance
	BNC8115	Al Alloy	85 to 90	8	39 to 42	0.95 to 1.15	TiAlN	2	Grade with 100% solid CBN structure, using PVD coating with excellent wear resistance to enable roughing operations.
	BNC500 (For Ductile Cast Iron)	TiC	60 to 65	4	32 to 34	1.1 to 1.2	TiAlN	3	Grade suitable for machining of hard-to-cut cast iron, thanks to the highly wear-resistant substrate and coating.
	BN500	TiC	65 to 70	6	32 to 34	1.0 to 1.1	—	—	Grade optimised for cast iron cutting. Provides superior wear and fracture resistance.
	BN7000	Co Compound	90 to 95	2	41 to 44	1.8 to 1.9	—	—	Grade exhibiting improved wear and fracture resistance in roughing of sintered materials.
	BN7500	Co Compound	90 to 95	1	41 to 44	2.0 to 2.1	—	—	Grade maintaining good cutting edge sharpness, suitable for finishing of sintered alloys
S Exotic Alloy	**NCB100**	—	100	to0.5	51 to 54	1.8 to 1.9	—	—	Achieves high efficiency, improved machining accuracy, and longer tool life in machining of exotic alloys such as titanium alloy and cobalt-chrome alloys

Transverse rupture strength measured with a test piece equivalent to the insert's CBN layer

CBN SUMIBORON® Coated SUMIBORON Series ••• L2 on

Polycrystalline Diamond



Excellent wear resistance, longer tool life and high-speed, high-efficiency, high-precision cutting of non-ferrous metals and non-metals.

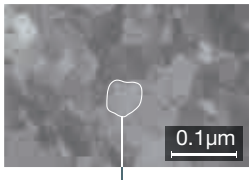
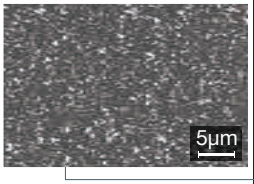
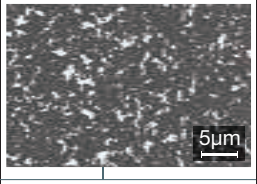
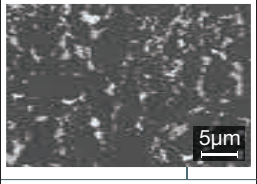
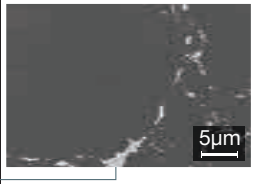
SUMIDIA® is a polycrystalline diamond material made from sintered diamond powder that was first created using our proprietary technology in 1978.
SUMIDIA®'s superior wear resistance achieves longer tool life in high speed, high-efficiency and high-precision machining of non-metal and non-ferrous metal applications including aluminum, copper, magnesium and zinc alloys.

SUMIDIA® Binderless uses nano-polycrystalline diamond for the cutting edge, demonstrating excellent wear resistance and fracture resistance.
In particular, it achieves extended tool life and machining accuracy superior to conventional polycrystalline diamond when machining hard brittle materials such as cemented carbide.

Features

- Diamond particles on the order of submicrons to several dozen microns, sintered at high density

Structure

SUMIDIA® Binderless	SUMIDIA®			
NPD10	**DA1000**	**DA2200**	**DA150**	**DA90**
				
Diamond particles		*Black areas in image are diamond particles		

Grade Map

Part Material	Application	Finishing to Light Cutting		Medium Cutting	Rough to Heavy Cutting
Hard Brittle Material	Classification	01	10	20	30
	SUMIDIA® Binderless	NPD10			
	SUMIDIA®		DA90		
N Non-Ferrous Metal	Classification	N01	N10	N20	N30
	SUMIDIA®	DA1000	DA1000	DA1000	DA1000
			DA2200	DA2200	DA2200
			DA150		
		DA90			

Polycrystalline Diamond

Characteristic Values

Part Material	Grade	Binder	Carbon Content (%)	Grain Size (μm)	Hardness HK (GPa)	TRS (GPa)	Features
Hard Brittle Material	**NPD10**	—	100	up to 0.05	120 to 130	≈ 3.15	100% diamond that directly binds nano-order diamond particles with high strength. Demonstrates optimum wear and fracture resistance as well as the best edge sharpness.
N Non-Ferrous Metal	**DA1000**	Co	90 to 95	up to 0.5	50 to 60	≈ 2.60	High-density sintered material made of ultra-fine grain diamond that demonstrates optimum wear and fracture resistance and excellent edge sharpness.
	DA2200	Co	85 to 90	0.5	45 to 55	≈ 2.45	Sintered material made of ultra-fine grain diamond that demonstrates both wear and fracture resistance and excellent edge sharpness.
	DA150	Co	85 to 90	5	50 to 60	≈ 1.95	Micro-grained sintered diamond particles with both machinability and wear resistance.
	DA90	Co	90 to 95	50	50 to 65	≈ 1.10	Coarse sintered diamond particles, with high diamond content for excellent wear resistance.

Transverse rupture strength measured with a test piece equivalent to the insert's PCD layer

PCD **SUMIDIA® Series** ··· ☞ M2

PCD **SUMIDIA® Binderless** ··· ☞ M4

Ceramic

Superb wear resistance enables ultra-high-speed machining.

Sumitomo Electric Hardmetal's Advanced Ceramic utilises a special process to produce extremely tough grades.
This new development permits ultra-high-speed cutting of cast iron, heat-resistant alloy, and ultra-hard rolled material with stability.

Grade Map

For Turning

For Turning	High-Speed	Finishing to Light		Medium	Rough to Heavy	
	—	01	10	20	30	40
K Cast Iron	SN2000K					
S Exotic Alloy		WX1500				
			WX2000			
			SN1000S			
H Hardened Steel		NB150H				
		NB90S				

Characteristic Values

For Turning

Class	Grade	Hardness (HRA)	TRS (GPa)	Main Coating Components	Coating Thickness (μm)	Characteristics
K Cast Iron	SN2000K	94.9	1.2	—	—	Contains Si_3N_4. Suitable for medium to finishing of cast iron.
S Exotic Alloy	WX1500	94.4	—	—	—	Cold-pressed Whisker reinforced ceramic for high efficiency machining of hardened steels, and Ni and Co-based alloys
	WX2000	90.0	1.2	—	—	Enhanced with SiC whiskers. For heat-resistant alloy and ultra-hard roll cutting.
	SN1000S	93.0	0.76	—	—	SiAlON grade for high speed machining of Nickel-based alloys. Superior toughness
H Hardened Steel	NB150H	96.0	4.5	—	—	Al2O2+TICN Execellent wear resistance. The best choice for machining alloy steel and hardened steel
	NB90S	95.0	1.0	TiAlN	2	Ultra-strong. Contains Al2O3 and ZX Coat. Continuous low-speed turning of hardened steel.

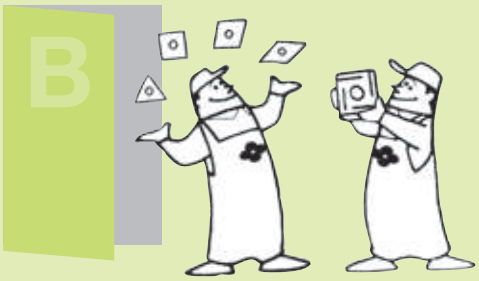
■ Material Properties

Material		Specific Gravity	Hardness (mHv) (GPa)	Young Modulus (GPa)	Thermal Conductivity (W/m·°C)	Linear-Thermal Expansion Coefficient (X 10^{-6}/°C)	Melting Point (°C)
Tungsten Carbide	**WC**	15.6	21	690	126	5.1	2,900
Titanium Carbide	**TiC**	4.94	31	450	17	7.6	3,200
Tantalum Carbide	**TaC**	14.5	18	280	21	6.6	3,800
Niobium Carbide	**NbC**	8.2	20	340	17	6.8	3,500
Titanium Nitrate	**TiN**	5.43	20	260	29	9.2	2,950
Aluminum Oxide	**Al_2O_3**	3.98	29	410	29	8.5	2,050
Silicon Nitride	**Si_3N_4**	3.17	25	310	29	3.0	>1,900 (decomposes)
Cubic Boron Nitride	**cBN**	3.48	44	700	1,300	4.7	—
Diamond	**C**	3.52	>90	970	2,100	3.1	—
Cobalt	**Co**	8.9	—	100 to 180	69	12.3	1,495
Nickel	**Ni**	8.9	—	200	92	13.3	1,455
Cemented Carbide	**WC-5% Co**	15.0	18	630	79	5.0	—
	WC-10% Co	14.6	14	580	75	5.0	—
	WC-20% Co	13.5	10	530	67	6.0	—
High Speed Steel		8.7	8	210	17	11.0	—

MEMO

Indexable Insert B

Negative / Positive / Ceramics B1 to B135



Indexable Insert Identification Table ····· B2
Grade Comparison Chart (CVD / PVD Coating) ····· B4
(Cermet, Cemented Carbide, Ceramics) ····· B6
(CBN, Polycrystalline Diamond) ····· B7
Chipbreaker Comparison Chart ····· B8
Chipbreaker Selection ····· B10

Negative M Class Chipbreakers for Low Carbon and General Steel: EFB / EFE ····· B16
Positive M Class Chipbreakers for Low Carbon and General Steel: EFB / ELB ····· B17
Positive M Class Chipbreaker for Steel, Stainless Steel, and Exotic Alloys: EGU ····· B18
Positive G Class Chipbreakers for Swiss Lathes: MEFF / MESL / MESI ····· B19

Negative Inserts

C / 80° Diamond (With Hole) ····· B20
D / 55° Diamond (With Hole) ····· B31
R / Round (With Hole) ····· B39
S / Square (With Hole) ····· B40
S / Square (Without Hole) ····· B50
T / Triangular (With Hole) ····· B51
T / Triangular (Without Hole) ····· B61
V / 35° Diamond (With Hole) ····· B62
W / Trigon (With Hole) ····· B65

Positive Inserts

C / 80° Diamond (With Hole) ····· B70
D / 55° Diamond (With Hole) ····· B82
R / Round (With Hole) ····· B90
S / Square (With Hole) ····· B92
S / Square (Without Hole) ····· B98
T / Triangular (With Hole) ····· B101
T / Triangular (Without Hole) ····· B115
V / 35° Diamond (With Hole) ····· B119
W / Trigon (With Hole) ····· B128

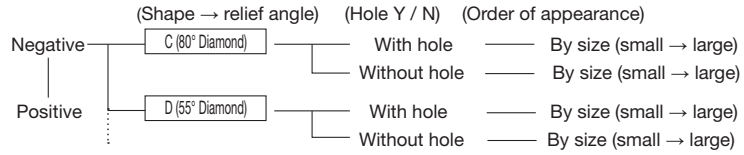
Ceramic Negative Insert (With Hole / Without Hole) ····· B130
Ceramic Positive Insert (Without Hole) ····· B133

Ceramic SG (SumiNotch) and Ceramic LNGX ····· B133
Precautions when Using Wiper Inserts ····· B134

Format of This Chapter

(1) Turning insert listing order is negative type inserts followed by positive type inserts.
(2) The order of listing in each type group is as follows: C (80° Diamond) → D (55° Diamond) → R (Round) → S (Square)→ T (Triangular) → V (35° Diamond) → W (Trigon).
(3) Listing of inserts with the same relief angle are provided for those with holes and then those without holes.
(4) Inserts are grouped by shape and then further divided by size (small to large according to cutting edge length and thickness).

• Structure Diagram



Symbols in Insert Diagrams

***Symbols conform to ISO13399.**

L: Cutting edge length, IC: Inscribed circle, S: Thickness, RE: Nose radius,
D1: Hole diameter (For CBN (SUMIBORON) and PCD (SUMIDIA), L indicates side length.)

Handed Inserts

*Typically, photos show right-handed inserts.

If the bottom right reads "Photo: Left-handed," this indicates an exception where the photo shows a left-handed insert.

Insert Grades

(1) Each grade is carefully selected from Coated Carbide (CVD / PVD), Cermet, Carbide or Ceramic.
(2) The listing of CBN (SUMIBORON) and PCD (SUMIDIA) are in the dedicated sections: CBN (SUMIBORON) page L30 and PCD (SUMIDIA) page M10.

Stock Markings and Symbols

●: Standard stocked item
★: Worldwide Warehouse Item
▲: Limited Avaibility Item, made to order, or discontinued (please confirm stock availability).

Blank: Made-to-order item
— mark: Not available

Indexable Insert Identification Table

	(1)	(2)	(3)	(4)
A.N.S.I.	C	N	M	G
I.S.O.	C	N	M	G

(1) Insert Shape — Refer to Table 1

(2) Relief Angle — Refer to Table 2

(3) Tolerance — Refer to Table 3

(4) Insert Hole — Refer to Table 4

Table 1: (1) Insert Shape

Symbol	Insert Shape		Angle
C		Diamond Type	80°
D			55°
E			75°
V			35°
R		Round Type	—
S		Square Type	90°
T		Triangular Type	60°
W		Trigon Type	80°
A		Parallelogram Type	85°
K			55°
H		Trigon Type	120°
O		Octagonal Type	135°
L		Rectangular Type	90°
M		Diamond Type	86°

Table 2: (2) Relief Angle

Symbol	Relief Angle
B	5°
C	7°
D	15°
E	20°
F	25°
N	0°
P★	11°
O	Others

★ mark indicates inserts that are sometimes used with a 10° relief angle.

Table 3: (3) Tolerance (inch)

Symbol	Tolerance of Nose Height (inch)	Inscribed Circle (inch)	Thickness (inch)
A	±0.0002	±0.001	±0.001
F	±0.0002	±0.0005	±0.001
C	±0.0005	±0.001	±0.001
E	±0.001	±0.001	±0.001
G	±0.001	±0.001	±0.005
J★	±0.0002	± .002 to ± .006	±0.001
M★	± .003 to ± .008	± .002 to ± .006	±0.005
U★	± .005 to ± .015	± .003 to ± .010	±0.005

★ mark indicates inserts that generally have sintered side surfaces. Refer to the table below (reference) for details on M class precision.

(Reference) Breakdown of M-Class Tolerance by Shape and Size

● Tolerance of Nose Height (inch)

Inscribed Circle	Triangular Type	Square Type	80° Diamond Type	55° Diamond Type	35° Diamond Type	Round Type
1/4	±.003	±.003	±.003	±.004	±.006	—
3/8	±.003	±.003	±.003	±.004	±.006	—
1/2	±.005	±.005	±.005	±.006	—	—
5/8	±.006	±.006	±.006	±.007	—	—
3/4	±.006	±.006	±.006	±.007	—	—
1	±.007	±.007	±.007	—	—	—
1 1/4	—	±.008	—	—	—	—

● Tolerance of Inscribed Circle (inch)

Inscribed Circle	Triangular Type	Square Type	80° Diamond Type	55° Diamond Type	35° Diamond Type	Round Type
1/4	±.002	±.002	±.002	±.002	±.002	—
3/8	±.002	±.002	±.002	±.002	±.002	±.002
1/2	±.003	±.003	±.003	±.003	—	±.003
5/8	±.004	±.004	±.004	±.004	—	±.004
3/4	±.004	±.004	±.004	±.004	—	±.004
1	±.005	±.005	±.005	—	—	±.005
1 1/4	—	±.006	—	—	—	±.006

Table 4: (4) Insert Hole

Symbol	Hole Y/N	Hole Shape	Chipbreaker	Shape (Cross Section)	Symbol	Hole Y/N	Hole Shape	Chipbreaker	Shape (Cross Section)
N E	No	No	No		A	Yes	Cylindrical	No	
R			One Face		M			One Face	
F			Double-sided		G			Double-sided	
W	Yes	Straight hole + single chamfer (40° to 60°)	No		B	Yes	Straight hole + single chamfer (70° to 90°)	No	
T D			One Face		H			One Face	
Q	Yes	Straight hole + double chamfer (40° to 60°)	No		C	Yes	Straight hole + double chamfer (70° to 90°)	No	
U			Double-sided		J			Double-sided	
					X	—	—	—	Special

Indexable Insert Identification Table

4	3	2	EGE
12	04	08	N - GE
(5)	(6)	(7)	(8) (9)

- (5) Cutting Edge Length — Refer to Table 5
- (6) Thickness — Refer to Table 6
- (7) Nose Radius — Refer to Table 7
- (8) Feed Direction — Refer to Table 8
- (9) Chipbreaker — Refer to Table 9

Picture of insert shown as example

Table 5: (5) Cutting Edge Length (Typical Examples)

Note: Cutting edge length indicates the dimensions for a sharp edge.

Shape	ANSI Symbol	ISO Symbol	Cutting Edge Length (in.)	Inscribed Circle	Shape	ANSI Symbol	ISO Symbol	Cutting Edge Length (in.)	Inscribed Circle	Shape	ANSI Symbol	ISO Symbol	Cutting Edge Length (in.)	Inscribed Circle
C 80° Diamond Type		03	.1397	.1397	D 55° Diamond Type	2	07	.303	.250	W Trigon Type	(5)	03	.150	.225
		04	.196	.169		2.5	09	.382	.3125		2	04	.169	.250
	2	06	.252	.250		3	11	.457	.375		2.5	05	.213	.313
	2.5	08	.315	.313		4	15	.610	.500		3	06	.256	.375
	3	09	.382	.375		5	19	.764	.750		4	08	.343	.500
	4	12	.508	.500							5	10	.429	.625
	5	16	.634	.625	V 35° Diamond Type	(6)	08	.327	.188					
	6	19	.760	.750		1.8	09	.382	.225					
	8	25	1.016	1.000		2	11	.437	.250	R Round Type	-	08	.315	.315
											3	09	.375	.375
						3	16	.654	.375		-	10	.394	.394
						4	22	.870	.500		-	12	.472	.472
S Square Type	2	06	.250	.375	T Triangular Type	(5)	06	.272	.156		4	12	.500	.500
	-	S7	.281	.281		(6)	08	.323	.188		5	15	.625	.625
	2.5	07	.313	.313		1.8	09	.378	.225		-	16	.630	.630
	3	09	.375	.375		2	11	.433	.250		6	19	.750	.750
	4	12	.500	.500		2.5	13	.539	.333		-	20	.787	.787
	5	15	.625	.625		3	16	.650	.375		-	24	.945	.945
	6	19	.750	.750		4	22	.866	.500		-	25	.984	.984
	8	25	1.000	1.000		5	27	1.083	.625		8	25	1.000	1.000
	10	31	1.250	1.250		6	33	1.299	.750		-	32	1.260	1.260

Table 6: (6) Thickness

ANSI Symbol	ISO Symbol	Thickness (inch)
	X1	*
(2)	01	.063
1.5	02	.094
-	T2	.109
2	03	.125
2.5	T3	.167
3	04	.200
-	05	.224
4	06	.250
5	07	.333
5	08	.313
6	09	.375

(*)
CC□T03X1 Insert Thickness: 1.40
CC□T04X1 Insert Thickness: 1.80

Table 7: (7) Nose Radius

ANSI Symbol	ISO Symbol	Nose Radius (inch)
-	00	Sharp Edge
.001	003	.0012
-	008	.0031
0	01	.0039
-	015	.0059
-	018	.0071
.5	02	.0078
-	035	.0138
1	04	.0156
2	08	.0313
-	10	.0394
3	12	.0469
4	16	.0625
5	20	.0781
6	24	.0938
8	32	.1250
-	M0	Round Insert (Metric)
-	00	Round Insert (Inch)
-	00	Round Insert (Imperial)

"M" after the nose radius code indicates a negative tolerance.

Table 8: (8) Feed Direction

ANSI Symbol	ISO Symbol	Feed Direction
R		Right Hand
L		Left Hand
E	N	Neutral

Table 9: (9) Chipbreaker

See Pages B10 - B11 for chipbreaker information

Grade Comparison Chart

■ CVD Coated Grades

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning	P Steel	P05	**AC8015P** **AC810P**	UE6105 MC6115	T9105 T9205	CA510 CA5505	HG8010		GC4305 GC4205	KCP05 KCP05B	TP0501 TP0500	WPP05S WPP05 WPP01	IC8005 IC8150 IC9015	TT8105
		P10	**AC8020P** **AC8015P** **AC810P**	MC6115 MC6015 UE6110	T9105 T9115 T9205 T9215	CA510 CA515 CA5515	HG8010	CP7	GC4415 GC4305 GC4315 GC4215	KCP10 KCP10B	TP1501 TP1500	WPP10S WPP10 WPP10G	IC8150 IC8080 IC9015 IC9150 IC9080	TT8115 TT8115B
		P20	**AC8020P** **AC8025P** **AC820P**	MC6025 MC6125 UE6020	T9115 T9125 T9215 T9225	CA025P CA525	GM25 HG8025 GM8020	CP7	GC4425 GC4325 GC4225	KCP25 KCP25B	TP2501 TP2500	WPP20S WPP20 WPP20G	IC8150 IC8250 IC9015 IC9150 IC9250	TT5100 TT8125 TT8125B
		P30	**AC8035P** **AC830P** **AC6030M** **AC630M**	MC6035 UE6035	T9125 T9135 T9235	CA025P CA525 CA530	GM25 GM8035		GC4325 GC4335 GC4235	KCP30 KCP30B	TP3501 TP3500	WPP30S WPP30 WPP30G	IC8080 IC9350	TT7100 TT8135
		P40	**AC8035P** **AC830P** **AC6030M** **AC630M**	MC6035	T9135 T9235 T6130	CA530 CA5535	GX30 GM8035		GC4335 GC4235 GC30	KCP40 KCP40B	TP3501 TP3500		IC9350	TT7100
	M Stainless Steel / S Exotic Alloy	M10 S10	**AC6020M**	MC7015 MV9005 US7020 US905	T6215 T9115 T9215	CA6515	HS9105		GC2015 GC1515 S05F S205	KCM15	TM1501		IC9250 IC520M	TT9215 TT3005
		M20 S20	**AC6020M** **AC6030M** **AC630M**	MC7025 US7020	T6120 T9125 T9215	CA6525	HG8025 HS9115		GC2025 GC1515	KCM25	TP2501 TM2000 TM2501		IC9025 IC9325 IC4050	TT5100 TT9225
		M30	**AC6030M** **AC630M** **AC8035P** **AC830P**	MC7025 US735	T6130	CA6535	GM8035 GX30 GM25		GC2035 GC235	KCM35	TP3501 TM3501 TM4000		IC9350 IC4050 IC635	TT9235
		M40	**AC6030M** **AC630M**	US735					GC235 GC2035		TM4000			TT7800
	K Cast Iron	K05	**AC4010K**	MC5005 MC5105 UC5105 UC5115	T505 T5105	CA310 CA4505 CA4010	HX3505	CP1	GC3205 GC3210	KCK05	TK0501 TK1001	WKK10S WAK10	IC5005	TT7005 TT7505
		K10	**AC4010K** **AC4015K**	MC5005 MC5015 MC5020 MC5115 UC5105 UC5115	T515 T5105 T5115	CA315 CA4505 CA4515 CA4115	HX3305 HX3515 HG8010	CP1	GC3210	KCK15	TK1001 TK1501	WKK10S WKK20S WAK10 WAK20	IC5100 IC9150 IC4100	TT7015
		K20	**AC4015K** **AC4125K** **AC420K** **AC425K** **AC8025P**	MC5015 MC5125 UC5115 UE6110	T515 T5115 T5125	CA320 CA4515 CA4120 CA4115	HX3515 GM8020		GC3225	KCK15 KCK20 KCP25C	K2001	WKK20S WAK20 WAK30	IC9150 IC5100 IC4100	TT7015
For Milling	P Steel	P10	**ACP2000** **ACP100**	F7030 MC7020 MV1020	T3130				GC4220 GC4330	KCPM20	MP1501 MP1500 MP2501 MP2500	WKP25S WKP25 WKP35S WKP35G	IC4100 IC5400 IC9015 IC8080 IC9080 IC5100	TT7080 TT7515 TT9300
		P20	**ACP2000** **ACP100**	F7030 MC7020 MV1020	T3130 T3225		GX2140		GC4330 GC4340	KSPM20 KCPK30	MP2501 MP2500	WKP25S WKP25 WKP35S WKP35G	IC8080 IC9080 IC9250	TT7400
		P30	**ACP2000** **ACP100**				GX2160		GC4340	KCPK30 KCPM30			IC9250 IC4050	TT7800 TT8525
	M Stainless Steel	M10	**ACM200**							KCPM20				
		M20	**ACM200**	F7030 MC7020 MV1020	T3130 T3225	CA6535	GX2160 AX2040		GC2040	KCPM20 KCPM30	MP2500 MP2501 MS2500	WMP45G WSM45X		TT7800 TT8525
		M30	**ACM200**							KCPM20 KCPM30	MP2500 MP2501 T350M		IC5820	TT7800 TT8525
	K Cast Iron	K10	**ACK2000** **ACK200**		T1215					KCK15			IC5100	TT6800
		K20	**ACK2000** **ACK200**	MC520 MV1020 MC5020 F5010 F5020	T1115 T1215	CA420M	GX2120		GC3330 GC3220 GC3225 GC3020 GC3040	KC915M KC930M KC935M	MP1501 MK1500	WAK15 WKP25S WKP35S WKP35G	IC5100 DT7150 IC4010 IC4050 IC4100	TT6800

■ PVD Coated Grades

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning	P Steel	P10	**AC1030U** **ACZ150** **AC5005S** **AC5015S** **AC5025S** **AC520U**	VP15TF MS6015	AH110 AH120 AH710 AH725	PR915 PR930 PR1005 PR1215 PR1225 PR1705		TM1 VM1 DT4 DM4	GC1525	KCU10 KC5510	TS2000	WSM10	IC507 IC807 IC907	
		P20	**AC1030U** **AC5025S** **AC520U** **AC530U**	VP15TF VP20RT	AH120 AH725 AH3135	PR1225 PR1425 PR1725	IP2000	TM1 TM4 VM1 QM3 DM4	GC15 GC1125 GC1525	KCU25 KC5525	TS2500	WSM20	IC507 IC807 IC907	TT9030
		P30	**AC1030U** **AC530U**	VP15TF VP20RT	AH120 AH725 SH730 AH730	PR1425 PR1525 PR1535	IP3000 CY250	QM3	GC1125				IC328 IC928	TT8020 TT9030
		P40	**AC1030U**			PR660	IP3000		GC4335 GC4235				IC830	TT8020

Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Grade Comparison Chart

■ PVD Coated Grades (continued)

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning	M Stainless Steel / S Exotic Alloy	M10 S10	**AC5005S AC5015S AC5025S AC510U AC520U ACZ150**	MP9005 MP9015 VP15TF VP05RT VP10RT	AH110 AH710 AH725 AH905 AH6225 AH8005	PR005S PR015S PR915 PR1025 PR1215 PR1225 PR1305 PR1310	IP050S IP100S JP9105 JP9115	TM1 VM1 DT4 DM4 ZM3 ST4	H5D6 GC1105 GC1115	KCS10 KCS10B KC5510 KCU10	TH1000 TS2000	WSM01 WSM10 WSM10S	IC804 IC807 IC808 IC907 IC908	TT3005 TT3010 TT5080 TT8010
		M20 S20	**AC5015S AC5025S AC1030U AC520U**	MP9015 MP9025 VP15TF VP20RT VP20MF UP20M MS7025 MS9025	AH630 AH120 AH725 AH6225 AH8015	PR015S PR915 PR930 PR1025 PR1125 PR1215 PR1225 PR1325 PR1725	IP100S HS9115	DT4 DM4 ZM3 QM3 TM4 ST4	GC15 GC1115 GC1125	KC5525 KCU25 KC5025	TS2500	WSM20 WSM20S	IC330 IC806 IC808 IC830 IC908 IC928	TT3020 TT8010 TT8020 TT9030
		M30	**AC5025S AC6040M AC1030U AC520U AC530U**	MP7035 VP15TF VP20MF MS7025 MS9025	AH630 AH645 AH725 AH6235	PR1125 PR1525 PR1535		QM3 TM4 DT4 DM4	GC1125			WSM30 WSM30S	IC328 IC330 IC830 IC840 IC882	TT8020
		M40	**AC6040M AC1030U AC530U**	MP7035 VP15TF MS6015 MS7025	AH645 AH6235	PR1125 PR1535	GX30						IC830 IC928	TT8020
	K Cast Iron	K10	**AC1030U AC510U ACZ150 AC5015S**	VP10RT	AH110 AH120	PR905	HX3305 HG3305 HG3315 HX3515 HG8010 TH315 ATH10E		GC15				IC810	TT9030
		K20	**AC1030U AC510U ACZ150 AC5015S AC5025S**	VP10RT VP20RT VP15TF	AH120	PR905		DM4 QM3						TT9030
		K30	**AC1030U AC530U**	VP15TF VP20RT	AH110 AH120 AH725								IC830 IC908 IC910 IC928	
For Milling	P Steel	P10	**ACU2500 ACP200**	VP15TF MP6120	AH110 AH120 AH710 AH725	PR1225	PN215 PN15M JP4105 JP4115 JP4120 CY9020	DT4 DM4	GC1010	KC505M KC510M KC515M KCKP10	F25M			TT2510 TT7080
		P20	**ACP3000 ACU2500 ACP200 ACP300**	VP15TF VP20RT MP6120 MP6130 UP20M	AH9030 AH120 AH725 AH3035 AH3225	PR1525 PR1225 PR1230 PR830	JP4120 CY150 CY9020 JS4045	TM4 DT4 DM4	GC1010 GC1025	KC522M KC525M KCSM30 SP6519	MP3000 F30M F32M F40M	WSM35 WSM35S	IC808 IC810 IC908 IC910	TT7080 TT9030 TT9080
		P30	**ACP3000 ACU2500 ACP200 ACP300**	VP15TF VP30RT MP6130 UP20M	AH3035 AH3135 AH3225 AH120 AH130 AH140 AH725	PR1525 PR1230 PR830	JS4045 JS4060 CY25 CY150 CY250 CY250V HC844 PTH30E	DM4 TM4 ZM3	GC1030 GC1130 GC2030	KC725M KC735M KC525M KC530M KCPM40 KCSM30 SP6519 X400	F40M T60M MP3000	WSM35 WSM35S WSP45 WSP45G WSP45S	IC328 IC330 IC830 IC928	TT8080 TT8020 TT8525B
		P40	**ACP3000 ACU2500 ACP300**	VP30RT	AH140		JS4060 JM4160 PTH40H			KC725M KC735M KCPM40		WSP45 WSP45G WSP45S	IC830 IC845 IC928	TT8020 TT8080 TT8525B
	M Stainless Steel / S Exotic Alloy	M10	**ACM100 ACU2500 ACK300 ACP300**	MP9120 VP15TF	AH110 AH120 AH330 AH725 AH8005 AH8015	PR1210 PR1225	CY9020 JP4120 PN08M PN15M PN208 PN215	DT4 DM4 ZM3	GC1010 GC1025 GC1030 GC1130	KC515M SP4019 SP6519			IC808 IC908	
		M20	**ACS2500 ACU2500 ACP300**	MP7030 MP7130 MP9030 MP9120 MP9130 UP20M VP15TF VP20RT	AH120 AH130 AH330 AH725 AH3225 AH8015	PR1210 PR1225 PR1525 PR830	JP4120 CY150 JS1025	DT4 DM4 ZM3	S30T	KC522M KC525M SP4019 SP6519 X700	F25M F30M F32M MP3000 MS2050 MM4500	WSM35 WSM35S	IC328 IC330 IC808 IC830 IC840 IC908 IC928	TT9080 TT9030
		M30	**ACM300 ACS2500 ACS3000**	MP7030 MP7130 MP7140 MP9030 MP9130 MP9140 UP20M VP15TF VP20RT	AH130 AH140 AH330 AH725 AH3135	PR1525 PR1535 PR830	JM4160 PTH30E JS1025	DT4 DM4 ZM3	GC2030 GC1040 S30T	KC522M KC525M KC530M KC725M KC735M KCPM40 KCSM30 KCSM40 X700	F30M F32M F40M MP2050 MS2050	WSM35 WSM35S WSP45 WSP45G WSP45S	IC328 IC330 IC830 IC840 IC882 IC928	TT8020 TT8080 TT9080
		M40	**ACM300 ACS3000**	MP7140 MP9140 VP30RT	AH140	PR1535	JM4160 PTH40H			KC725M KCPM40 KCSM40		WSP45 WSP45G WSP45S	IC328 IC330 IC882	TT8020 TT8080
	K Cast Iron	K05	**ACK3000**	MP8010	AH110 AH710		TH303 TH308 ATH80D PTH08M		GC1010	KCKP10 SP4019	MH1000			
		K10	**ACK3000 ACU2500**	MP8010	AH110 AH120 AH330 AH710	PR1210	ATH10E TH315 CY100H		GC1010 GC1020	KC514M KC515M KC520M KCK20 KCK20B SP4019 SP6519	MH1000		IC810 IC910	TT7080 TT7515
		K20	**ACK3000 ACU2500 ACK300**	MP8010 VP15TF	AH110 AH120 AH330 GH330	PR1210 PR1510	JP4120 PTH13S CY100H CY9020	DM4	GC1020 GC1025	KC514M KC524M KCK20 KCK20B SP6519	MK2050 MK3000	WKK25S	IC808 IC810 IC830 IC908 IC910 IC928	TT6080 TT7515
		K30	**ACK3000 ACU2500 ACK300**	VP15TF VP20RT	AH725 AH120 AH330 GH110 GH130 GH330	PR1510 PR1210	JS4045 CY150 CY250		GC1025 GC1030 GC1130	KC520M KC522M KC524M	MK2050		IC830 IC810 IC910 IC928	TT6080

Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Grade Comparison Chart

■ Cermet

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning	P Steel	P10	**T1500Z* T1000A T1500A**	AP25N* NX2525 NX3035 VP25N*	GT720* GT9530* J9530* NS520	TN30,PV30*,TN60 TN6010,TN610 PV710*,PV7005* PV7010*	CZ25* CH550	Q15* Z15* T15 C7Z*	CT5015	KT125 HTX KT1120			IC20N IC30N IC520N	PV3030 PV3010 CT3000
		P20	**T1500Z* T2500Z* T1500A T2500A**	AP25N* NX2525 NX3035 MP3025*	NS530 NS730 GT530* GT730* AT9530* NS9530 GT9530* J9530*	TN60,TN6020 TN620,PV60* TN90 PV7020* PV7025* PV720	CZ25* CH550	T15 C7Z* C7X	GC1525*	KT6215 KT315* KT175 KT5020*	CM CMP C15M TP1020		IC20N IC30N IC520N IC530N	CT7000
		P30	**T2500Z* T2500A**	MX2525 MP3025* VP45N*	NS9530 GT9530* AT9530*	TN620 PV7025* PV90* PV720		N40 C7X						
	K Cast Iron	K10	**T1000A**	AP25N* VP25N* NX2525	GT720* GT9530* NS9530 J9530* NS520	TN30 PV30* TN610 TN6010 PV710* PV7005* PV7010*	CH550		CT5015	KT125 HTX				PV3030 CT3000
For Milling	P Steel	P30	**T2500A T250A T4500A**	NX2525 MX3030 NX4545 VP45N*	NS540 NS740	TN90 TC60M TN100M	MZ1000* MZ2000* MZ3000* CH7030 CH7035		CT530	KT530M* KTPK20*	C15M		IC30N	

*mark indicates coated cermet

■ Cemented Carbide

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/ Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
For Turning / For Milling	P Steel	P10	**ST10P**		TH10		WS10		S1P					
		P20	**ST20E**	UTi20T	KS20		EX35		SMA	K125M			IC07 IC50M	UF10
		P30	**A30 A30N**	UTi20T	KS15F UX30	PW30	EX35 EX40		SM30				IC54 IC28	P30
		P40	**ST40E**		TX40		EX45		S6				IC54 IC28	
	M Stainless Steel	M10	**EH510**		TH10		EX35 WA10B	KM1	H10A	KU10,K313 K68,KYSM10	890		IC07,IC20 IC08	
		M20	**EH520**	UTi20T	KS20		EX35		H13A	K313 K68	HX 883		IC07,IC20 IC08	UF10
		M30	**A30 A30N**	UTi20T	UX30				H10F SM30				IC28	
	K Cast Iron	K01	**H2 H1**	HTi05T	KS05F		WH01 WH05			KU10,K313 K68,K115M			IS8	
		K10	**H1 EH510**	HTi10	TH10	KW10 GW15	WH10	KM1	H13A	KU10,K313 K68,K115M K110M KY3500	890		IC20,IS8	K10
		K20	**G10E,H10E EH520**	UTi20T	KS15F KS20	GW25	WH20	KM3	H13A	KMF KY3500 KYHS10	890 883 HX		IC20 IS8	
		K30	**G10E,H10E**	UTi20T			WH30			KY3500	883			
	S Exotic Alloy	S10 S20	**EH510 EH520**	RT9005 RT9010 MT9015 TF15	TH10 KS05F KS15F KS20	SW05,SW10 SW25,KW10 GW15	WH10		H10A H10F H13A	KU10,K313 K68,KMF K110M,KYHS10 K1025	HX H25		IC20,IC07 IC08,IC28	K10
	Micro-fine Grained Carbide	Z01	**F0**	SF10,MF07 MF10,TBA16A	F,MD1508 MD08F		NM08						IC07	UF1A
		Z10	**AFU XF1**	HTi10 MF20	M,MD10 MD05F,MD07F	FW30	NM15		6UF,8UF PN90,H6FF		890		IC07	UF1A
		Z20	**AF0 AF1**	TF15 MF30	EM10,MD20 MD15		BRM20 EF20N		12UF		890 883		IC08	UF10
		Z30	**A1**		UM		NM25		N6F,H10F		883		IC08	

■ Ceramic

Applications	Work Material	Sumitomo Electric	Tungaloy	Kyocera	NTK	Sandvik	Kennametal	TaeguTec
For Turning / For Milling	H Hardened Steel	**NB100C**	WG300 LX11	A66N A65 KT66 PT600M	HC4,HC7 ZC7,WA1	GC6050 CC650 CC670	KY1615 KY4300	AB20 AB2010
	K Cast Iron	**NB90S**	LX11,LX21 CXC73,FX105 CX710	A65,A66N KA30,KS500 KS6000,KT66 PT600M CS7050,KS6050	HC1,HW2,HC2,HC6 HC7,WA1,SX1,SX2 SP2,SX9,SX8	CC620,CC650 CC6090 GC1690	KY1615,KY1310 KY1320,KY3500 KY4300	AW120,AB30 AS500,AS10 SC10

Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Grade Comparison Chart

■ CBN

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	NTK	Chukyo	Sandvik	Kennametal	SECO Tools	ISCAR
For Turning / For Milling	K Cast Iron	K01	**NCB100** **BNC500*** **BN7125** **BN500**	BC5110 MB710 MB5015	BX910 BX930 BX870	KBN475 KBN60M	B30 B16		CB50 CB7525	KB1340		IB50 IB85
		K10	**BN7125** **BN500**	MB710,MB730 MB5015,MB4020	BX470,BX480 BX950	KBN60M KBN900	B23 B16	HB55,HB56 HB569 HB580,HB57	CB7925		CBN200,CBN300 CBN300P,CBN400C	IB55 IB90
		K20	**BN7125** **BNC8115** **BNS8125**	MB730,MB4020 MB4120,MBS140	BX470,BX480 BXC90,BX90S	KBN900		HB56,HB569 HB580,HB57				
		K30	**BNC8115** **BNS8125**	MB4120,MBS140 BC5030	BXC90 BX90S			HB57		KB5630	CBN500	
	S Exotic Alloy	S01	**NCB100** **BN7125**	MB730 MB4020 MB4120	BX940,BX950 BX470,BX480 M714B			HB55 HB580 HB52		KB5630 KB1340		IB85 IB05S IB10S
	H Hardened Steel	H01	**BNC2105** **BNC2010** **BNC2115** **BN1000** **BN2000** **BNX10**	BC8210 BC8105 BC8110 MB8110	BXA10 BXM10 BX310	KBN05M KBN10M KBN510	B5K B52	HB55 HB550 HB580 HB590	CB7105	KBH10B KB5610	CH0550 CBN10 CBN100 CBN060K	IB05H IB50 IB10HC
		H10	**BNC2010** **BNC2020** **BNC2115** **BNC2125** **BN2000**	BC8210 BC8220 BC8110 BC8120 MB8025 MB8110	BXA10 BXM10 BX330 BX530	KBN05M KBN25M KBN525	B5K B6K B52 B36	HB55 HB59 HB550 HB580 HB52	CB7015 CB7115 CB20	KBH20B KBH20 KBH10B KB5610 KB5625	CBN10 CBN100 CBN150 CBN060K CBN160C	IB10H IB55 IB25HA
		H20	**BNC2020** **BNC2125** **BNX20**	BC8220 BC8120,BC8020 MB8025,MB8120	BXA20 BXA40 BXM20 BX360	KBN020 KBN35M KBN900	B36 B40 B6K	HB57,HB59 HB590 HB580	CB7025 CB7125 CB50	KBH20B KBH20 KB5625 KB5630	CH2540 CBN150 CBN160C	IB20H,IB20HC IB25H,IB25HC
		H30	**BNC300** **BN350**	BC8130 MB8130	BXM20 BXA20 BXA30 BXC50 BX380 BR35F	KBN020 KBN35M KBN900	B40	HB57 HB580	CB7135 CB7525	KB5630	CH3515	IB90

*mark: For ductile cast iron cutting

■ Polycrystalline Diamond

Applications	Work Material	Classification Code	Sumitomo Electric	Mitsubishi	Tungaloy	Kyocera	NTK	Chukyo	Sandvik	Kennametal	SECO Tools	ISCAR
For Turning / For Milling	N Non-Ferrous Metal	N01	**DA1000** **DA90**	MD205	DX180 DX160	KPD001	PD1		CD05 CD10	KD1400		ID5
		N10	**DA1000** **DA150**	MD205 MD220	DX140	KPD001 KPD010 KPD230	PD2	HD100 HD30 HD60	CD1810	KD1400 KD1425	PCD05 PCD10	ID5
		N20	**DA1000** **DA2200**	MD220 MD230	DX120 DX110	KPD230 KPD250	PD2	HD100 HD30 HD50		KD1400 KD1425	PCD05 PCD20	
		N30	**DA1000** **DA2200**	MD2030 MD230	DX110			HD30,HD50 HD700 HD100		KD1400	PCD05 PCD30 PCD30M	

Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Chipbreaker Comparison Chart

■ Negative Type Inserts

Part Material	Applications	Sumitomo	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
P Steel	Fine Cutting	**EFA**	FH	TF	GP			QF	FF	FF1		SF	
		EFL,EFB	FS,FY	NS,ZF	XP,XF,VF	FE	WM			FF2	FP5		FA
	Finishing	**ELU,EFE**	SA,SY	NM	PP,XQ,CQ	BE	ZF1	LC	FN		NF3		FG
		ESU	SH	TS,TSF	HQ	CE,B,BH	UL,WV	XF,MF	CT	MF2		NF	FC
	Finishing (Wiper Edge)	**ELUW**		AFW,FW	WP			WL,WP		W-FF2			
		ESEW	SW	ASW,SW	WQ			WF,WMX	FW	W-MF2	NF	WF	WS
	Finishing to Light Cutting	**ESE,ESX**	LP	AS,ZM	CJ,XS	AB,CT	ZW1,WR	PF,KF	LF,33		MP3,NS6	F3P,TF	
	Medium Cutting	**EGU**(EUG)	MA,MV	TM,TQ	HS,PS	AH	ZP	XM,QM PMC	P,MG	M3		GN	ML,MP MC
		EGE,EUX	MH,MP	DM,AM	PQ,GS PT,PG	AE,AY	Z5	PM,SM KM,HM	MN,MP1		MP5,NM4 NM6	RF,LF	PC,MT
	Medium Cutting (Wiper Edge)	**EGUW**	MW					WM	MW,RW	W-M3	NM	WG	WT
	Roughing	**EMU,EME**	RP,GH	TH,S	HT,GT PH	RE,AR	G	PR,XMR KR	RP	M5,MR7	RP5,NM9 RP7	M3P,NR	RT
		EMX,EMP	HAS,MT	CH					RN	MR6			
	Heavy Cutting	**EHG**	HZ,HX,HL	THS,TRS	PX, Standard	TE,UE		QR	RM,MR	R4,R5,M6	NR6,NRF	NM	RX
		EHP	HH,HXD,HR	65				HR,SR	RH	R7,MR7	NR8	TNM	RH
		EHU,EHW	HV			H							HT,HD HY
		EHF	HCS	TUS		HX,HE		MR		RR9	NRR	R3P	HZ
M Stainless Steel	Finishing	**ESU,EEF**	LM,SH	SS	MQ,GU	SE,MP	ZF1	MF	FP,FS,LF	MF2	NF4		EA,SF
	Light to Medium Cutting	**EEX,EEG**	GM,MS	SF,SA	MS,MU	PV	ZP	23	MS	MF1,M1		TF,VL	EM
	Medium Cutting	**EGU**	MM	SM		DE		MM,MMC SMR	MP	MF3,M3	NM4	M3M PP	ET
	Roughing	**EHM**	ES,1M,2M,HL	S					UP	MF4,MF5	NR4,RM5		VF
		EEM,EMU	RM,GH,HM	SH	TK			MR,MRR		M5,MR3,MR4		MR	SU
K Cast Iron	Light Cutting	**ENZ**	LK,MA,MK	CM,CF	Standard, C	V,VA		KF	UN	M4	NM5	GN	MT
	Medium Cutting	**EGZ**(EUX)	GK,RK,GH	Standard, CH, 33	ZS,GC	Y,RE		KM,KR KRR		MR7	RK5,RK7		RT
N Non-Ferrous Metal	Finishing	**RAX/ LAX**		P	AH				MS				
S Exotic Alloy	Finishing	**EEF**	LS,FJ	HRF				SF,SGF			NFT		
	Medium Cutting	**EEG,EEX**	MS,MJ	HMM,SA,HRM		VI		SM,SMC			NMT		
	Roughing	**EMU,EEM**	RS,GJ					SMR			NRT		
H Hardened Steel	Finishing	**FV***		HP*									
	Light Cutting	**LV***	BF*	HF*	HH*,HL*								
	Medium to Roughing	**EGH**											
	Carburised Layer Removal	**SV***	BM*	HM*	HD*			HGR*					

( ) indicates a discontinued item. *mark indicates CBN / PCD tool breaker

Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Chipbreaker Comparison Chart

■ Positive Type Inserts

Part Material	Applications	Sumitomo	Mitsubishi	Tungaloy	Kyocera	Mitsubishi/Hitachi	NTK	Sandvik	Kennametal	SECO Tools	WALTER	ISCAR	TaeguTec
P Steel	Fine Finishing / Finishing	**MEFF**		01	CF		AMX,FG						
	Finishing	**EFC**	FJ,AM	01,JRP,JTS	CF,GF,VF		AZ7,AMX FG	UM		GT-F1	FM4		
		EFB,ELU (EFP,EFK)	FP,FM FV,SQ	PSF,PF,23 SS,JSS	GP,XP,PP MQ,DP	JQ,MP	ZR	PF,UF MF,XF	11,UF,MF KF,XF	FF1	FP4	PF	FA,FX
	Finishing (Wiper Edge)	**ELUW**	SW		WP			WF	FW	W-F1	PF	WF	WT
		RW/LW						WK,WM	MW	W-F2		WG	
	Finishing to Light Cutting	**MESI**	SMG	JS	CK		YL,1L						SA
	Light Cutting	**ELB,ESU** (ESK,ENF)	LP,LM SV,MQ	PSS,PS,TS TJS,CM	HQ,XQ GK	JE	AZ8,AM2 AM5	PM,UM XM	LF	F1	MP4,MM4 FP6	SM,14	FG,PC
		EFM			GQ, SK, Standard		AF1,CL		MP	MF2			
	Light to Medium Cutting	**ESC**			GQ, SK,Standard		AF1,CL		MP	MF2			
		ESU,EGU, MESL	Blank	PS, PM	HQ			PM, UM			PM5		
	Medium Cutting	**EMU**	MP,MM MK,MV	PM				PR,UR,MMC MPC,XR	MF	F2,M3 M5	PM5,RP4 RM4	19	MT,PMR
M Stainless Steel	Fine Finishing / Finishing	**MEFF**											
	Finishing	**EFC**	FM,FV	PSF,PF SS,JSS			AZ7,AM3	MF,XF	11,UF	FF1	FM4	PF	FA,FX
	Finishing to Light Cutting	**MESI**	SMG				YL,1L	UF	LF,FP				FG
	Light Cutting	**ELB,ESU**	LM,SV		MQ,HQ		AM5,CL	MM	MP	F1,MF2	MM4,PS5	SM	PC
	Light to Medium Cutting	**EMU,MESL**	MM, MV, Blank	PM				UM,MR XR,UR	MF	F2,M3 M5	PM5,RM4		MT,PMR
K Cast Iron	Fine Finishing / Finishing	**MEFF**			CF								
	Finishing	**EFC**		CF				KF,XF	11,UF		FK6		
	Light to Medium Cutting	**EMU**	MK				AF1,FM	KM,UM,XR	FP,LF MF,MP	M5	MK4,RK4		MT
N Non-Ferrous Metal	Finishing	**NAG,NAW, (R)LAY**	AZ	AL,PP	AH			AL	HP	AL	PM2	AS,AF	FL
	Finishing to Light Cutting	**LD*, GD***											SA
S Exotic Alloy	Fine Finishing / Finishing	**MEFF**			CF								
	Finishing	**EFC,MESI**	FS	PSS	PP,MQ			WF,MF					
	Light to Medium Cutting	**ESU,EGU, MESL**	LS,MS	PS,PM	HQ,GK			UM,PM		MF2,R2 R3	FV4,MV4		
H Hardened Steel	Finishing	**FV***		HP*									
	Light Cutting	**LV***	BF*										

( ) indicates a discontinued item. *mark indicates CBN / PCD tool breaker

Note: The above data was collected from various published catalogs. The information may therefore not be up to date.

Chipbreaker Selection

Negative — Finishing to Medium Cutting

Dimensions shown in mm

Fine Finishing

EFB — P M K N S H
Provides excellent chip control and sharp edge needed for low feed machining
0.80 | 27° | 0° | CNMG43 | C D R S T V W

EFA — P M K N S H
Profile breaker perfect for fine finishing
1.0 | 20° | 0° | CNMG43 | C D R S T V W

EFL — P M K N S H
Optimal breaker for chip control on rolled steel
1.0 | 10° | 0° | CNMG43 | C D R S T V W

EFE — P M K N S H
Excellent chip control for low to high feed machining
1.40 | 0.70 | 20° | 0° | CNMG43 | C D R S T V W

Legend

EGU — P M K N S H
Versatile chipbreaker featuring excellent wear resistance
Strong, versatile chipbreaker
0.25 | 2.05 | 25° | 7° | 0° | CNMG43 | C D R S T V W

Chipbreaker — Photo — Relief Angle — Shapes In Stock — Part Material — Features — Typical Cross Section Shape — Cat. No. for Cross Section

J=Uncoated, polished grade for Non-Ferrous materials

Finishing

ELU — P M K N S H
Effective chip control for variable depths of cut and profiling
1.5 | 1.0 | 10° | 0° | CNMG43 | C D R S T V W

ESU(J) — P M K N S H
Effective at high feed and low depth of cut
1.3 | 13° | 0° | CNMG43 | C D R S T V W

ESE — P M K N S H
Finishing breaker reduces tool wear on rake face. Effective even for high-efficiency machining.
0.1 | 1.5 | 17° | 5° | 0° | CNMG43 | C D R S T V W

EEF — P M K N S H
Exotic alloy finishing breaker with excellent chip control
1.2 | 20° | 0° | CNMG43 | C D R S T V W

ELUW — P M K N S H
High-efficiency finishing breaker with wiper edge
Wiper Insert
1.5 | 1.0 | 10° | 0° | CNMG43 | C D R S T V W

ESEW — P M K N S H
New high-feed finishing breaker with wiper edge
Wiper Insert
0.13 | 1.9 | 17° | 5° | 0° | CNMG43 | C D R S T V W

(R/L)FX — P M K N S H
Parallel breaker with superior sharp edge
1.5 | 14° | 0° | TNP33 | C D R S T V W

(R/L)FY — P M K N S H
Wide breaker with sharp edge
2.5 | 15° | 0° | TNP33 | C D R S T V W

(R/L)Q — P M K N S H
Arc-shaped ground finishing breaker
0.15 | 1.35 | 0° | TNP22 | C D R S T V W

Light to Medium Cutting

EFJ — P M K N S H
Standard chipbreaker with excellent cutting edge strength
0.18 | 1.2 | 0° | SNMG43 | C D R S T V W

(R/L)T — P M K N S H
Arc-shaped ground breaker for light cutting
0.15 | 1.65 | 0° | TNP32 | C D R S T V W

(R/L)GX — P M K N S H
Double positive chipbreaker providing superior sharpness
1.5 | 15° | 0° | SNGG43 | C D R S T V W

ESX — P M K N S H
Perform profiling and raise steps
1.35 | 0.2 | 15° | 3° | 0° | CNMG43 | C D R S T V W

EEX — P M K N S H
Standard chipbreaker designed especially for use with exotic alloys
2.0 | 16° | 0° | CNMG43 | C D R S T V W

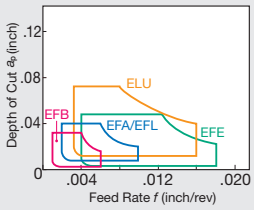
EUP — P M K N S H
Double positive edge for optimal stainless steel cutting
2.1 | 10° | 0° | CNMG43 | C D R S T V W

Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
Break Master (CBN/PCD) | For Chamfering

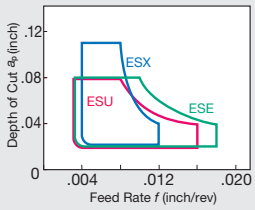
Applicable Part Material: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range (Inscribed Circle of Insert up to ø.5000inch)

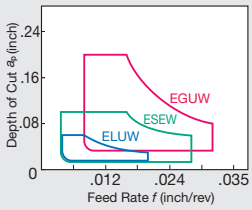
Fine Cutting to Finishing



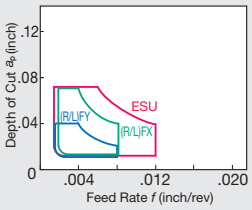
Finishing to Light Cutting



Wiper Insert



High-precision Cutting (Ground)



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalog number. For details, refer to "Stock Items" in Chapter B.

Chipbreaker Selection

Negative — Medium Cutting to Roughing

For Medium Cutting

EGU — P M K N S H
Versatile chipbreaker featuring excellent wear resistance
0.25 | 2.05 | 25° | 7° | CNMG43 | 0°
C D R S T V W

EGE — P M K N S H
A versatile breaker with excellent rake face wear resistance in high-efficiency cutting
2.0 | 0.25 | 23° | 3° | CNMG43 | 0°
C D R S T V W

EUX — P M K N S H
Extremely reliable and versatile chipbreaker with strong cutting edge
0.25 | 2.0 | 15° | CNMG43 | 0°
C D R S T V W

ENG — P M K N S H
Popular and versatile chipbreaker
Long-selling product
0.2 | 1.7 | 21° | 4° | CNMG43 | 0°
C D R S T V W

EEG — P M K N S H
General-purpose chipbreaker for exotic alloys with good chip control and wear resistance.
0.09 | 1.75 | 30° | CNMG43 | 0°
C D R S T V W

(R/L)M — P M K N S H
General-purpose ground chipbreaker for medium cutting
0.15 | 2.0 | 14° | CNMG43 | 0°
C D R S T V W

EGUW — P M K N S H
Finishing breaker with wiper edge for high-efficiency medium finishing
Wiper Insert
0.3 | 2.5 | 23° | CNMG43 | 0°
C D R S T V W

Medium to Roughing

EEM — P M K N S H
Breaker with excellent fracture and crater resistance
0.05 | 2.5 | CNMG43 | 0°
C D R S T V W

EMU — P M K N S H
Economical double-sided breaker with low cutting resistance for high-feed cutting
2.5 | 0.3 | 20° | 4° | CNMG43 | 0°
C D R S T V W

EME — P M K N S H
Chipbreaker for rough cutting that supports high-feed cutting with reduced rake face wear.
0.3 | 2.4 | 4° | CNMG43 | 0°
C D R S T V W

EMX — P M K N S H
Strong cutting edge for interrupted cutting
2.3 | 0.2 | 0.4 | 20° | -15° | CNMG43 | 0°
C D R S T V W

ENZ — P M K N S H
Standard breaker with stable cutting performance
1.9 | 0.3 | 14° | 4° | CNMG43 | 0°
C D R S T V W

EGZ — P M K N S H
Extremely reliable standard chipbreaker with strong cutting edge
1.9 | 0.25 | 16° | CNMG43 | 0°
C D R S T V W

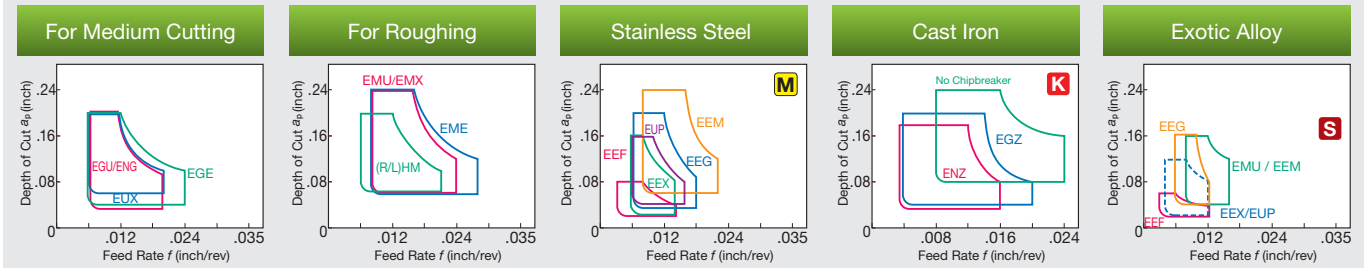
(R/L)HM — P M K N S H
Wide, M class, handed breaker with low cutting resistance for medium to rough cutting.
2.7 | 15° | 0.2 | 25° | TNM33 | 0°
C D R S T V W

(R/L)M — P M K N S H
Ground breaker with wide and gentle rake angle
0.15 | 2.95 | 10° | SNMG43 | 0°
C D R S T V W

Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
Break Master (CBN/PCD) | For Chamfering

Applicable Part Material: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range (Inscribed Circle of Insert up to ø.5000inch)



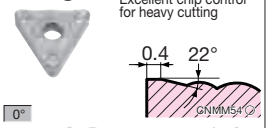
Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalog number. For details, refer to "Stock Items" in Chapter B.

Chipbreaker Selection

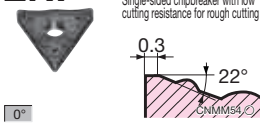
Negative Roughing

Rough to Heavy Cutting

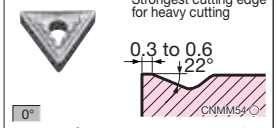
EHG — P M K N S H
Excellent chip control for heavy cutting



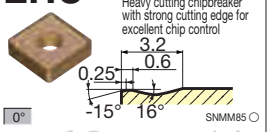
ENP — P M K N S H
Single-sided chipbreaker with low cutting resistance for rough cutting



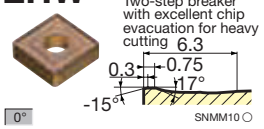
EHP — P M K N S H
Strongest cutting edge for heavy cutting



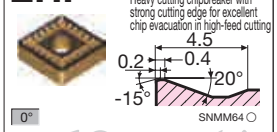
EHU — P M K N S H
Heavy cutting chipbreaker with strong cutting edge for excellent chip control



EHW — P M K N S H
Two-step breaker with excellent chip evacuation for heavy cutting



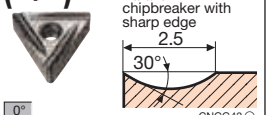
EHF — P M K N S H
Heavy cutting chipbreaker with strong cutting edge for excellent chip evacuation in high-feed cutting



Negative Aluminum Alloy Cutting

Finishing

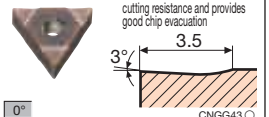
(R/L)AX — P M K N S H
Parallel Al chipbreaker with sharp edge



Negative Hardened Steel Cutting

Finishing

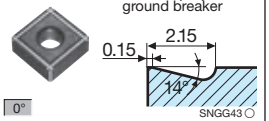
EGH — P M K N S H
Hardened steel breaker reduces cutting resistance and provides good chip evacuation



Negative Chamfering

For Chamfering

C — P M K N S H
General-purpose ground breaker

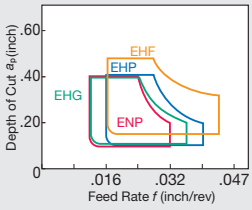


Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker | Break Master (CBN/PCD) | For Chamfering

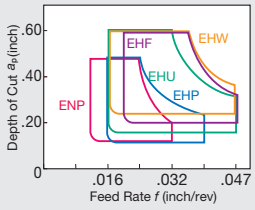
Applicable Part Material: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range

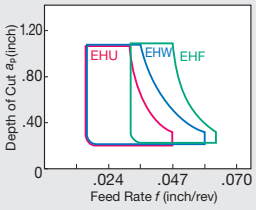
Rough to Heavy Cutting (Inscribed Circle ø.6250 to .7500inch)



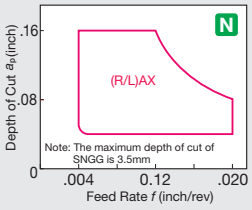
Rough to Heavy Cutting (Inscribed Circle ø1 inch)



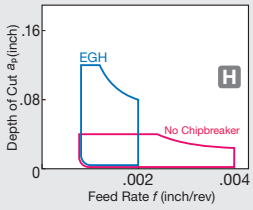
Rough to Heavy Cutting (Inscribed Circle ø1.2205inch)



Aluminum Alloy



Hardened Steel



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalog number. For details, refer to "Stock Items" in Chapter B.

Chipbreaker Selection

M Class Positive (Finishing to Medium Cutting)

Finishing to Light Cutting

EFB — P M K N S H
Finishing breaker for mild steel, with good chip control and surface finish
0.5 / 20°
5° 7° 11° — CCMT32 ○
C D R S T V W

ELU — P M K N S H
Chip control significantly improved in fine finishing
0.8 / 15°
5° 7° 11° — CCMT32 ○
C D R S T V W

ELUW — P M K N S H
High-performance finishing breaker with wiper edge
1.5 / 10°
Wiper Insert
7° 11° — CCMT32 ○
C D R S T V W

EFP — P M K N S H
Provides good chip control in fine finishing
1.40 / 10°
7° — CCMT32 ○
C D R S T V W

EFK — P M K N S H
Finishing breaker with sharp edge and good chip control
1.1
11° — TPMT33 ○
C D R S T V W

Light to Medium Cutting

ELB — P M K N S H
Light-cutting breaker with sharp edge and good chip control
0.8 / 15°
5° 7° 11° — CCMT32 ○
C D R S T V W

ESU — P M K N S H
General breaker with excellent edge sharpness
1.45 / 8°
7° 11° — TPMT22 ○
C D R S T V W

ENS — P M K N S H
Medium-cutting breaker providing good chip control
1.15 / 5°
11° — CPMH32 ○
C D R S T V W

ENS/ENX — P M K N S H
Small Hole Boring Bars
1.95 / 10°
11° — CPMH32 ○
C D R S T V W

EGU — P M K N S H
Highly Recommended Versatile Positive Chipbreaker
0.2 / 1.6 / 5° / 15°
5° 7° 11° — CCMT32.5 ○
C D R S T V W

EMU — P M K N S H
Long-life breaker with low cutting resistance
0.35 / 1.8 / 0.1 / 4° / 20°
7° 11° — TPMT33 ○
C D R S T V W

ENF — P M K N S H
Very reliable breaker with sharp edge
0.2 / 1.6 / 14°
11° — TPMT33 ○
C D R S T V W

ENJ — P M K N S H
Ensures stable tool life
0.1 / 1.5 / 5°
11° — TPMR32 ○
C D R S T V W

Positive G Class (Ground)

Finishing to Light Cutting

FW — P M K N S H
Wide-dimpled chipbreaker with sharp edge
0.90 / 15° / (20°)
5° 11° — TPMT21.5 ○
C D R S T V W

(R/L)FX — P M K N S H
Parallel breaker with sharp edge
0.9 / 15°
5° 7° 11° — TPGT22 ○
C D R S T V W

(R/L)FYS — P M K N S H
Fine-cutting breaker with sharp edge
0.5 / 15°
5° 7° — CCET04X1 ○
C D R S T V W

(R/L)FY — P M K N S H
Wide breaker with sharp edge
1.5 / 15°
5° 7° 11° — TPGT22 ○
C D R S T V W

(R/L)W — P M K N S H
Wide finishing breaker
0.15 / 1.0 / 10°
5° 11° — TPGR22 ○
C D R S T V W

(R/L) — P M K N S H
Stepped parallel ground
0.9
7° 11° — TPGT22 ○
C D R S T V W

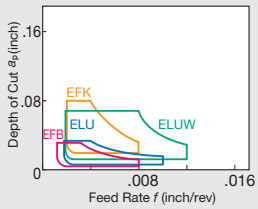
(R/L)W — P M K N S H
High-performance finishing breaker with wiper edge. Parallel ground breaker
0.9
Wiper Insert
11° — TPGG22 ○
C D R S T V W

Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
Break Master (CBN/PCD) | For Chamfering

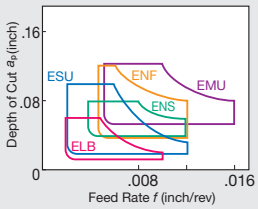
Applicable Part Material: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range

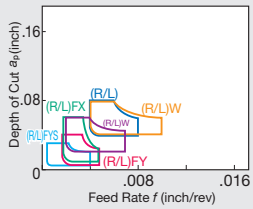
Class M Finishing to Light Cutting



Class M Light to Medium Cutting



Class G Ground



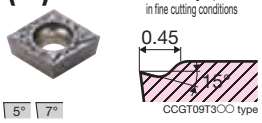
Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalog number. For details, refer to "Stock Items" in Chapter B.

Chipbreaker Selection

Positive G Class

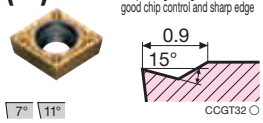
Finishing to Light Cutting

(M)EFF
P M K N S H
Realises outstanding chip evacuation in fine cutting conditions



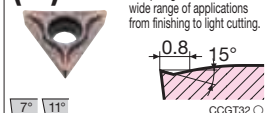
5° 7°
C D R S T V W

(M)EFC
P M K N S H
Peripheral grinding 3D breaker with good chip control and sharp edge



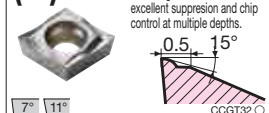
7° 11°
C D R S T V W

(M)ESI
P M K N S H
Sharp edged breaker for a wide range of applications from finishing to light cutting.



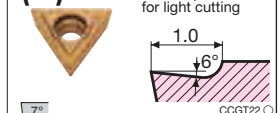
7° 11°
C D R S T V W

(M)ESL
P M K N S H
Slant edged breaker for excellent suppresion and chip control at multiple depths.



7° 11°
C D R S T V W

(M)EFM
P M K N S H
Two-step breaker for light cutting

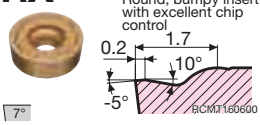


7°
C D R S T V W

Positive Insert Round Inserts

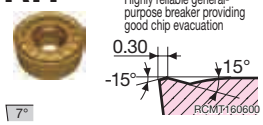
Thread Rolling Cylindrical Die

RX
P M K N S H
Round, bumpy insert with excellent chip control



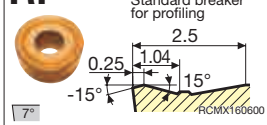
7°
C D R S T V W

RH
P M K N S H
Highly reliable general-purpose breaker providing good chip evacuation



7°
C D R S T V W

RP
P M K N S H
Standard breaker for profiling



7°
C D R S T V W

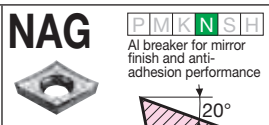
Positive For Aluminum Alloy

Finishing

NAW
P M K N S H
Finishing breaker for aluminum with sharp edge

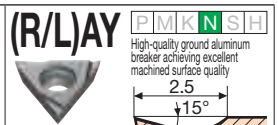
7°
C D R S T V W

NAG
P M K N S H
Al breaker for mirror finish and anti-adhesion performance



7°
C D R S T V W

(R/L)AY
P M K N S H
High-quality ground aluminum breaker achieving excellent machined surface quality



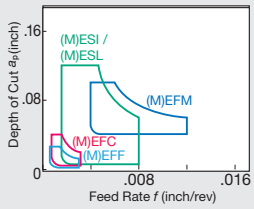
5° 7° 11°
C D R S T V W

Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker
Break Master (CBN/PCD)

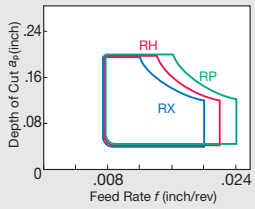
Applicable Part Material: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range

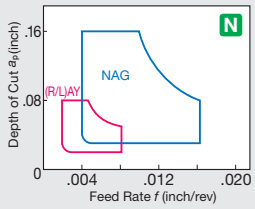
Class G Chipbreaker



Round Inserts
(Inscribed Circle up to .5000inch)



Aluminum Alloy



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalog number. For details, refer to "Stock Items" in Chapter B.

Chipbreaker Selection

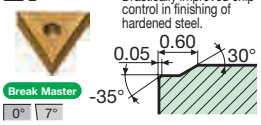
SUMIBORON Insert CBN

Finishing to Light Cutting

LV

P M K N S H

Drastically improved chip control in finishing of hardened steel.



Break Master

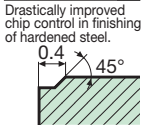
0° 7°

C D R S T V W

FV

P M K N S H

Drastically improved chip control in finishing of hardened steel.



Break Master

0° 7°

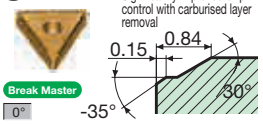
C D R S T V W

Carburised Layer Removal

SV

P M K N S H

Significantly improved chip control with carburised layer removal



Break Master

0°

C D R S T V W

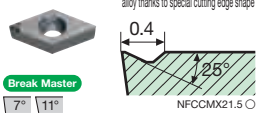
SUMIDIA Insert PCD

Finishing to Light Cutting

LD

P M K N S H

Ideal breaker for finishing of aluminum alloy thanks to special cutting edge shape



Break Master

7° 11°

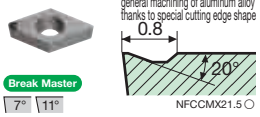
NFCCMX21.5

C D R S T V W

GD

P M K N S H

Ideal breaker for medium finishing to general machining of aluminum alloy thanks to special cutting edge shape



Break Master

7° 11°

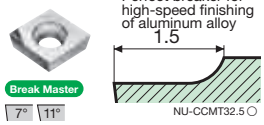
NFCCMX21.5

C D R S T V W

DM

P M K N S H

Perfect breaker for high-speed finishing of aluminum alloy



Break Master

7° 11°

NU-CCMT32.5

C D R S T V W

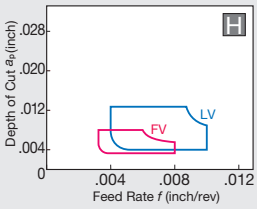
Bumpy Chipbreaker | Standard Chipbreaker | Handed Chipbreaker

Break Master (CBN/PCD)

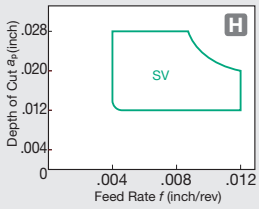
Applicable Part Material: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy H Hardened Steel

Chipbreaker Application Range

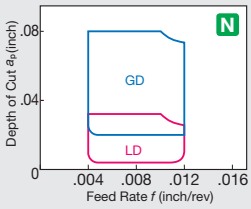
SUMIBORON (For Hardened Steel) (Inscribed Circle up to .5000inch)



SUMIBORON (Carburised Layer Removal) (Inscribed Circle up to .5000inch)



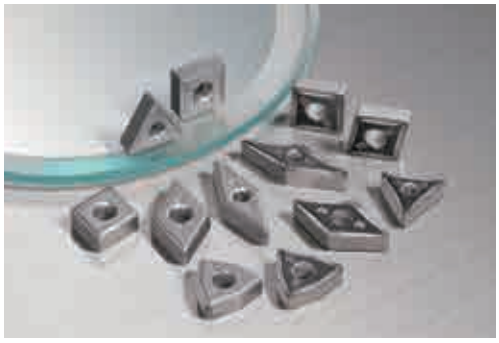
SUMIDIA (For Aluminum Alloy)



Indicated chipbreaker application ranges and shapes are representative values only. Actual values may change according to the actual catalog number. For details, refer to "Stock Items" in Chapter B.

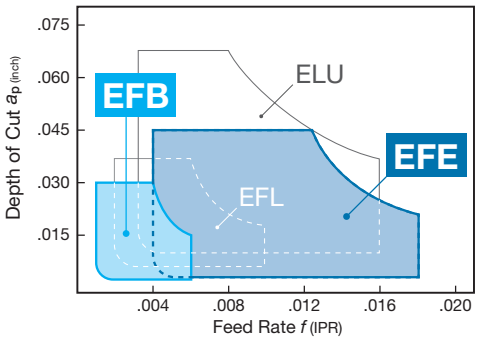
EFB / EFE

P Steel



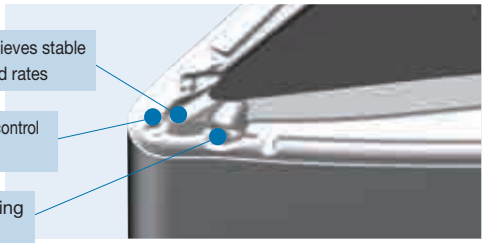
- The EFE main breaker for finishing achieves stable chip control over a wide range of feed rates for low carbon steel and general steel.
- Item range covers a wide variety of machining applications.
- The EFB for low feed finishing increases chip strain and thereby improves chip breaking performance thanks to the variable rake angle in the nose radius.

■ **Application Range**



EFE Breaker for Finishing

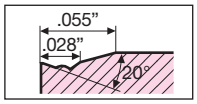
General purpose to high feed cutting



Arc-shaped main breaker design achieves stable chip control over a wide range of feed rates

Two-step breaker achieves stable chip control at low feed rates of f=.0039 IPR

Sub breaker for chip control during profiling



Cross Section of Chipbreaker

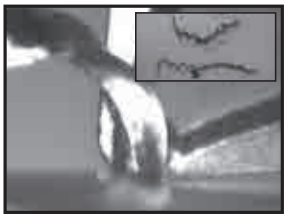
Performance

Chip Control

Part Material: Pipe material (A36) Insert: CNMG432EFE-AC8025P
Cutting Conditions: v_c = 656 SFM, f = .0157 IPR, a_p = .0079" Dry

Excellent chip control at low depth of cut, high feed conditions

EFE Breaker (AC8025P)



Conventional Tool

Application Examples

Part Material: Iron plate (1011 Hot Rolled Steel) Facing Insert: CNMG432EFE-AC8025P
Cutting Conditions: v_c=656 SFM, f=.0059 IPR, a_p=.0079-.0197", Wet

Breaks chips with a steady curl even in facing of rolled steel

EFE Breaker (AC8025P)

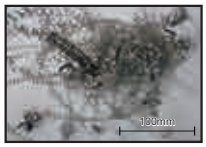
Competitor's Product

Application Examples

Part Material: 1053 Steel ø.785-3.935" External Diameter/Facing Insert: DNMG433EFE-AC8025P
Cutting Conditions: v_c=591 SFM, f=.0098 IPR (Corner), .0177IPR (Straight), a_p=.0118", Wet

Stable chip control even at low depth of cut and variable feed conditions

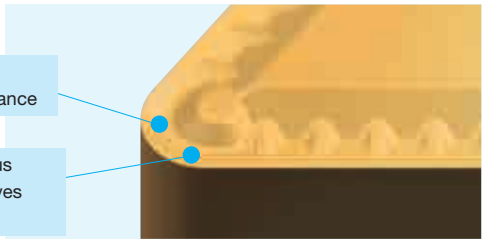
EFE Breaker (AC8025P)



Conventional Tool

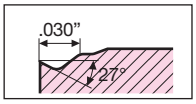
EFB Breaker for Low Feed Finishing

Low feed cutting



Smooth, high rake breaker joint achieves ultra-low cutting resistance

Variable rake angle in nose radius increases chip strain and improves chip breaking performance



Cross Section of Chipbreaker

Application Examples

Part Material: Pipe material (A36) Internal Diameter Machining Insert: DNMG431EFB-T3000Z
Cutting Conditions: v_c=1155sfm, f=.0012-.0079 IPR, a_p=.0276", Wet

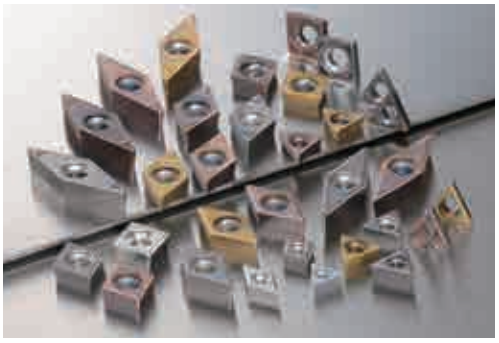
Small curls of chips even for pipe material, achieving a steady chip length

EFB Chipbreaker (T3000Z)

Competitor's Product

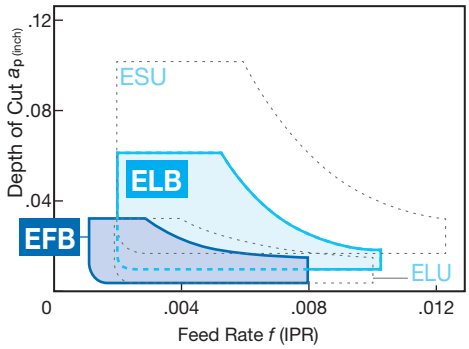
EFB / ELB

P Steel

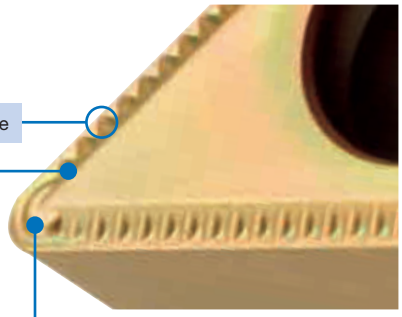


- The EFB for finishing and the ELB for light cutting have been added to the chipbreaker series for low carbon and general steel machining in addition to the existing ELU for finishing and ESU for light cutting.
- The EFB and ELB chipbreakers improve chip control in finishing of low carbon and general steel.

■ Application Range



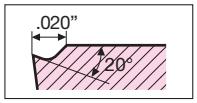
EFB Breaker for Finishing



Ridge reduces edge breakage

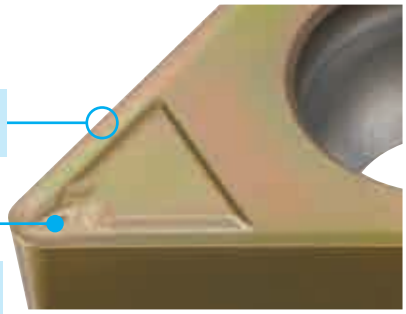
High rake breaker wall improves chip breaking performance

Variable rake angle in nose radius increases chip strain and improves chip breaking performance



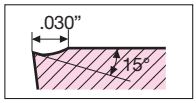
Cross Section of Chipbreaker

ELB Breaker for Light Cutting



Strengthened edge reduces unexpected breakage

Special breaker ridge shape achieves stable chip control



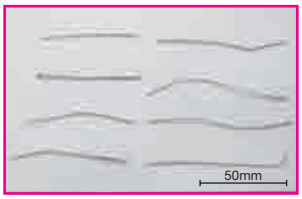
Cross Section of Chipbreaker

Performance

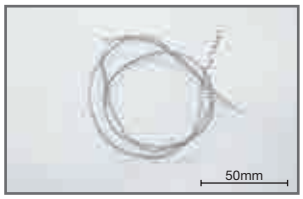
Chip Control

Part Material: Pipe material (A36) ø1.18" Internal Diameter Machining Insert: TPMT221EFB-T1500A
Cutting Conditions: v_c = 328 SFM, f = .0047 IPR, a_p = .0039" Wet

Achieves stable chip control at shallow depths of cut and low feeds



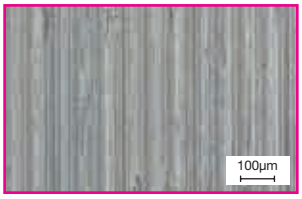
EFB Chipbreaker (T1500A)



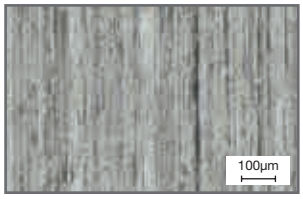
Competitor's Product

Comparison of Surface Roughness of Finished Surfaces

Part Material: Pipe material (A36) ø3.93" Internal Diameter Machining Insert: TPMT221EFB-T1500A
Cutting Conditions: v_c = 656 SFM, f = .0028 IPR, a_p = .0039" Wet



EFB Chipbreaker (T1500A)



Competitor's Product

Performance

Chip Control (1)

Part Material: Pipe material (A36) ø1.18" Internal Diameter Machining Insert: TPMT221ELB-T1500A
Cutting Conditions: v_c = 656 SFM, f = .0059 IPR, a_p = .0197" Wet

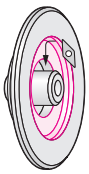
Achieves stable chip control in light cutting

ELB Chipbreaker (T1500A)

Competitor's Product

Chip Control (2)

Part Material: Hub (1045 Steel) Insert: VBMT332ELB-T1500A
Cutting Conditions: v_c=787 SFM, f=0.010 to .011 IPR, a_p=.0236", Wet



ELB Chipbreaker (T1500A)

Competitor's Product

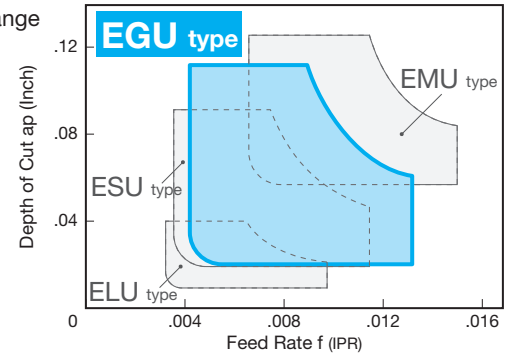
Doubles the tool life by improving chip control and reducing blemishes on machined surfaces

EGU

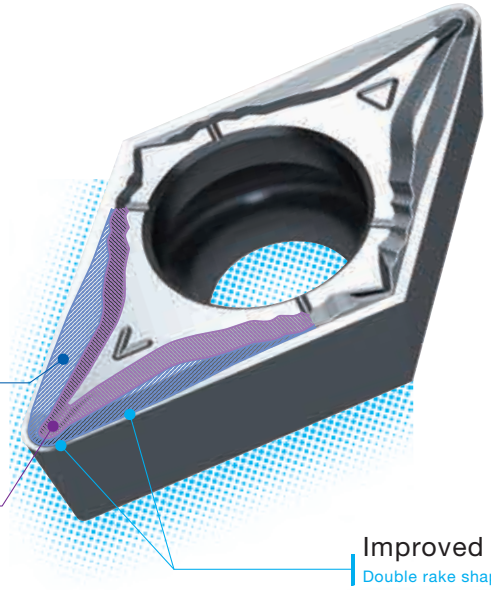
P Steel | M Stainless Steel | S Exotic Alloy

- Superb versatility handles processes from roughing to finishing.
- Stable turning is realised across a range of conditions through excellent cutting edge sharpness and strength.
- Item range covers a wide variety of applications.

■ Application Range



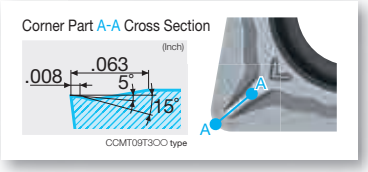
Features

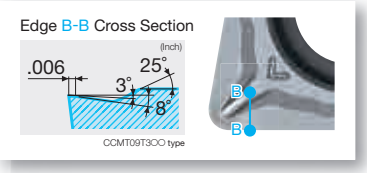


Excellent Chip Control Performance
Wide chip pocket supports various cutting conditions

Low Cutting Force Suppresses Chatter
Protrusion design controls chip flow

Improved Fracture Resistance
Double rake shape with excellent cutting edge sharpness and hardness

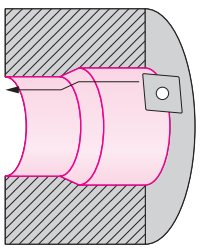


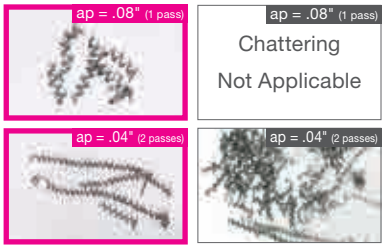


Application Examples

Improves turning efficiency by reducing chip entanglement

Work Material: Automotive Parts (4120H) Internal Tapered Boring
Insert: CPMT322EGU (AC8025P)
Cutting Conditions: vc = 660 SFM, f = .008 IPR, ap = .080", Wet

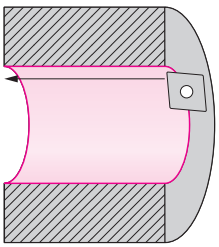




EGU type Chipbreaker (AC8025P) | Conventional Tool

Strong design realizes 1.5x longer tool life

Work Material: Fastening Parts (5015) Internal Boring
Insert: CCMT32.52EGU (AC8025P)
Cutting Conditions: vc = 620 SFM, f = .010 IPR, ap = .040" Wet



EGU type Chipbreaker (AC8025P) | Competitor's Product

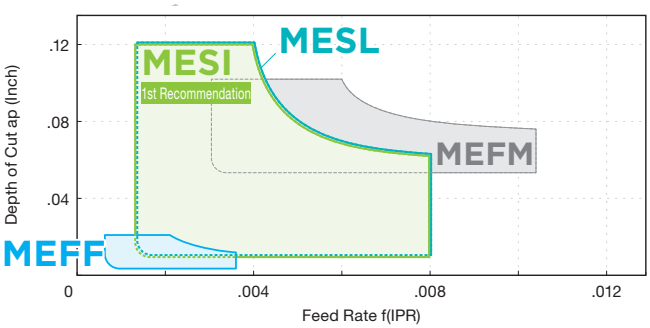
MEFF / MESL / MESI

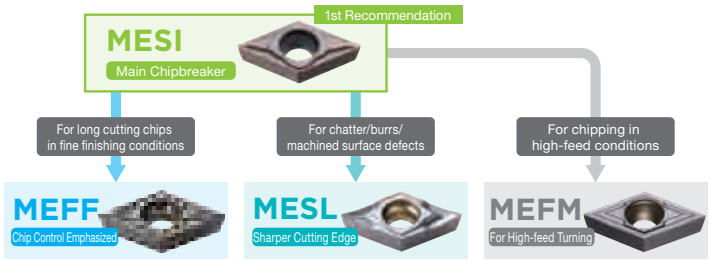
P Steel | M Stainless Steel | S Exotic Alloy

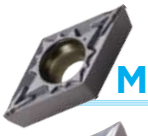
Features

New expanded lineup of chipbreaker series for high-accuracy small product machining of steel, stainless steel, and exotic alloys, supporting various turning needs

- Expanded MESI items, well received for their stable high chip evacuation performance
- MEFF type now available as a series, focusing on reliable chip control in fine cutting
- MESL now available as a series, with excellent cutting edge sharpness in light to medium cutting







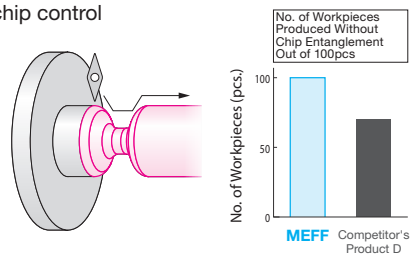
MEFF (New) — Outstanding chip control in fine finishing

MESL (New) — Exhibits excellent cutting edge sharpness over a wide range of cutting conditions. Emphasis on high machined surface quality

Application Examples

Steel for Mechanical Structures Header Part External Turning MEFF P

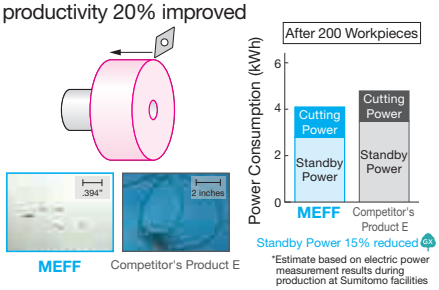
Increased productivity through improved chip control



Tool: VCGT220.5MEFF-AC1030U
Cutting Conditions: vc= 200 SFM, f= .0011 to .0019 IPR, ap= .0039" Wet (Oil-based)

4115 Steel Valve Part External Turning MEFF P

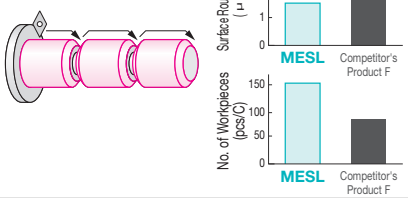
Drastically improved chip control, productivity 20% improved



Tool: DCGT32.50.5MEFF-AC1030U
Cutting Conditions: vc= 265 SFM, f= .0019 IPR, ap= .0029" Wet (Oil-based)

431 Stainless Steel Valve Part External Turning MESL M

Excellent cutting edge sharpness suppresses wear for 1.8 times longer tool life
Machined surface roughness was less than 50% of competitor's



Tool: DCGT21.50.5MESL-AC5025S
Cutting Conditions: vc= 900 SFM, f= .0016 IPR, ap= .0098" Wet (Oil-based)

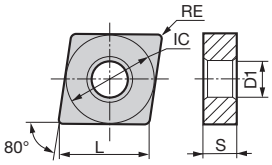
1045 Steel Sleeve Part Outward Facing MESL P

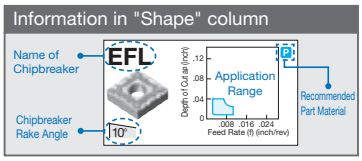
Excellent, stable machined surface quality

Tool: DCGT32.50.5MESL-AC5025S
Cutting Conditions: vc= 300 SFM, f= .0020 IPR, ap= .0039" Wet (Oil-based)

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole





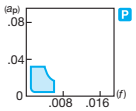
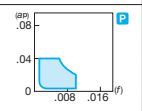
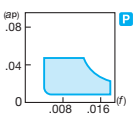
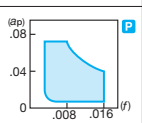
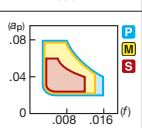
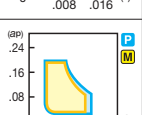
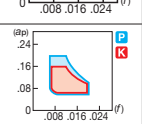
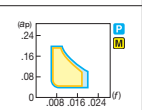
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CN■■32●

Dimensions (inch)				
	Cutting Edge Length L	.3819	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

Applicable External Holders C7 | Applicable Internal Holders E12

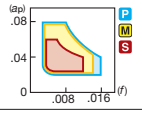
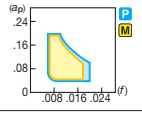
Recommended Application	Coated Carbide																						Coated Cermet		Cermet		Carbide			
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◒	◒	✖	○	◔	✿																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✿												◒								
K Cast Iron						✿						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																													◒	◒
S Exotic Alloy																●	◒	✖	○	◔	✿									
H Hardened Steel																●														

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	EFB 27°		CNMG321EFB	CNMG090304N-FB	.0156										★						—						—	★	★						—
			CNMG322EFB	CNMG090308N-FB	.0313										★						—						—	★	★						—
	EFL 10°		CNMG322EFL	CNMG090308N-FL	.0313			★													—						—	—	—	—	—			—	—
	EFE 20°		CNMG321EFE	CNMG090304N-FE	.0156	★	★	★	★					★	★						—						—	★	★						—
			CNMG322EFE	CNMG090308N-FE	.0313	★	★	★	★					★	★						—						—	★	★						—
Finishing	ELU 10°		CNMG321ELU	CNMG090304N-LU	.0156	★	★	★		▲	▲			★							—						—	★	★						—
			CNMG322ELU	CNMG090308N-LU	.0313	★	★	★		▲	▲			★							—						—	★	★						—
	ESU 13°		CNMG321ESU	CNMG090304N-SU	.0156	★	●	★			▲										—						—	—	—	—	—			—	—
			CNMG322ESU	CNMG090308N-SU	.0313	★	●	★			▲										—						—	—	—	—	—			—	—
Medium Cutting	EGU 7°		CNMG321EGU	CNMG090304N-GU	.0156	★	★	★	★								★	★	★		—						—	—	—	—	—			—	—
			CNMG322EGU	CNMG090308N-GU	.0313	★	●	●	★		▲	▲					★	★	★		—						—	—	—	—	—			—	—
	EUX 0°		CNMG321EUX	CNMG090304N-UX	.0156				★												—						—	—	—	—	—			—	—
			CNMG322EUX	CNMG090308N-UX	.0313				●			▲									—						—	—	—	—	—			—	—
	ENG 4°		CNMG321ENG	CNMG090304N-UG	.0156			★	★		▲										—						—	—	—	—	—			—	—
			CNMG322ENG	CNMG090308N-UG	.0313			●	★		▲										—						—	—	—	—	—			—	—

CN■■32.5●

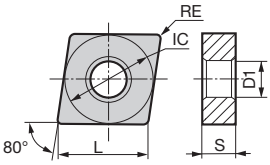
Dimensions (inch)				
	Cutting Edge Length L	.3819	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

Recommended Application	Coated Carbide																						Coated Cermet		Cermet		Carbide			
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◒	◒	✖	○	◔	✿																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✿												◒								
K Cast Iron						✿						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																													◒	◒
S Exotic Alloy																●	◒	✖	○	◔	✿									
H Hardened Steel																●														

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	ESU 13°		CNMG32.51ESU	CNMG09T304N-SU	.0156	★	★	★													—							—	—	—	—	—			—	—
			CNMG32.52ESU	CNMG09T308N-SU	.0313	★	★	★													—							—	—	—	—	—			—	—
Medium Cutting	ENG 4°		CNMG32.51ENG	CNMG09T304N-UG	.0156			★													—							—	—	—	—	—			—	—
			CNMG32.52ENG	CNMG09T308N-UG	.0313			★													—							—	—	—	—	—			—	—

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

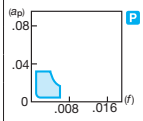
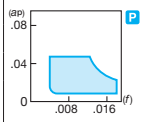
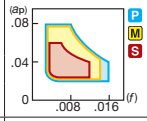
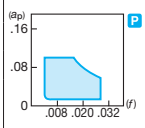
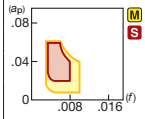
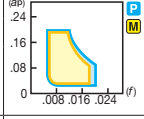
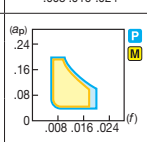
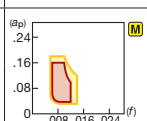
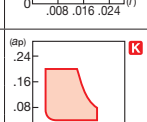
● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CN■■33●

Dimensions (inch)	Cutting Edge Length L	.3819	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

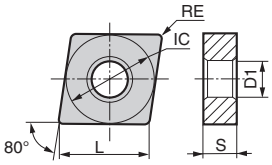
Applicable External Holders ☞ C9

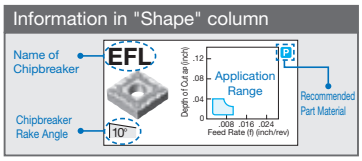
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	◯	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	◯	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	**EFB** 27°		CNMG331EFB	CNMG090404N-FB	.0156										★						—							—	★	★						—
			CNMG332EFB	CNMG090408N-FB	.0313										★						—							—	★	★						—
Fine Cutting	**EFE** 20°		CNMG331EFE	CNMG090404N-FE	.0156	★	★	★	★					★	★						—							—	★	★						—
			CNMG332EFE	CNMG090408N-FE	.0313	★	★	★	★					★	★						—							—	★	★						—
Finishing	**ESU** 13°		CNMG331ESU	CNMG090404N-SU	.0156	★	★	★			▲										—							—	★		★					—
			CNMG332ESU	CNMG090408N-SU	.0313	★	★	★			▲										—							—	★		★					—
			CNMG333ESU	CNMG090412N-SU	.0469	★	★	★	★												—							—	★		★					—
Finishing	**ESEW** 5° → B134 Wiper		CNMG331ESEW	CNMG090404N-SEW	.0156	★	★	★	★												—							—	—	—	—	—			—	—
			CNMG332ESEW	CNMG090408N-SEW	.0313	★	★	★	★												—							—	—	—	—	—			—	—
Finishing	**EEF** 20°		CNMG331EEF	CNMG090404N-EF	.0156								★	★	★						—	●	★	★				—	—	—	—	—			—	—
			CNMG332EEF	CNMG090408N-EF	.0313								★	★	★						—	●	●	★				—	—	—	—	—			—	—
Medium Cutting	**EGU** 7°		CNMG331EGU	CNMG090404N-GU	.0156			★													—							—	★		★					—
			CNMG332EGU	CNMG090408N-GU	.0313			★													—							—	★		★					—
			CNMG333EGU	CNMG090412N-GU	.0469	★	★	★	★								★	★	★		—							—	★		★					—
Medium Cutting	**ENG** 4°		CNMG331ENG	CNMG090404N-UG	.0156			★			▲										—							—	—	—	—	—			—	—
			CNMG332ENG	CNMG090408N-UG	.0313			★	★												—							—	—	—	—	—			—	—
	EEG 0°		CNMG332EEG	CNMG090408N-EG	.0313								★	★	★						—	●	★	★				—	—	—	—	—			—	—
			CNMG333EEG	CNMG090412N-EG	.0469								★	★	★						—	★	★	★				—	—	—	—	—			—	—
Medium to Roughing	**EGZ** 0°		CNMG332EGZ	CNMG090408N-GZ	.0313												★	★	★		—							—	—	—	—	—			—	—
			CNMG333EGZ	CNMG090412N-GZ	.0469												★	★	★		—							—	—	—	—	—			—	—

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

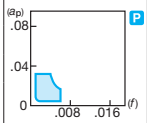
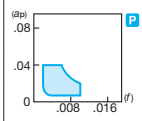
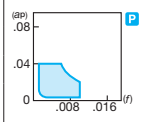
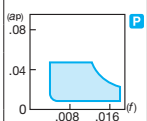
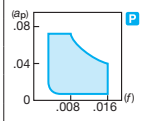
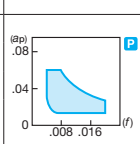
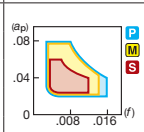
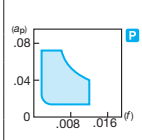
CN■■43●

Dimensions (inch)	Cutting Edge Length L	.5079	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts L30 on
SUMIDIA (PCD) Inserts M10
Ceramic Inserts B130
Applicable External Holders C5
Applicable Internal Holders E12

Recommended Application

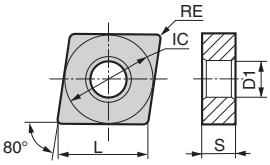
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
						Coated Carbide																						Coated Cermet		Cermet		Carbide			
Fine Cutting	EFB 27°		CNMG430.5EFB	CNMG120402N-FB	.0078										★						—							—	★	★	★					—
			CNMG431EFB	CNMG120404N-FB	.0156										★						—							—	★	★	★					—
			CNMG432EFB	CNMG120408N-FB	.0313										★						—							—	★	★	★					—
	EFA 20°		CNMG430.5EFA	CNMG120402N-FA	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	★	●	—	—		—
			CNMG431EFA	CNMG120404N-FA	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
			CNMG432EFA	CNMG120408N-FA	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
	EFL 10°		CNMG431EFL	CNMG120404N-FL	.0156		●	●			▲										—	★	★	★				—	●	★	★					—
			CNMG432EFL	CNMG120408N-FL	.0313		●	●			▲										—	●	★	★				—	●	★	★					—
	EFE 20°		CNMG430.5EFE	CNMG120402N-FE	.0078	●	●	●	★					★	★						—							—	★	★	★					—
			CNMG431EFE	CNMG120404N-FE	.0156	●	★	★	●					★	★						—							—	★	★	★					—
			CNMG432EFE	CNMG120408N-FE	.0313	●	★	★	●					★	★						—							—	★	★	★					—
			CNMG433EFE	CNMG120412N-FE	.0469	●	●	★	★	▲				★	★						—							—	★	★	★					—
Finishing	ELU 10°		CNMG430.5ELU	CNMG120402N-LU	.0078									★							—							—	★	★	★					—
			CNMG431ELU	CNMG120404N-LU	.0156	●	●	●	★	▲	▲			★							—							—	●	★	★	★				—
			CNMG432ELU	CNMG120408N-LU	.0313	●	●	●	●	▲	▲			★							—							—	●	★	★	★				—
			CNMG433ELU	CNMG120412N-LU	.0469	★	●	★	★	▲	▲			★							—							—	★	★		★				—
	ELUW → B134 Wiper 10°		CNMG431ELUW	CNMG120404N-LUW	.0156	●	●	●		▲	▲			★							—							—	●	●		●				—
			CNMG432ELUW	CNMG120408N-LUW	.0313	●	●	●		▲	▲			★							—							—	●	●		●				—
			CNMG433ELUW	CNMG120412N-LUW	.0469	●	●	●			▲			★							—							—	●	★		●				—
	ESU 13°		CNMG430.5ESU	CNMG120402N-SU	.0078									★	★						—	●	●	●	▲	▲		—	★	★	★					—
			CNMG431ESU	CNMG120404N-SU	.0156	●	●	●	●	▲	▲	▲		●	●	▲					—	●	●	●	▲	▲	★	—	●	★	★	●				—
			CNMG432ESU	CNMG120408N-SU	.0313	●	●	●	●	▲	▲	▲	★	●	●	▲					—	●	●	●	▲	▲	★	—	●	●	★	●				—
			CNMG433ESU	CNMG120412N-SU	.0469	●	●	●	●	▲	▲	▲		●	●	▲					—	●	●	●		▲	★	—	●	★	★	★				—
	ESU(J) 13°		CNGG430ESU	CNGG120401N-SU	.0039																	●	●	●	▲	▲										
			CNGG430.5ESU	CNGG120402N-SU	.0078																	●	●	●	▲	▲			●	●	★	●				
			CNGG430.5ESUJ	CNGG120402N-SUJ	.0078																															●
			CNGG431ESU	CNGG120404N-SU	.0156																	●	●	●	▲	▲			●	●	★	●				
			CNGG431ESUJ	CNGG120404N-SUJ	.0156																													●	●
			CNGG432ESU	CNGG120408N-SU	.0313																	●	●	●	▲	▲			●	★	★	★				
			CNGG432ESUJ	CNGG120408N-SUJ	.0313																													●	●

ESUJ depth of cut can be increased to .200" in Aluminum material

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖◯ Interrupted Cutting 2nd Recommended

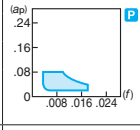
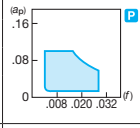
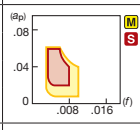
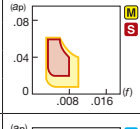
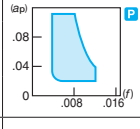
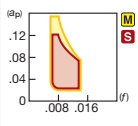
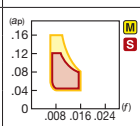
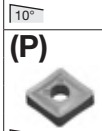
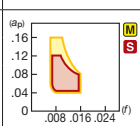
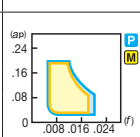
CN■■43●

Dimensions (inch)	Cutting Edge Length L	.5079	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts ☞ L30 on | SUMIDIA (PCD) Inserts ☞ M10 | Ceramic Inserts ☞ B130

Applicable External Holders ☞ C5 | Applicable Internal Holders ☞ E12

Recommended Application		Coated Carbide																						Coated Cermet		Cermet		Carbide			
		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◒	◒	✖	◯	◔	✖◯																◒	◒	✖	●	◒			
M	Stainless Steel								●	◒	✖	✖◯												◒							
K	Cast Iron						✖◯						✖	●	◒	✖								◒			●				
N	Non-Ferrous Metal																													◒	◒
S	Exotic Alloy																	●	◒	✖	◯	◔	✖◯								
H	Hardened Steel																●														

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	ESE 5°		CNMG431ESE	CNMG120404N-SE	.0156	●	●	●	●	▲		▲									—						—	●	★	★	●				—
			CNMG432ESE	CNMG120408N-SE	.0313	●	●	●	●	▲	▲	▲									—						—	★	★	★	●				—
			CNMG433ESE	CNMG120412N-SE	.0469	●	●	●	●	▲											—						—	—	—	—	—			—	—
	ESEW → B134 Wiper 5°		CNMG431ESEW	CNMG120404N-SEW	.0156	●	●	●		▲	▲										—						—	★	★		●				—
			CNMG432ESEW	CNMG120408N-SEW	.0313	●	●	●		▲	▲										—						—	★	★		●				—
			CNMG433ESEW	CNMG120412N-SEW	.0469	●	●	●		▲	▲										—						—	—	—	—	—			—	—
	EEF 20°		CNMG431EEF	CNMG120404N-EF	.0156	★	★	★	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	●	●	—	—
			CNMG432EEF	CNMG120408N-EF	.0313	★	★	★	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	●	●	—	—
			CNMG433EEF	CNMG120412N-EF	.0469	★	●	★	★				●	●	●						—	●	●	●		▲		—	—	—	—	—			—	—
	EEF 20°		CNGG430.5EEF	CNGG120402N-EF	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	●				—	—	—	—	—			—	—
			CNGG431EEF	CNGG120404N-EF	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	●	▲	▲		—	—	—	—	—			—	—
			CNGG432EEF	CNGG120408N-EF	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	★	●	▲			—	—	—	—	—			—	—
Light to Medium Cutting	ESX 3°		CNMG431ESX	CNMG120404N-SX	.0156	●	●	●	●	▲	▲	▲									—						—	●	★		★				—
			CNMG432ESX	CNMG120408N-SX	.0313	●	●	●	●	▲	▲	▲									—						—	●	★		●				—
			CNMG433ESX	CNMG120412N-SX	.0469	★	●	●	★	▲	▲	▲									—						—	—	—	—	—			—	—
	EEX 16°		CNMG431EEX	CNMG120404N-EX	.0156								●	●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—	●		—	—
			CNMG432EEX	CNMG120408N-EX	.0313								●	●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—			—	—
			CNMG433EEX	CNMG120412N-EX	.0469								●	●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—			—	—
	EUP 10°		CNMG431EUP	CNMG120404N-UP	.0156			●	●		▲	▲		●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—			—	—
			CNMG432EUP	CNMG120408N-UP	.0313		●	●	●		▲	▲		●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—			—	—
			CNMG433EUP	CNMG120412N-UP	.0469				●		▲	▲		●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—			—	—
	(P)  10°		CNGP432	CNGP120408	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	●				—	—	—	—	—			—	—
			CNGP433	CNGP120412	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	●				—	—	—	—	—			—	—
Medium Cutting	EGU 7°		CNMG431EGU	CNMG120404N-GU	.0156	●	●	●	●	▲	▲	▲	●	●	●	▲	★	●	★		—	●	●	●			★	—	★	★		★				—
			CNMG432EGU	CNMG120408N-GU	.0313	●	●	●	●	▲	▲	▲	●	●	●	▲	●	●	●		—	●	●	●			●	—	●	★		●				—
			CNMG433EGU	CNMG120412N-GU	.0469	●	●	●	●	▲	▲	▲	●	●	●	▲	★	●	●		—	●	●	●			★	—	—	—	—	—			—	—
			CNMG434EGU	CNMG120416N-GU	.0625	★	★	★	★		▲	▲					★	●	★		—							—	—	—	—	—			—	—

Coated Carbide | Coated Cermet | Cermet | Carbide

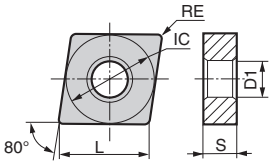
Insert | B | Neg. | Pos. | C | D | R | S | T | V | W | Ceramics Solid CBN

80° Diamond Negative Inserts

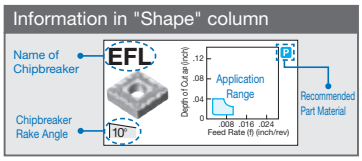
CN 80° Diamond Neg. With Hole

CN■■43●

Dimensions (inch)	Cutting Edge Length L	.5079	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031



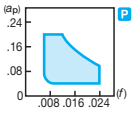
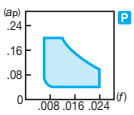
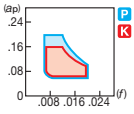
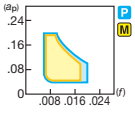
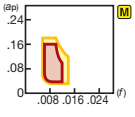
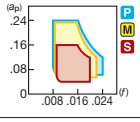
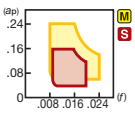
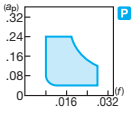
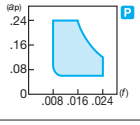
Information in "Shape" column



● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

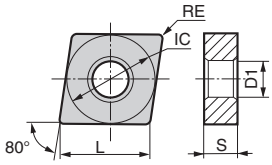
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

SUMIBORON (CBN) Inserts L30 on
SUMIDIA (PCD) Inserts M10
Ceramic Inserts B130
Applicable External Holders C5
Applicable Internal Holders E12

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting	**EGE** 3°		CNMG431EGE	CNMG120404N-GE	.0156	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG432EGE	CNMG120408N-GE	.0313	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG433EGE	CNMG120412N-GE	.0469	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG434EGE	CNMG120416N-GE	.0625	★	●	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
	EGUW → B134 Wiper 0°		CNMG432EGUW	CNMG120408N-GUW	.0313	●	●	●	●	▲	▲			●		▲	●	●	●		—							—	—	—	—	—			—	—
			CNMG433EGUW	CNMG120412N-GUW	.0469	●	●	●		▲	▲			●		▲		●	●		—							—	—	—	—	—			—	—
	EUX 0°		CNMG431EUX	CNMG120404N-UX	.0156	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG432EUX	CNMG120408N-UX	.0313	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG433EUX	CNMG120412N-UX	.0469	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG434EUX	CNMG120416N-UX	.0625	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
	ENG 4°		CNMG431ENG	CNMG120404N-UG	.0156	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG432ENG	CNMG120408N-UG	.0313	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG433ENG	CNMG120412N-UG	.0469			●	★		▲	▲									—							—	—	—	—	—			—	—
			CNMG434ENG	CNMG120416N-UG	.0625			★	★		▲	▲									—							—	—	—	—	—			—	—
	EEG 0°		CNMG431EEG	CNMG120404N-EG	.0156	★	●	●	●				●	●	●						—	●	●	●				—	—	—	—	—			—	—
			CNMG432EEG	CNMG120408N-EG	.0313	★	●	●	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	●	●	—	—
			CNMG433EEG	CNMG120412N-EG	.0469	★	●	●	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	★	●	—	—
		—	CNMA431	CNMA120404	.0156												●	●	●	▲	—							—	—	—	—	—			—	—
			CNMA432	CNMA120408	.0313												●	●	●	▲	—	●	●	★				—	—	—	—	—			—	—
			CNMA433	CNMA120412	.0469												●	●	●	▲	—							—	—	—	—	—			—	—
			CNMA434	CNMA120416	.0625												★	●	●	▲																
		—	CNGA430.5	CNGA120402	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—			—	—
			CNGA431	CNGA120404	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—			—	—
			CNGA432	CNGA120408	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—			—	—
Medium to Roughing	**EMU** 4°		CNMG432EMU	CNMG120408N-MU	.0313	●	●	●	●	▲	▲	▲		●	●	▲	●	●	●		—	●	●	●	▲	▲	●	—	—	—	—	—		●	—	—
			CNMG433EMU	CNMG120412N-MU	.0469	●	●	●	●	▲	▲	▲		●	●	▲		●			—	●	●	●	▲	▲	●	—	—	—	—	—	★	●	—	—
			CNMG434EMU	CNMG120416N-MU	.0625	●	●	●	●	▲	▲	▲		●	●	▲					—	●	●	●			●	—	—	—	—	—			—	—
	EEM 0°		CNMG432EEM	CNMG120408N-EM	.0313	★	●	●	●				●	●	●						—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG433EEM	CNMG120412N-EM	.0469	★	●	●	●				●	●	●						—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG434EEM	CNMG120416N-EM	.0625	★	★	★	●				●	●	★						—	●	●	●				—	—	—	—	—			—	—
	EME 4°		CNMG432EME	CNMG120408N-ME	.0313	●	●	●	●	▲	▲	▲					●	●	●		—							—	—	—	—	—			—	—
			CNMG433EME	CNMG120412N-ME	.0469	●	●	●	●	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—
			CNMG434EME	CNMG120416N-ME	.0625	★	●	●	★	▲	▲	▲					★	●	★		—							—	—	—	—	—			—	—
	EMX -15°		CNMG432EMX	CNMG120408N-MX	.0313		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG433EMX	CNMG120412N-MX	.0469		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG434EMX	CNMG120416N-MX	.0625		●	●			▲										—							—	—	—	—	—			—	—

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✪ Interrupted Cutting 2nd Recommended

CN■■43●

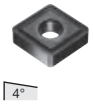
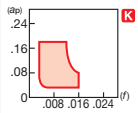
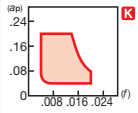
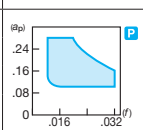
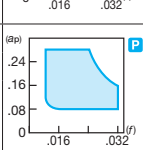
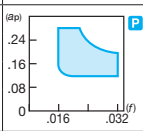
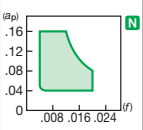
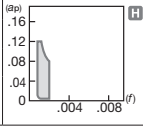
Dimensions (inch)	Cutting Edge Length L	.5079	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts ☞ L30 on
SUMIDIA (PCD) Inserts ☞ M10
Ceramic Inserts ☞ B130

Applicable External Holders ☞ C5
Applicable Internal Holders ☞ E12

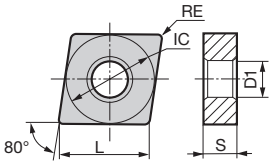
Recommended Application

		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

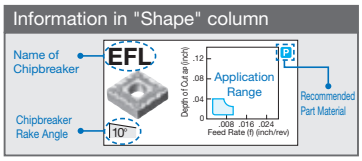
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	ENZ  4°		CNMG431ENZ	CNMG120404N-UZ	.0156			★									★	★	★	▲	—							—	—	—	—	—			—	—
			CNMG432ENZ	CNMG120408N-UZ	.0313			●	★		▲	▲					●	●	●	▲	—	★	★	★				—	—	—	—	—			—	—
			CNMG433ENZ	CNMG120412N-UZ	.0469			★	★		▲	▲					★	●	●	▲	—	★	★	★				—	—	—	—	—			—	—
			CNMG434ENZ	CNMG120416N-UZ	.0625			★									★	★	★	▲	—							—	—	—	—	—			—	—
	EGZ 0°		CNMG431EGZ	CNMG120404N-GZ	.0156												★	●	●	▲	—							—	—	—	—	—			—	—
			CNMG432EGZ	CNMG120408N-GZ	.0313												●	●	●	▲	—							—	—	—	—	—			—	—
			CNMG433EGZ	CNMG120412N-GZ	.0469												●	●	●	▲	—							—	—	—	—	—			—	—
			CNMG434EGZ	CNMG120416N-GZ	.0625												★	●	●	▲	—							—	—	—	—	—			—	—
Roughing	ENP 0°		CNMM432ENP	CNMM120408N-MP	.0313	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—
			CNMM433ENP	CNMM120412N-MP	.0469	★	★	★	★						★						—	★	★	★				—	—	—	—	—			—	—
			CNMM434ENP	CNMM120416N-MP	.0625	★	★	★	★					★							—	★	★	★				—	—	—	—	—			—	—
Heavy Cutting	EHG 0°		CNMM432EHG	CNMM120408N-HG	.0313	●	★	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMM433EHG	CNMM120412N-HG	.0469	●	★	●	★		▲	▲									—							—	—	—	—	—			—	—
			CNMM434EHG	CNMM120416N-HG	.0625			★													—							—	—	—	—	—			—	—
	EHP 0°		CNMM432EHP	CNMM120408N-HP	.0313			★	★												—							—	—	—	—	—			—	—
			CNMM433EHP	CNMM120412N-HP	.0469			★	★												—							—	—	—	—	—			—	—
			CNMM434EHP	CNMM120416N-HP	.0625			★	★												—							—	—	—	—	—			—	—
For Aluminum	(R/L)AX 30°		CNGG430.5RAX	CNGG120402R-AX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			—	—	—	—	★	—
			CNGG430.5LAX	CNGG120402L-AX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			—	—	—	—	★	—
			CNGG431RAX	CNGG120404R-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			—	—	—	—	★	—
			CNGG431LAX	CNGG120404L-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			—	—	—	—	★	—
			CNGG432RAX	CNGG120408R-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			—	—	—	—	★	—
			CNGG432LAX	CNGG120408L-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			—	—	—	—	★	—
Light Cutting of Hardened Steel	EGH 3°		CNGG430.5EGH	CNGG120402N-GH	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—			—	—	—	—	—	—
			CNGG431EGH	CNGG120404N-GH	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—			—	—	—	—	—	—
			CNGG432EGH	CNGG120408N-GH	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—			—	—	—	—	—	—

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole



Information in "Shape" column



● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CN■■54●

Dimensions (inch)	Cutting Edge Length L	.6339	Thickness S	.2500
	Inscribed Circle IC	.6250	Hole Dia. D1	.2500

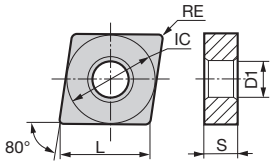
Applicable External Holders C5 | Applicable Internal Holders E12

Recommended Application	Coated Carbide																							Coated Cermet	Cermet			Carbide			
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting	**EEX** 16°	M S	CNMG543EEX	CNMG160612N-EX	.0469										●						—	●	●	●	▲	▲		—	—	—	—	—			—	—
Light to Medium Cutting	**EUP** 10°	M S	CNMG542EUP	CNMG160608N-UP	.0313			●	●			▲									—							—	—	—	—	—			—	—
			CNMG543EUP	CNMG160612N-UP	.0469			●	★		▲										—							—	—	—	—	—			—	—
Medium Cutting	**EGU** 7°	P M	CNMG542EGU	CNMG160608N-GU	.0313	●	●	●	●		▲	▲		★	★		★	●	●		—							—	—	—	—	—			—	—
			CNMG543EGU	CNMG160612N-GU	.0469	●	●	●	●	▲	▲	▲		●	★		★	●	●		—							—	—	—	—	—			—	—
			CNMG544EGU	CNMG160616N-GU	.0625	●	★	★	★		▲	▲		★	★		★	●	●		—							—	—	—	—	—			—	—
	EGE 3°	P	CNMG542EGE	CNMG160608N-GE	.0313	●	●	●	★		▲	▲									—							—	—	—	—	—			—	—
			CNMG543EGE	CNMG160612N-GE	.0469	●	●	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG544EGE	CNMG160616N-GE	.0625	★	●	★	★		▲	▲									—							—	—	—	—	—			—	—
	EGUW 0° → B134 Wiper	P	CNMG543EGUW	CNMG160612N-GUW	.0469	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
	EUX 0°	P K	CNMG542EUX	CNMG160608N-UX	.0313	●	●	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG543EUX	CNMG160612N-UX	.0469	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG544EUX	CNMG160616N-UX	.0625	●	★	★	★		▲	▲									—							—	—	—	—	—			—	—
	ENG 4°	P M	CNMG542ENG	CNMG160608N-UG	.0313		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG543ENG	CNMG160612N-UG	.0469		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG544ENG	CNMG160616N-UG	.0625			★	★			▲									—							—	—	—	—	—			—	—
	EEG 0°		CNMG542EEG	CNMG160608N-EG	.0313	★	★	★	●				●	●	●						—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG543EEG	CNMG160612N-EG	.0469	★	★	●	★				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG544EEG	CNMG160616N-EG	.0625	★	★	★	★				●	●	●						—	★	★	★	▲	▲		—	—	—	—	—			—	—
		—	CNMA542	CNMA160608	.0313												★	★	★	▲	—							—	—	—	—	—			—	—
			CNMA543	CNMA160612	.0469												●	●	●	▲	—							—	—	—	—	—			—	—
			CNMA544	CNMA160616	.0625												★	●	●	▲	—							—	—	—	—	—			—	—
Medium to Roughing	**EMU** 4°	P M S	CNMG542EMU	CNMG160608N-MU	.0313	●	●	●	●	▲	▲	▲									—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG543EMU	CNMG160612N-MU	.0469	●	●	●	●	▲	▲	▲		●		▲					—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG544EMU	CNMG160616N-MU	.0625	●	●	●	●	▲	▲	▲		●		▲					—	★	★	●	▲	▲		—	—	—	—	—			—	—
	EEM 0°	M S	CNMG542EEM	CNMG160608N-EM	.0313	★	★	★	●				★	●	●						—	★	★	●				—	—	—	—	—			—	—
			CNMG543EEM	CNMG160612N-EM	.0469	★	●	●	●				●	●	●						—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG544EEM	CNMG160616N-EM	.0625	★	●	★	★				●	●	●						—	●	●	★		▲		—	—	—	—	—			—	—
	EME 4°	P	CNMG542EME	CNMG160608N-ME	.0313	●	●	●	●	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—
			CNMG543EME	CNMG160612N-ME	.0469	●	●	●	●	▲	▲	▲					●	●	●		—							—	—	—	—	—			—	—
			CNMG544EME	CNMG160616N-ME	.0625	★	●	●	★	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

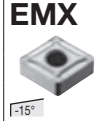
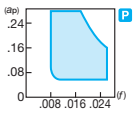
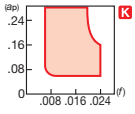
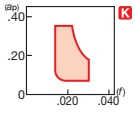
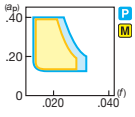
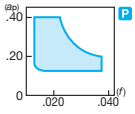
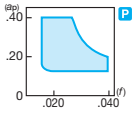
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CN■■54●

Dimensions (inch)	Cutting Edge Length L	.6339	Thickness S	.2500
	Inscribed Circle IC	.6250	Hole Dia. D1	.2500

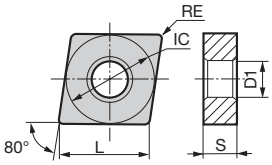
Applicable External Holders ☞ C5 Applicable Internal Holders ☞ E12

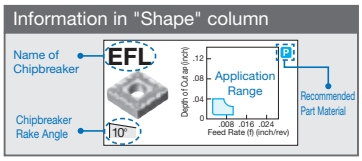
Recommended Application		Coated Carbide																							Coated Cermet		Cermet		Carbide			
		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	**EMX**  -15°		CNMG542EMX	CNMG160608N-MX	.0313		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG543EMX	CNMG160612N-MX	.0469		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG544EMX	CNMG160616N-MX	.0625		●	●	●		▲	▲									—							—	—	—	—	—			—	—
	ENZ 4°		CNMG542ENZ	CNMG160608N-UZ	.0313			★	★		▲	▲									—							—	—	—	—	—			—	—
			CNMG543ENZ	CNMG160612N-UZ	.0469	●		●	★		▲	▲					●	●	●	▲	—							—	—	—	—	—			—	—
			CNMG544ENZ	CNMG160616N-UZ	.0625			★	★		▲	▲					●	★	●	▲	—							—	—	—	—	—			—	—
	EGZ 0°		CNMG542EGZ	CNMG160608N-GZ	.0313												★	★	★	▲	—							—	—	—	—	—			—	—
			CNMG543EGZ	CNMG160612N-GZ	.0469												★	●	●		—							—	—	—	—	—			—	—
			CNMG544EGZ	CNMG160616N-GZ	.0625												★	★	★	▲	—							—	—	—	—	—			—	—
Roughing	**ENP** 0°		CNMM542ENP	CNMM160608N-MP	.0313			★	★					★							—	★	★	★				—	—	—	—	—			—	—
			CNMM543ENP	CNMM160612N-MP	.0469	★	★	★	★					★							—	★	★	★				—	—	—	—	—			—	—
			CNMM544ENP	CNMM160616N-MP	.0625	★	★	★	★					★							—	★	★	★				—	—	—	—	—			—	—
Heavy Cutting	**EHG** 0°		CNMM543EHG	CNMM160612N-HG	.0469	★	●	★	★	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMM544EHG	CNMM160616N-HG	.0625	★	★	★	★	▲	▲	▲									—							—	—	—	—	—			—	—
	EHP 0°		CNMM542EHP	CNMM160608N-HP	.0313			★	★												—							—	—	—	—	—			—	—
			CNMM543EHP	CNMM160612N-HP	.0469			★	★												—							—	—	—	—	—			—	—
			CNMM544EHP	CNMM160616N-HP	.0625			★	★												—							—	—	—	—	—			—	—

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole





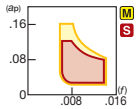
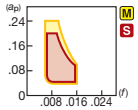
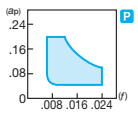
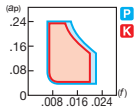
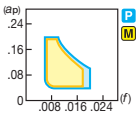
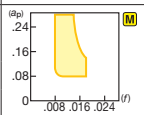
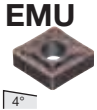
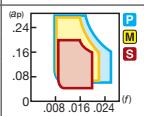
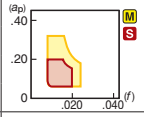
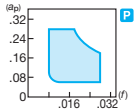
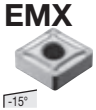
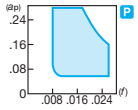
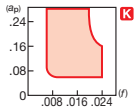
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CN■■64●

Dimensions (inch)	Cutting Edge Length L	.7598	Thickness S	.2500
	Inscribed Circle IC	.7500	Hole Dia. D1	.3126

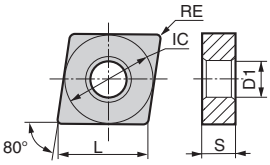
Applicable External Holders C5
Applicable Internal Holders E12

Recommended Application	Coated Carbide																						Coated Cermet	Cermet			Carbide			
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✱	○	◔	✿																◐	◐	✱	●	◐				
M Stainless Steel								●	◐	✱	✿												◐								
K Cast Iron						✿						✱	●	◐	✱								◐			●					
N Non-Ferrous Metal																													◐	◐
S Exotic Alloy																	●	◐	✱	○	◔	✿								
H Hardened Steel																●														

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting	EEX 16°		CNMG643EEX	CNMG190612N-EX	.0469																—	●	●	●	▲	▲		—	—	—	—	—			—	—
	EUP 10°		CNMG643EUP	CNMG190612N-UP	.0469				●		▲	▲									—							—	—	—	—	—			—	—
Medium Cutting	EGE 3°		CNMG643EGE	CNMG190612N-GE	.0469	●	●	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG644EGE	CNMG190616N-GE	.0625	★	★	●	★		▲	▲									—							—	—	—	—	—			—	—
	EUX 0°		CNMG642EUX	CNMG190608N-UX	.0313				●			▲									—							—	—	—	—	—			—	—
			CNMG643EUX	CNMG190612N-UX	.0469	●	★	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG644EUX	CNMG190616N-UX	.0625	★	★	★	★	▲	▲	▲									—							—	—	—	—	—			—	—
	ENG 4°		CNMG642ENG	CNMG190608N-UG	.0313			●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG643ENG	CNMG190612N-UG	.0469			●	●		▲	▲									—							—	—	—	—	—			—	—
			CNMG644ENG	CNMG190616N-UG	.0625			★	★		▲	▲									—							—	—	—	—	—			—	—
	EEG 0°		CNMG643EEG	CNMG190612N-EG	.0469	★	★	●	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	★	★	—	—
			CNMG644EEG	CNMG190616N-EG	.0625	★		★	●				●	●	★						—	●	●	●				—	—	—	—	—			—	—
		—	CNMA643	CNMA190612	.0469												●	●	●	▲	—							—	—	—	—	—			—	—
			CNMA644	CNMA190616	.0625												★	●	●	▲	—							—	—	—	—	—			—	—
Medium to Roughing	EMU  4°		CNMG642EMU	CNMG190608N-MU	.0313	●			●	▲		▲									—			●		▲		—	—	—	—	—			—	—
			CNMG643EMU	CNMG190612N-MU	.0469	●	●	●	●	▲	▲	▲		●		▲					—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG644EMU	CNMG190616N-MU	.0625	●	●	●	●		▲	▲		●		▲					—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG646EMU	CNMG190624N-MU	.0938	★	★	★	★		▲	▲									—	★	★	★				—	—	—	—	—			—	—
	EEM 0°		CNMG643EEM	CNMG190612N-EM	.0469	★	★	●	●				●	●	●						—	●	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG644EEM	CNMG190616N-EM	.0625	★	★	★	●				●	●	●						—	★	●	●	▲	▲		—	—	—	—	—			—	—
			CNMG646EEM	CNMG190624N-EM	.0938	★	★	★	●				★	★	★						—	★	★	★				—	—	—	—	—			—	—
	EME 4°		CNMG643EME	CNMG190612N-ME	.0469	★	●	●	●	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—
			CNMG644EME	CNMG190616N-ME	.0625	★	●	●	●	▲	▲	▲					★	★	●		—							—	—	—	—	—			—	—
			CNMG646EME	CNMG190624N-ME	.0938	★	★	★	★		▲	▲					★	★	★		—							—	—	—	—	—			—	—
	EMX  -15°		CNMG643EMX	CNMG190612N-MX	.0469	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMG644EMX	CNMG190616N-MX	.0625	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
	ENZ 4°		CNMG642ENZ	CNMG190608N-UZ	.0313			●	★		▲	▲									—							—	—	—	—	—			—	—
			CNMG643ENZ	CNMG190612N-UZ	.0469	●		●	●		▲	▲					★	★	●	▲	—							—	—	—	—	—			—	—
			CNMG644ENZ	CNMG190616N-UZ	.0625			●	●		▲	▲					★	●	●	▲	—							—	—	—	—	—			—	—

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

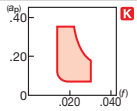
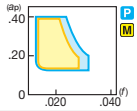
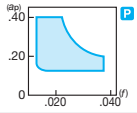
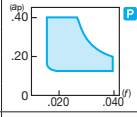
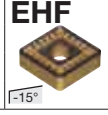
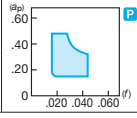
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

CN■■64●

Dimensions (inch)	Cutting Edge Length L	.7598	Thickness S	.2500
	Inscribed Circle IC	.7500	Hole Dia. D1	.3126

Applicable External Holders ☞ C5
Applicable Internal Holders ☞ E12

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

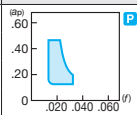
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	EGZ 0°		CNMG643EGZ	CNMG190612N-GZ	.0469												●	★	●		—							—	—	—	—	—			—	—
			CNMG644EGZ	CNMG190616N-GZ	.0625												★	★	★		—							—	—	—	—	—			—	—
Roughing	ENP 0°		CNMM642ENP	CNMM190608N-MP	.0313			★	★					★							—	★	★	★				—	—	—	—	—			—	—
			CNMM643ENP	CNMM190612N-MP	.0469	★	★	★	★					★							—	★	★	★				—	—	—	—	—			—	—
			CNMM644ENP	CNMM190616N-MP	.0625	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—
			CNMM646ENP	CNMM190624N-MP	.0938	★	★	★	★		▲	▲		★	★						—	★	★	★				—	—	—	—	—			—	—
Heavy Cutting-	EHG 0°		CNMM643EHG	CNMM190612N-HG	.0469	★	★	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMM644EHG	CNMM190616N-HG	.0625	●	★	★	★	▲	▲	▲									—							—	—	—	—	—			—	—
			CNMM646EHG	CNMM190624N-HG	.0938	★	★	★	★		▲	▲									—							—	—	—	—	—			—	—
	EHP 0°		CNMM642EHP	CNMM190608N-HP	.0313			★	★												—							—	—	—	—	—			—	—
			CNMM643EHP	CNMM190612N-HP	.0469			★	★												—							—	—	—	—	—			—	—
			CNMM644EHP	CNMM190616N-HP	.0625			★	★												—							—	—	—	—	—			—	—
			CNMM646EHP	CNMM190624N-HP	.0938			★	★												—							—	—	—	—	—			—	—
	EHF  -15°		CNMM644EHF	CNMM190616N-HF	.0625			★	★												—							—	—	—	—	—			—	—
			CNMM646EHF	CNMM190624N-HF	.0938			★	★												—							—	—	—	—	—			—	—

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

CN■■85●

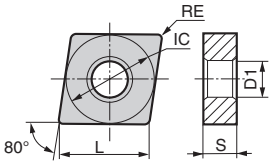
Dimensions (inch)	Cutting Edge Length L	1.0157	Thickness S	.3125
	Inscribed Circle IC	1.0000	Hole Dia. D1	.3622

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

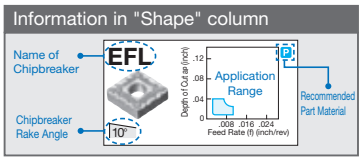
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Roughing	ENP 0°		CNMM856ENP	CNMM250724N-MP	.0938			★													—							—	—	—	—	—			—	—

80° Diamond Negative Inserts

CN 80° Diamond Neg. With Hole



Information in "Shape" column



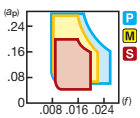
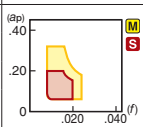
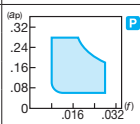
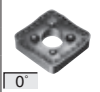
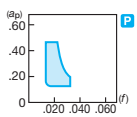
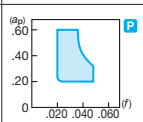
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CN■■86●

Dimensions (inch)	Cutting Edge Length L	1.0157	Thickness S	.3750
	Inscribed Circle IC	1.0000	Hole Dia. D1	.3622

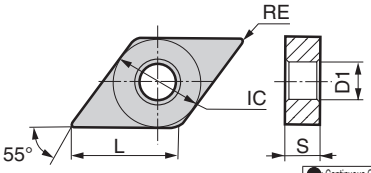
Applicable External Holders ☞ C5

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✪																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✪												◕								
K	Cast Iron						✪						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	**EMU** 4°		CNMG866EMU	CNMG250924N-MU	.0938	●	★	●	★		▲	▲									—	★	★	★				—	—	—	—	—			—	—
Medium to Roughing	**EEM** 0°		CNMG866EEM	CNMG250924N-EM	.0938	★	★	★	★					●	●						—	★	★	●		▲		—	—	—	—	—			—	—
Medium to Roughing	**EME** 4°		CNMG866EME	CNMG250924N-ME	.0938	●	★	●	★	▲	▲	▲					★	★	●		—							—	—	—	—	—			—	—
Roughing	**ENP**  0°		CNMM866ENP	CNMM250924N-MP	.0938			★													—							—	—	—	—	—			—	—
Heavy Cutting	**EHF** -15°		CNMM866EHF CNMM868EHF	CNMM250924N-HF CNMM250932N-HF	.0938 .1250			★ ★	★ ★		▲	▲									— —							— —	— —	— —	— —	— —			— —	— —

55° Diamond Negative Inserts

DN 55° Diamond Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

DN■■33●

Dimensions (inch)	Cutting Edge Length L	.4567	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

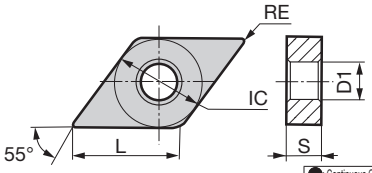
SUMIBORON (CBN) Inserts ☞ L47
Applicable External Holders ☞ C11
Applicable Internal Holders ☞ E17

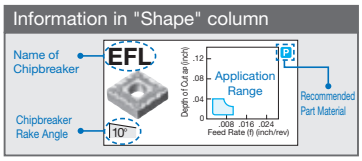
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																						Coated Cermet		Cermet		Carbide				
P	Steel	●	◕	◕	✖	○	◔	✖															◕	◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖											◕									
K	Cast Iron						✖						✖	●	◕	✖							◕				●					
N	Non-Ferrous Metal																													◕	◕	
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	**EFB** 27°	(ap) .08 .04 0 .008 .016 (f) P	DNMG331EFB	DNMG110404N-FB	.0156										★						—							—	★	★						—
			DNMG332EFB	DNMG110408N-FB	.0313										★						—							—	★	★						—
Fine Cutting	**EFE** 20°	(ap) .08 .04 0 .008 .016 (f) P	DNMG331EFE	DNMG110404N-FE	.0156	★	★	★	★					★	★						—							—	★	★						—
			DNMG332EFE	DNMG110408N-FE	.0313	●	★	★	★	▲				★	★						—							—	★	★						—
			DNMG333EFE	DNMG110412N-FE	.0469	★	★	★	★					★	★						—							—	★	★						—
Finishing	**ELU** 10°	(ap) .08 .04 0 .008 .016 (f) P	DNMG331ELU	DNMG110404N-LU	.0156	★	●	●						★							—							—				★				—
			DNMG332ELU	DNMG110408N-LU	.0313	★	★	●						★							—							—				★				—
Finishing	**ESU** 13°	(ap) .08 .04 0 .008 .016 (f) P M S	DNMG331ESU	DNMG110404N-SU	.0156	★	●	●	★					★	★						—		★	●				—	★							—
			DNMG332ESU	DNMG110408N-SU	.0313	●	●	●	★	▲	▲			●	●						—		●					—	★							—
			DNMG333ESU	DNMG110412N-SU	.0469	★	★	●	★					★	★						—							—	★							—
Finishing	**ESE** 5°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P	DNMG332ESE	DNMG110408N-SE	.0313	●	●	●	★	▲	▲										—							—	—	—	—	—			—	—
Finishing	**ESEW** 5° → B134 Wiper	(ap) .16 .08 0 .008 .020 .032 (f) P	DNMX331ESEW	DNMX110404N-SEW	.0156	●	★	★	★		▲	▲									—							—	—	—	—	—			—	—
			DNMX332ESEW	DNMX110408N-SEW	.0313	●	★	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
			DNMX333ESEW	DNMX110412N-SEW	.0469	★	★	★	★		▲	▲									—							—	—	—	—	—			—	—
Finishing	**EEF** 20°	(ap) .08 .04 0 .008 .016 (f) M S	DNMG331EEF	DNMG110404N-EF	.0156	★	★	★	★				●	●	●						—	★	★	●		▲		—	—	—	—	—			—	—
			DNMG332EEF	DNMG110408N-EF	.0313	★	●	★	★				●	●	●						—	●	●	●		▲		—	—	—	—	—			—	—
			DNMG333EEF	DNMG110412N-EF	.0469	★	★	★	★				★	★	★						—	★	★	★				—	—	—	—	—			—	—
Medium Cutting	**EGU** 7°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P M	DNMG331EGU	DNMG110404N-GU	.0156	★	●	●	★		▲	▲	●	★	★		★	●	●		—							—	—	—	—	—			—	—
			DNMG332EGU	DNMG110408N-GU	.0313	★	●	●	●		▲	▲	●	★	★		★	●	●		—	●						—	—	—	—	—			—	—
			DNMG333EGU	DNMG110412N-GU	.0469	★	★	★	★				★	★	★		★	★	★		—							—	★							—
Medium Cutting	**EGE** 3°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P	DNMG332EGE	DNMG110408N-GE	.0313	●	●	●	●												—							—	—	—	—	—			—	—
			DNMG333EGE	DNMG110412N-GE	.0469	●	●	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
Medium Cutting	**EUX** 0°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P K	DNMG332EUX	DNMG110408N-UX	.0313	★	★	★	★			▲									—							—	—	—	—	—			—	—
Medium Cutting	**ENG** 4°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P M	DNMG331ENG	DNMG110404N-UG	.0156			●	★		▲	▲									—							—	—	—	—	—			—	—
			DNMG332ENG	DNMG110408N-UG	.0313			●	●		▲	▲									—							—	—	—	—	—			—	—
Medium Cutting	**EEG** 0°	(ap) .24 .16 .08 0 .008 .016 .032 (f) M	DNMG332EEG	DNMG110408N-EG	.0313	★	★	★	★				●	●	●						—	●	●	●		▲		—	—	—	—	—			—	—
			DNMG333EEG	DNMG110412N-EG	.0469	★	★	★	★				★	●	●						—	★	★	★		▲		—	—	—	—	—			—	—

55° Diamond Negative Inserts

DN 55° Diamond Neg. With Hole





Continuous Cutting 1st Recommended / Continuous Cutting 2nd Recommended / General Cutting 1st Recommended / General Cutting 2nd Recommended / Interrupted Cutting 1st Recommended / Interrupted Cutting 2nd Recommended

DN■■33●

Dimensions (inch)	Cutting Edge Length L	.4567	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

SUMIBORON (CBN) Inserts ☞ L47

Applicable External Holders ☞ C11 Applicable Internal Holders ☞ E17

Recommended Application: P Steel; M Stainless Steel; K Cast Iron; N Non-Ferrous Metal; S Exotic Alloy; H Hardened Steel

Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
					Coated Carbide																						Coated Cermet		Cermet		Carbide			
Medium Cutting (R/L)M 0°		DNGG331R	DNGG110404R-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★		—	—		—
		DNGG331L	DNGG110404L-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★		—	—		—
		DNGG332R	DNGG110408R-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★		—	—		—
		DNGG332L	DNGG110408L-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★		—	—		—
Medium to Roughing EGZ 0°		DNMG332EGZ	DNMG110408N-GZ	.0313												★	●	●	▲	—							—	—	—	—	—	—		—	—
		DNMG333EGZ	DNMG110412N-GZ	.0469												★	★	★		—							—	—	—	—	—	—		—	—

Continuous Cutting 1st Recommended / Continuous Cutting 2nd Recommended / General Cutting 1st Recommended / General Cutting 2nd Recommended / Interrupted Cutting 1st Recommended / Interrupted Cutting 2nd Recommended

DN■■43●

Dimensions (inch)	Cutting Edge Length L	.6102	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts ☞ L47 SUMIDIA (PCD) Inserts ☞ M14

SUMIDIA Binderless Inserts ☞ M27 Ceramic Inserts ☞ B130

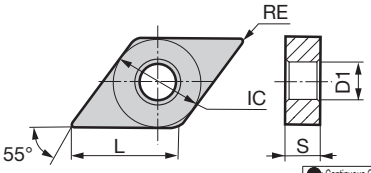
Applicable External Holders ☞ C10 Applicable Internal Holders ☞ E15

Recommended Application: P Steel; M Stainless Steel; K Cast Iron; N Non-Ferrous Metal; S Exotic Alloy; H Hardened Steel

Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
					Coated Carbide																						Coated Cermet		Cermet		Carbide			
Fine Cutting EFB 27°		DNMG431EFB	DNMG150404N-FB	.0156										★						—							—	★	★	★	★				—
		DNMG432EFB	DNMG150408N-FB	.0313										★						—							—	★	★	★					—
EFA 20°		DNMG431EFA	DNMG150404N-FA	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	★	●	—	—		—
		DNMG432EFA	DNMG150408N-FA	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	★	●	—	—		—
EFL 10°		DNMG431EFL	DNMG150404N-FL	.0156		●	●			▲										—							—	●	★	★					—
		DNMG432EFL	DNMG150408N-FL	.0313		●	●		▲	▲										—							—	●	●	★					—
		DNMG433EFL	DNMG150412N-FL	.0469			★								▲					—							—								—
EFE 20°		DNMG430.5EFE	DNMG150402N-FE	.0078	●	★	★	●					★	★						—							—	★	★	★					—
		DNMG431EFE	DNMG150404N-FE	.0156	●	★	★	●					★	★						—							—	★	★	★	★				—
		DNMG432EFE	DNMG150408N-FE	.0313	●	●	★	●					★	●						—							—	★	★	★					—
		DNMG433EFE	DNMG150412N-FE	.0469	●	★	★	●	▲				★	★						—							—	★	★	★					—
Finishing ELU 10°		DNMG430.5ELU	DNMG150402N-LU	.0078	★	★	★						★							—							—	★	★	★					—
		DNMG431ELU	DNMG150404N-LU	.0156	●	●	●	★	▲	▲			★							—							—	●	★	★	●				—
		DNMG432ELU	DNMG150408N-LU	.0313	●	●	●	★	▲	▲	▲		★							—							—	●	★	★	●				—
		DNMG433ELU	DNMG150412N-LU	.0469	●	★	★	★	▲	▲			★							—							—	●	★		★				—
ESU 13°		DNMG430.5ESU	DNMG150402N-SU	.0078								★	★	★						—	●	●	●				—	★	★	★					—
		DNMG431ESU	DNMG150404N-SU	.0156	●	●	●	●	▲	▲	▲	★	●	●	▲					—	●	●	●	▲	▲	★	—	●	●	★	●				—
		DNMG432ESU	DNMG150408N-SU	.0313	●	●	●	●	▲	▲	▲	★	●	●	▲					—	●	●	●	▲	▲	★	—	●	●	★	●				—
		DNMG433ESU	DNMG150412N-SU	.0469	●	●	●	●	▲	▲	▲	★	★	★	▲					—		●	●	▲			—	★	★	★	●				—

55° Diamond Negative Inserts

DN 55° Diamond Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

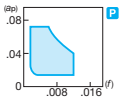
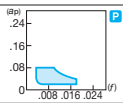
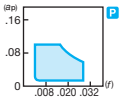
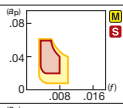
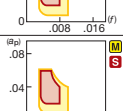
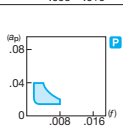
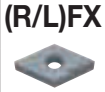
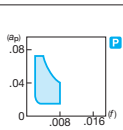
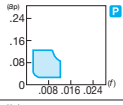
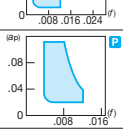
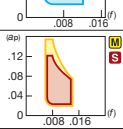
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

DN■■43●

Dimensions (inch)	Cutting Edge Length L	.6102	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts ☞ L47
SUMIDIA (PCD) Inserts ☞ M14
SUMIDIA Binderless Inserts ☞ M27
Ceramic Inserts ☞ B130
Applicable External Holders ☞ C10
Applicable Internal Holders ☞ E15

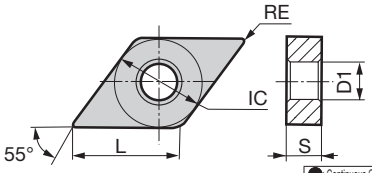
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	◒	✖	●	◒			
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														●	●
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

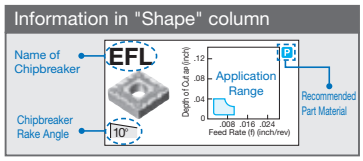
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**ESU(J)** 13°	 ESUJ depth of cut can be increased to .200" in Aluminum	DNGG430ESU	DNGG150401N-SU	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲	—	—	—	—	—	—	—	—	—	—
			DNGG430.5ESU	DNGG150402N-SU	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	—	▲	—	—	●	●	★	●	—	—	—	—
			DNGG430.5ESUJ	DNGG150402N-SUJ	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—
			DNGG431ESU	DNGG150404N-SU	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	—	▲	—	—	●	★	★	●	—	—	—	—
			DNGG431ESUJ	DNGG150404N-SUJ	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
			DNGG432ESU	DNGG150408N-SU	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●	—	▲	—	—	●	★	★	●	—	—	—	—
			DNGG432ESUJ	DNGG150408N-SUJ	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
	ESE 5°		DNMG431ESE	DNMG150404N-SE	.0156	●	●	★	●	▲		▲									—						—	★	★	★	●				—
			DNMG432ESE	DNMG150408N-SE	.0313	●	●	●	●	▲	▲										—						—	★	★	★	●				—
			DNMG433ESE	DNMG150412N-SE	.0469	●	●	●	●	▲	▲										—						—	★	★	★	★				—
	ESEW → B134 Wiper 5°		DNMX431ESEW	DNMX150404N-SEW	.0156	●	●	●		▲	▲										—						—	●	★		●				—
			DNMX432ESEW	DNMX150408N-SEW	.0313	●	●	●		▲	▲										—						—	●	●		●				—
			DNMX433ESEW	DNMX150412N-SEW	.0469	★	★	●		▲	▲										—						—	—	—	—	—				—
	EEF 20°		DNMG431EEF	DNMG150404N-EF	.0156	★	★	★	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	●	★	—	—
			DNMG432EEF	DNMG150408N-EF	.0313	★	★	★	●				●	●	●	▲					—	★	●	●	▲	▲		—	—	—	—	—	●	●	—	—
			DNMG433EEF	DNMG150412N-EF	.0469	★	★	★	★				●	●	★	▲					—	●	●	★	▲	▲		—	—	—	—	—			—	—
	EEF 20°		DNGG431EEF	DNGG150404N-EF	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●		▲			—	—	—	—	—	—	—	—
			DNGG432EEF	DNGG150408N-EF	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●		▲			—	—	—	—	—	—	—	—
	(R/L)FY 15° *1		DNGG430.5RFY	DNGG150402R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG430.5LFY	DNGG150402L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG431RFY	DNGG150404R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG431LFY	DNGG150404L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG432RFY	DNGG150408R-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG432LFY	DNGG150408L-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
	(R/L)FX  14° *1		DNGG430.5RFX	DNGG150402R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG430.5LFX	DNGG150402L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG431RFX	DNGG150404R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG431LFX	DNGG150404L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG432RFX	DNGG150408R-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
			DNGG432LFX	DNGG150408L-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—	—	—	—
	ENK 8°		DNMG432ENK	DNMG150408N-SK	.0313						▲										—							—	—	—	—	—			—	—
Light to Medium Cutting	**ESX** 3°		DNMG431ESX	DNMG150404N-SX	.0156	●	★	●	●	▲	▲	▲									—						—	●	★		●				—
			DNMG432ESX	DNMG150408N-SX	.0313	●	●	●	●	▲	▲	▲									—						—	●	★		★				—
			DNMG433ESX	DNMG150412N-SX	.0469	●	★	★	●	▲	▲	▲									—						—	—	—	—	—				—
	EEX 16°		DNMG431EEX	DNMG150404N-EX	.0156								●	●	●	▲					—	★	●	●	▲	▲		—	—	—	—	—			—	—
			DNMG432EEX	DNMG150408N-EX	.0313								★	●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—	●		—	—
			DNMG433EEX	DNMG150412N-EX	.0469								★	●	★	▲					—	●	●	●	▲	▲	★	—	—	—	—	—			—	—

*1: Photo shows left hand.

55° Diamond Negative Inserts

DN 55° Diamond Neg. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✪ Interrupted Cutting 2nd Recommended

DN■■43●

Dimensions (inch)				
	Cutting Edge Length L	.6102	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

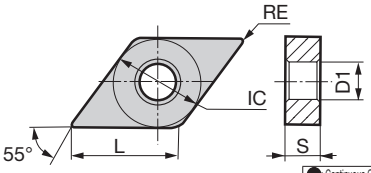
SUMIBORON (CBN) Inserts ☞ L47
SUMIDIA (PCD) Inserts ☞ M14
SUMIDIA Binderless Inserts ☞ M27
Ceramic Inserts ☞ B130
Applicable External Holders ☞ C10
Applicable Internal Holders ☞ E15

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																						Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																													◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting	EUP 10°	M S	DNMG431EUP	DNMG150404N-UP	.0156			●	●		▲	▲		★	●						—	●	●	●	▲	▲	★	—	—	—	—	—	★		—	—
			DNMG432EUP	DNMG150408N-UP	.0313			●	●		▲	▲		★	●						—	●	●	●	▲	▲	★	—	—	—	—	—	—		—	—
			DNMG433EUP	DNMG150412N-UP	.0469				★		▲	▲		★	★						—	★	●	●	▲	▲	★	—	—	—	—	—	—		—	—
	EGU 7°	P M	DNMG431EGU	DNMG150404N-GU	.0156	●	●	●	●	▲	▲	▲	●	●	●	▲	●	●	●		—	★	★	●			★	—	★	★		●				—
			DNMG432EGU	DNMG150408N-GU	.0313	●	●	●	●	▲	▲	▲	●	●	●	▲	●	●	●		—	●	●	●			★	—	★	★		★				—
			DNMG433EGU	DNMG150412N-GU	.0469	●	●	●	●	▲	▲	▲	●	●	★	▲	★	★	★		—	★	★	★			★	—	★	★		★				—
			DNMG434EGU	DNMG150416N-GU	.0625			★									★	●	★		—							—	—	—	—	—				—
	EGUW 7° → B134 Wiper	P M	DNMX432EGUW	DNMX150408N-GUW	.0313	●	●	●													—							—	—	—	—	—				—
			DNMX433EGUW	DNMX150412N-GUW	.0469	●	●	●													—							—	—	—	—	—				—
	EGE 3°	P	DNMG431EGE	DNMG150404N-GE	.0156	●	●	●	★	▲	▲	▲									—							—	—	—	—	—				—
			DNMG432EGE	DNMG150408N-GE	.0313	●	●	●	★	▲	▲	▲									—							—	—	—	—	—				—
			DNMG433EGE	DNMG150412N-GE	.0469	●	★	●	★	▲	▲	▲									—							—	—	—	—	—				—
			DNMG434EGE	DNMG150416N-GE	.0625			★													—							—	—	—	—	—				—
	EUX 0°	P K	DNMG431EUX	DNMG150404N-UX	.0156	●	●	●	●	▲	▲	▲									—							—	—	—	—	—				—
			DNMG432EUX	DNMG150408N-UX	.0313	●	●	●	●	▲	▲	▲									—							—	—	—	—	—				—
			DNMG433EUX	DNMG150412N-UX	.0469	●	★	●	★	▲	▲	▲									—							—	—	—	—	—				—
	ENG 0°	P M	DNMG431ENG	DNMG150404N-UG	.0156		●	●	●		▲	▲									—							—	—	—	—	—				—
			DNMG432ENG	DNMG150408N-UG	.0313	●	●	●	●		▲	▲									—							—	—	—	—	—				—
			DNMG433ENG	DNMG150412N-UG	.0469			★	★		▲	▲									—							—	—	—	—	—				—
Medium Cutting	EEG 0°	M	DNMG431EEG	DNMG150404N-EG	.0156	★	★	●	●				●	●	★	▲					—	●	●	●	▲	▲		—	—	—	—	—	★	★	—	—
			DNMG432EEG	DNMG150408N-EG	.0313	★	●	●	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	●	●	—	—
			DNMG433EEG	DNMG150412N-EG	.0469	★	★	★	★				●	●	●	▲					—	●	●	●		▲		—	—	—	—	—	★	★	—	—
	EEG 0°	M	DNGG431EEG	DNGG150404N-EG	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●	●					—	—	—	—	—			—	—
			DNGG432EEG	DNGG150408N-EG	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●	●					—	—	—	—	—			—	—
	(R/L)M	P M K	DNMR431M	DNMG150404R-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★					—	—		—
			DNML431M	DNMG150404L-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★					—	—		—
			DNMR432M	DNMG150408R-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★					—	—		—
			DNML432M	DNMG150408L-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★					—	—		—
	(R/L)	P	DNJG431R	DNGG150404R-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●	—	—		—
			DNJG431L	DNGG150404L-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●	—	—		—
			DNJG432R	DNGG150408R-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●	—	—		—
			DNJG432L	DNGG150408L-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●	—	—		—
	—		DNMA431	DNMA150404	.0156												●	★	★	▲	—							—	—	—	—	—				—
			DNMA432	DNMA150408	.0313												●	●	●	▲	—							—	—	—	—	—				—
			DNMA433	DNMA150412	.0469												●	●	●	▲	—							—	—	—	—	—				—
	—		DNGA430.5	DNGA150402	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲	—							—	—	—	—	—				—
			DNGA431	DNGA150404	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲	—		★	●				—			★					—
			DNGA432	DNGA150408	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲	—							—			★					—

55° Diamond Negative Inserts

DN 55° Diamond Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

DN■■43●

Dimensions (inch)	Cutting Edge Length L	.6102	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

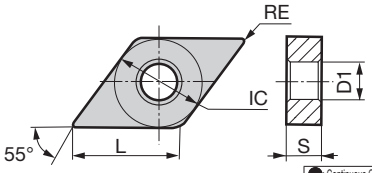
SUMIBORON (CBN) Inserts ☞ L47 | SUMIDIA (PCD) Inserts ☞ M14
SUMIDIA Binderless Inserts ☞ M27 | Ceramic Inserts ☞ B130
Applicable External Holders ☞ C10 | Applicable Internal Holders ☞ E15

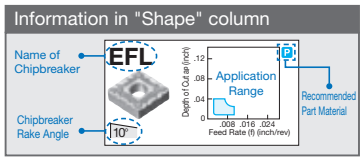
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✪																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✪												◕								
K	Cast Iron						✪						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	EMU	P M S	DNMG432EMU	DNMG150408N-MU	.0313	●	●	●	●	▲	▲	▲		●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—			—	—
			DNMG433EMU	DNMG150412N-MU	.0469	●	●	●	★	▲	▲	▲		●	●	▲					—	●	●	●		▲	★	—	—	—	—	—			—	—
			DNMG434EMU	DNMG150416N-MU	.0625			★	★		▲	▲									—	★	★	★			●	—	—	—	—	—			—	—
	EEM	M S	DNMG432EEM	DNMG150408N-EM	.0313	★	★	●	●				●	●	●						—	●	●	●	▲	▲		—	—	—	—	—			—	—
			DNMG433EEM	DNMG150412N-EM	.0469	★	★	★	★				●	●	●						—	●	●	●				—	—	—	—	—			—	—
			DNMG434EEM	DNMG150416N-EM	.0625			★	★				★	★	★						—	★	★	★				—	—	—	—	—			—	—
	EME	P	DNMG432EME	DNMG150408N-ME	.0313	●	●	●	●	▲	▲	▲					●	●	●		—							—	—	—	—	—			—	—
			DNMG433EME	DNMG150412N-ME	.0469	★	●	●	★	▲	▲	▲					★	●	★		—							—	—	—	—	—			—	—
			DNMG434EME	DNMG150416N-ME	.0625		●	★									★	●	★		—							—	—	—	—	—			—	—
	EMX	P	DNMG432EMX	DNMG150408N-MX	.0313		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			DNMG433EMX	DNMG150412N-MX	.0469		★	●	●		▲	▲									—							—	—	—	—	—			—	—
			DNMG434EMX	DNMG150416N-MX	.0625				●			▲									—							—	—	—	—	—			—	—
	ENZ	K	DNMG431ENZ	DNMG150404N-UZ	.0156			★	●			▲					★	●	★	▲	—							—	—	—	—	—			—	—
			DNMG432ENZ	DNMG150408N-UZ	.0313			●	★		▲	▲					★	●	●	▲	—	★	★	★				—	—	—	—	—			—	—
			DNMG433ENZ	DNMG150412N-UZ	.0469			●	★		▲	▲					★	●	★	▲	—	★	★	★				—	—	—	—	—			—	—
	EGZ	K	DNMG431EGZ	DNMG150404N-GZ	.0156												★	●	●	▲	—							—	—	—	—	—			—	—
			DNMG432EGZ	DNMG150408N-GZ	.0313												★	●	●	▲	—							—	—	—	—	—			—	—
			DNMG433EGZ	DNMG150412N-GZ	.0469												●	●	●	▲	—							—	—	—	—	—			—	—
	(R/L)HM	P M K	DNMG431RHM	DNMG150404R-HM	.0156	★	★	★	★					★							—							—	—	—	—	—			—	—
			DNMG431LHM	DNMG150404L-HM	.0156			★						★	★						—							—	—	—	—	—			—	—
			DNMG432RHM	DNMG150408R-HM	.0313	★	★	★	★					★	★						—							—	—	—	—	—			—	—
			DNMG432LHM	DNMG150408L-HM	.0313			★						★	★						—							—	—	—	—	—			—	—
Roughing	ENP	P	DNMM431ENP	DNMM150404N-MP	.0156			★	★												—							—	—	—	—	—			—	—
			DNMM432ENP	DNMM150408N-MP	.0313	★	★	★	★												—							—	—	—	—	—			—	—
			DNMM433ENP	DNMM150412N-MP	.0469	★	★	★	★												—							—	—	—	—	—			—	—
			DNMM434ENP	DNMM150416N-MP	.0625	★	★	★													—							—	—	—	—	—			—	—
Heavy Cutting	EHP	P	DNMM431EHP	DNMM150404N-HP	.0156			★	★												—							—	—	—	—	—			—	—
			DNMM432EHP	DNMM150408N-HP	.0313			★	★												—							—	—	—	—	—			—	—
			DNMM433EHP	DNMM150412N-HP	.0469			★	★												—							—	—	—	—	—			—	—
			DNMM434EHP	DNMM150416N-HP	.0625			★													—							—	—	—	—	—			—	—
For Aluminum	(R/L)AX	N	DNGG430.5RAX	DNGG150402R-AX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DNGG430.5LAX	DNGG150402L-AX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DNGG431RAX	DNGG150404R-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DNGG431LAX	DNGG150404L-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DNGG432RAX	DNGG150408R-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DNGG432LAX	DNGG150408L-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
Light Cutting of Hardened Steel	EGH	H	DNGG430.5EGH	DNGG150402N-GH	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			DNGG431EGH	DNGG150404N-GH	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			DNGG432EGH	DNGG150408N-GH	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			DNGG433EGH	DNGG150412N-GH	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

55° Diamond Negative Inserts

DN 55° Diamond Neg. With Hole





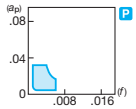
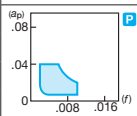
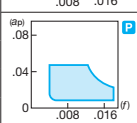
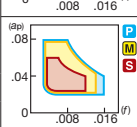
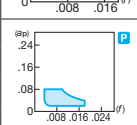
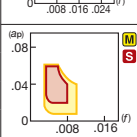
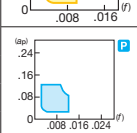
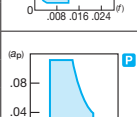
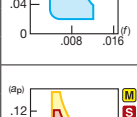
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

DN■■44●

Dimensions (inch)	Cutting Edge Length L	.6102	Thickness S	.2500
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

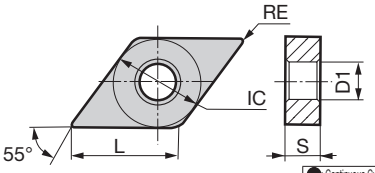
SUMIBORON (CBN) Inserts ☞ L53
Applicable External Holders ☞ C10
Applicable Internal Holders ☞ E19

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	**EFB** 27°		DNMG441EFB	DNMG150604N-FB	.0156										★						—						—	★	★	★					—
			DNMG442EFB	DNMG150608N-FB	.0313										★						—						—	★	★	★					—
Fine Cutting	**EFA** 20°		DNMG441EFA	DNMG150604N-FA	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—		—
			DNMG442EFA	DNMG150608N-FA	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	—	—		—
Fine Cutting	**EFE** 20°		DNMG440.5EFE	DNMG150602N-FE	.0078	★		★	★					★	★						—						—	★	★	★					—
			DNMG441EFE	DNMG150604N-FE	.0156	★	★	★	★					★	★						—						—	★	★	★					—
			DNMG442EFE	DNMG150608N-FE	.0313	★	★	★	★					★	★						—						—	★	★	★					—
			DNMG443EFE	DNMG150612N-FE	.0469	★	★	★	★					★	★						—						—	★	★	★					—
Finishing	**ESU** 13°		DNMG441ESU	DNMG150604N-SU	.0156	★	★	★													—		★				—	★	★	★					—
			DNMG442ESU	DNMG150608N-SU	.0313	★	★	★	★												—		★				—	★	★	★					—
			DNMG443ESU	DNMG150612N-SU	.0469	★	★	★	★												—						—	—	—	—	—			—	—
Finishing	**ESE** 5°		DNMG441ESE	DNMG150604N-SE	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	—	—		—
			DNMG442ESE	DNMG150608N-SE	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	—	—		—
Finishing	**EEF** 8°		DNMG441EEF	DNMG150604N-EF	.0156	★	★	★	★				★	★	★						—	★	★	★		▲	—	—	—	—	—	—			—	—
			DNMG442EEF	DNMG150608N-EF	.0313	★	★	★	★				★	★	★						—	★	★	★			—	—	—	—	—	—			—	—
			DNMG443EEF	DNMG150612N-EF	.0469	★	★	★	★				★	★	★						—	★	★	★			—	—	—	—	—	—			—	—
	ENK		DNMG441ENK	DNMG150604N-SK	.0156						▲										—						—	—	—	—	—	—			—	—
			DNMG442ENK	DNMG150608N-SK	.0313						▲										—						—	—	—	—	—	—			—	—
Light to Medium Cutting	**ESX** 3°		DNMG441ESX	DNMG150604N-SX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★			—	—		—
			DNMG442ESX	DNMG150608N-SX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★			—	—		—
Light to Medium Cutting	**EEX** 16°		DNMG441EEX	DNMG150604N-EX	.0156								★	★	★	▲					—		★				—	—	—	—	—	—			—	—
			DNMG442EEX	DNMG150608N-EX	.0313								★	★	★	▲					—		★				—	—	—	—	—	—			—	—
			DNMG443EEX	DNMG150612N-EX	.0469								★	★	★						—		★				—	—	—	—	—	—			—	—

55° Diamond Negative Inserts

DN 55° Diamond Neg. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															
		Coated Carbide																						Coated Cermet			Cermet		Carbide			

DN■■44●				
Dimensions (inch)	Cutting Edge Length L	.6102	Thickness S	.2500
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

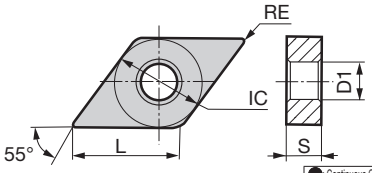
SUMIBORON (CBN) Inserts ☞ L53

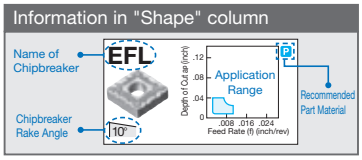
Applicable External Holders ☞ C10 Applicable Internal Holders ☞ E19

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting	EGU 7°	P M	DNMG441EGU	DNMG150604N-GU	.0156	★	★	★	★		▲	▲					★	★	★		—							—	—	—	—	—			—	—
			DNMG442EGU	DNMG150608N-GU	.0313	★	★	★	★	▲			★	★	★		★	★	★		—							—	—	—	—	—			—	—
			DNMG443EGU	DNMG150612N-GU	.0469	★	★	★	★				★	★	★		★	★	★		—							—	—	—	—	—			—	—
			DNMG444EGU	DNMG150616N-GU	.0625			★									★	★	★		—							—	—	—	—	—			—	—
	EGE 3°	P	DNMG441EGE	DNMG150604N-GE	.0156	★	★	★	★												—							—	—	—	—	—			—	—
			DNMG442EGE	DNMG150608N-GE	.0313	★	★	★	★												—							—	—	—	—	—			—	—
			DNMG443EGE	DNMG150612N-GE	.0469	★	★	★	★												—							—	—	—	—	—			—	—
			DNMG444EGE	DNMG150616N-GE	.0625	★	★	★	★												—							—	—	—	—	—			—	—
	EUX 0°	P K	DNMG441EUX	DNMG150604N-UX	.0156	★	★	★	★												—							—	—	—	—	—			—	—
			DNMG442EUX	DNMG150608N-UX	.0313	★	★	★	★												—							—	—	—	—	—			—	—
			DNMG443EUX	DNMG150612N-UX	.0469	★	★	★	★	▲											—							—	—	—	—	—			—	—
			DNMG444EUX	DNMG150616N-UX	.0625			★													—							—	—	—	—	—			—	—
	ENG 4°	P M	DNMG441ENG	DNMG150604N-UG	.0156			★													—							—	—	—	—	—			—	—
			DNMG442ENG	DNMG150608N-UG	.0313			★	★												—							—	—	—	—	—			—	—
			DNMG443ENG	DNMG150612N-UG	.0469			★													—							—	—	—	—	—			—	—
			DNMG444ENG	DNMG150616N-UG	.0625			★													—							—	—	—	—	—			—	—
	EEG 0°	M	DNMG441EEG	DNMG150604N-EG	.0156	★	★	★	★				★	★	★						—	★	★	★				—	—	—	—	—			—	—
			DNMG442EEG	DNMG150608N-EG	.0313	★	★	★	★				★	★	★						—	★	●	★	▲			—	—	—	—	—			—	—
			DNMG443EEG	DNMG150612N-EG	.0469	★	★	★	★				★	★	★						—	★	★	★				—	—	—	—	—			—	—
	—	—	DNMA442	DNMA150608	.0313												★	●	★	▲	—							—	—	—	—	—			—	—
			DNMA443	DNMA150612	.0469												★	★	★	▲	—							—	—	—	—	—			—	—
Medium to Roughing	EMU 4°	P M S	DNMG442EMU	DNMG150608N-MU	.0313	★	★	★	★	▲	▲	▲		★		▲					—							—	—	—	—	—			—	—
			DNMG443EMU	DNMG150612N-MU	.0469	★	★	★	★					★							—							—	—	—	—	—			—	—
			DNMG444EMU	DNMG150616N-MU	.0625			★													—							—	—	—	—	—			—	—
	EEM 0°	M S	DNMG442EEM	DNMG150608N-EM	.0313	★	★	★	★				★	★	★						—	★	★	★				—	—	—	—	—			—	—
			DNMG443EEM	DNMG150612N-EM	.0469	★	★	★	★				★	★	★						—	★	★	★				—	—	—	—	—			—	—
	EME 4°	P	DNMG442EME	DNMG150608N-ME	.0313	★	★	★	★	▲	▲	▲					★	★	★		—							—	—	—	—	—			—	—
			DNMG443EME	DNMG150612N-ME	.0469	★	★	★	★		▲	▲					★	★	★		—							—	—	—	—	—			—	—
			DNMG444EME	DNMG150616N-ME	.0625	★	★	★	★	▲	▲	▲					★	★	★		—							—	—	—	—	—			—	—
	EMX -15°	P	DNMG442EMX	DNMG150608N-MX	.0313		★	★													—							—	—	—	—	—			—	—
			DNMG443EMX	DNMG150612N-MX	.0469		★	★													—							—	—	—	—	—			—	—
	ENZ 4°	K	DNMG442ENZ	DNMG150608N-UZ	.0313			★									★	★	★	▲	—							—	—	—	—	—			—	—
			DNMG443ENZ	DNMG150612N-UZ	.0469			★									★	★	★	▲	—							—	—	—	—	—			—	—

55° Diamond Negative Inserts

DN 55° Diamond Neg. With Hole





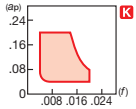
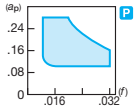
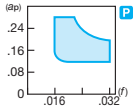
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

DN■■44●

Dimensions (inch)	Cutting Edge Length L	.6102	Thickness S	.2500
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts ☞ L53
Applicable External Holders ☞ C10
Applicable Internal Holders ☞ E19

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

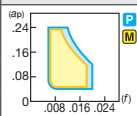
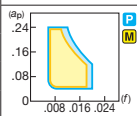
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	**EGZ** 0°		DNMG442EGZ	DNMG150608N-GZ	.0313												★	★	★		—							—	—	—	—	—	—	—	—	—
			DNMG443EGZ	DNMG150612N-GZ	.0469												★	★	★		—							—	—	—	—	—	—	—	—	—
Roughing	**ENP** 0°		DNMM441ENP	DNMM150604N-MP	.0156			★													—							—	—	—	—	—	—	—	—	—
			DNMM442ENP	DNMM150608N-MP	.0313	★	★	★	★												—							—	—	—	—	—	—	—	—	—
			DNMM443ENP	DNMM150612N-MP	.0469	★	★	★	★												—							—	—	—	—	—	—	—	—	—
			DNMM444ENP	DNMM150616N-MP	.0625	★	★	★													—							—	—	—	—	—	—	—	—	—
Heavy Cutting	**EHP** 0°		DNMM441EHP	DNMM150604N-HP	.0156			★													—							—	—	—	—	—	—	—	—	—
			DNMM442EHP	DNMM150608N-HP	.0313			★	★			▲									—							—	—	—	—	—	—	—	—	—
			DNMM443EHP	DNMM150612N-HP	.0469			★	★												—							—	—	—	—	—	—	—	—	—
			DNMM444EHP	DNMM150616N-HP	.0625			★													—							—	—	—	—	—	—	—	—	—

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

DN■■54●

Dimensions (inch)	Cutting Edge Length L	.7638	Thickness S	.2500
	Inscribed Circle IC	.6250	Hole Dia. D1	.2500

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting	**ENG** 4°		DNMG542ENG	DNMG190608N-UG	.0313		●	●	●		▲	▲									—							—	—	—	—	—	—	—	—	—
			DNMG543ENG	DNMG190612N-UG	.0469		●	●	●		▲	▲									—							—	—	—	—	—	—	—	—	—
Medium to Roughing	**ENZ** 4°		DNMG542ENZ	DNMG190608N-UZ	.0313			●	●		▲	▲									—							—	—	—	—	—	—	—	—	—
			DNMG543ENZ	DNMG190612N-UZ	.0469			●	●		▲	▲									—							—	—	—	—	—	—	—	—	—
			DNMG544ENZ	DNMG190616N-UZ	.0625			●			▲										—							—	—	—	—	—	—	—	—	—

Round Negative Inserts

RN Round Neg. With Hole

Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10
Insert Grade Selection by Part Material ☞ A10

Applicable External Holders ☞ C13

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

RN■■43●

Dimensions (inch)	Inscribed Circle IC	.5000	Thickness S	.1875
	Hole Dia. D1	.2031		

Recommended Application

		Coated Carbide																							Coated Cermet		Cermet		Carbide			
		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	IC	S	D1	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	ENT	—	RNMG43ENT	—	.5000	.1875	.2031				●			▲									—							—	—	—	—	—			—	—
		—	RNMA43	—	.5000	.1875	.2031													●	●		—							—	—	—	—	—			—	—

RN■■54●

Dimensions (inch)	Inscribed Circle IC	.6250	Thickness S	.2500
	Hole Dia. D1	.2500		

Recommended Application

		Coated Carbide																							Coated Cermet		Cermet		Carbide			
		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	IC	S	D1	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Roughing	ENU	—	RNMG54ENU	—	.6250	.2500	.2500				●			▲									—							—	—	—	—	—			—	—

RN■■64●

Dimensions (inch)	Inscribed Circle IC	.7500	Thickness S	.2500
	Hole Dia. D1	.3126		

Recommended Application

		Coated Carbide																							Coated Cermet		Cermet		Carbide			
		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	IC	S	D1	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Roughing	ENV	—	RNMG64ENV	—	.7500	.2500	.3126				●			▲									—							—	—	—	—	—			—	—

RN■■84●

Dimensions (inch)	Inscribed Circle IC	1.000	Thickness S	.2500
	Hole Dia. D1	.3622		

Recommended Application

		Coated Carbide																							Coated Cermet		Cermet		Carbide			
		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	IC	S	D1	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Roughing	ENY	—	RNMG84ENY	—	1.000	.2500	.3622				●			▲									—							—	—	—	—	—			—	—

RN■■86●

Dimensions (inch)	Inscribed Circle IC	1.000	Thickness S	.3750
	Hole Dia. D1	.3622		

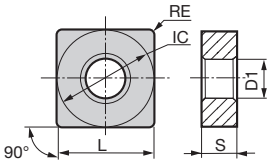
Recommended Application

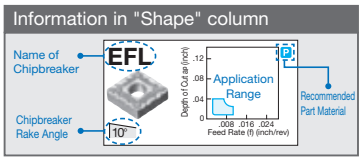
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	IC	S	D1	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Roughing	ENY	—	RNMG86ENY	—	1.000	.3750	.3622				●			▲									—							—	—	—	—	—			—	—

Square Negative Inserts

SN Square Neg. With Hole





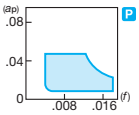
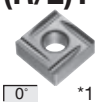
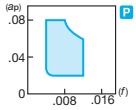
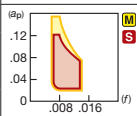
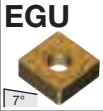
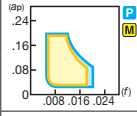
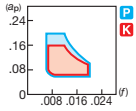
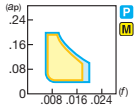
SN■■32●

Dimensions (inch)	Cutting Edge Length L	.3750	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

Applicable External Holders ☞ C15

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

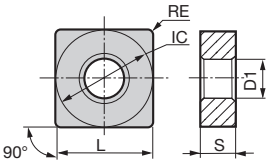
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	EFE 20°		SNMG322EFE	SNMG090308N-FE	.0313	●															—							—	—	—	—	—			—	—
Light Cutting	(R/L)T  0° *1		SNPR321T SNPL321T SNPR322T SNPL322T	SNGG090304R-ST SNGG090304L-ST SNGG090308R-ST SNGG090308L-ST	.0156 .0156 .0313 .0313	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	★ ★ ★ ★	★ ★ ★ ●	— — — —	— — — —			— — — —	— — — —
	EEX 16°		SNMG322EEX	SNMG090304N-EX	.0156									●		▲					—							—	—	—	—	—			—	—
Medium Cutting	EGU  7°		SNMG321EGU SNMG322EGU	SNMG090304N-GU SNMG090308N-GU	.0156 .0313	★	● ★	● ★	★		▲ ▲	▲					★ ★	★ ★	★ ★		— —							—	★	—		★			— —
	EUX 0°		SNMG322EUX	SNMG090308N-UX	.0313				●			▲									—							—	—	—	—	—			—	—
	ENG 4°		SNMG322ENG	SNMG090308N-UG	.0313			●	●		▲	▲									—							—	—	—	—	—			—	—
		—	SNMA322	SNMA090308	.0313													●	●		—							—	—	—	—	—			—	—
		—	SNGA321	SNGA090304	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	—

*1: Photo shows left hand.

Insert
B
Neg.
Pos.
C
D
R
S
T
V
W
Ceramics Solid CBN

Square Negative Inserts

SN Square Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

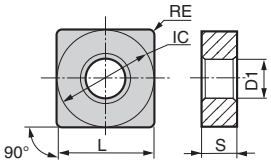
SUMIBORON (CBN) Inserts ☞ L62 SUMIDIA (PCD) Inserts ☞ M16
SUMIDIA Binderless Inserts ☞ M27 Ceramic Inserts ☞ B131
Applicable External Holders ☞ C14 Applicable Internal Holders ☞ E20

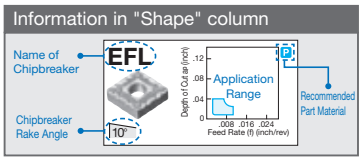
SN■■43●				
Dimensions (inch)	Cutting Edge Length L	.5000	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	**EFB** 27°	(ap) .08 .04 0 .008 .016 (f) P	SNMG431EFB	SNMG120404N-FB	.0156										★						—							—	★	★	★					—
			SNMG432EFB	SNMG120408N-FB	.0313										★						—							—	★	★	★					—
Fine Cutting	**EFL** 10°	(ap) .08 .04 0 .008 .016 (f) P	SNMG432EFL	SNMG120408N-FL	.0313			●			▲										—							—	●	★						—
Fine Cutting	**EFE** 20°	(ap) .08 .04 0 .008 .016 (f) P	SNMG431EFE	SNMG120404N-FE	.0156	★	★	★	●					★	★						—							—	★	★	★					—
			SNMG432EFE	SNMG120408N-FE	.0313	★	★	★	●					★	★						—							—	★	★	★					—
			SNMG433EFE	SNMG120412N-FE	.0469	★	★	★	★					★	★						—							—	★	★	★					—
Finishing	**ELU** 10°	(ap) .08 .04 0 .008 .016 (f) P	SNMG432ELU	SNMG120408N-LU	.0313	★	★	★		▲	▲			★							—							—	★	★						—
			SNMG433ELU	SNMG120412N-LU	.0469	●	★	★		▲	▲			★							—							—	★	★		★				—
Finishing	**ESU** 13°	(ap) .08 .04 0 .008 .016 (f) P M S	SNMG432ESU	SNMG120408N-SU	.0313	●	★	●	●	▲	▲	▲		●	★	▲					—	★	●	●	▲	▲	★	—	●	★	★	●	●			—
Finishing	**ESE** 5°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P	SNMG432ESE	SNMG120408N-SE	.0313	●	★	★	●	▲	▲	▲									—							—	—	—	—	—			—	—
			SNMG433ESE	SNMG120412N-SE	.0469	★	●	●	★	▲											—							—	—	—	—	—			—	—
Finishing	**EEF** 20°	(ap) .08 .04 0 .008 .016 (f) M S	SNMG431EEF	SNMG120404N-EF	.0156	★	★	★	★				●	★	●						—	●	●	★				—	—	—	—	—			—	—
			SNMG432EEF	SNMG120408N-EF	.0313	★	★	★	●				●	★	★						—	●	●	★				—	—	—	—	—			—	—
Finishing	**ENK** 8°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P	SNMG431ENK	SNMG120404N-SK	.0156						▲										—							—	—	—	—	—			—	—
Light to Medium Cutting	**ESX** 3°	(ap) .08 .04 0 .008 .016 (f) P	SNMG431ESX	SNMG120404N-SX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★		★	—	—		—
			SNMG432ESX	SNMG120408N-SX	.0313	●	●	●	●		▲	▲									—							—	●	★		★				—
			SNMG433ESX	SNMG120412N-SX	.0469	★	★	★	★		▲	▲									—							—	—	—	—	—			—	—
Light to Medium Cutting	**EEX** 16°	(ap) .12 .08 .04 0 .008 .016 (f) M S	SNMG431EEX	SNMG120404N-EX	.0156								●	★	★	▲					—	★	●	●	▲	▲		—	—	—	—	—			—	—
			SNMG432EEX	SNMG120408N-EX	.0313								★	●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—	●	●	—	—
			SNMG433EEX	SNMG120412N-EX	.0469								●	●	★	▲					—	●	●	●	▲		★	—	—	—	—	—			—	—

Square Negative Inserts

SN Square Neg. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended
○ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

Recommended Application																																			
P	Steel	●	●	●	✖	○	○	✖															●	●	✖	●	●								
M	Stainless Steel								●	●	✖	✖											●												
K	Cast Iron						✖						✖	●	●	✖							●				●								
N	Non-Ferrous Metal																																	●	●
S	Exotic Alloy																		●	●	✖	○	○	✖											
H	Hardened Steel																●																		

Dimensions (inch)	Cutting Edge Length L	.5000	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

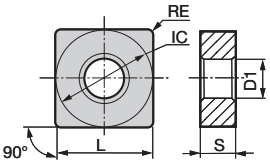
SN■■43●

SUMIBORON (CBN) Inserts L62
SUMIDIA Binderless Inserts M27
SUMIDIA (PCD) Inserts M16
Ceramic Inserts B131
Applicable External Holders C14
Applicable Internal Holders E20

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
						Coated Carbide																						Coated Cermet		Cermet		Carbide			
Light to Medium Cutting	ENJ		SNMG431ENJ	SNMG120404N-UJ	.0156							▲									—							—	—	—	—	—		—	—	—
Light to Medium Cutting	EUP		SNMG431EUP	SNMG120404N-UP	.0156				●		▲	▲		★	★						—							—	—	—	—	—		—	—	—
			SNMG432EUP	SNMG120408N-UP	.0313			●	●		▲	▲		★	●						—	★	●	●			★		—	—	—	—			—	—
			SNMG433EUP	SNMG120412N-UP	.0469				★		▲	▲		★	★						—	★	★	●			★		—	—	—	—			—	—
Medium Cutting	EGU		SNMG431EGU	SNMG120404N-GU	.0156	★	★	●	★		▲	▲	●	★	★	▲	★	★	●		—	★	★	●			★		★	★		★				—
			SNMG432EGU	SNMG120408N-GU	.0313	●	●	●	●	▲	▲	▲	●	●	★	▲	★	●	●		—	★	★	●			★		★	★		●				—
			SNMG433EGU	SNMG120412N-GU	.0469	●	●	●	★	▲	▲	▲	●	●	★	▲	★	●	●		—	●	★	★			★		—	—	—	—			—	—
			SNMG434EGU	SNMG120416N-GU	.0625	★	●	●	★		▲			●			★	●	●		—								—	—	—	—			—	—
	EGE		SNMG432EGE	SNMG120408N-GE	.0313	●	★	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
			SNMG433EGE	SNMG120412N-GE	.0469	★	★	★	★	▲	▲	▲									—							—	—	—	—	—			—	—
			SNMG434EGE	SNMG120416N-GE	.0625	●	★	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
	EUX		SNMG431EUX	SNMG120404N-UX	.0156				★			▲									—							—	—	—	—	—			—	—
			SNMG432EUX	SNMG120408N-UX	.0313	★	★	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
			SNMG433EUX	SNMG120412N-UX	.0469	★	●	●	●		▲										—							—	—	—	—	—			—	—
			SNMG434EUX	SNMG120416N-UX	.0625	●	★	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
	ENG		SNMG432ENG	SNMG120408N-UG	.0313	●		●	●		▲	▲									—							—	—	—	—	—			—	—
			SNMG433ENG	SNMG120412N-UG	.0469			★	★		▲	▲									—							—	—	—	—	—			—	—
			SNMG434ENG	SNMG120416N-UG	.0625				★												—							—	—	—	—	—			—	—
	EEG		SNMG431EEG	SNMG120404N-EG	.0156	★	★	★	●				●	★	★						—	★	★	●				—	—	—	—	—			—	—
			SNMG432EEG	SNMG120408N-EG	.0313	★	★	●	●				●	●	●	▲					—	●	●	●		▲		—	—	—	—	—		★	—	—
			SNMG433EEG	SNMG120412N-EG	.0469	★	★	★	●				●	●	●	▲					—	★	●	●	●			—	—	—	—	—		●	—	—
	(R/L)M		SNMR433M	SNMG120412R-UM	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		—
	(R/L)M		SNPR431M	SNGG120404R-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●	—	—		—
			SNPL431M	SNGG120404L-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
			SNPR432M	SNGG120408R-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				—			★	★				—
			SNPL432M	SNGG120408L-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				—			★	★				—
			SNPR433M	SNGG120412R-UM	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
		—	SNMA431	SNMA120404	.0156												★	★	★	▲	—							—	—	—	—	—			—	—
			SNMA432	SNMA120408	.0313												●	●	●	▲	—							—							★	—
			SNMA433	SNMA120412	.0469												★	●	●	▲	—							—	—	—	—	—			—	—
			SNMA434	SNMA120416	.0625												★	★	●	▲	—							—	—	—	—	—			—	—
			SNMA435	SNMA120420	.0781												★	★	★	▲	—							—	—	—	—	—			—	—
		—	SNGA431	SNGA120404	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—			—	—
			SNGA432	SNGA120408	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲														★	
			SNGA433	SNGA120412	.0469																														

Square Negative Inserts

SN Square Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

SN■■43●

Dimensions (inch)				
	Cutting Edge Length L	.5000	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

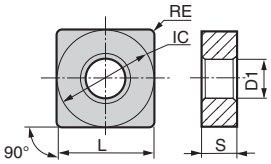
SUMIBORON (CBN) Inserts ☞ L62
SUMIDIA Binderless Inserts ☞ M27
SUMIDIA (PCD) Inserts ☞ M16
Ceramic Inserts ☞ B131
Applicable Internal Holders ☞ E20
Applicable External Holders ☞ C14

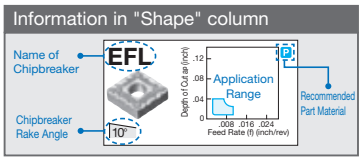
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪															◒	◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪											◒									
K	Cast Iron						✪						✖	●	◒	✖							◒				●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	EMU	P M S	SNMG432EMU	SNMG120408N-MU	.0313	●	●	●	●	▲	▲	▲		●		▲					—	★	●	●		▲	●	—	—	—	—	—			—	—
			SNMG433EMU	SNMG120412N-MU	.0469	★	★	●	●	▲	▲	▲		●		▲					—	●	●	●		▲	★	—	—	—	—	—			—	—
			SNMG434EMU	SNMG120416N-MU	.0625	★	★	●	●		▲	▲									—							—	—	—	—	—			—	—
	EEM	M S	SNMG432EEM	SNMG120408N-EM	.0313	★	★	●	●				★	●	●						—	★	●	●				—	—	—	—	—			—	—
			SNMG433EEM	SNMG120412N-EM	.0469	★	★	★	●				●	●	●						—	★	●	●		▲		—	—	—	—	—			—	—
	EME	P	SNMG432EME	SNMG120408N-ME	.0313	★	★	★	★	▲		▲					★	●	●		—							—	—	—	—	—			—	—
			SNMG433EME	SNMG120412N-ME	.0469	★	★	●	★		▲	▲					★	●	●		—							—	—	—	—	—			—	—
			SNMG434EME	SNMG120416N-ME	.0625	●	★	●	★	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—
	EMX	P	SNMG432EMX	SNMG120408N-MX	.0313		★	★	●		▲	▲									—							—	—	—	—	—			—	—
			SNMG433EMX	SNMG120412N-MX	.0469		●	●	★		▲	▲									—							—	—	—	—	—			—	—
			SNMG434EMX	SNMG120416N-MX	.0625		★	●			▲										—							—	—	—	—	—			—	—
	ENZ	K	SNMG432ENZ	SNMG120408N-UZ	.0313			●	●		▲	▲					★	●	●	▲	—	★	★	★				—	—	—	—	—			—	—
			SNMG433ENZ	SNMG120412N-UZ	.0469			★	★		▲	▲					●	★	●	▲	—	★	★	★				—	—	—	—	—			—	—
			SNMG434ENZ	SNMG120416N-UZ	.0625			★	●		▲	▲					★	★	★	▲	—							—	—	—	—	—			—	—
	EGZ	K	SNMG432EGZ	SNMG120408N-GZ	.0313												●	●	●	▲	—							—	—	—	—	—			—	—
			SNMG433EGZ	SNMG120412N-GZ	.0469												●	●	●	▲	—							—	—	—	—	—			—	—
			SNMG434EGZ	SNMG120416N-GZ	.0625												●	★	★	▲	—							—	—	—	—	—			—	—
	(R/L)HM	P M K	SNMR432EHM	SNMG120408R-HM	.0313	★	★	★	★					★	★						—							—	—	—	—	—			—	—
			SNML432EHM	SNMG120408L-HM	.0313	★	★	★	★					★	★						—							—	—	—	—	—			—	—
Roughing	ENP	P	SNMM432ENP	SNMM120408N-MP	.0313	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—
			SNMM433ENP	SNMM120412N-MP	.0469	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—
			SNMM434ENP	SNMM120416N-MP	.0625	★	★	★	★					★							—	★	★	★				—	—	—	—	—			—	—
			SNMM435ENP	SNMM120420N-MP	.0781			★													—							—	—	—	—	—			—	—
Heavy Cutting	EHG	P	SNMM432EHG	SNMM120408N-HG	.0313	★	★	★	●			▲									—							—	—	—	—	—			—	—
			SNMM433EHG	SNMM120412N-HG	.0469	★	★	●	★		▲	▲									—							—	—	—	—	—			—	—
			SNMM434EHG	SNMM120416N-HG	.0625	★	★	★	★		▲	▲									—							—	—	—	—	—			—	—
	EHP	P	SNMM432EHP	SNMM120408N-HP	.0313			★	★												—							—	—	—	—	—			—	—
			SNMM433EHP	SNMM120412N-HP	.0469			★	★												—							—	—	—	—	—			—	—
			SNMM434EHP	SNMM120416N-HP	.0625			★	★												—							—	—	—	—	—			—	—
For Aluminum	(R/L)AX	N	SNGG431RAX	SNGG120404R-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	—
			SNGG431LAX	SNGG120404L-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	—
			SNGG432RAX	SNGG120408R-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	—
			SNGG432LAX	SNGG120408L-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	—

Square Negative Inserts

SN Square Neg. With Hole





SN■■54●				
Dimensions (inch)	Cutting Edge Length L	.6250	Thickness S	.2500
	Inscribed Circle IC	.6250	Hole Dia. D1	.2500

Applicable External Holders C14

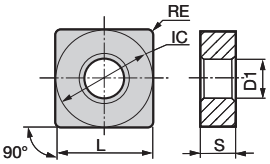
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✪												◒								
K Cast Iron						✪						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																														◒	◒
S Exotic Alloy																	●	◒	✖	○	◔	✪									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
						Coated Carbide																						Coated Cermet		Cermet		Carbide			
Light to Medium Cutting	EEX 16°	M S	SNMG543EEX	SNMG150612N-EX	.0469																—	●	●	●	▲	▲		—	—	—	—	—			—	—
Medium Cutting	EGU 7°	P M	SNMG542EGU	SNMG150608N-GU	.0313	★	★	★	●					★	★		★	●	★		—							—	—	—	—	—			—	—
			SNMG543EGU	SNMG150612N-GU	.0469	★	★	●	●	▲	▲	▲		★	★		★	●	●		—							—	—	—	—	—			—	—
			SNMG544EGU	SNMG150616N-GU	.0625	★	★	★	●					★	★		★	★	●		—							—	—	—	—	—			—	—
	EGE 3°	P	SNMG542EGE	SNMG150608N-GE	.0313	★	★	★	●												—							—	—	—	—	—			—	—
			SNMG543EGE	SNMG150612N-GE	.0469	●	●	★	●	▲	▲	▲									—							—	—	—	—	—			—	—
			SNMG544EGE	SNMG150616N-GE	.0625	★	●	●	●		▲	▲									—							—	—	—	—	—			—	—
	ENG 4°	P M	SNMG543ENG	SNMG150612N-UG	.0469			●	●		▲	▲									—							—	—	—	—	—			—	—
	EEG 0°		SNMG542EEG	SNMG150608N-EG	.0313	★	★	★	●				●	★	★						—	★	★	★				—	—	—	—	—			—	—
			SNMG543EEG	SNMG150612N-EG	.0469	●	●	★	★				●	●	●						—	★	★	●	▲	▲		—	—	—	—	—			—	—
			SNMG544EEG	SNMG150616N-EG	.0625	★	★	★	★				●	★	★						—	★	★	★	▲			—	—	—	—	—			—	—
	S	—	SNMA543	SNMA150612	.0469												★	★	●		—							—	—	—	—	—			—	—
			SNMA544	SNMA150616	.0625												★	★	★		—							—	—	—	—	—			—	—
Medium to Roughing	EMU 4°	P M S	SNMG542EMU	SNMG150608N-MU	.0313	★	★	★	●												—	★	★	★				—	—	—	—	—			—	—
			SNMG543EMU	SNMG150612N-MU	.0469	●	●	●	●	▲	▲	▲		●		▲					—	★	●	●	▲	▲		—	—	—	—	—			—	—
			SNMG544EMU	SNMG150616N-MU	.0625	★	●	●	●		▲	▲		★		▲					—	★	★	●		▲		—	—	—	—	—			—	—
	EEM 0°	M S	SNMG542EEM	SNMG150608N-EM	.0313	★	★	★	★				★	★	★						—	★	★	★				—	—	—	—	—			—	—
			SNMG543EEM	SNMG150612N-EM	.0469	★	★	★	●				★	●	●						—	★	●	●				—	—	—	—	—			—	—
			SNMG544EEM	SNMG150616N-EM	.0625	★	★	★	●				★	●	●						—	★	●	●				—	—	—	—	—			—	—
	EME 4°	P	SNMG542EME	SNMG150608N-ME	.0313	★	★	★	★								★	★	★		—							—	—	—	—	—			—	—
			SNMG543EME	SNMG150612N-ME	.0469	●	●	●	★	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—
			SNMG544EME	SNMG150616N-ME	.0625	★	★	★	★	▲	▲	▲					★	●	★		—							—	—	—	—	—			—	—
	EMX -15°	P	SNMG543EMX	SNMG150612N-MX	.0469		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			SNMG544EMX	SNMG150616N-MX	.0625		●	●	★		▲										—							—	—	—	—	—			—	—
	ENZ 4°	K	SNMG543ENZ	SNMG150612N-UZ	.0469			★	●		▲	▲						●	●		—							—	—	—	—	—			—	—
			SNMG544ENZ	SNMG150616N-UZ	.0625				●		▲										—							—	—	—	—	—			—	—
	EGZ 0°	K	SNMG543EGZ	SNMG150612N-GZ	.0469												★	●	★		—							—	—	—	—	—			—	—
			SNMG544EGZ	SNMG150616N-GZ	.0625												●	★	●		—							—	—	—	—	—			—	—

Square Negative Inserts

SN Square Neg. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

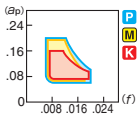
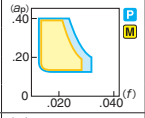
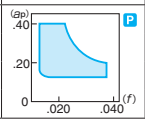
● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✪ Interrupted Cutting 2nd Recommended

SN■■54●

Dimensions (inch)	Cutting Edge Length L	.6250	Thickness S	.2500
	Inscribed Circle IC	.6250	Hole Dia. D1	.2500

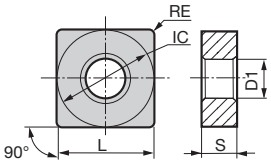
Applicable External Holders ☞ C14

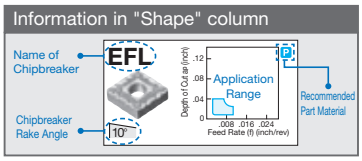
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																						Coated Cermet			Cermet			Carbide		
P	Steel	●	◐	◐	✖	◯	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	◯	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	(R/L)HM 15°		SNMR542EHM	SNMG150608R-HM	.0313									★	★						—							—	—	—	—	—				—	—
			SNML542EHM	SNMG150608L-HM	.0313									★							—							—	—	—	—	—				—	—
Heavy Cutting	ENP 0°		SNMM543ENP	SNMM150612N-MP	.0469	★	★	★						★							—							—	—	—	—	—				—	—
			SNMM544ENP	SNMM150616N-MP	.0625	★	★	★						★							—							—	—	—	—	—				—	—
	EHG 0°		SNMM544EHG	SNMM150616N-HG	.0625	★	●	★													—							—	—	—	—	—				—	—

Square Negative Inserts

SN Square Neg. With Hole





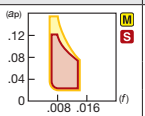
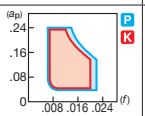
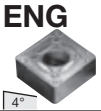
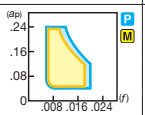
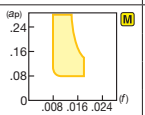
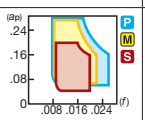
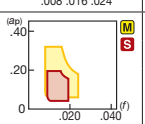
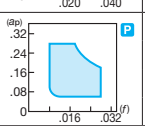
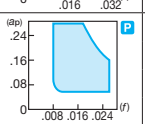
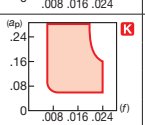
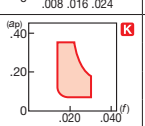
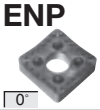
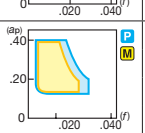
SN■■64●

Dimensions (inch)	Cutting Edge Length L	.7500	Thickness S	.2500
	Inscribed Circle IC	.7500	Hole Dia. D1	.3126

Applicable External Holders C14 | Applicable Internal Holders E21

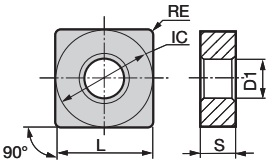
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✱	○	◔	✿																◕	◕	✱	●	◕				
M	Stainless Steel								●	◕	✱	✿												◕								
K	Cast Iron						✿						✱	●	◕	✱								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✱	○	◔	✿									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting	**EEX** 16°		SNMG643EEX	SNMG190612N-EX	.0469																—	★	★	●	▲	▲		—	—	—	—	—			—	—
Medium Cutting	**EUX** 0°		SNMG643EUX	SNMG190612N-UX	.0469	★	●	●	●		▲	▲									—							—	—	—	—	—			—	—
			SNMG644EUX	SNMG190616N-UX	.0625	★	★	●	★		▲	▲									—							—	—	—	—	—			—	—
	ENG  4°		SNMG643ENG	SNMG190612N-UG	.0469			●	●			▲									—							—	—	—	—	—			—	—
			SNMG644ENG	SNMG190616N-UG	.0625			●	●		▲	▲									—							—	—	—	—	—			—	—
	EEG 0°		SNMG643EEG	SNMG190612N-EG	.0469	★	★	★	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—			—	—
			SNMG644EEG	SNMG190616N-EG	.0625	★	★	★	●				★	●	★						—	★	★	●	▲	▲		—	—	—	—	—		★	—	—
		—	SNMA643	SNMA190612	.0469												★	★	●		—							—	—	—	—	—			—	—
			SNMA644	SNMA190616	.0625												★	●	●		—							—	—	—	—	—			—	—
Medium to Roughing	**EMU** 4°		SNMG643EMU	SNMG190612N-MU	.0469	★	●	●	●	▲	▲	▲		●							—	●	●	●	▲	▲		—	—	—	—	—			—	—
			SNMG644EMU	SNMG190616N-MU	.0625	●	●	●	●	▲	▲	▲		●		▲					—	●	●	●	▲	▲		—	—	—	—	—		●	—	—
			SNMG646EMU	SNMG190624N-MU	.0938	★	●	★	★												—	★	★	★				—	—	—	—	—			—	—
	EEM 0°		SNMG643EEM	SNMG190612N-EM	.0469	★	★	★	●				●	●	●						—	★	●	●		▲		—	—	—	—	—			—	—
			SNMG644EEM	SNMG190616N-EM	.0625	★	★	★	★				●	●	●						—	★	●	●		▲		—	—	—	—	—			—	—
			SNMG646EEM	SNMG190624N-EM	.0938	★	★	★	★				★	★	★						—	★	★	★				—	—	—	—	—			—	—
	EME 4°		SNMG643EME	SNMG190612N-ME	.0469	★	●	●	●	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—
			SNMG644EME	SNMG190616N-ME	.0625	★	●	●	●	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—
			SNMG646EME	SNMG190624N-ME	.0938	★	★	★	★								★	★	●		—							—	—	—	—	—			—	—
	EMX -15°		SNMG643EMX	SNMG190612N-MX	.0469	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
			SNMG644EMX	SNMG190616N-MX	.0625	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
Ceramics Solid CBN	**ENZ** 4°		SNMG642ENZ	SNMG190608N-UZ	.0313				●												—							—	—	—	—	—			—	—
			SNMG643ENZ	SNMG190612N-UZ	.0469			★	●		▲	▲					★	★	★	▲	—							—	—	—	—	—			—	—
			SNMG644ENZ	SNMG190616N-UZ	.0625			★	★		▲	▲					★	★	★	▲	—							—	—	—	—	—			—	—
	EGZ 0°		SNMG643EGZ	SNMG190612N-GZ	.0469												★	★	★		—							—	—	—	—	—			—	—
			SNMG644EGZ	SNMG190616N-GZ	.0625												★	★	★		—							—	—	—	—	—			—	—
Heavy Cutting	**ENP**  0°		SNMM643ENP	SNMM190612N-MP	.0469	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—
			SNMM644ENP	SNMM190616N-MP	.0625	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—

Square Negative Inserts

SN Square Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

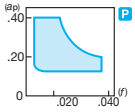
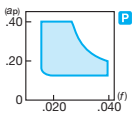
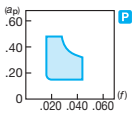
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

SN■■64●

Dimensions (inch)				
	Cutting Edge Length L	.7500	Thickness S	.2500
	Inscribed Circle IC	.7500	Hole Dia. D1	.3126

Applicable External Holders ☞ C14
Applicable Internal Holders ☞ E21

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Heavy Cutting	**EHG** 0°		SNMM643EHG	SNMM190612N-HG	.0469	★	★	★	●		▲	▲									—							—	—	—	—	—			—	—
			SNMM644EHG	SNMM190616N-HG	.0625	★	★	★	●		▲	▲									—							—	—	—	—	—			—	—
			SNMM646EHG	SNMM190624N-HG	.0938	★	★	●	★		▲										—							—	—	—	—	—			—	—
	EHP 0°		SNMM643EHP	SNMM190612N-HP	.0469			★	★		▲	▲									—							—	—	—	—	—			—	—
			SNMM644EHP	SNMM190616N-HP	.0625			★	★		▲	▲									—							—	—	—	—	—			—	—
	EHF -15°		SNMM644EHF	SNMM190616N-HF	.0625			★	★												—							—	—	—	—	—			—	—
			SNMM646EHF	SNMM190624N-HF	.0938			★	★												—							—	—	—	—	—			—	—

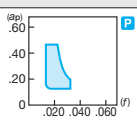
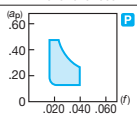
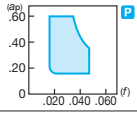
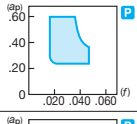
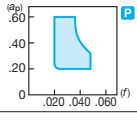
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

SN■■85●

Dimensions (inch)				
	Cutting Edge Length L	1.000	Thickness S	.3125
	Inscribed Circle IC	1.000	Hole Dia. D1	.3622

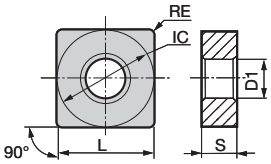
Applicable External Holders ☞ C15

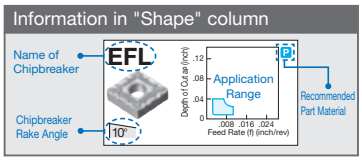
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Heavy Cutting	**ENP** 0°		SNMM856ENP	SNMM250724N-MP	.0938	★	★	★	★		▲	▲									—							—	—	—	—	—			—	—
	EHP 0°		SNMM856EHP	SNMM250724N-HP	.0938	★	★	★	★		▲	▲		★							—							—	—	—	—	—			—	—
	EHU -15°		SNMM856EHU	SNMM250724N-HU	.0938	★	★	★													—							—	—	—	—	—			—	—
	EHW -15°		SNMM856EHW	SNMM250724N-HW	.0938	★	★	★													—							—	—	—	—	—			—	—
	EHF -15°		SNMM856EHF	SNMM250724N-HF	.0938			★	★												—							—	—	—	—	—			—	—
			SNMM858EHF	SNMM250732N-HF	.1250			★	★												—							—	—	—	—	—			—	—

Square Negative Inserts

SN Square Neg. With Hole





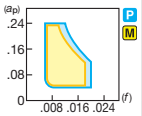
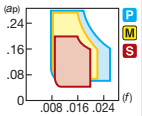
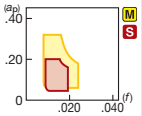
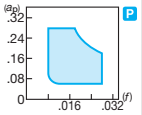
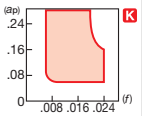
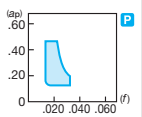
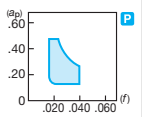
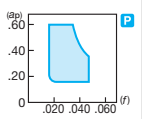
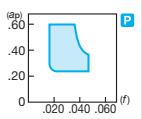
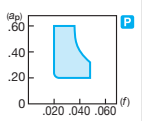
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

SN■■86●

Dimensions (inch)	Cutting Edge Length L	1.000	Thickness S	.3750
	Inscribed Circle IC	1.000	Hole Dia. D1	.3622

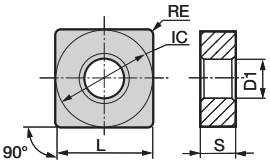
Applicable External Holders ☞ C15

Recommended Application		Coated Carbide																					Coated Cermet	Cermet			Carbide			
P	Steel	●	◐	◐	✖	○	◔	✪														◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪										◐								
K	Cast Iron						✪						✖	●	◐	✖						◐			●					
N	Non-Ferrous Metal																												◐	◐
S	Exotic Alloy																●	◐	✖	○	◔	✪								
H	Hardened Steel															●														

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting	ENG 4°		SNMG866ENG	SNMG250924N-UG	.0938			●	★		▲	▲									—						—	—	—	—	—			—	—
Medium to Roughing	EMU 4°		SNMG866EMU	SNMG250924N-MU	.0938	★	●	●	●	▲	▲	▲									—	★	★	★				—	—	—	—	—			—	—
Medium to Roughing	EEM 0°		SNMG866EEM	SNMG250924N-EM	.0938	★	★	★	●					●	●						—	★	★	●		▲		—	—	—	—	—			—	—
Medium to Roughing	EME 4°		SNMG866EME	SNMG250924N-ME	.0938	★	★	●	★	▲	▲	▲					★	●	★		—							—	—	—	—	—			—	—
Medium to Roughing	ENZ 4°		SNMG866ENZ	SNMG250924N-UZ	.0938				●		▲										—							—	—	—	—	—			—	—
Heavy Cutting	ENP 0°		SNMM866ENP	SNMM250924N-MP	.0938	★	★	★			▲			★							—							—	—	—	—	—			—	—
Heavy Cutting	EHP 0°		SNMM866EHP	SNMM250924N-HP	.0938	★	★	★			▲										—							—	—	—	—	—			—	—
Heavy Cutting	EHU -15°		SNMM866EHU	SNMM250924N-HU	.0938	★	★	★													—							—	—	—	—	—			—	—
Heavy Cutting	EHW -15°		SNMM866EHW	SNMM250924N-HW	.0938	★	★	★													—							—	—	—	—	—			—	—
Heavy Cutting	EHF -15°		SNMM866EHF SNMM868EHF	SNMM250924N-HF SNMM250932N-HF	.0938 .1250			★ ★	★ ★												— —							— —	— —	— —	— —	— —			— —	— —

Square Negative Inserts

SN Square Neg. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

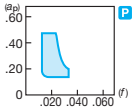
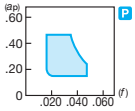
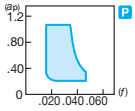
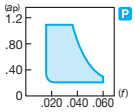
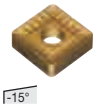
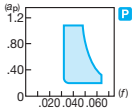
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

SN■■106●

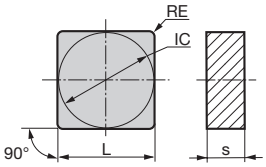
Dimensions (inch)	Cutting Edge Length L	1.2500	Thickness S	.3750
	Inscribed Circle IC	1.2500	Hole Dia. D1	.3465

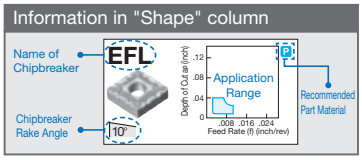
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Heavy Cutting	**ENS** 0°		SNMM1066ENS	SNMM310924N-MP	.0938	★	★	★						★							—							—	—	—	—	—			—	—
	EHP 0°		SNMM1066EHP	SNMM310924N-HP	.0938	★	★	★													—							—	—	—	—	—			—	—
	EHU -15°		SNMM1066EHU	SNMM310924N-HU	.0938	★	★	★													—							—	—	—	—	—			—	—
	EHW -15°		SNMM1066EHW	SNMM310924N-HW	.0938	★	★	★													—							—	—	—	—	—			—	—
	EHF  -15°		SNMM1066EHF	SNMM310924N-HF	.0938			★	★												—							—	—	—	—	—			—	—

Square Negative Inserts

SN Square Neg. Without Hole





SN■■43●

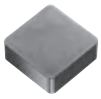
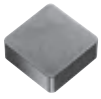
Dimensions (inch)	Cutting Edge Length L	.5000	Thickness S	.1875
	Inscribed Circle IC	.5000		

SUMIBORON (CBN) Inserts ☞ L65

Applicable External Holders ☞ L109

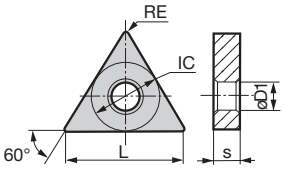
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✪																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✪												◕								
K	Cast Iron						✪						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting		—	**SNMN432**	**SNMN120408**	.0313												★	★	★	▲	—	★	★	★				—			★	★				—
			SNMN433	**SNMN120412**	.0469												★	★	★	▲	—	★	★	★				—	—	—	—	—			—	—
			SNMN434	**SNMN120416**	.0625												★	★	★	▲	—	★	★	★				—	—	—	—	—			—	—
Medium Cutting		—	**SNG432**	**SNGN120408**	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—

Triangular Negative Inserts

TN Triangular Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

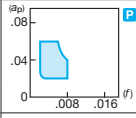
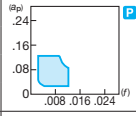
● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended ◯ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

TN■■22●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.1250
	Inscribed Circle IC	.2500	Hole Dia. D1	.0890

Applicable External Holders ☞ C20

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																						Coated Cermet			Cermet		Carbide			
P Steel	●	◐	◐	✖	◯	◔	✖															◐	◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖											◐									
K Cast Iron						✖						✖	●	◐	✖							◐				●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	◯	◔	✖									
H Hardened Steel																●															

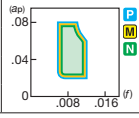
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)Q 0°		TNPR220.5Q	TNGG110302R-FT	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			TNPL220.5Q	TNGG110302L-FT	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	—
			TNPR221Q	TNGG110304R-FT	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	—
			TNPL221Q	TNGG110304L-FT	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	—
	ENK 8°		TNMG221ENK	TNMG110304N-SK	.0156						▲										—							—	—	—	—				—	—
Medium Cutting		—	TNGA222	TNGA110308	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—

TN■■2.52●

Dimensions (inch)	Cutting Edge Length L	.5394	Thickness S	.1250
	Inscribed Circle IC	.3126	Hole Dia. D1	.1240

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended ◯ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																						Coated Cermet			Cermet		Carbide			
P Steel	●	◐	◐	✖	◯	◔	✖															◐	◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖											◐									
K Cast Iron						✖						✖	●	◐	✖							◐				●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	◯	◔	✖									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	(R/L)GX 15° *1		TNGG2.521LGX	TNGG130304L-GX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			TNGG2.522LGX	TNGG130308L-GX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—

*1: Photo shows left hand.

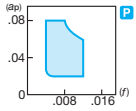
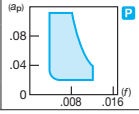
TN■■32●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

Applicable External Holders ☞ C20

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended ◯ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

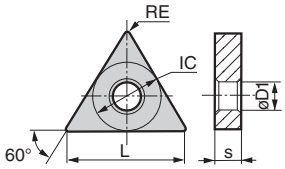
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																						Coated Cermet			Cermet		Carbide			
P Steel	●	◐	◐	✖	◯	◔	✖															◐	◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖											◐									
K Cast Iron						✖						✖	●	◐	✖							◐				●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	◯	◔	✖									
H Hardened Steel																●															

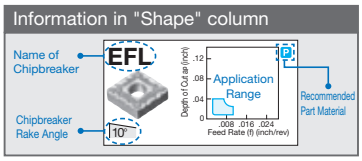
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	(R/L)T *1 0°		TNPR320.5T	TNGG160302R-ST	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	—
			TNPL320.5T	TNGG160302L-ST	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	—
			TNPR321T	TNGG160304R-ST	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	—
			TNPL321T	TNGG160304L-ST	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	—
			TNPR322T	TNGG160308R-ST	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	—
			TNPL322T	TNGG160308L-ST	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	—
Light to Medium Cutting	ESX 3°		TNMG321ESX	TNMG160304N-SX	.0156	★	★	●	●		▲										—							—	—	—	—				—	—
			TNMG322ESX	TNMG160308N-SX	.0313	★	★	●	●		▲	▲									—							—	—	—	—				—	—

*1: Photo shows left hand.

Triangular Negative Inserts

TN Triangular Neg. With Hole





TN■■32●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

Applicable External Holders C20

● Continuous Cutting 1st Recommended ○ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended ○ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖												◐								
K Cast Iron						✖						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																●	◐	✖	○	◔	✖										
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	ESU 13°	P M S	TNMG321ESU	TNMG160304N-SU	.0156		●	●	●			▲									—							—	—	—	—	—			—	—
			TNMG322ESU	TNMG160308N-SU	.0313		●	●	●		▲	▲									—							—	—	—	—	—			—	—
	ENK 8°	P	TNMG322ENK	TNMG160308N-SK	.0313						▲										—							—	—	—	—	—			—	—
Medium Cutting	EUX 13°	P M S	TNMG321EUX	TNMG160304N-UX	.0156			●													—							—	—	—	—	—			—	—
			TNMG322EUX	TNMG160308N-UX	.0313			●			▲										—							—	—	—	—	—			—	—
	ENG 4°	P M	TNMG321ENG	TNMG160304N-UG	.0156			●			▲										—							—	—	—	—	—			—	—
			TNMG322ENG	TNMG160308N-UG	.0313			●	●		▲	▲									—							—	—	—	—	—			—	—
	—		TNMA322	TNMA160308	.0313													★	●		—							—	—	—	—	—			—	—
	—		TNGA321	TNGA160304	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	—
	ENZ 4°	P M	TNMG322ENZ	TNMG160308N-UZ	.0313				●												—							—	—	—	—	—			—	—
			TNMG323ENZ	TNMG160312N-UZ	.0469				●			▲									—							—	—	—	—	—			—	—

● Continuous Cutting 1st Recommended ○ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended ○ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

TN■■33●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

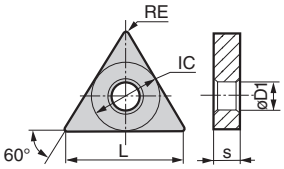
SUMIDIA (PCD) Inserts M18
SUMIBORON (CBN) Inserts L68
SUMIDIA (PCD) Binderless Inserts M27
Ceramic Inserts B132
Applicable External Holders C20
Applicable Internal Holders E23

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖												◐								
K Cast Iron						✖						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																●	◐	✖	○	◔	✖										
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	EFB 27°	P	TNMG330.5EFB	TNMG160402N-FB	.0078										★						—							—	★	★	★					—
			TNMG331EFB	TNMG160404N-FB	.0156										★						—							—	★	★	★					—
			TNMG332EFB	TNMG160408N-FB	.0313										★						—							—	★	★	★					—
	EFA 20°	P	TNMG330.5EFA	TNMG160402N-FA	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	★	—	—		—
			TNMG331EFA	TNMG160404N-FA	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
			TNMG332EFA	TNMG160408N-FA	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●		●	—	—		—

Triangular Negative Inserts

TN Triangular Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

TN■■33●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

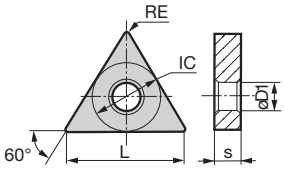
SUMIDIA (PCD) Inserts ☞ M18
SUMIBORON (CBN) Inserts ☞ L68
SUMIDIA (PCD) Binderless Inserts ☞ M27
Ceramic Inserts ☞ B132
Applicable External Holders ☞ C20
Applicable Internal Holders ☞ E23

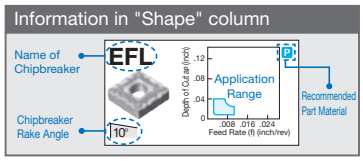
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	EFL 10°	P	TNMG331EFL	TNMG160404N-FL	.0156			●			▲										—							—	●	★						—
			TNMG332EFL	TNMG160408N-FL	.0313			●			▲										—							—	★	★						—
	EFE 20°	P	TNMG330.5EFE	TNMG160402N-FE	.0078	★	★	★	●					★	★						—							—	★	★	★					—
			TNMG331EFE	TNMG160404N-FE	.0156	★	★	★	●					★	★						—							—	★	★	★					—
			TNMG332EFE	TNMG160408N-FE	.0313	★	★	★	●					★	★						—							—	★	★						—
			TNMG333EFE	TNMG160412N-FE	.0469	★	★	★	●					★	★						—							—	★	★	★					—
	ELU 10°	P	TNMG330.5ELU	TNMG160402N-LU	.0078									★							—							—	★	★	★					—
			TNMG331ELU	TNMG160404N-LU	.0156	●	★	●	★	▲	▲			★							—							—	●	★	★	★				—
			TNMG332ELU	TNMG160408N-LU	.0313	●	★	●	★	▲	▲			★							—							—	●	●	★	★				—
			TNMG333ELU	TNMG160412N-LU	.0469	★	★	●	★		▲			★							—							—	★	★		★				—
	ESU 13°	P M S	TNMG330.5ESU	TNMG160402N-SU	.0078									★	★						—	●	★	●				—	★	★	★					—
			TNMG331ESU	TNMG160404N-SU	.0156	●	●	●	★		▲	▲		●	★	▲					—	●	●	●			★	—	●	★	★	●				—
			TNMG332ESU	TNMG160408N-SU	.0313	●	●	●	★	▲	▲	▲		●	●	▲					—	★	●	●			★	—	●	★	★	●				—
			TNMG333ESU	TNMG160412N-SU	.0469	●	★	●	★		▲	▲		●	★						—	★	●	★			★	—	●	★	★	●				—
	ESU 13°	P	TNGG330.5ESU	TNGG160402N-SU	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●					★	★	★	●				
			TNGG331ESU	TNGG160404N-SU	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●					★	★	★	●				
			TNGG332ESU	TNGG160408N-SU	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●					★	★	★	●				
	ESE 5°	P	TNMG331ESE	TNMG160404N-SE	.0156	★	★	●	★		▲										—							—	★	★	★	●				—
			TNMG332ESE	TNMG160408N-SE	.0313	★	●	●	★	▲	▲										—							—	★	★	★	●				—
			TNMG333ESE	TNMG160412N-SE	.0469	●	●	★	★		▲	▲																								
Finishing	EEF 20°	M S	TNMG331EEF	TNMG160404N-EF	.0156	★	★	★	●				●	●	★	▲					—	●	●	●	▲	▲		—	—	—	—	—	●		—	—
			TNMG332EEF	TNMG160408N-EF	.0313	★	★	★	●				●	●	●						—	★	★	★		▲		—	—	—	—	—	●	★	—	—
	(R/L)FY *1 15°	P	TNPR330FFY	TNGG160401R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TNPL330FFY	TNGG160401L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TNPR330.5FFY	TNGG160402R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★	★	★	★				
			TNPL330.5FFY	TNGG160402L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★	★	★	★				
			TNPR331FFY	TNGG160404R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	★			★	★	★	★	★	●				
			TNPL331FFY	TNGG160404L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	★	★	★	★	★				
			TNPR332FFY	TNGG160408R-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	★		★					
			TNPL332FFY	TNGG160408L-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	★		★					
			TNPR333FFY	TNGG160412R-FY	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★				—	—		—
			TNPL333FFY	TNGG160412L-FY	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★				—	—		—
	(R/L)FX 14°	P	TNPR330.5FFX	TNGG160402R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●				★	★	★	★	★				
			TNPL330.5FFX	TNGG160402L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●				★	★	★	★	★				
			TNPR331FFX	TNGG160404R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●		▲	★	★	★	★	★	★				
			TNPL331FFX	TNGG160404L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●		▲	★	★	★	★	★	★				
			TNPR332FFX	TNGG160408R-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—				
			TNPL332FFX	TNGG160408L-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—				
	ENK 8°	P	TNMG331ENK	TNMG160404N-SK	.0156						▲										—							—	—	—	—	—			—	—
			TNMG332ENK	TNMG160408N-SK	.0313						▲										—							—	—	—	—	—			—	—

*1: Photo shows left hand.

Triangular Negative Inserts

TN Triangular Neg. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TN■■33●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

SUMIBORON (CBN) Inserts L68
SUMIDIA (PCD) Inserts M18
Ceramic Inserts B132
SUMIDIA (PCD) Binderless Inserts M27
Applicable External Holders C20
Applicable Internal Holders E23

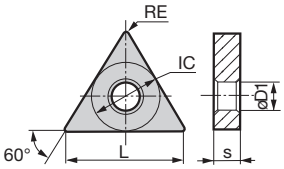
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	(R/L)T *1 0°	P	TNPR330.5T	TNGG160402R-ST	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			TNPL330.5T	TNGG160402L-ST	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			TNPR331T	TNGG160404R-ST	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			TNPL331T	TNGG160404L-ST	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			TNPR332T	TNGG160408R-ST	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			TNPL332T	TNGG160408L-ST	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
Light to Medium Cutting	ESX 3°	P	TNMG331ESX	TNMG160404N-SX	.0156	●	★	★	●			▲									—							—	●	★		★				—
			TNMG332ESX	TNMG160408N-SX	.0313	●	★	●	●	▲	▲	▲									—							—	★	★		★				—
	EEX 16°	M S	TNMG331EEX	TNMG160404N-EX	.0156								●	●	★	▲					—	●	●	●	▲	▲		—	—	—	—	—	—			—
			TNMG332EEX	TNMG160408N-EX	.0313								★	●	●	▲					—	★	●	●	▲	▲	★	—	—	—	—	—	—			—
			TNMG333EEX	TNMG160412N-EX	.0469								●	●	★						—	★	★	●			▲	—	—	—	—	—	—			—
	EUP 10°	M S	TNMG331EUP	TNMG160404N-UP	.0156			●	●		▲	▲		★	●						—	★	●	●	▲		●	—	—	—	—	—	—			—
			TNMG332EUP	TNMG160408N-UP	.0313			●	●		▲	▲		●	★	▲					—	★	●	●			★	—	—	—	—	—	—			—
			TNMG333EUP	TNMG160412N-UP	.0469						▲			★	★	▲					—	★	●	★			★	—	—	—	—	—	—			—
Medium Cutting	EGU 7°	P M	TNMG331EGU	TNMG160404N-GU	.0156	★	●	●	●	▲	▲	▲	●	●	★	▲	★	●	●		—	★	★	●			★	—	★	★		★				—
			TNMG332EGU	TNMG160408N-GU	.0313	●	●	●	●	▲	▲	▲	●	●	★	▲	★	●	●		—	★	★	●			★	—	★	★		●				—
			TNMG333EGU	TNMG160412N-GU	.0469	●	●	●	●	▲	▲	▲	●	●	★		★	●	★		—	★	●	★			★	—								—
			TNMG334EGU	TNMG160416N-GU	.0625	★	★	★	★		▲	▲					★	●	★		—							—								—
	EGE 3°	P	TNMG331EGE	TNMG160404N-GE	.0156	★	★	★	●		▲	▲									—							—	—	—	—	—	—			—
			TNMG332EGE	TNMG160408N-GE	.0313	●	●	●	★	▲	▲	▲									—							—	—	—	—	—	—			—
			TNMG333EGE	TNMG160412N-GE	.0469	●	●	●	★		▲	▲									—							—	—	—	—	—	—			—
	EUX 0°	P K	TNMG331EUX	TNMG160404N-UX	.0156	★	★	●	★		▲	▲									—							—	—	—	—	—	—			—
			TNMG332EUX	TNMG160408N-UX	.0313	●	★	●	●	▲	▲	▲									—							—	—	—	—	—	—			—
			TNMG333EUX	TNMG160412N-UX	.0469	★	★	●	★	▲	▲	▲									—							—	—	—	—	—	—			—
	ENG 4°	P M	TNMG331ENG	TNMG160404N-UG	.0156			★	★		▲	▲									—							—	—	—	—	—	—			—
			TNMG332ENG	TNMG160408N-UG	.0313			●	●		▲	▲									—							—	—	—	—	—	—			—
			TNMG333ENG	TNMG160412N-UG	.0469			★	★		▲	▲									—							—	—	—	—	—	—			—
			TNMG334ENG	TNMG160416N-UG	.0625			★	★			▲									—							—	—	—	—	—	—			—
	EEG 0°	M	TNMG331EEG	TNMG160404N-EG	.0156	★	★	●	●				●	★	★						—	●	★	★				—	—	—	—	—	—			—
			TNMG332EEG	TNMG160408N-EG	.0313	●	★	●	★				●	●	●						—	●	●	●	▲	▲		—	—	—	—	—	—	●	★	—
			TNMG333EEG	TNMG160412N-EG	.0469	★	★	★	●				●	★	●	▲					—	★	★	●		▲		—	—	—	—	—	—	●		—
	(R/L)M 0°	P M K	TNMR331M	TNMG160404R-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
			TNML331M	TNMG160404L-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
			TNMR332M	TNMG160408R-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
			TNML332M	TNMG160408L-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—

*1: Photo shows left hand.

Triangular Negative Inserts

TN Triangular Neg. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

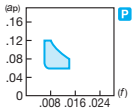
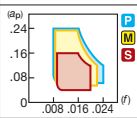
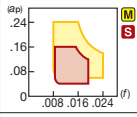
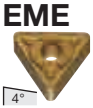
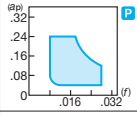
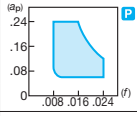
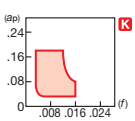
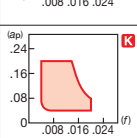
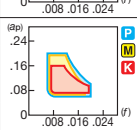
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

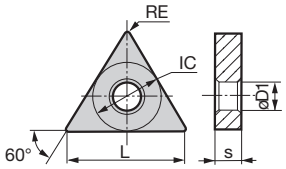
TN■■33●				
Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

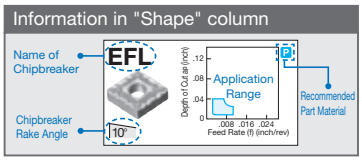
SUMIBORON (CBN) Inserts ☞ L68
SUMIDIA (PCD) Inserts ☞ M18
Ceramic Inserts ☞ B132
SUMIDIA (PCD) Binderless Inserts ☞ M27
Applicable External Holders ☞ C20
Applicable Internal Holders ☞ E23

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting	(R/L)M 0°		TNPR330.5M	TNGG160402R-UM	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	★	—	—		—
			TNPL330.5M	TNGG160402L-UM	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	★	—	—		—
			TNPR331M	TNGG160404R-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	●	—	—	★	—
			TNPL331M	TNGG160404L-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	●	—	—	★	—
			TNPR332M	TNGG160408R-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	●	—	—	★	—
			TNPL332M	TNGG160408L-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	●	—	—	★	—
			TNPR333M	TNGG160412R-UM	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★		—	—		—
			TNPL333M	TNGG160412L-UM	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
		—	TNMA331	TNMA160404	.0156												★	★	★	▲	—	★	●	★				—	—	—	—	—			★	—
			TNMA332	TNMA160408	.0313												●	●	●	▲	—	★	●	★				—							★	
			TNMA333	TNMA160412	.0469												★	●	★	▲	—							—	—	—	—	—			—	—
			TNMA334	TNMA160416	.0625												★	★	★	▲	—							—	—	—	—	—			—	—
			TNMA335	TNMA160420	.0781												★	★	★	▲	—							—	—	—	—	—			—	—
		—	TNGA330.5	TNGA160402	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—			—	—
			TNGA331	TNGA160404	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲	●	●	★							★				★	
			TNGA332	TNGA160408	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲										★				★	
Medium to Roughing	EMU 4°		TNMG332EMU	TNMG160408N-MU	.0313	●	●	●	●	▲	▲	▲		●	●	▲					—	★	●	●	▲	▲	★	—	—	—	—	—			—	—
			TNMG333EMU	TNMG160412N-MU	.0469	●	★	★	●	▲	▲	▲		●	●	▲					—	★	★	★			★	—	—	—	—	—			—	—
	EEM 0°		TNMG332EEM	TNMG160408N-EM	.0313	★	★	●	●				●	●	●						—	★	★	★				—	—	—	—	—			—	—
			TNMG333EEM	TNMG160412N-EM	.0469	★	★	★	●				●	●	★						—	★	★	★				—	—	—	—	—			—	—
	EME  4°		TNMG332EME	TNMG160408N-ME	.0313	★	★	●	★		▲						★	●	●		—							—	—	—	—	—			—	—
			TNMG333EME	TNMG160412N-ME	.0469	★	★	★	★		▲	▲					★	●	★		—							—	—	—	—	—			—	—
	EMX -15°		TNMG332EMX	TNMG160408N-MX	.0313		★	★	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG333EMX	TNMG160412N-MX	.0469		★	★	★		▲	▲									—							—	—	—	—	—			—	—
	ENZ 4°		TNMG331ENZ	TNMG160404N-UZ	.0156			★									★	★	★	▲	—							—	—	—	—	—			—	—
			TNMG332ENZ	TNMG160408N-UZ	.0313			●	●		▲	▲					★	★	●	▲	—							—	—	—	—	—			—	—
			TNMG333ENZ	TNMG160412N-UZ	.0469			★	★		▲	▲					★	★	●	▲	—							—	—	—	—	—			—	—
			TNMG334ENZ	TNMG160416N-UZ	.0625			★									★	★	★	▲	—							—	—	—	—	—			—	—
			TNMG335ENZ	TNMG160420N-UZ	.0781			★									★	★	★	▲	—							—	—	—	—	—			—	—
	EGZ 0°		TNMG331EGZ	TNMG160404N-GZ	.0156												★	●	★		—							—	—	—	—	—			—	—
			TNMG332EGZ	TNMG160408N-GZ	.0313												●	●	●	▲	—							—	—	—	—	—			—	—
			TNMG333EGZ	TNMG160412N-GZ	.0469												★	★	●		—							—	—	—	—	—			—	—
	(R/L)HM 15°		TNMR331EHM	TNMG160404R-HM	.0156	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—
			TNML331EHM	TNMG160404L-HM	.0156	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—
			TNMR332EHM	TNMG160408R-HM	.0313	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—
			TNML332EHM	TNMG160408L-HM	.0313	★	★	★	★					★	★						—	★	★	★				—	—	—	—	—			—	—

Triangular Negative Inserts

TN Triangular Neg. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TN■■33●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

SUMIBORON (CBN) Inserts L68
SUMIDIA (PCD) Inserts M18
Ceramic Inserts B132
SUMIDIA (PCD) Binderless Inserts M27
Applicable External Holders C20
Applicable Internal Holders E23

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																●	◐	✖	○	◔	✪										
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
						Coated Carbide																						Coated Cermet		Cermet		Carbide			
Heavy Cutting	ENP 0°	(ap) .24 .16 .08 0 .016 .032 (f) P	TNMM331ENP	TNMM160404N-MP	.0156			★													—							—	—	—	—			—	—
			TNMM332ENP	TNMM160408N-MP	.0313			★	●	▲	▲	▲									—							—	—	—	—			—	—
			TNMM333ENP	TNMM160412N-MP	.0469			★	★												—							—	—	—	—			—	—
	EHP 0°	(ap) .24 .16 .08 0 .016 .032 (f) P	TNMM332EHP	TNMM160408N-HP	.0313			★	★												—							—	—	—	—			—	—
			TNMM333EHP	TNMM160412N-HP	.0469			★	★												—							—	—	—	—			—	—
For Aluminium	(R/L)AX 30°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) N	TNGG330.5RAX	TNGG160402R-AX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			TNGG330.5LAX	TNGG160402L-AX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			TNGG331RAX	TNGG160404R-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			TNGG331LAX	TNGG160404L-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			TNGG332RAX	TNGG160408R-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			TNGG332LAX	TNGG160408L-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
Light Cutting of Hardened Steel	EGH 3°	(ap) .16 .12 .08 .04 0 .004 .008 (f) H	TNGG330.5EGH	TNGG160402N-GH	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			TNGG331EGH	TNGG160404N-GH	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			TNGG332EGH	TNGG160408N-GH	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TN■■43●

Dimensions (inch)	Cutting Edge Length L	.8661	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

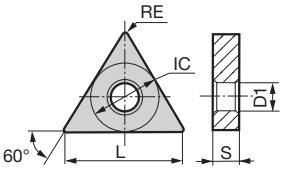
SUMIBORON (CBN) Inserts L73
Ceramic Inserts B132
Applicable External Holders C20
Applicable Internal Holders E23

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																●	◐	✖	○	◔	✪										
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
						Coated Carbide																						Coated Cermet		Cermet		Carbide			
Finishing	ESU 13°	(ap) .08 .04 0 .008 .016 (f) P M S	TNMG431ESU	TNMG220404N-SU	.0156																—		●	●	▲	▲	—	●							—
			TNMG432ESU	TNMG220408N-SU	.0313																—		●	●		▲	—	●							—
			TNMG433ESU	TNMG220412N-SU	.0469																—									●					
	ESE 5°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P	TNMG431ESE	TNMG220404N-SE	.0156	●	★	★	★	▲	▲	▲									—							—	—	—	—			—	—
			TNMG432ESE	TNMG220408N-SE	.0313	●	★	★	●	▲											—							—	—	—	—			—	—
			TNMG433ESE	TNMG220412N-SE	.0469	●	★	★	★	▲											—							—	—	—	—			—	—
	ENK 8°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P	TNMG431ENK	TNMG220404N-SK	.0156						▲										—							—	—	—	—			—	—
											▲										—							—	—	—	—			—	—

Triangular Negative Inserts

TN Triangular Neg. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

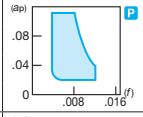
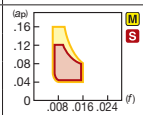
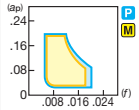
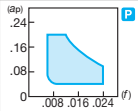
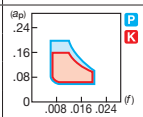
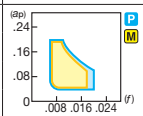
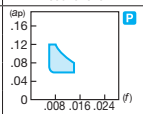
TN■■43●

Dimensions (inch)				
	Cutting Edge Length L	.8661	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts ☞ L73 | Ceramic Inserts ☞ B132

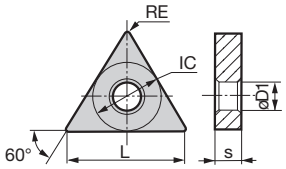
Applicable External Holders ☞ C20 | Applicable Internal Holders ☞ E23

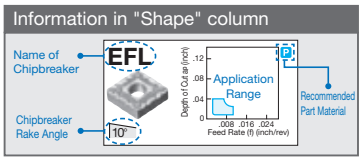
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting	**ESX** 3°		TNMG431ESX	TNMG220404N-SX	.0156	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG432ESX	TNMG220408N-SX	.0313	●	★	●	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG433ESX	TNMG220412N-SX	.0469	●	★	●	★		▲	▲									—							—	—	—	—	—			—	—
	EUP 10°		TNMG432EUP	TNMG220408N-UP	.0313			●	●		▲	▲									—	★	●	●		▲		—	—	—	—	—			—	—
			TNMG433EUP	TNMG220412N-UP	.0469				●		▲	▲									—							—	—	—	—	—			—	—
Medium Cutting	**EGU** 7°		TNMG431EGU	TNMG220404N-GU	.0156		●	●			▲						★	●	●		—							—	—	—	—	—			—	—
			TNMG432EGU	TNMG220408N-GU	.0313	●	●	●	●	▲	▲	▲		●		▲	★	●	●		—							—	—	—	—	—			—	—
			TNMG433EGU	TNMG220412N-GU	.0469	★	●	●	★	▲	▲	▲		●		▲	★	●	●		—							—	—	—	—	—			—	—
	EGE 3°		TNMG432EGE	TNMG220408N-GE	.0313	★	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			TNMG433EGE	TNMG220412N-GE	.0469	★	●	●	●												—							—	—	—	—	—			—	—
	EUX 0°		TNMG432EUX	TNMG220408N-UX	.0313	●	★	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			TNMG433EUX	TNMG220412N-UX	.0469	●	★	★	★		▲	▲									—							—	—	—	—	—			—	—
	ENG 4°		TNMG432ENG	TNMG220408N-UG	.0313		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG433ENG	TNMG220412N-UG	.0469	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG434ENG	TNMG220416N-UG	.0625				●			▲									—							—	—	—	—	—			—	—
	(R/L)M 0°		TNPR431M	TNGG220404R-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	—
			TNPL431M	TNGG220404L-UM	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	—
			TNPR432M	TNGG220408R-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	—
			TNPL432M	TNGG220408L-UM	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	—
		—	TNMA432	TNMA220408	.0313												★	★	●	▲	—							—	—	—	—	—			—	—
			TNMA433	TNMA220412	.0469												●	●	●	▲	—							—	—	—	—	—			—	—
			TNMA434	TNMA220416	.0625												★	●	★	▲	—							—	—	—	—	—			—	—

Triangular Negative Inserts

TN Triangular Neg. With Hole





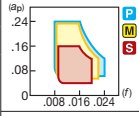
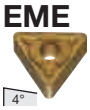
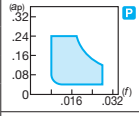
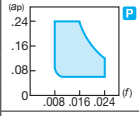
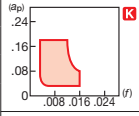
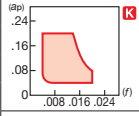
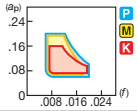
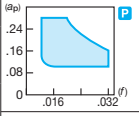
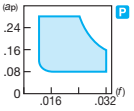
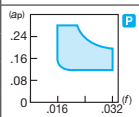
TN■■43●

Dimensions (inch)	Cutting Edge Length L	.8661	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts ☞ L73
Ceramic Inserts ☞ B132
Applicable External Holders ☞ C20
Applicable Internal Holders ☞ E23

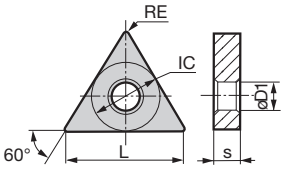
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															
	Coated Carbide																						Coated Cermet		Cermet		Carbide				

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting		—	TNGA432	TNGA220408	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
Medium to Roughing	EMU 4°		TNMG432EMU	TNMG220408N-MU	.0313	●	●	●	●	▲	▲	▲		●		▲					—	●	●	●	▲	▲		—	—	—	—	—	—	—	—	—
			TNMG433EMU	TNMG220412N-MU	.0469	●	●	●	●		▲	▲		●							—		●	●	▲	▲		—	—	—	—	—	—	—	—	—
			TNMG434EMU	TNMG220416N-MU	.0625	●	★	●	●	▲	▲	▲									—							—	—	—	—	—	—	—	—	—
	EME  4°		TNMG432EME	TNMG220408N-ME	.0313	●	●	●	●	▲	▲	▲					★	●	●		—							—	—	—	—	—	—	—	—	—
			TNMG433EME	TNMG220412N-ME	.0469	★	★	●	●	▲	▲	▲					★	●	●		—							—	—	—	—	—	—	—	—	—
			TNMG434EME	TNMG220416N-ME	.0625	★	★	●	●	▲	▲	▲					★	★	●		—							—	—	—	—	—	—	—	—	—
	EMX -15°		TNMG432EMX	TNMG220408N-MX	.0313		★	●	●		▲	▲									—							—	—	—	—	—	—	—	—	—
			TNMG433EMX	TNMG220412N-MX	.0469		★	★	●		▲	▲									—							—	—	—	—	—	—	—	—	—
	ENZ 4°		TNMG432ENZ	TNMG220408N-UZ	.0313			●	●		▲	▲					★	●	●	▲	—							—	—	—	—	—	—	—	—	—
			TNMG433ENZ	TNMG220412N-UZ	.0469			★	★		▲	▲					★	★	★	▲	—							—	—	—	—	—	—	—	—	—
			TNMG434ENZ	TNMG220416N-UZ	.0625			●	●		▲	▲					★	★	★	▲	—							—	—	—	—	—	—	—	—	—
	EGZ 0°		TNMG432EGZ	TNMG220408N-GZ	.0313												★	●	●	▲	—							—	—	—	—	—	—	—	—	—
			TNMG433EGZ	TNMG220412N-GZ	.0469												★	★	●		—							—	—	—	—	—	—	—	—	—
			TNMG434EGZ	TNMG220416N-GZ	.0625												★	★	★		—							—	—	—	—	—	—	—	—	—
	(R/L)HM 15°		TNMR431EHM	TNMG220404R-HM	.0156	★	★	★	★												—							—	—	—	—	—	—	—	—	—
			TNML431EHM	TNMG220404L-HM	.0156	★	★	★	★												—							—	—	—	—	—	—	—	—	—
			TNMR432EHM	TNMG220408R-HM	.0313	★	★	★	★												—							—	—	—	—	—	—	—	—	—
			TNML432EHM	TNMG220408L-HM	.0313	★	★	★	★												—							—	—	—	—	—	—	—	—	—
Heavy Cutting	ENP 0°		TNMM432ENP	TNMM220408N-MP	.0313			★	★												—							—	—	—	—	—	—	—	—	—
			TNMM433ENP	TNMM220412N-MP	.0469			★	★												—							—	—	—	—	—	—	—	—	—
			TNMM434ENP	TNMM220416N-MP	.0625			★	★												—							—	—	—	—	—	—	—	—	—
	EHG 0°		TNMM432EHG	TNMM220408N-HG	.0313			●	●		▲	▲									—							—	—	—	—	—	—	—	—	—
			TNMM433EHG	TNMM220412N-HG	.0469			●	★		▲	▲									—							—	—	—	—	—	—	—	—	—
			TNMM434EHG	TNMM220416N-HG	.0625			★	★	▲	▲										—							—	—	—	—	—	—	—	—	—
Ceramics Solid CBN	EHP 0°		TNMM432EHP	TNMM220408N-HP	.0313			★	★												—							—	—	—	—	—	—	—	—	—
			TNMM433EHP	TNMM220412N-HP	.0469			★	★												—							—	—	—	—	—	—	—	—	—
			TNMM434EHP	TNMM220416N-HP	.0625			★													—							—	—	—	—	—	—	—	—	—

Triangular Negative Inserts

TN Triangular Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

TN■■44●

Dimensions (inch)	Cutting Edge Length L	.8661	Thickness S	.2500
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	ENZ	K; .24 .16 .08 0; .008 .016 .024	TNMG444ENZ	TNMG220616N-UZ	.0625				★												—							—	—	—	—	—			—	—

TN■■54●

Dimensions (inch)	Cutting Edge Length L	1.0827	Thickness S	.2500
	Inscribed Circle IC	.6250	Hole Dia. D1	.2500

Applicable External Holders ☞ C20
Ceramic Inserts ☞ B132

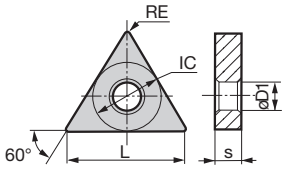
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

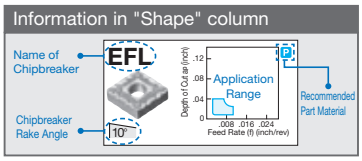
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting	ENG	P M; .24 .16 .08 0; .008 .016 .024	TNMG542ENG	TNMG270608N-UG	.0313		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG543ENG	TNMG270612N-UG	.0469		●	●	●			▲									—							—	—	—	—	—			—	—
			TNMG544ENG	TNMG270616N-UG	.0625		●	●	●		▲	▲									—							—	—	—	—	—			—	—
		—	TNMA543	TNMA270612	.0469													●	●		—							—	—	—	—	—			—	—
			TNMA544	TNMA270616	.0625													●			—							—	—	—	—	—			—	—
Medium to Roughing	EMU	P M S; .24 .16 .08 0; .008 .016 .024	TNMG543EMU	TNMG270612N-MU	.0469	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG544EMU	TNMG270616N-MU	.0625	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
	ENZ	K; .24 .16 .08 0; .008 .016 .024	TNMG542ENZ	TNMG270608N-UZ	.0313			●	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG543ENZ	TNMG270612N-UZ	.0469			●	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG544ENZ	TNMG270616N-UZ	.0625			●	●		▲	▲									—							—	—	—	—	—			—	—
			TNMG548ENZ	TNMG270632N-UZ	.1250				●			▲									—							—	—	—	—	—			—	—
Rough to Heavy Cutting	ENP	P M; .40 .20 0; .020 .040	TNMM543ENP	TNMM270612N-MP	.0469			★													—							—	—	—	—	—			—	—
			TNMM544ENP	TNMM270616N-MP	.0625			★													—							—	—	—	—	—			—	—
Heavy Cutting	EHP	P; .40 .20 0; .020 .040	TNMM543EHP	TNMM270612N-HP	.0469			★	★												—							—	—	—	—	—			—	—
			TNMM544EHP	TNMM270616N-HP	.0625			★	★												—							—	—	—	—	—			—	—

Triangular Negative Inserts

TN Triangular Neg. With Hole





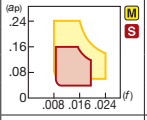
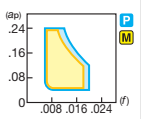
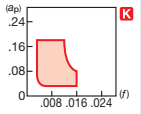
TN■■66●

Dimensions (inch)	Cutting Edge Length L	1.2992	Thickness S	.3750
	Inscribed Circle IC	.7500	Hole Dia. D1	.3122

Applicable External Holders ☞ C21

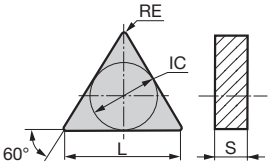
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✪																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✪												◕								
K	Cast Iron						✪						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	EEM 0°		TNMG666EEM	TNMG330924N-EM	.0938	●		★	●					●	●						—	★	★	●		▲		—	—	—	—	—			—	—
Medium Cutting	ENG 4°		TNMG666ENG	TNMG330924N-UG	.0938			●	●		▲	▲									—							—	—	—	—	—			—	—
Medium to Roughing	ENZ 4°		TNMG666ENZ	TNMG330924N-UZ	.0938			●	●		▲	▲						●			—							—	—	—	—	—			—	—

Triangular Negative Inserts

TN Triangular Neg. Without Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TN■■33●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1875
	Inscribed Circle IC	.3750		

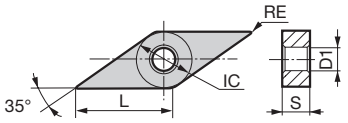
SUMIBORON (CBN) Inserts ☞ L74
Ceramic Inserts ☞ B132

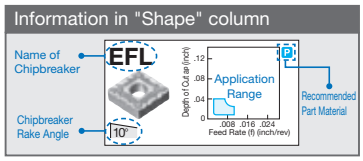
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																						Coated Cermet			Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖															◕	◕	✖	●	◕					
M	Stainless Steel								●	◕	✖	✖											◕									
K	Cast Iron						✖						✖	●	◕	✖							◕			●						
N	Non-Ferrous Metal																													◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting		—	**TNMN332**	**TNMN160408**	.0313												●	★	★	▲	—							—	—	—	—	—			—	—
			TNMN333	**TNMN160412**	.0469												★	★	★		—							—	—	—	—	—			—	—
			TNMN334	**TNMN160416**	.0625												★	★	★	▲	—							—	—	—	—	—			—	—

35° Diamond Negative Inserts

VN 35° Diamond Neg. With Hole





VN■■33●

Dimensions (inch)	Cutting Edge Length L	.6535	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

SUMIBORON (CBN) Inserts L92 · SUMIDIA (PCD) Inserts M24 · SUMIDIA (PCD) Binderless Inserts M27
Applicable External Holders C29 · Applicable Internal Holders E26 · Ceramic Inserts B132

Recommended Application: ●: Continuous Cutting 1st Recommended; ○: Continuous Cutting 2nd Recommended; General Cutting 1st Recommended; General Cutting 2nd Recommended; Interrupted Cutting 1st Recommended; Interrupted Cutting 2nd Recommended

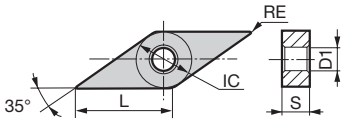
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															
	Coated Carbide																						Coated Cermet			Cermet		Carbide			

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	**EFB** 27°		VNMG331EFB	VNMG160404N-FB	.0156										★						—							—	★	★	★					—
			VNMG332EFB	VNMG160408N-FB	.0313										★						—							—	★	★	★					—
	EFA 20°		VNMG331EFA	VNMG160404N-FA	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
			VNMG332EFA	VNMG160408N-FA	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
	EFL 10°		VNMG331EFL	VNMG160404N-FL	.0156			●		▲	▲										—							—	●	★	★					—
			VNMG332EFL	VNMG160408N-FL	.0313		●	●		▲	▲										—							—	●	★	★					—
	EFE 20°		VNMG330.5EFE	VNMG160402N-FE	.0078	★	★	★	★					★	★						—							—	★	★	★					—
			VNMG331EFE	VNMG160404N-FE	.0156	●	★	★	★					★	★						—							—	★	★	★					—
			VNMG332EFE	VNMG160408N-FE	.0313	★	●	★	★					★	★						—							—	★	★	★					—
			VNMG333EFE	VNMG160412N-FE	.0469	★	★	★	★					★	★						—							—	★	★	★	★				—
Finishing	**ELU** 10°		VNMG330.5ELU	VNMG160402N-LU	.0078									★							—							—	★	★	★					—
			VNMG331ELU	VNMG160404N-LU	.0156	●	●	●		▲	▲			★							—							—	●	★	★	●				—
			VNMG332ELU	VNMG160408N-LU	.0313	●	●	●		▲	▲			★		▲					—							—	●	★	★	●				—
			VNMG333ELU	VNMG160412N-LU	.0469	●	★			▲											—							—								—
	ESU 13°		VNMG330.5ESU	VNMG160402N-SU	.0078									★	★						—	●	●	●				—	★	★	★					—
			VNMG331ESU	VNMG160404N-SU	.0156	●	●	●	●	▲	▲	▲		●	●	▲					—	●	●	●	▲	▲	★	—	●	●	★	●	●			—
			VNMG332ESU	VNMG160408N-SU	.0313	●	●	●	●	▲	▲	▲		●	●	▲					—	●	●	●	▲	▲	★	—	●	★	★	●				—
	ESU(J) 13°	ESUJ depth of cut can be increased to .200" in Aluminum	VNGG330ESU	VNGG160401N-SU	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●		▲			—	—	—	—	—	—	—	—
			VNGG330ESUJ	VNGG160401N-SUJ	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								—	—	—	—	—	—	—	●	●
			VNGG330.5ESU	VNGG160402N-SU	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●		▲			●	●	★	●				—
			VNGG330.5ESUJ	VNGG160402N-SUJ	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								—	—	—	—	—	—	—	●	●
			VNGG331ESU	VNGG160404N-SU	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●		▲			●	●	★	●				—
			VNGG331ESUJ	VNGG160404N-SUJ	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								—	—	—	—	—	—	—	●	●
			VNGG332ESU	VNGG160408N-SU	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●		▲			●	★	★	●				—
			VNGG332ESUJ	VNGG160408N-SUJ	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								—	—	—	—	—	—	—	●	●
	ESE 5°		VNMG331ESE	VNMG160404N-SE	.0156	●	●	●	●	▲		▲									—							—	★	★	★	●				—
			VNMG332ESE	VNMG160408N-SE	.0313	●	●	●	●	▲	▲	▲									—							—	★	★	★	●				—
	EEF 20°		VNMG330.5EEF	VNMG160402N-EF	.0078	★	★	★	★				●	★	★						—	●	●	●				—								—
			VNMG331EEF	VNMG160404N-EF	.0156	★	●	★	★				●	●	●	▲					—	●	●	●	▲	▲		—					●	●		—
			VNMG332EEF	VNMG160408N-EF	.0313	★	●	●	★				●	●	●	▲					—	●	●	●	▲	▲		—					★	★		—
Ceramics Solid CBN	**EEF** 20°		VNGG330.5EEF	VNGG160402N-EF	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	●	▲	▲			—	—	—	—			—	—
			VNGG331EEF	VNGG160404N-EF	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	●					—	—	—	—			—	—
	(R/L)FY 15° *1		VNGG330.5RFY	VNGG160402R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VNGG330.5LFY	VNGG160402L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VNGG331RFY	VNGG160404R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VNGG331LFY	VNGG160404L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VNGG332RFY	VNGG160408R-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VNGG332LFY	VNGG160408L-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—

*1: Photo shows left hand.

35° Diamond Negative Inserts

VN 35° Diamond Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10
Insert Grade Selection by Part Material ☞ A10

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

VN■■33●

Dimensions (inch)	Cutting Edge Length L	.6535	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

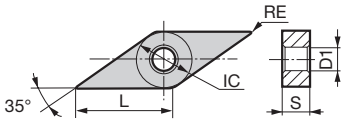
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✖												◒								
K Cast Iron						✖						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																														◒	◒
S Exotic Alloy																	●	◒	✖	○	◔	✖									
H Hardened Steel																●															
	Coated Carbide																							Coated Cermet		Cermet		Carbide			

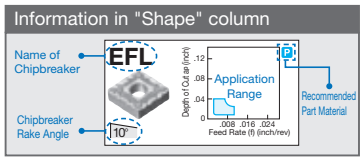
SUMIBORON (CBN) Inserts ☞ L92 SUMIDIA (PCD) Inserts ☞ M24 SUMIDIA (PCD) Binderless Inserts ☞ M27
Applicable External Holders ☞ C29 Applicable Internal Holders ☞ E26 Ceramic Inserts ☞ B132

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FX *1 14°	P .08 .04 0 .008 .016 (ap) (f)	VNGG330.5RFX	VNGG160402R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VNGG330.5LFX	VNGG160402L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VNGG331RFX	VNGG160404R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VNGG331LFX	VNGG160404L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VNGG332RFX	VNGG160408R-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VNGG332LFX	VNGG160408L-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
Light to Medium Cutting	ESX 3°	P .08 .04 0 .008 .016 (ap) (f)	VNMG331ESX	VNMG160404N-SX	.0156	●	●	●	●	▲	▲	▲									—						—	★	★		★					—
			VNMG332ESX	VNMG160408N-SX	.0313	★	●	●	●	▲	▲	▲									—						—	★	★							—
	EEX 16°	M S .12 .08 .04 0 .008 .016 (ap) (f)	VNMG331EEX	VNMG160404N-EX	.0156								●	●	★	▲					—	●	●	●				—	—	—	—	—	—	—	—	—
			VNMG332EEX	VNMG160408N-EX	.0313								●	●	★	▲					—	●	●	●		▲		—	—	—	—	—	—	—	—	—
	EUP 10°	M S .16 .12 .08 .04 0 .008 .016 .024 (ap) (f)	VNMG331EUP	VNMG160404N-UP	.0156			●	●		▲	▲		★	★						—		●	●	▲	▲		—	—	—	—	—	—	—	—	—
			VNMG332EUP	VNMG160408N-UP	.0313			●	●		▲	▲		★	★						—		●	●	▲	▲		—	—	—	—	—	—	—	—	—
Medium Cutting	EGU 7°	P M .24 .16 .08 0 .008 .016 .024 (ap) (f)	VNMG331EGU	VNMG160404N-GU	.0156	●	●	●	●	▲	▲	▲	●	●	★	▲	★	●	●		—	●	●	●			★	—	★	★		★				—
			VNMG332EGU	VNMG160408N-GU	.0313	●	●	●	●	▲	▲	▲	●	●	★	▲	★	●	●		—	★	●	●			★	—	★	★		●				—
			VNMG333EGU	VNMG160412N-GU	.0469	★	●	●	●		▲	▲			★		★	★	★		—	●	●	★			★	—	—	—	—	—	—	—	—	—
	EGE 3°	P .24 .16 .08 0 .008 .016 .024 (ap) (f)	VNMG331EGE	VNMG160404N-GE	.0156	●	●	●	★	▲	▲	▲									—							—	—	—	—	—	—	—	—	—
			VNMG332EGE	VNMG160408N-GE	.0313	●	●	●	★	▲	▲	▲									—							—	—	—	—	—	—	—	—	—
			VNMG333EGE	VNMG160412N-GE	.0469	●	★	●	★	▲	▲	▲									—							—	—	—	—	—	—	—	—	—
	EUX 0°	P K .24 .16 .08 0 .008 .016 .024 (ap) (f)	VNMG331EUX	VNMG160404N-UX	.0156	●	★	●	●	▲	▲	▲									—							—	—	—	—	—	—	—	—	—
			VNMG332EUX	VNMG160408N-UX	.0313	●	●	●	●	▲	▲	▲									—							—	—	—	—	—	—	—	—	—
			VNMG333EUX	VNMG160412N-UX	.0469	●	★	●	★	▲	▲	▲									—							—	—	—	—	—	—	—	—	—
	ENG 4°	P M .24 .16 .08 0 .008 .016 .024 (ap) (f)	VNMG331ENG	VNMG160404N-UG	.0156	●		●	●		▲	▲									—							—	—	—	—	—	—	—	—	—
			VNMG332ENG	VNMG160408N-UG	.0313	●		●	●		▲	▲									—							—	—	—	—	—	—	—	—	—
	EEG 0°	M .24 .16 .08 0 .008 .016 .024 (ap) (f)	VNMG331EEG	VNMG160404N-EG	.0156	★	★	★	●				●	★	★						—	●	●	★				—	—	—	—	—	—	—	—	—
			VNMG332EEG	VNMG160408N-EG	.0313	★	★	★	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	—	—	—	—
			VNMG333EEG	VNMG160412N-EG	.0469	★	★	★	●				●	★	●						—	●	●	★				—	—	—	—	—	—	—	—	—
		—	VNMA331	VNMA160404	.0156												★	★	●	▲	—							—	—	—	—	—	—	—	—	—
			VNMA332	VNMA160408	.0313												★	●	●	▲	—							—	—	—	—	—	—	—	—	—
			VNMA333	VNMA160412	.0469												★	●	★		—							—	—	—	—	—	—	—	—	—
		—	VNGA331	VNGA160404	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★								—	—	—	—	—	—	—	—
			VNGA332	VNGA160408	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●								—	—	—	—	—	—	—	—

35° Diamond Negative Inserts

VN 35° Diamond Neg. With Hole





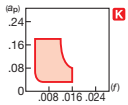
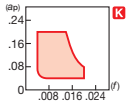
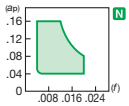
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

VN■■33●

Dimensions (inch)	Cutting Edge Length L	.6535	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

SUMIBORON (CBN) Inserts L92 · SUMIDIA (PCD) Inserts M24 · SUMIDIA (PCD) Binderless Inserts M27
Applicable External Holders C29 · Applicable Internal Holders E26 · Ceramic Inserts B132

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	**ENZ** 4°		VNMG331ENZ	VNMG160404N-UZ	.0156			★	●		▲	▲					★	●	★	▲	—	★	★	★				—	—	—	—	—			—	—
			VNMG332ENZ	VNMG160408N-UZ	.0313			●	●		▲	▲					★	●	●	▲	—	★	★	★				—	—	—	—	—			—	—
			VNMG333ENZ	VNMG160412N-UZ	.0469			●	★		▲	▲					●	★	★	▲	—							—	—	—	—	—			—	—
	EGZ 0°		VNMG331EGZ	VNMG160404N-GZ	.0156												●	●	★	▲	—							—	—	—	—	—			—	—
			VNMG332EGZ	VNMG160408N-GZ	.0313												★	●	●	▲	—							—	—	—	—	—			—	—
			VNMG333EGZ	VNMG160412N-GZ	.0469												●	★	●	▲	—							—	—	—	—	—			—	—
For Aluminium	**(R/L)AX** 30°		VNGG330.5RAX	VNGG160402R-AX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			VNGG330.5LAX	VNGG160402L-AX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			VNGG331RAX	VNGG160404R-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			VNGG331LAX	VNGG160404L-AX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			VNGG332RAX	VNGG160408R-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			VNGG332LAX	VNGG160408L-AX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—

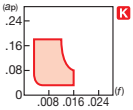
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

VN■■43●

Dimensions (inch)	Cutting Edge Length L	.8701	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

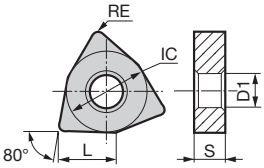
Applicable External Holders C31 · Ceramic Inserts B132

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	**ENZ** 4°		VNMG432ENZ	VNMG220408N-UZ	.0313		●	●	●		▲	▲									—							—	—	—	—	—			—	—
			VNMG433ENZ	VNMG220412N-UZ	.0469		●	●	●		▲	▲									—							—	—	—	—	—			—	—

Trigon Negative Inserts

WN Trigon Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

WN■■32.5●

Dimensions (inch)	Cutting Edge Length L	.2559	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◕ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	ESU 13°	(ap) .08 .04 0 .008 .016 (f) P M S	WNMG32.51ESU	WNMG06T304N-SU	.0156			★													—							—	—	—	—	—			—	—
			WNMG32.52ESU	WNMG06T308N-SU	.0313			★													—							—	—	—	—	—			—	—
Medium Cutting	ENG 4°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P M	WNMG32.51ENG	WNMG06T304N-UG	.0156			★													—							—	—	—	—	—			—	—
			WNMG32.52ENG	WNMG06T308N-UG	.0313			★													—							—	—	—	—	—			—	—

WN■■33●

Dimensions (inch)	Cutting Edge Length L	.2559	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

Applicable External Holders ☞ C32
Applicable Internal Holders ☞ E28

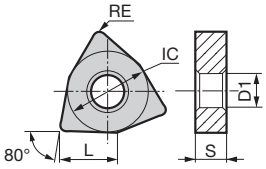
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◕ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

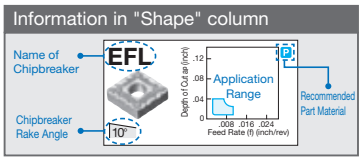
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Application																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	EFB 27°	(ap) .08 .04 0 .008 .016 (f) P	WNMG331EFB	WNMG060404N-FB	.0156										★						—							—	★	★						—
			WNMG332EFB	WNMG060408N-FB	.0313										★						—							—	★	★						—
	EFE 20°	(ap) .08 .04 0 .008 .016 (f) P	WNMG331EFE	WNMG060404N-FE	.0156	★	★	★	★					★	★						—							—	★	★						—
			WNMG332EFE	WNMG060408N-FE	.0313	★	★	★	●					★	★						—							—	★	★						—
Finishing	ELU 10°	(ap) .08 .04 0 .008 .016 (f) P	WNMG331ELU	WNMG060404N-LU	.0156	★	●	●	★												—							—	★	★						—
			WNMG332ELU	WNMG060408N-LU	.0313	★	●	●	★	▲											—							—	★	★						—
			WNMG333ELU	WNMG060412N-LU	.0469	★	★	★	★												—							—	★							—
	ELUW 10° → B134 Wiper	(ap) .08 .04 0 .008 .016 (f) P	WNMG331ELUW	WNMG060404N-LUW	.0156	●	★	●		▲	▲			●							—							—	●	★		●				—
			WNMG332ELUW	WNMG060408N-LUW	.0313	●	★	●		▲	▲			★		▲					—							—	●	●		●				—
	ESU 13°	(ap) .08 .04 0 .008 .016 (f) P M S	WNMG331ESU	WNMG060404N-SU	.0156	●	●	●	●		▲	▲		●	★	▲					—	●	●	●	▲			—	●	★						—
			WNMG332ESU	WNMG060408N-SU	.0313	●	★	●	●	▲	▲	▲		●	●	▲					—	●	●	●	▲	▲		—	★	★						—
			WNMG333ESU	WNMG060412N-SU	.0469	★	★	●	★					★	★						—							—	★							—
	ESEW 5° → B134 Wiper	(ap) .16 .08 0 .008 .020 .032 (f) P	WNMG331ESEW	WNMG060404N-SEW	.0156	★	★	●	★		▲	▲									—							—	—	—	—	—			—	—
			WNMG332ESEW	WNMG060408N-SEW	.0313	●	●	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
	EEF 20°	(ap) .08 .04 0 .008 .016 (f) M S	WNMG331EEF	WNMG060404N-EF	.0156	★	★	★	★				●	●	●						—	●	★	●		▲		—	—	—	—	—			—	—
			WNMG332EEF	WNMG060408N-EF	.0313	★	★	★	★				●	●	●						—	★	●	●		▲		—	—	—	—	—			—	—

Trigon Negative Inserts

WN Trigon / Neg. / With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

WN■■33●

Dimensions (inch)	Cutting Edge Length L	.2559	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1500

Applicable External Holders C32 | Applicable Internal Holders E28

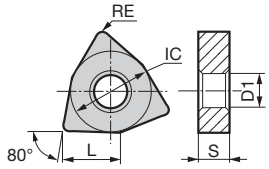
Recommended Application

	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting	**EEX** 16°	M S; .008 .016	WNMG331EEX	WNMG060404N-EX	.0156																—		●	●	▲	▲		—	—	—	—	—			—	—
			WNMG332EEX	WNMG060408N-EX	.0313																—		●	●	▲	▲		—	—	—	—	—			—	—
Medium Cutting	**EGU** 7°	P M; .008 .016 .024	WNMG331EGU	WNMG060404N-GU	.0156	★	★	★	★				●	★	★		●	●	●		—							—	★	★						—
			WNMG332EGU	WNMG060408N-GU	.0313	●	●	●	●		▲		●	●	●		★	●	●		—							—	★	★						—
			WNMG333EGU	WNMG060412N-GU	.0469	★	★	●	★		▲		●	★	★		★	★	★		—							—	★							—
	EGE 3°	P; .008 .016 .024	WNMG332EGE	WNMG060408N-GE	.0313	●	★	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			WNMG333EGE	WNMG060412N-GE	.0469	●	★	●	★	▲	▲	▲									—							—	—	—	—	—			—	—
	EGUW 0° → B134 Wiper	P; .016 .032	WNMG332EGUW	WNMG060408N-GUW	.0313	★	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
	ENG 4°	P M; .008 .016 .024	WNMG331ENG	WNMG060404N-UG	.0156			★													—							—	—	—	—	—			—	—
			WNMG332ENG	WNMG060408N-UG	.0313			★													—							—	—	—	—	—			—	—
	EEG 0°	M; .008 .016 .024	WNMG332EEG	WNMG060408N-EG	.0313	★	●	●	●				★	●	●						—	★	●	●		▲		—	—	—	—	—			—	—
			WNMG333EEG	WNMG060412N-EG	.0469	★	★	●	★				●	●	●						—	★	★	★		▲		—	—	—	—	—			—	—
Medium to Roughing	**EMU** 4°	P M S; .008 .016 .024	WNMG332EMU	WNMG060408N-MU	.0313	●		●	●	▲	▲	▲		●		▲					—	●	●	●		▲		—	—	—	—	—			—	—
			WNMG333EMU	WNMG060412N-MU	.0469	●		●	★					●							—							—	—	—	—	—			—	—
	EME 4°	P; .016 .032	WNMG332EME	WNMG060408N-ME	.0313	★	●	●	★	▲	▲						★	★	●		—							—	—	—	—	—			—	—
			WNMG333EME	WNMG060412N-ME	.0469	★	●	●	★		▲	▲					★	★	★		—							—	—	—	—	—			—	—
	EGZ 0°	K; .008 .016 .024	WNMG332EGZ	WNMG060408N-GZ	.0313												★	★	●	▲	—							—	—	—	—	—			—	—
			WNMG333EGZ	WNMG060412N-GZ	.0469												★	★	★	▲	—							—	—	—	—	—			—	—

Trigon Negative Inserts

WN Trigon Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

WN■■43●

Dimensions (inch)	Cutting Edge Length L	.3425	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

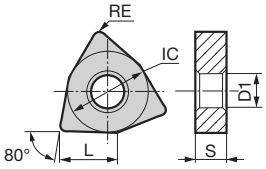
SUMIBORON (CBN) Inserts ☞ L103
Ceramic Inserts ☞ B132
Applicable External Holders ☞ C32
Applicable Internal Holders ☞ E28

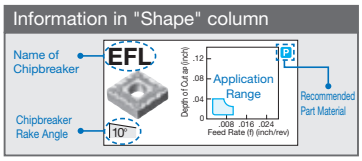
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	**EFB** 27°		WNMG430.5EFB	WNMG080402N-FB	.0078										★						—							—	★	★	★					—
			WNMG431EFB	WNMG080404N-FB	.0156										★						—							—	★	★	★					—
			WNMG432EFB	WNMG080408N-FB	.0313										★						—							—	★	★	★					—
	EFA 20°		WNMG430.5EFA	WNMG080402N-FA	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	★	●	—	—		—
			WNMG431EFA	WNMG080404N-FA	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
			WNMG432EFA	WNMG080408N-FA	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
	EFL 10°		WNMG431EFL	WNMG080404N-FL	.0156			●			▲										—							—	●	★	★					—
			WNMG432EFL	WNMG080408N-FL	.0313			●		▲	▲										—							—	●	★	★					—
	EFE 20°		WNMG430.5EFE	WNMG080402N-FE	.0078	★	★	★	●					★	★						—							—	★	★	★					—
			WNMG431EFE	WNMG080404N-FE	.0156	★	●	★	●					★	★						—							—	★	★	★					—
			WNMG432EFE	WNMG080408N-FE	.0313	★	●	★	●					★	★						—							—	★	★	★					—
			WNMG433EFE	WNMG080412N-FE	.0469	★	●	★	★					★	★						—							—	★	★	★					—
Finishing	**ELU** 10°		WNMG431ELU	WNMG080404N-LU	.0156	●	●	●	★	▲	▲			★							—							—	●	★	★	★					—
			WNMG432ELU	WNMG080408N-LU	.0313	●	●	●	★	▲	▲	▲		★							—							—	●	★	★	★					—
			WNMG433ELU	WNMG080412N-LU	.0469	●	●	●	★		▲			★							—							—	★	★		★					—
	ELUW 10° → B134 Wiper		WNMG431ELUW	WNMG080404N-LUW	.0156	●	●	●		▲	▲			★							—							—	●	★		●					—
			WNMG432ELUW	WNMG080408N-LUW	.0313	●	●	●		▲	▲			★							—							—	●	●		★					—
			WNMG433ELUW	WNMG080412N-LUW	.0469	●	★	●		▲	▲			★							—							—	●	★		★					—
	ESU 13°		WNMG431ESU	WNMG080404N-SU	.0156	●	●	●	●	▲	▲	▲		●	★	▲					—	●	●	●	▲	▲	★	—	●	★	★	●					—
			WNMG432ESU	WNMG080408N-SU	.0313	●	●	●	★	▲	▲	▲		●	●	▲					—	●	●	●	▲	▲	★	—	●	●	★	●					—
			WNMG433ESU	WNMG080412N-SU	.0469	●	★	●	★	▲	▲	▲		●	★						—	●	●	●	▲	▲	★	—	●	★	★	★					—
	ESU(J) 13°		WNGG431ESU	WNGG080404N-SU	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●		▲			★	★	★	●					
			WNGG431ESUJ	WNGG080404N-SUJ	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
	ESE 5°		WNMG431ESE	WNMG080404N-SE	.0156	●	●	●	★	▲		▲									—							—	★	★	★	●					—
			WNMG432ESE	WNMG080408N-SE	.0313	●	●	●	●	▲	▲	▲									—							—	★	★	★	●					—
			WNMG433ESE	WNMG080412N-SE	.0469	★	●	●	★	▲		▲									—							—	—	—	—	—					—
	ESEW 5° → B134 Wiper		WNMG431ESEW	WNMG080404N-SEW	.0156	★	●	★		▲											—							—	★	★		●					—
			WNMG432ESEW	WNMG080408N-SEW	.0313	●	●	●		▲	▲										—							—	★	★		●					—
			WNMG433ESEW	WNMG080412N-SEW	.0469	★	●	●													—							—	—	—	—	—					—

ESUJ depth of cut can be increased to .200" in Aluminum material

Trigon Negative Inserts

WN Trigon / Neg. / With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application	Coated Carbide																						Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✪														◐	◐	✖	●	◐					
M Stainless Steel									●	◐	✖	✪									◐									
K Cast Iron							✪						✖	●	◐	✖					◐			●						
N Non-Ferrous Metal																													◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪								
H Hardened Steel																●														

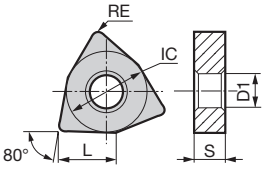
WN■■43●				
Dimensions (inch)	Cutting Edge Length L	.3425	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts ☞ L103
Ceramic Inserts ☞ B132
Applicable External Holders ☞ C32
Applicable Internal Holders ☞ E28

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
						Coated Carbide																						Coated Cermet		Cermet		Carbide			
Finishing	**EEF** 20°	(ap) .08 .04 0 .008 .016 (f) M S	WNMG431EEF	WNMG080404N-EF	.0156	★	★	★	★				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	●	★	—	—
			WNMG432EEF	WNMG080408N-EF	.0313	★	★	★	●				●	●	★	▲					—	●	●	●	▲	▲		—	—	—	—	—	●	★	—	—
	ENK 8°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P	WNMG432ENK	WNMG080408N-SK	.0313						▲										—							—	—	—	—	—			—	—
Light to Medium Cutting	**ESX** 3°	(ap) .08 .04 0 .008 .016 (f) P	WNMG431ESX	WNMG080404N-SX	.0156	●	★	●	★		▲	▲									—							—	●	★		★				—
			WNMG432ESX	WNMG080408N-SX	.0313	★	●	●	●	▲	▲	▲									—							—	●	★		★				—
			WNMG433ESX	WNMG080412N-SX	.0469	★	★	●	●		▲	▲									—							—	—	—	—	—			—	—
	EEX 16°	(ap) .12 .08 .04 0 .008 .016 (f) M S	WNMG431EEX	WNMG080404N-EX	.0156								★	●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—	●	●	—	—
			WNMG432EEX	WNMG080408N-EX	.0313								●	●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—	●		—	—
			WNMG433EEX	WNMG080412N-EX	.0469								★	●	★	▲					—	★	●	●			★	—	—	—	—	—			—	—
	EUP 10°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) M S	WNMG432EUP	WNMG080408N-UP	.0313			●	●		▲	▲		●	●	▲					—	★	●	●	▲	▲	★	—	—	—	—	—			—	—
			WNMG433EUP	WNMG080412N-UP	.0469						▲	▲		★	★	▲					—	★	★	●		▲	★	—	—	—	—	—			—	—
Medium Cutting	**EGU** 7°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P M	WNMG431EGU	WNMG080404N-GU	.0156	●	●	●	●	▲	▲	▲	●	●	★	▲	★	●	●		—	★	★	●			★	—	★	★		★				—
			WNMG432EGU	WNMG080408N-GU	.0313	●	●	●	●	▲	▲	▲	●	●	●	▲	★	●	●		—	●	●	●			★	—	★	★		★				—
			WNMG433EGU	WNMG080412N-GU	.0469	●	●	●	●	▲	▲	▲	●	●	★	▲	●	●	●		—	●	●	●			★	—	—	—	—	—			—	—
	EGE 3°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P	WNMG431EGE	WNMG080404N-GE	.0156	★	★	★	●												—							—	—	—	—	—			—	—
			WNMG432EGE	WNMG080408N-GE	.0313	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			WNMG433EGE	WNMG080412N-GE	.0469	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			WNMG434EGE	WNMG080416N-GE	.0625	★	★	★	★		▲	▲									—							—	—	—	—	—			—	—
	EGUW 0° → B134 Wiper	(ap) .24 .16 .08 0 .016 .032 (f) P	WNMG432EGUW	WNMG080408N-GUW	.0313	●	●	●		▲	▲			●		▲		●	●		—							—	—	—	—	—			—	—
			WNMG433EGUW	WNMG080412N-GUW	.0469	●	●	●		▲	▲			●		▲		●	●		—							—	—	—	—	—			—	—
	EUX 0°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P K	WNMG431EUX	WNMG080404N-UX	.0156	●	★	●	●		▲	▲									—							—	—	—	—	—			—	—
			WNMG432EUX	WNMG080408N-UX	.0313	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			WNMG433EUX	WNMG080412N-UX	.0469	●	●	●	●	▲	▲	▲									—							—	—	—	—	—			—	—
	ENG 4°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P M	WNMG431ENG	WNMG080404N-UG	.0156	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
			WNMG432ENG	WNMG080408N-UG	.0313	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—
			WNMG433ENG	WNMG080412N-UG	.0469			●	●		▲	▲									—							—	—	—	—	—			—	—
	EEG 0°	(ap) .24 .16 .08 0 .008 .016 .024 (f) M	WNMG431EEG	WNMG080404N-EG	.0156	★	★	★	★				●	★	★						—	●	●	●				—	—	—	—	—			—	—
			WNMG432EEG	WNMG080408N-EG	.0313	★	★	●	●				●	●	●	▲					—	●	●	●	▲	▲		—	—	—	—	—	●	★	—	—
			WNMG433EEG	WNMG080412N-EG	.0469	★	●	★	★				●	●	●	▲					—	●	●	●	▲			—	—	—	—	—		●	—	—
		—	WNMA432	WNMA080408	.0313												★	●	●	▲	—							—	—	—	—	—			—	—
			WNMA433	WNMA080412	.0469												★	●	●	▲	—							—	—	—	—	—			—	—
			WNMA434	WNMA080416	.0625												★	★	★	▲	—							—	—	—	—	—			—	—

Trigon Negative Inserts

WN Trigon Neg. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

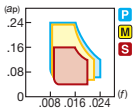
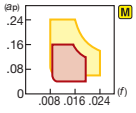
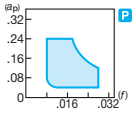
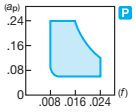
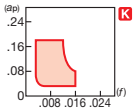
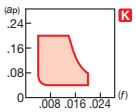
WN■■43●

Dimensions (inch)	Cutting Edge Length L	.3425	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2031

SUMIBORON (CBN) Inserts ☞ L103
Ceramic Inserts ☞ B132
Applicable External Holders ☞ C32
Applicable Internal Holders ☞ E28

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended
◐ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	EMU 4°		WNMG432EMU	WNMG080408N-MU	.0313	●	●	●	★	▲	▲	▲		●	●	▲					—	●	●	●	▲	▲	★	—	—	—	—	—			—	—
			WNMG433EMU	WNMG080412N-MU	.0469	●	●	●	●	▲	▲	▲		●	●	▲					—	●	●	●		▲	★	—	—	—	—	—			—	—
			WNMG434EMU	WNMG080416N-MU	.0625	★	★	★													—							—	—	—	—	—			—	—
Medium to Roughing	EEM 0°		WNMG432EEM	WNMG080408N-EM	.0313	★	★	●	★				★	●	●						—	●	●	●		▲		—	—	—	—	—			—	—
			WNMG433EEM	WNMG080412N-EM	.0469	★	●	★	●				★	●	●						—	●	●	●		▲		—	—	—	—	—			—	—
	EME 4°		WNMG432EME	WNMG080408N-ME	.0313	●	●	●	●	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—
			WNMG433EME	WNMG080412N-ME	.0469	★	●	●	●	▲	▲	▲					★	●	●		—							—	—	—	—	—			—	—
			WNMG434EME	WNMG080416N-ME	.0625	●	★	●	★	▲	▲	▲					●	●	●		—							—	—	—	—	—			—	—
	EMX -15°		WNMG432EMX	WNMG080408N-MX	.0313		★	●	●		▲	▲									—							—	—	—	—	—			—	—
			WNMG433EMX	WNMG080412N-MX	.0469		★	●	●		▲	▲									—							—	—	—	—	—			—	—
	ENZ 4°		WNMG431ENZ	WNMG080404N-UZ	.0156			●	★		▲						★	★	★	▲	—	★	★	★				—	—	—	—	—			—	—
			WNMG432ENZ	WNMG080408N-UZ	.0313			●	★		▲	▲					★	●	●	▲	—	★	★	★				—	—	—	—	—			—	—
			WNMG433ENZ	WNMG080412N-UZ	.0469			★	★		▲	▲					●	●	★	▲	—	★	★	★				—	—	—	—	—			—	—
	EGZ 0°		WNMG431EGZ	WNMG080404N-GZ	.0156												★	●	●	▲	—							—	—	—	—	—			—	—
			WNMG432EGZ	WNMG080408N-GZ	.0313												●	●	●	▲	—							—	—	—	—	—			—	—
			WNMG433EGZ	WNMG080412N-GZ	.0469												●	●	●	▲	—							—	—	—	—	—			—	—

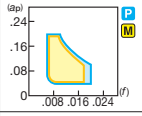
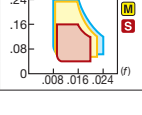
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended
◐ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

WN■■54●

Dimensions (inch)	Cutting Edge Length L	.430	Thickness S	.250
	Inscribed Circle IC	.625	Hole Dia. D1	.250

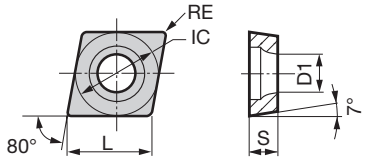
Applicable External Holders ☞ C33

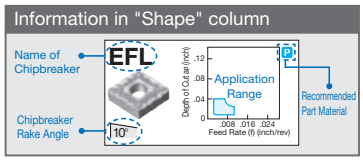
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting	ENG 4°		WNMG543ENG	WNMG100612N-UG	.0469		●	●	●		▲	▲									—							—	—	—	—	—			—	—
Medium to Roughing	EMU 4°		WNMG543EMU	WNMG100612N-MU	.0469	●	●	●	●		▲	▲									—							—	—	—	—	—			—	—

80° Diamond Positive Inserts

CC 80° Diamond / 7° Pos. / With Hole





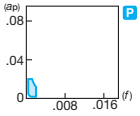
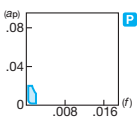
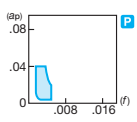
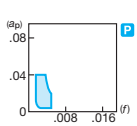
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CC■■03X1●

Dimensions (inch)	Cutting Edge Length L	.1398	Thickness S	.0551
	Inscribed Circle IC	.1378	Hole Dia. D1	.0748

SUMIBORON (CBN) Inserts L36
SUMIDIA (PCD) Binderless Inserts M27
Applicable Internal Holders E31
SUMIDIA (PCD) Inserts M10

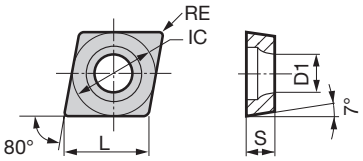
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✿																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✿												◒								
K	Cast Iron						✿						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✿									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FYS		CCET03X1003RFYS	CCET03X1003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET03X1003LFYS	CCET03X1003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET03X101RFYS	CCET03X101R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET03X101LFYS	CCET03X101L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET03X102RFYS	CCET03X102R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET03X102LFYS	CCET03X102L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET03X104RFYS	CCET03X104R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET03X104LFYS	CCET03X104L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
	(R/L)FYS		CCGT03X1003RFYS	CCGT03X1003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCGT03X1003LFYS	CCGT03X1003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCGT03X101RFYS	CCGT03X101R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCGT03X101LFYS	CCGT03X101L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCGT03X102RFYS	CCGT03X102R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCGT03X102LFYS	CCGT03X102L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCGT03X104RFYS	CCGT03X104R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCGT03X104LFYS	CCGT03X104L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
	(R/L)FY *1 15°		CCGT03X101RFY	CCGT03X101R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	★	—	—	—	—	—
			CCGT03X101LFY	CCGT03X101L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	●	—	—	★	—	—	—	—	—
			CCGT03X102RFY	CCGT03X102R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	★	—	—	—	—	—
			CCGT03X102LFY	CCGT03X102L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	●	—	—	★	—	—	—	—	—
			CCGT03X104RFY	CCGT03X104R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	★	—	★	—	—	—	—	—
			CCGT03X104LFY	CCGT03X104L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	●	★	—	★	—	—	—	—	—
	(R/L)FY *1 15°		CCET03X1003RFY	CCET03X1003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	★	—	—	—	—	—
			CCET03X1003LFY	CCET03X1003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	—	—
			CCET03X101RFY	CCET03X101R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	★	—	—	—	—	—
			CCET03X101LFY	CCET03X101L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—
			CCET03X102RFY	CCET03X102R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	★	—	—	—	—	—
			CCET03X102LFY	CCET03X102L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—
			CCET03X104RFY	CCET03X104R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	★	—	—	—	—	—
			CCET03X104LFY	CCET03X104L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	—	—

*1: Photo shows left hand.

80° Diamond Positive Inserts

CC 80° Diamond / 7° Pos. / With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

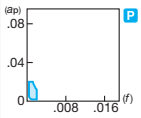
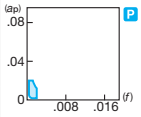
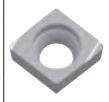
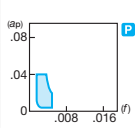
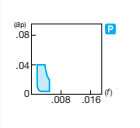
● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CC■■04X1●

Dimensions (inch)	Cutting Edge Length L	.1720	Thickness S	.0709
	Inscribed Circle IC	.1693	Hole Dia. D1	.0906

SUMIBORON (CBN) Inserts ☞ L36
SUMIDIA Binderless Inserts ☞ M27
Applicable Internal Holders ☞ E31
SUMIDIA (PCD) Inserts ☞ M10

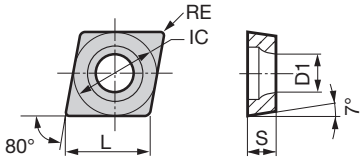
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

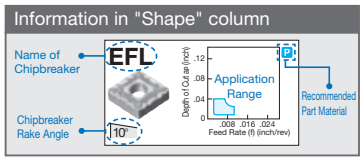
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FYS 15°		CCGT04X1003R-FYS	CCGT04X1003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCGT04X1003L-FYS	CCGT04X1003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCGT04X101R-FYS	CCGT04X101R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCGT04X101L-FYS	CCGT04X101L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCGT04X102R-FYS	CCGT04X102R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCGT04X102L-FYS	CCGT04X102L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCGT04X104R-FYS	CCGT04X104R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCGT04X104L-FYS	CCGT04X104L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
	(R/L)FYS 15°		CCET04X1003R-FYS	CCET04X1003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCET04X1003L-FYS	CCET04X1003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCET04X101R-FYS	CCET04X101R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCET04X101L-FYS	CCET04X101L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCET04X102R-FYS	CCET04X102R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCET04X102L-FYS	CCET04X102L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCET04X104R-FYS	CCET04X104R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			CCET04X104L-FYS	CCET04X104L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
	(R/L)FY  15° *1		CCGT04X101RFY	CCGT04X101R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	★	—	★	—	—	—	—	—	—
			CCGT04X101LFY	CCGT04X101L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	●	★	—	★	—	—	—	—	—	—
			CCGT04X102RFY	CCGT04X102R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	★	—	★	—	—	—	—	—	—
			CCGT04X102LFY	CCGT04X102L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	●	★	—	★	—	—	—	—	—	—
			CCGT04X104RFY	CCGT04X104R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	★	—	★	—	—	—	—	—	—
			CCGT04X104LFY	CCGT04X104L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	●	★	—	★	—	—	—	—	—	—
	(R/L)FY *1 15°		CCET04X1003RFY	CCET04X1003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	★	—	—	—	—	—
			CCET04X1003LFY	CCET04X1003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	★	—	—	—	—	—	—
			CCET04X101RFY	CCET04X101R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	★	—	—	—	—	—	—
			CCET04X101LFY	CCET04X101L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—
			CCET04X102RFY	CCET04X102R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	★	—	—	—	—	—	—
			CCET04X102LFY	CCET04X102L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	★	—	—	—	—	—	—
			CCET04X104RFY	CCET04X104R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	★	—	—	—	—	—	—
			CCET04X104LFY	CCET04X104L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—

*1: Photo shows left hand.

80° Diamond Positive Inserts

CC 80° Diamond / 7° Pos. / With Hole





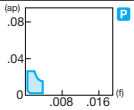
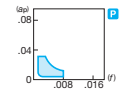
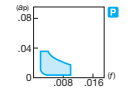
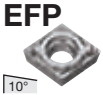
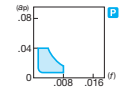
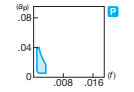
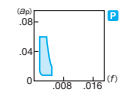
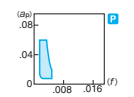
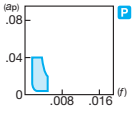
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CC■■21.5●

Dimensions (inch)	Cutting Edge Length L	.2520	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts L37 · SUMIDIA (PCD) Inserts M11 · SUMIDIA Binderless Inserts M27
Applicable External Holders C34, D23, D27 · Applicable Internal Holders E30

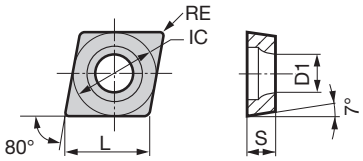
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																		●	◐	✖	○	◔	✪								
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	(M)EFF 15°		CCGT21.50MEFF	CCGT060201MN-FF	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	—	●	—	—	—	—	—	—
			CCGT21.50.5MEFF	CCGT060202MN-FF	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	—	●	—	—	—	—	—	—
			CCGT21.51MEFF	CCGT060204MN-FF	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	—	●	—	—	—	—	—	—
	EFB 20°		CCMT21.50.5EFB	CCMT060202N-FB	.0078																—							—	●	★	★	●				—
			CCMT21.51EFB	CCMT060204N-FB	.0156																—						▲	—	●	★	★	●				—
	ELU 15°		CCMT21.50.5ELU	CCMT060202N-LU	.0078	●	●	●		▲	▲			●	★	▲					—							—	●	★	★					—
			CCMT21.51ELU	CCMT060204N-LU	.0156	●	●	●		★	▲			●	★	▲					—						▲	—	●	●	★					—
	EFP  10°		CCMT21.52EFP	CCMT060208N-FP	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				★	—	—		—
Finishing	(M)EFC 15°		CCGT21.50MEFC	CCGT060201MN-FC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●			★	●				
			CCGT21.50EFC	CCGT060201N-FC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●					●				
			CCGT21.50.5MEFC	CCGT060202MN-FC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●			●	●				
			CCGT21.50.5EFC	CCGT060202N-FC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		
			CCGT21.51MEFC	CCGT060204MN-FC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●			●	●				
			CCGT21.51EFC	CCGT060204N-FC	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●					●				
	(R/L)FX 15°		CCGT21.5.001RFX	CCGT0602003R-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★			★	★				
			CCGT21.5.001LFX	CCGT0602003L-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★			★	★				
			CCGT21.50RFX	CCGT060201R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	●	★		★	★				
			CCGT21.50LFX	CCGT060201L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	●	●	★		★	★				
			CCGT21.50.5RFX	CCGT060202R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	★		★	★				
			CCGT21.50.5LFX	CCGT060202L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	●	●	●		★	★				
			CCGT21.51RFX	CCGT060204R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	—	—			—	—
			CCGT21.51LFX	CCGT060204L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	●	●	★							
	(R/L)FX 15°		CCET21.5.001RFX	CCET0602003R-FX	.0012																							★								
			CCET21.5.001LFX	CCET0602003L-FX	.0012																							★								
			CCET21.50RFX	CCET060201R-FX	.0039																							★								
			CCET21.50LFX	CCET060201L-FX	.0039																							★								
			CCET21.50.5RFX	CCET060202R-FX	.0078																							★								
			CCET21.50.5LFX	CCET060202L-FX	.0078																							★								
			CCET21.51RFX	CCET060204R-FX	.0156																							★								
			CCET21.51LFX	CCET060204L-FX	.0156																							★								
	(R/L)FY *1 15°		CCET21.5.001RFY	CCET0602003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★								
			CCET21.5.001LFY	CCET0602003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★								
			CCET21.50RFY	CCET060201R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			★					
			CCET21.50LFY	CCET060201L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			★					
			CCET21.50.5RFY	CCET060202R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			★					
			CCET21.50.5LFY	CCET060202L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			★					
			CCET21.51RFY	CCET060204R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★								
			CCET21.51LFY	CCET060204L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★								

*1: Photo shows left hand.
Values for nose radius RE prefixed with "<" indicate negative tolerances.

80° Diamond Positive Inserts

CC 80° Diamond / 7° Pos. / With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

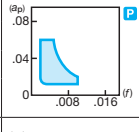
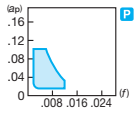
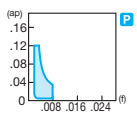
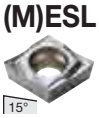
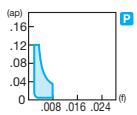
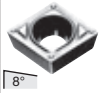
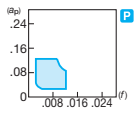
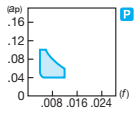
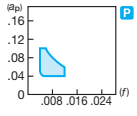
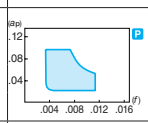
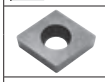
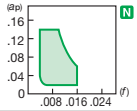
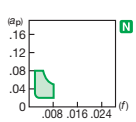
CC■■21.5●

Dimensions (inch)	Cutting Edge Length L	.2520	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts ☞ L37 | SUMIDIA (PCD) Inserts ☞ M11 | SUMIDIA Binderless Inserts ☞ M27
Applicable External Holders ☞ C34, D23, D27 | Applicable Internal Holders ☞ E30

Recommended Application

		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															
		Coated Carbide																						Coated Cermet		Cermet		Carbide			

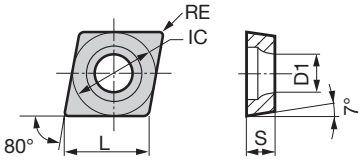
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	**ELB** 15°		CCMT21.50.5ELB	CCMT060202N-LB	.0078		●	●	●				★	★	★						—							—	★	★						—
			CCMT21.51ELB	CCMT060204N-LB	.0156		●	●	●				●	★	★						—							—	★	★						—
			CCMT21.52ELB	CCMT060208N-LB	.0313		●	●	●				●	★	★						—							—	★	★						—
	ESU 8°		CCMT21.50.5ESU	CCMT060202N-SU	.0079	★	●	●	●		▲	▲	●	●	★	▲					—	●	●	●	▲	▲		—	●	●	★	●				—
			CCMT21.51ESU	CCMT060204N-SU	.0156	●	●	●	●	▲	▲	▲	●	●	●	▲		●	●		—	●	●	●	▲	▲	●	—	●	●	★	●				—
			CCMT21.52ESU	CCMT060208N-SU	.0313	●	●	●	●	▲	▲	▲	●	●	●	▲	●	●	●		—	●	●	●	▲	▲	▲	—	●	★	★	●				—
	(M)ESI 15°		CCGT21.50MESI	CCGT060201MN-SI	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●				●	—	—	—	—			—	—
			CCGT21.50.5MESI	CCGT060202MN-SI	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●				●	—	—	—	—			—	—
			CCGT21.51MESI	CCGT060204MN-SI	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●				●	—	—	—	—			—	—
	(M)ESL  15°		CCGT21.50MESL	CCGT060201MN-SL	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			CCGT21.50.5MESL	CCGT060202MN-SL	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
	ENK  8°		CCMT21.51ENK	CCMT060204N-SK	.0156	●		●	●		▲	▲									—							—	—	—	—	—			—	—
			CCMT21.52ENK	CCMT060208N-SK	.0313	●		●	●		▲	▲									—							—	—	—	—	—			—	—
	EFM 6°		CCMT21.51EFM	CCMT060204N-SC	.0156			●			▲										—							—	—	—	—	—			—	—
	(M)EFM 6°		CCGT21.5.001EFM	CCGT0602003N-SC	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	●			★	★				
			CCGT21.50MEFM	CCGT060201MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	●	●	★	★	●				
			CCGT21.50EFM	CCGT060201N-SC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—	—			—	—
			CCGT21.50.5MEFM	CCGT060202MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								●	●	●	★	★	●				
			CCGT21.50.5EFM	CCGT060202N-SC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	—	—	—	—	—			—	—
			CCGT21.51MEFM	CCGT060204MN-SC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—									★	★							
	EGU 8°		CCMT21.51EGU	CCMT060204N-GU	.0156	●	●	●	●				●	●	●			●	●		—	●	●	●				—	●	★		★				—
			CCMT21.52EGU	CCMT060208N-GU	.0313	●	●	●	●				●	●	●				●		—	●	●	●				—	★	★		★				—
		—	CCMA21.51	CCMW060204	.0156												★	●	★	▲	—							—	—	—	—	—			—	—
	NAG 20°		CCGT21.50.5NAG	CCGT060202N-AG	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●
			CCGT21.51NAG	CCGT060204N-AG	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
For Aluminium	**(R/L)AY** *1 15°		CCGT21.50RAY	CCGT060201R-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			CCGT21.50LAY	CCGT060201L-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			CCGT21.50.5RAY	CCGT060202R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			CCGT21.50.5LAY	CCGT060202L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			CCGT21.51RAY	CCGT060204R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			CCGT21.51LAY	CCGT060204L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	

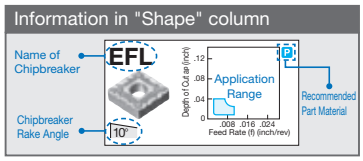
*1: Photo shows left hand.

Values for nose radius RE prefixed with "<" indicate negative tolerances.

80° Diamond Positive Inserts

CC 80° Diamond 7° Pos. With Hole





Continuous Cutting 1st Recommended / Continuous Cutting 2nd Recommended / General Cutting 1st Recommended / General Cutting 2nd Recommended / Interrupted Cutting 1st Recommended / Interrupted Cutting 2nd Recommended

CC■■2.51.5●

Dimensions (inch)	Cutting Edge Length L	.3150	Thickness S	.0937
	Inscribed Circle IC	.3125	Hole Dia. D1	.1339

Recommended Application: P Steel; M Stainless Steel; K Cast Iron; N Non-Ferrous Metal; S Exotic Alloy; H Hardened Steel

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
						Coated Carbide																						Coated Cermet		Cermet		Carbide			
Light Cutting	(M)EFM	(ap) .16 .12 .08 .04 0; .008 .016 .024 (f); P; 6°	CCGT2.51.50MEFM	CCGT080201MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
			CCGT2.51.50EFM	CCGT080201N-SC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				★	—	—		—
			CCGT2.51.50.5MEFM	CCGT080202MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			CCGT2.51.50.5EFM	CCGT080202N-SC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	—	—		—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

CC■■2.52●

Dimensions (inch)	Cutting Edge Length L	.3150	Thickness S	.1250
	Inscribed Circle IC	.3125	Hole Dia. D1	.1339

Recommended Application: P Steel; M Stainless Steel; K Cast Iron; N Non-Ferrous Metal; S Exotic Alloy; H Hardened Steel

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
						Coated Carbide																						Coated Cermet		Cermet		Carbide			
Light Cutting	EFM	(ap) .16 .12 .08 .04 0; .008 .016 .024 (f); P; 6°	CCMT2.521EFM	CCMT080304N-SC	.0156			★													—							—	—	—	—	—		—	—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

CC■■32●

Dimensions (inch)	Cutting Edge Length L	.3819	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

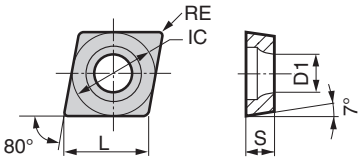
Recommended Application: P Steel; M Stainless Steel; K Cast Iron; N Non-Ferrous Metal; S Exotic Alloy; H Hardened Steel

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
						Coated Carbide																						Coated Cermet		Cermet		Carbide			
Light Cutting	EFM	(ap) .16 .12 .08 .04 0; .008 .016 .024 (f); P; 6°	CCMT322EFM	CCMT090308N-SC	.0313			★			▲										—							—	—	—	—	—		—	—
	(M)EFM	(ap) .16 .12 .08 .04 0; .008 .016 .024 (f); P; 6°	CCGT320MEFM	CCGT090301MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			CCGT320.5MEFM	CCGT090302MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

80° Diamond Positive Inserts

CC 80° Diamond / 7° Pos. / With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

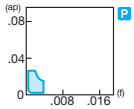
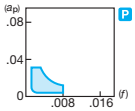
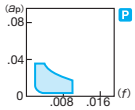
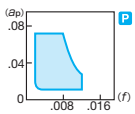
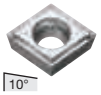
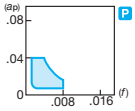
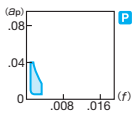
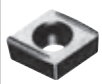
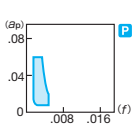
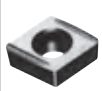
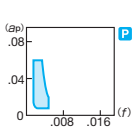
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CC■■32.5●

Dimensions (inch)	Cutting Edge Length L	.3819	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖							✖	●	◕	✖							◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

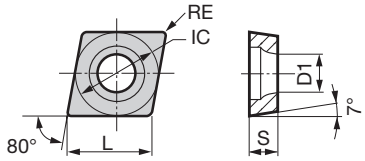
SUMIBORON (CBN) Inserts ☞ L40 SUMIDIA (PCD) Inserts ☞ M12 SUMIDIA Binderless Inserts ☞ M27
Applicable External Holders ☞ C34, D23, D27 Applicable Internal Holders ☞ E30

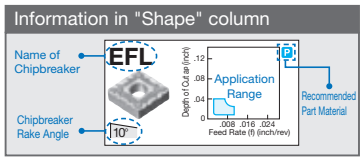
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**(M)EFF** 15°		CCGT32.50MEFF	CCGT09T301MN-FF	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	—	●	—	—	—	—	—	—	—	—
			CCGT32.50.5MEFF	CCGT09T302MN-FF	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	—	●	—	—	—	—	—	—	—	—
			CCGT32.51MEFF	CCGT09T304MN-FF	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	—	●	—	—	—	—	—	—	—	—
	EFB 20°		CCMT32.50.5EFB	CCMT09T302N-FB	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
			CCMT32.51EFB	CCMT09T304N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—	—	—
			CCMT32.52EFB	CCMT09T308N-FB	.0313	—															—					★	—	●	★	★	●				—
	ELU 15°		CCMT32.51ELU	CCMT09T304N-LU	.0156	●	●	●		▲	▲			●	★	▲					—						—	●	●	★					—
			CCMT32.52ELU	CCMT09T308N-LU	.0313	●	●	●		▲	▲			●	★	▲					—						—	●	★	★					—
	ELUW → B131 Wiper 10°		CCMT32.51ELUW	CCMT09T304N-LUW	.0156	●	●	●		▲	▲							★	●		—						—	●	●			●				—
			CCMT32.52ELUW	CCMT09T308N-LUW	.0313	●	●	●		▲	▲							●	●		—						—	●	★			●				—
	EFP  10°		CCMT32.51EFP	CCMT09T304N-FP	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—	—	—
	(M)EFC 15°		CCGT32.5.001EFC	CCGT09T3003N-FC	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	—	—	—	—	—	—	—	—
			CCGT32.50MEFC	CCGT09T301MN-FC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	★	●	—	—	—	—
			CCGT32.50EFC	CCGT09T301N-FC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●					●				
			CCGT32.50.5MEFC	CCGT09T302MN-FC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●			●	●				
			CCGT32.50.5EFC	CCGT09T302N-FC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●					●				
			CCGT32.51MEFC	CCGT09T304MN-FC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●			★	●				
			CCGT32.51EFC	CCGT09T304N-FC	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●					●				
	(R/L)FX  15°		CCGT32.5.001RFX	CCGT09T3003R-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★			★	★				
			CCGT32.5.001LFX	CCGT09T3003L-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★			★	★				
			CCGT32.50RFX	CCGT09T301R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	●	★		★	★				
			CCGT32.50LFX	CCGT09T301L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	●	★		★	★				
			CCGT32.50.5RFX	CCGT09T302R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	●	★		★	★				
			CCGT32.50.5LFX	CCGT09T302L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	★		★	★				
			CCGT32.51RFX	CCGT09T304R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	●	★	—	—	—	—	—	—	—	—
			CCGT32.51LFX	CCGT09T304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	—	—	—	—	—	—
			CCGT32.52RFX	CCGT09T308R-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—		★	—	—	—	—	—	—	—	—
			CCGT32.52LFX	CCGT09T308L-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—		★	—	—	—	—	—	—	—	—
	(R/L)FX  15°		CCET32.5.001RFX	CCET09T3003R-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.5.001LFX	CCET09T3003L-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.50RFX	CCET09T301R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.50LFX	CCET09T301L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.50.5RFX	CCET09T302R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.50.5LFX	CCET09T302L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.51RFX	CCET09T304R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.51LFX	CCET09T304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

80° Diamond Positive Inserts

CC 80° Diamond / 7° Pos. / With Hole





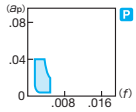
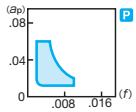
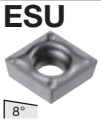
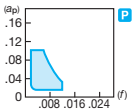
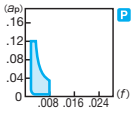
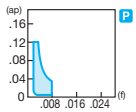
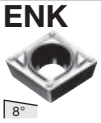
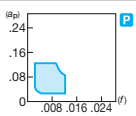
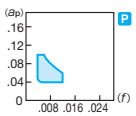
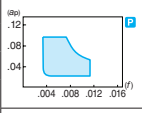
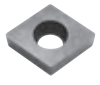
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CC■■32.5●

Dimensions (inch)	Cutting Edge Length L	.3819	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts L40 | SUMIDIA (PCD) Inserts M12 | SUMIDIA Binderless Inserts M27
Applicable External Holders C34, D23, D27 | Applicable Internal Holders E30

Recommended Application	Coated Carbide																					Coated Cermet		Cermet		Carbide			
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

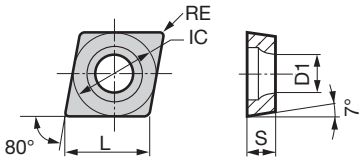
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**(R/L)FY** *1 15°		CCET32.5.001RFY	CCET09T3003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.5.001LFY	CCET09T3003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.50RFY	CCET09T301R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			★		—	—	—	—
			CCET32.50LFY	CCET09T301L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			★		—	—	—	—
			CCET32.50.5RFY	CCET09T302R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			★		—	—	—	—
			CCET32.50.5LFY	CCET09T302L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			★		—	—	—	—
			CCET32.51RFY	CCET09T304R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			CCET32.51LFY	CCET09T304L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
Light Cutting	**ELB** 15°		CCMT32.50.5ELB	CCMT09T302N-LB	.0078		●	●	●				●	★	★						—						—	★	★						—
			CCMT32.51ELB	CCMT09T304N-LB	.0156		●	●	●				●	★	★						—						—	★	★						—
			CCMT32.52ELB	CCMT09T308N-LB	.0313		●	●	●				●	★	★						—						—	★	★						—
	ESU  8°		CCMT32.50.5ESU	CCMT09T302N-SU	.0078	★	●	●	●		▲	▲	●	●	★	▲					—	●	●	●	▲	▲	▲	—	●	●	★				—
			CCMT32.51ESU	CCMT09T304N-SU	.0156	●	●	●	●	▲	▲	▲	●	●	●	▲		★	●		—	●	●	●	▲	▲	▲	—	●	●	★	●			—
			CCMT32.52ESU	CCMT09T308N-SU	.0313	●	●	●	●	▲	▲	▲	●	●	●	▲	●	●	●		—	●	●	●	▲	▲	●	—	●	●	★	●			—
	(M)ESI 15°		CCGT32.50MESI	CCGT09T301MN-SI	< .0039	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—	—	●	●	●	▲	▲	●	●	●	★	★	●			—
			CCGT32.50.5MESI	CCGT09T302MN-SI	< .0078	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—	—	●	●	●	▲	▲	●	●	●	★	★	●			—
			CCGT32.51MESI	CCGT09T304MN-SI	< .0156	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—	—	●	●	●	▲	▲	●	●	●	★	★	●			—
			CCGT32.52MESI	CCGT09T308MN-SI	< .0313	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	●	●	●				●	—	—	—	—			—
	(M)ESL 15°		CCGT32.50MESL	CCGT09T301MN-SL	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●				●	—	—	—	—			—
			CCGT32.50.5MESL	CCGT09T302MN-SL	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●				●	—	—	—	—			—
			CCGT32.51MESL	CCGT09T304MN-SL	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	★				●	—	—	—	—			—
	ENK  8°		CCMT32.51ENK	CCMT09T304N-SK	.0156	●		●	●		▲	▲									—						—	—	—	—	—			—
			CCMT32.52ENK	CCMT09T308N-SK	.0313	●		●	●		▲	▲									—						—	—	—	—	—			—
	(M)EFM 6°		CCGT32.5.001EFM	CCGT09T3003N-SC	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						●	●			★	★				
			CCGT32.50MEFM	CCGT09T301MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	●	★	★	●				
			CCGT32.50EFM	CCGT09T301N-SC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						●		—	—	—	—			—	—
			CCGT32.50.5MEFM	CCGT09T302MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						★	●	●	★	★	●				
			CCGT32.50.5EFM	CCGT09T302N-SC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						●		—	—	—	—			—	—
	EGU 8°		CCMT32.51EGU	CCMT09T304N-GU	.0156	●	●	●	●				●	●	●			●	●		—	●	●					—	★	●		●			—
			CCMT32.52EGU	CCMT09T308N-GU	.0313	●	●	●	●				●	●	●			●	●		—	●	●					—	●	★		●			—
		—	CCMA32.51	CCMW09T304	.0156												★	●	●	▲	—							—	—	—	—	—			—	—
			CCMA32.52	CCMW09T308	.0313												●	●	●	▲	—							—	—	—	—	—			—	—

*1: Photo shows left hand.

Values for nose radius RE prefixed with "<" indicate negative tolerances.

80° Diamond Positive Inserts

CC 80° Diamond 7° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✪ Interrupted Cutting 2nd Recommended

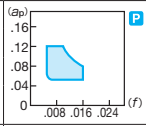
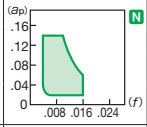
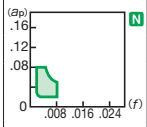
CC■■32.5●

Dimensions (inch)	Cutting Edge Length L	.3819	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts ☞ L40 SUMIDIA (PCD) Inserts ☞ M12 SUMIDIA Binderless Inserts ☞ M27

Applicable External Holders ☞ C34, D23, D27 Applicable Internal Holders ☞ E30

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	◯	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	◯	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting	EMU 0°		CCMT32.51EMU	CCMT09T304N-MU	.0156	●	●	●		▲	▲		●	★			●	★	★	▲	—							—	—	—	—	—		—	—
			CCMT32.52EMU	CCMT09T308N-MU	.0313	●	●	●	●	▲	▲	▲	●	★			★	●	●	▲	—							—	—	—	—	—		—	—
For Aluminium	NAG 20°		CCGT32.50.5NAG	CCGT09T302N-AG	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
			CCGT32.51NAG	CCGT09T304N-AG	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
			CCGT32.52NAG	CCGT09T308N-AG	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
	(R/L)AY *1 15°		CCGT32.50RAY	CCGT09T301R-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★
			CCGT32.50LAY	CCGT09T301L-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★
			CCGT32.50.5RAY	CCGT09T302R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★
			CCGT32.50.5LAY	CCGT09T302L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★
			CCGT32.51RAY	CCGT09T304R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★
			CCGT32.51LAY	CCGT09T304L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★

*1: Photo shows left hand.

● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✪ Interrupted Cutting 2nd Recommended

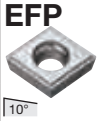
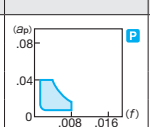
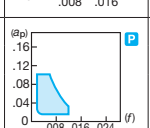
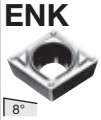
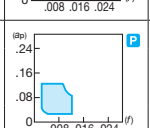
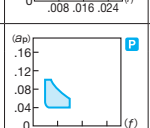
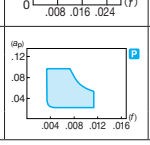
CC■■43●

Dimensions (inch)	Cutting Edge Length L	.5079	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2165

SUMIBORON (CBN) Inserts ☞ L44

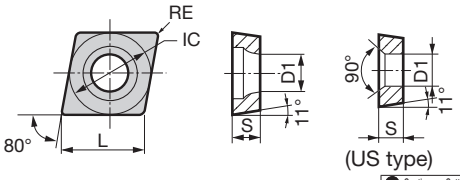
Applicable External Holders ☞ C34 Applicable Internal Holders ☞ E33

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	◯	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	◯	◔	✪									
H	Hardened Steel																●															

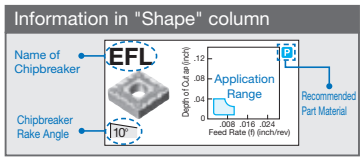
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	EFP  10°		CCMT431EFP	CCMT120404N-FP	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—
			CCMT432EFP	CCMT120408N-FP	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—
Light Cutting	ESU 8°		CCMT431ESU	CCMT120404N-SU	.0156	★	●	●	★		▲	▲						●	●	▲	—	★	★	★				—	—	—	—	—		—	—	—
			CCMT432ESU	CCMT120408N-SU	.0313	★	●	●	●	▲	▲	▲					●	●	●	▲	—	★	★	★				—	—	—	—	—		—	—	—
	ENK  8°		CCMT431ENK	CCMT120404N-SK	.0156			●	●		▲	▲									—							—	—	—	—	—		—	—	—
			CCMT432ENK	CCMT120408N-SK	.0313			●	●		▲	▲									—							—	—	—	—	—		—	—	—
	EFM 6°		CCMT432EFM	CCMT120408N-SC	.0313			★													—							—	—	—	—	—		—	—	—
	EGU 8°		CCMT432EGU	CCMT120408N-GU	.0313	★	●	●	●								●	●	●	▲	—							—	—	—	—	—		—	—	—

80° Diamond Positive Inserts

CP 80° Diamond 11° Pos. With Hole



Information in "Shape" column



● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

CP■■1.81.5●

Dimensions (inch)	Cutting Edge Length L	.3150	Thickness S	.0937
	Inscribed Circle IC	.2250	Hole Dia. D1	.1338

Recommended Application

	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖												◐								
K Cast Iron						✖						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✖									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting		—	CPEW1.81.51	CPEW050204	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	●	

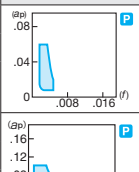
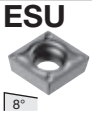
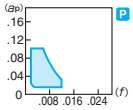
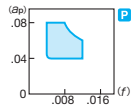
CP■■21.5●

Dimensions (inch)	Cutting Edge Length L	.2520	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

Recommended Application

	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖												◐								
K Cast Iron						✖						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✖									
H Hardened Steel																●															

SUMIDIA (PCD) Inserts ☞ M12 Applicable Internal Holders ☞ E34

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FX 15°		CPGT21.51LFX	CPGT060204L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
Light Cutting	ESU  8°		CPMT21.51ESU CPMT21.52ESU	CPMT060204N-SU CPMT060208N-SU	.0156 .0313	● ●	● ●	● ●		▲ ▲	▲ ▲										—	● ●	● ●	● ●	▲ ▲	▲ ▲	—	● ●	● ●		● ★				— —
Finishing	ENS 10°		CPMT21.51ENS	CPMT060204N-US	.0156									●		▲					—							—	—	—	—	—			—	—
Light Cutting		—	CPEW21.51	CPEW060204	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	●	

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

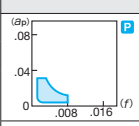
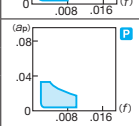
CP■■2.51.5●

Dimensions (inch)	Cutting Edge Length L	.3150	Thickness S	.0937
	Inscribed Circle IC	.3125	Hole Dia. D1	.1339

Recommended Application

	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖												◐								
K Cast Iron						✖						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✖									
H Hardened Steel																●															

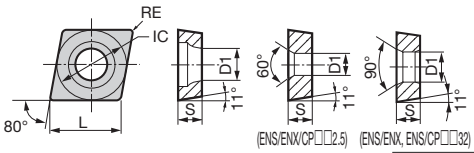
SUMIBORON (CBN) Inserts ☞ L44 SUMIDIA (PCD) Inserts ☞ M12

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	EFB 20°		CPMT2.51.51EFB	CPMT080204N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	●	—	—		—
Finishing	ELU 15°		CPMT2.51.51ELU	CPMT080204N-LU	.0156	★	★	★													—							—	★	★	★					—

*1: Hole Dia. D1=4.8.

80° Diamond Positive Inserts

CP — **80° Diamond** / **11° Pos.** / **With Hole**



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

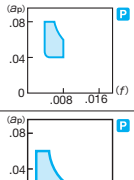
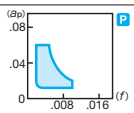
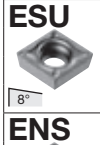
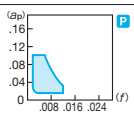
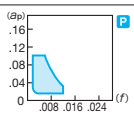
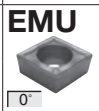
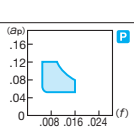
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CP■■2.51.5●

Dimensions (inch)	Cutting Edge Length L	.3150	Thickness S	.0937
	Inscribed Circle IC	.3125	Hole Dia. D1	.1339

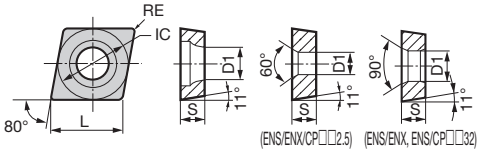
SUMIBORON (CBN) Inserts ☞ L44
SUMIDIA (PCD) Inserts ☞ M12

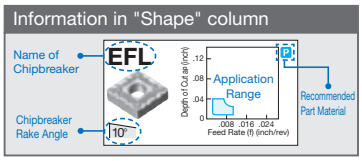
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																						Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing to Light Cutting	**(R/L)** 0°		CPGT2.51.50.5	CPGT080202N-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	▲	▲		●		★	●				
			CPGT2.51.51	CPGT080204N-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★					●	★	★	●				
			CPGT2.51.52	CPGT080208N-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★					●	★	★	●				
Light Cutting	**ELB** 15°		CPMT2.51.51ELB	CPMT080204N-LB	.0156		★	★	●				●	★	★						—							—	★	★						—
	ESU  8°		CPMT2.51.51ESU	CPMT080204N-SU	.0156	★	★	●	★		▲	▲		●	●	▲					—	★	★	★				—	★	★	★						—
			CPMT2.51.52ESU	CPMT080208N-SU	.0313	★	★	●	★		▲	▲		●		▲					—	★	★	★				—	★	★	★	★					—
	ENS 8°		CPMT2.51.52ENS	CPMH080208N-US	.0313											▲					—							—	—	—	—	—				—	—
		—	CPMA2.51.51	CPMW080204	.0156												★	★	★		—							—	—	—	—	—				—	—
			CPMA2.51.52	CPMW080208	.0313												★	★	★		—							—	—	—	—	—				—	—
Light to Medium Cutting	**EMU**  0°		CPMT2.51.51EMU	CPMT080204N-MU	.0156	★	★	★			▲						★	★	★	▲	—							—	—	—	—	—				—	—
			CPMT2.51.52EMU	CPMT080208N-MU	.0313	★	★	●			▲						★	★	★	▲	—							—	—	—	—	—				—	—

80° Diamond Positive Inserts

CP 80° Diamond 11° Pos. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

CP■■32●

Dimensions (inch)	Cutting Edge Length L	.3819	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts ☞ L45
SUMIDIA (PCD) Inserts ☞ M13

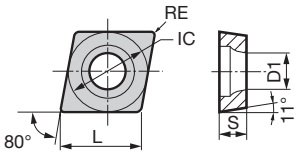
Recommended Application

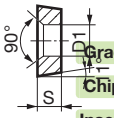
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◒	◒	✖	○	◔	✿																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✿												◒								
K Cast Iron						✿						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																														◒	◒
S Exotic Alloy																	●	◒	✖	○	◔	✿									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB** 20°		CPMT321EFB	CPMT090304N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★		—	—		—
			CPMT322EFB	CPMT090308N-FB	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★		—	—		—
Finishing	**ELU** 15°		CPMT321ELU	CPMT090304N-LU	.0156	★	★	●		▲	▲			●	★	▲					—							—	★	★	★					—
			CPMT322ELU	CPMT090308N-LU	.0313	★	★	★						★	★						—							—	★	★	★					—
	ELUW 10° → B134 Wiper		CPMT321ELUW	CPMT090304N-LUW	.0156	★	★	★			▲										—							—	★	★						—
			CPMT322ELUW	CPMT090308N-LUW	.0313	★	★	★			▲										—							—	★	★						—
Finishing to Light Cutting	**(R/L)** 0°		CPGT320.5	CPGT090302N-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	★	▲				●		★	●				
			CPGT321	CPGT090304N-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	★					●	●	★	●				
			CPGT322	CPGT090308N-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	★					●	★	★	●				
Light Cutting	**ELB** 15°		CPMT321ELB	CPMT090304N-LB	.0156		★	★	★				★	★	★						—							—	★	★						—
			CPMT322ELB	CPMT090308N-LB	.0313		★	★	★				★	★	★						—							—	★	★						—
	ESU 8°		CPMT321ESU	CPMT090304N-SU	.0156	★	★	●	●		▲		★	●	★	▲					—	★	★	★				—	★	★	★	★				—
			CPMT322ESU	CPMT090308N-SU	.0313	★	★	●	●		▲	▲	★	●	★	▲					—	★	★	★				—	★	★	★	★				—
	ENS 10°		CPMT322ENS	CPMT090308N-US	.0313									●		▲					—							—	—	—	—	—			—	—
	EGU 8°		CPMT321EGU	CPMT090304N-GU	.0156	★	●	●	★				●	●	★						—							—	★	★		★				—
			CPMT322EGU	CPMT090308N-GU	.0313	★	●	●	★				★	●	★						—							—	★	★		★				—
		—	CPMA321	CPMW090304	.0156												★	★	★	▲	—							—	—	—	—	—			—	—
			CPMA322	CPMW090308	.0313												★	★	★	▲	—							—	—	—	—	—			—	—
Light to Medium Cutting	**EMU** 0°		CPMT321EMU	CPMT090304N-MU	.0156	★	★	★		▲	▲		★	★			★	★	★	▲	—							—	—	—	—	—			—	—
			CPMT322EMU	CPMT090308N-MU	.0313	★	★	★			▲		●	★			★	★	★	▲	—							—	—	—	—	—			—	—

80° Diamond Positive Inserts

CP 80° Diamond 11° Pos. With Hole





(ENS/ENX)

Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended ◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

CP■■32.5●

Dimensions (inch)	Cutting Edge Length L	.3819	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts ☞ L46 SUMIDIA (PCD) Inserts ☞ M13
Applicable Internal Holders ☞ E34

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																						Coated Cermet		Cermet		Carbide			
P Steel	●	◒	◒	✖	◯	◔	✖															◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✖											◒								
K Cast Iron						✖						✖	●	◒	✖							◒			●					
N Non-Ferrous Metal																													◒	◒
S Exotic Alloy																	●	◒	✖	◯	◔	✖								
H Hardened Steel																●														
Light Cutting — ESU (8°)																														
CPGT32.50.5ESU	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	▲	▲			—	—	—	—			—	—
CPGT32.51ESU	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	▲	▲			—	—	—	—			—	—
Light Cutting — ESU (8°)																														
CPMT32.51ESU	●	●	●		▲	▲			●							—	●	●	●	▲	▲		—	●	●					—
CPMT32.52ESU	●	●	●		▲	▲										—	●	●	●	▲	▲		—	●	●					—
Light Cutting — ENX (10°)																														
CPMT32.52ENX									●		▲					—								—	—	—	—			—	—
Light Cutting — (10°)																														
CPEW32.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	●		

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE
Light Cutting	ESU (8°)	(ap) .16 .12 .08 .04 0; .008 .016 .024 (f); P	CPGT32.50.5ESU	CPGT09T302N-SU	.0078
			CPGT32.51ESU	CPGT09T304N-SU	.0156
Light Cutting	ESU (8°)	(ap) .16 .12 .08 .04 0; .008 .016 .024 (f); P	CPMT32.51ESU	CPMT09T304N-SU	.0156
			CPMT32.52ESU	CPMT09T308N-SU	.0313
Light Cutting	ENX (10°)	(ap) .08 .04 0; .008 .016 (f); P	CPMT32.52ENX	CPMT09T308N-US	.0313
		—	CPEW32.51	CPEW09T304	.0156

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended ◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

CP■■43●

Dimensions (inch)	Cutting Edge Length L	.5079	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2165

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																						Coated Cermet		Cermet		Carbide			
P Steel	●	◒	◒	✖	◯	◔	✖															◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✖											◒								
K Cast Iron						✖						✖	●	◒	✖							◒			●					
N Non-Ferrous Metal																													◒	◒
S Exotic Alloy																	●	◒	✖	◯	◔	✖								
H Hardened Steel																●														
Finishing to Light Cutting — (R/L) (0°)																														
CPGT430.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	★							★	★				
CPGT431	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	★					●		★	●				
CPGT432	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	★							★	★				
Finishing to Light Cutting — ENS (10°)																														
CPMT432ENS									●		▲					—							—	—	—	—	—			—	—

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE
Finishing to Light Cutting	(R/L) (0°)	(ap) .08 .04 0; .008 .016 (f); P	CPGT430.5	CPGT120402N-SD	.0078
			CPGT431	CPGT120404N-SD	.0156
			CPGT432	CPGT120408N-SD	.0313
Finishing to Light Cutting	ENS (10°)	(ap) .08 .04 0; .008 .016 (f); P	CPMT432ENS	CPMH120408N-US	.0313

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended ◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

CP■■53●

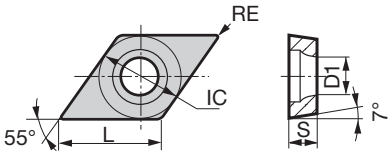
Dimensions (inch)	Cutting Edge Length L	.6339	Thickness S	.1875
	Inscribed Circle IC	.6250	Hole Dia. D1	.2559

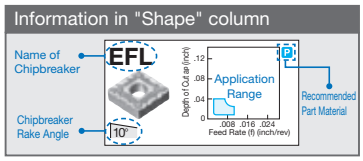
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																						Coated Cermet		Cermet		Carbide			
P Steel	●	◒	◒	✖	◯	◔	✖															◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✖											◒								
K Cast Iron						✖						✖	●	◒	✖							◒			●					
N Non-Ferrous Metal																													◒	◒
S Exotic Alloy																	●	◒	✖	◯	◔	✖								
H Hardened Steel																●														
Finishing — ENS (10°)																														
CPMT532ENS											▲					—							—	—	—	—	—			—	—

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE
Finishing	ENS (10°)	(ap) .08 .04 0; .008 .016 (f); P	CPMT532ENS	CPMT160408N-US	.0313

55° Diamond Positive Inserts

DC 55° Diamond 7° Pos. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended
○ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

DC■■21.5●

Dimensions (inch)				
	Cutting Edge Length L	.3031	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts L55 | SUMIDIA (PCD) Inserts M14 | SUMIDIA Binderless Inserts M27
Applicable External Holders C35, D24, D29 | Applicable Internal Holders E38

Recommended Application

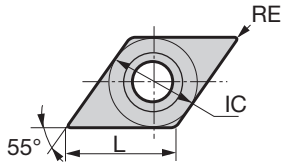
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖												◐								
K Cast Iron						✖						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✖									
H Hardened Steel																●															

	Coated Carbide																						Coated Cermet		Cermet		Carbide			
Shape	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting — (M)EFF — 15° — Application Range (ap) .08, .04, 0; .008, .016 (f) — P																														
DCGT21.50MEFF	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	★				●	—	—	—	—			—	—
DCGT21.50.5MEFF	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	★				●	—	—	—	—			—	—
DCGT21.51MEFF	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	★				●	—	—	—	—			—	—
Finishing — EFB — 20° — Application Range (ap) .08, .04, 0; .008, .016 (f) — P																														
DCMT21.50.5EFB	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								—	★	★	★	●	—	—		—
DCMT21.51EFB	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						★	—	★	★	★	★				—
DCMT21.52EFB	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							—	★	★	★	●	—	—		—
ELU — 15° — Application Range (ap) .08, .04, 0; .008, .016 (f) — P																														
DCMT21.50.5ELU	★	★	★			▲			★	★	▲					—						★	—	★	★	★				—
DCMT21.51ELU	●	●	●		▲	▲			●	●	▲					—						●	—	●	●	★				—
EFP — 10° — Application Range (ap) .08, .04, 0; .008, .016 (f) — P																														
DCMT21.50.5EFP	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		—
DCMT21.51EFP	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		—
(M)EFC — 15° — Application Range (ap) .08, .04, 0; .008, .016 (f) — P																														
DCGT21.5.001EFC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	●	—	—	—	—			—	—
DCGT21.50MEFC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	★	●				●			★	●				
DCGT21.50EFC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●					●				
DCGT21.50.5MEFC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	★	●			★	●			★	●				
DCGT21.50.5EFC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		—
DCGT21.51MEFC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	●				★			★	●				
DCGT21.51EFC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●		—	—	—	—			—	—
(R/L)FX — 15° — Application Range (ap) .08, .04, 0; .008, .016 (f) — P																														
DCGT21.5.001RFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●			●	★			★	★				
DCGT21.5.001LFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●			●	★			★	★				
DCGT21.50RFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●			★	●	★		★	★				
DCGT21.50LFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●			●	★	★		★	★				
DCGT21.50.5RFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●			●	★	★		★	●				
DCGT21.50.5LFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●			●	●	★		★	★				
(R/L)FX — 15° — Application Range (ap) .08, .04, 0; .008, .016 (f) — P																														
DCET21.5.001RFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
DCET21.5.001LFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
DCET21.5.003RFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
DCET21.5.003LFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
DCET21.50RFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
DCET21.50LFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
DCET21.5.007RFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
DCET21.5.007LFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
DCET21.50.5RFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
DCET21.50.5LFX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

55° Diamond Positive Inserts

DC 55° Diamond 7° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

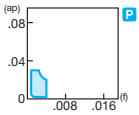
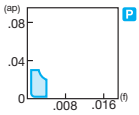
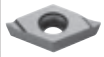
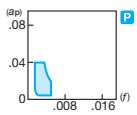
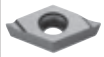
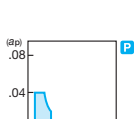
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◕ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✪ Interrupted Cutting 2nd Recommended

DC■■21.5●				
Dimensions (inch)	Cutting Edge Length L	.3031	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◕	◕	✖	○	◔	✪																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✪												◕								
K	Cast Iron						✪						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✪									
H	Hardened Steel																●															
		Coated Carbide																						Coated Cermet			Cermet		Carbide			

SUMIBORON (CBN) Inserts ☞ L55 SUMIDIA (PCD) Inserts ☞ M14 SUMIDIA Binderless Inserts ☞ M27

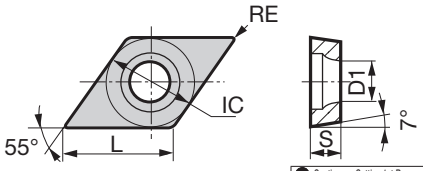
Applicable External Holders ☞ C35, D24, D29 Applicable Internal Holders ☞ E38

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FYS  15°		DCGT21.5.001RFYS	DCGT0702003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT21.5.001LFYS	DCGT0702003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT21.50RFYS	DCGT070201R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT21.50LFYS	DCGT070201L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT21.50.5RFYS	DCGT070202R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT21.50.5LFYS	DCGT070202L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT21.51RFYS	DCGT070204R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT21.51LFYS	DCGT070204L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
	(R/L)FYS  15°		DCET21.5.001RFYS	DCET0702003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.5.001LFYS	DCET0702003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.50RFX	DCET070201R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.50LFX	DCET070201L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.50.5RFX	DCET070202R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.50.5LFX	DCET070202L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.51RFX	DCET070204R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.51LFX	DCET070204L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
	(R/L)FY   15°		DCGT21.5.001RFY	DCGT0702003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT21.5.001LFY	DCGT0702003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT21.50RFY	DCGT070201R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	★	—	—	—	—	—	—
			DCGT21.50LFY	DCGT070201L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	★	—	—	—	—	—	—
			DCGT21.50.5RFY	DCGT070202R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	★	—	—	—	—	—	—
			DCGT21.50.5LFY	DCGT070202L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	★	—	—	—	—	—	—
			DCGT21.51RFY	DCGT070204R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	★	—	—	—	—	—	—
			DCGT21.51LFY	DCGT070204L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	★	—	—	—	—	—	—
	(R/L)FY   15°		DCET21.5.001RFY	DCET0702003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.5.001LFY	DCET0702003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.5.003RFY	DCET0702008R-FY	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.5.003LFY	DCET0702008L-FY	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.50RFY	DCET070201R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.50LFY	DCET070201L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.5.007RFY	DCET0702018R-FY	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.5.007LFY	DCET0702018L-FY	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.51RFY	DCET070204R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET21.51LFY	DCET070204L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—

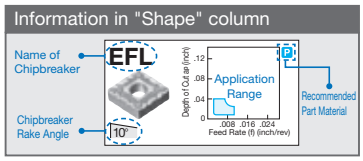
Values for nose radius RE prefixed with "<" indicate negative tolerances.

55° Diamond Positive Inserts

DC 55° Diamond 7° Pos. With Hole



Information in "Shape" column



● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

DC■■21.5●

Dimensions (inch)	Cutting Edge Length L	.3031	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts L55
SUMIDIA (PCD) Inserts M14
SUMIDIA Binderless Inserts M27
Applicable External Holders C35, D24, D29
Applicable Internal Holders E38

Recommended Application

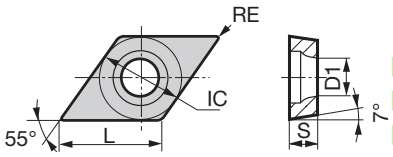
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	●	●	✖	○	◐	✪																●	●	✖	●	●				
M Stainless Steel								●	●	✖	✪												●								
K Cast Iron						✪						✖	●	●	✖								●			●					
N Non-Ferrous Metal																														●	●
S Exotic Alloy																	●	●	✖	○	◐	✪									
H Hardened Steel																●															
	Coated Carbide																							Coated Cermet		Cermet		Carbide			

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing to Light Cutting	(R/L) 0°		DCGT21.50.5R	DCGT070202R-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
			DCGT21.50.5L	DCGT070202L-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
			DCGT21.51R	DCGT070204R-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
			DCGT21.51L	DCGT070204L-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
Light Cutting	ELB 15°		DCMT21.50.5ELB	DCMT070202N-LB	.0078		●	●	●				★	★	★					—							—	★	★						—
			DCMT21.51ELB	DCMT070204N-LB	.0156		●	●	●				●	★	★					—							—	★	★						—
			DCMT21.52ELB	DCMT070208N-LB	.0313		●	●	●				●	★	★					—							—	★	★						—
	ESU 8°		DCMT21.50.5ESU	DCMT070202N-SU	.0078	★	★	●	★		▲	▲	★	●	★	▲				—	●	●	●	▲		▲	—	●	★	★	★				—
			DCMT21.51ESU	DCMT070204N-SU	.0156	●	●	●	●	▲	▲	▲	●	●	●	▲		●	●	—	●	●	●	▲	▲	●	—	●	★	★	●				—
			DCMT21.52ESU	DCMT070208N-SU	.0313	●	●	●	●	▲	▲	▲	●	●	★	▲		●	●	—	●	●	●	▲	▲		—	●	★	★	★				—
	(M)ESI 15°		DCGT070201MN-SI	< .0039	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—	●	●	●	▲	▲	●	●	●	★	★	●					
			DCGT070202MN-SI	< .0078	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—	●	●	●	▲	▲	●	●	●	★	★	●					
			DCGT070204MN-SI	< .0156	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—	●	●	●	▲	▲	●	●	●		★	●					
	(M)ESL 15°		DCGT070201MN-SL	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●				★	—	—	—	—			—	—
			DCGT070202MN-SL	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			DCGT070204MN-SL	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
	ENK 8°		DCMT21.51ENK	DCMT070204N-SK	.0156			●	●		▲	▲								—							—	—	—	—	—			—	—
	(M)EFM 6°		DCGT21.5.001EFM	DCGT0702003N-SC	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	●			★	★				
			DCGT21.50MEFM	DCGT070201MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—								●	●	●	★	★	●				
			DCGT21.50EFM	DCGT070201N-SC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●								—	—
			DCGT21.50.5MEFM	DCGT070202MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—								●	●	●	★	★	●				
			DCGT21.50.5EFM	DCGT070202N-SC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★								—	—
			DCGT21.51MEFM	DCGT070204MN-SC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—								—	●	★	★	●				—
	EGU 8°		DCMT21.51EGU	DCMT070204N-GU	.0156	●	●	●	●				●	●	●			●		—	●	●	●				—	●	★		★				—
			DCMT21.52EGU	DCMT070208N-GU	.0313	★	●	●	★				★	●	★			●		—	●	●	●				—	●	★		★				—
		—	DCMA21.51	DCMW070204	.0156												★	★	★	▲	—							—	—	—	—	—			—	—
			DCMA21.52	DCMW070208	.0313												★	★	★		—							—	—	—	—	—			—	—
Ceramics Solid CBN		—	DCGA21.50.5	DCGW070202	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—			—	—
			DCGA21.51	DCGW070204	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—			—	—
			DCGA21.52	DCGW070208	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—			—	—
For Aluminium	NAG 20°		DCGT21.50.5NAG	DCGT070202N-AG	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—														●	●
			DCGT21.51NAG	DCGT070204N-AG	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—														●	●

Values for nose radius RE prefixed with "<" indicate negative tolerances.

55° Diamond Positive Inserts

DC 55° Diamond 7° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended / General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended / Interrupted Cutting 2nd Recommended

DC■■21.5●

Dimensions (inch)	Cutting Edge Length L	.3031	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts ☞ L55 SUMIDIA (PCD) Inserts ☞ M14 SUMIDIA Binderless Inserts ☞ M27

Applicable External Holders ☞ C35, D24, D29 Applicable Internal Holders ☞ E38

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	◯	◔	✖																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖												◐								
K Cast Iron						✖						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	◯	◔	✖									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
For Aluminium	(R/L)AY 15°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) N	DCGT21.50RAY	DCGT070201R-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DCGT21.50LAY	DCGT070201L-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DCGT21.50.5RAY	DCGT070202R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DCGT21.50.5LAY	DCGT070202L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DCGT21.51RAY	DCGT070204R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—
			DCGT21.51LAY	DCGT070204L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended / General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended / Interrupted Cutting 2nd Recommended

DC■■2.51.5●

Dimensions (inch)	Cutting Edge Length L	.3819	Thickness S	.0937
	Inscribed Circle IC	.3125	Hole Dia. D1	.1339

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	◯	◔	✖																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖												◐								
K Cast Iron						✖						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	◯	◔	✖									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	(M)EFM 6°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) P	DCGT2.51.50MEFM	DCGT090201MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			DCGT2.51.50EFM	DCGT090201N-SC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			DCGT2.51.50.5MEFM	DCGT090202MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			DCGT2.51.50.5EFM	DCGT090202N-SC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended / General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended / Interrupted Cutting 2nd Recommended

DC■■32●

Dimensions (inch)	Cutting Edge Length L	.4567	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

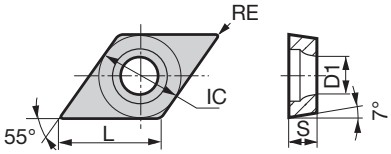
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	◯	◔	✖																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✖												◐								
K Cast Iron						✖						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	◯	◔	✖									
H Hardened Steel																●															

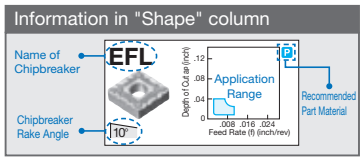
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	(M)EFM 6°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) P	DCGT320MEFM	DCGT110301MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—
			DCGT320.5MEFM	DCGT110302MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

55° Diamond Positive Inserts

DC 55° Diamond 7° Pos. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

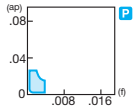
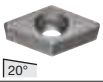
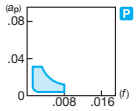
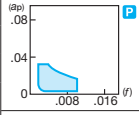
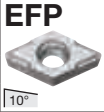
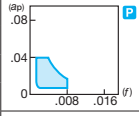
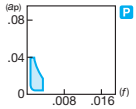
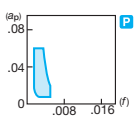
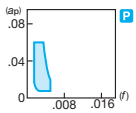
DC■■32.5●

Dimensions (inch)	Cutting Edge Length L	.4567	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts L57 | SUMIDIA (PCD) Inserts M15 | SUMIDIA Binderless Inserts M27
Applicable External Holders C35, D24, D29 | Applicable Internal Holders E38

Recommended Application

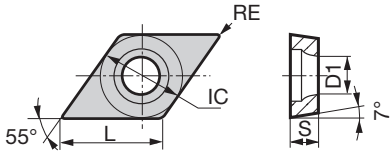
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	(M)EFF 15°		DCGT32.50MEFF	DCGT11T301MN-FF	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	★				●	—	—	—	—	—	—	—	—
			DCGT32.50.5MEFF	DCGT11T302MN-FF	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	★				●	—	—	—	—	—	—	—	—
			DCGT32.51MEFF	DCGT11T304MN-FF	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	★				●	—	—	—	—	—	—	—	—
	EFB  20°		DCMT32.50.5EFB	DCMT11T302N-FB	.0078																—						★	—	●	★	★	●				—
			DCMT32.51EFB	DCMT11T304N-FB	.0156																—						★	—	●	★	★	★				—
			DCMT32.52EFB	DCMT11T308N-FB	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
	ELU 15°		DCMT32.50.5ELU	DCMT11T302N-LU	.0078	★	★	★			▲				★						—						★	—	●	★	★					—
			DCMT32.51ELU	DCMT11T304N-LU	.0156	●	●	★		▲	▲			●	★	▲					—						●	—	●	●	★					—
			DCMT32.52ELU	DCMT11T308N-LU	.0313	●	●	●		▲	▲			●	★	▲					—						●	—	●	★	★					—
	EFP  10°		DCMT32.51EFP	DCMT11T304N-FP	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		—
			DCMT32.52EFP	DCMT11T308N-FP	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●				●	—	—		—
Finishing	(M)EFC 15°		DCGT32.5.001EFC	DCGT11T3003MN-FC	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						●	●	—	—	—	—	—	—	—	—
			DCGT32.50MEFC	DCGT11T301MN-FC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	●				●			★	●				
			DCGT32.50EFC	DCGT11T301N-FC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●					●				
			DCGT32.50.5MEFC	DCGT11T302MN-FC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	●	●		▲		●			★	●				
			DCGT32.50.5EFC	DCGT11T302N-FC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●		—	—	—	—			—	—
			DCGT32.51MEFC	DCGT11T304MN-FC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		●	★	●				●			★	●				
			DCGT32.51EFC	DCGT11T304N-FC	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						▲	●		—	—	—	—			—	—
	(R/L)FX 15°		DCGT32.5.001RFX	DCGT11T3003R-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			★	★			★	★				
			DCGT32.5.001LFX	DCGT11T3003L-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			★	●			★	★				
			DCGT32.50RFX	DCGT11T301R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			★	●			★	★				
			DCGT32.50LFX	DCGT11T301L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			★	★			★	★				
			DCGT32.50.5RFX	DCGT11T302R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			★	●	★		★	★				
			DCGT32.50.5LFX	DCGT11T302L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			★	★	★		★	★				
			DCGT32.51RFX	DCGT11T304R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—			—	—
			DCGT32.51LFX	DCGT11T304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—			—	—
	(R/L)FX 15°		DCET32.5.001RFX	DCET11T3003R-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			DCET32.5.001LFX	DCET11T3003L-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			DCET32.5.003RFX	DCET11T3008R-FX	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			DCET32.5.003LFX	DCET11T3008L-FX	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			DCET32.50RFX	DCET11T301R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			DCET32.50LFX	DCET11T301L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			DCET32.5.007RFX	DCET11T3018R-FX	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			DCET32.5.007LFX	DCET11T3018L-FX	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			DCET32.51RFX	DCET11T304R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			DCET32.51LFX	DCET11T304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

55° Diamond Positive Inserts

DC 55° Diamond 7° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

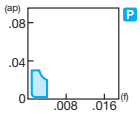
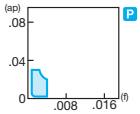
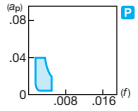
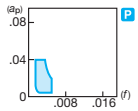
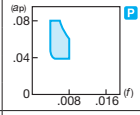
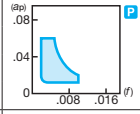
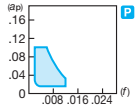
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◕ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

DC■■32.5●

Dimensions (inch)	Cutting Edge Length L	.4567	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts ☞ L57
SUMIDIA (PCD) Inserts ☞ M15
SUMIDIA Binderless Inserts ☞ M27
Applicable External Holders ☞ C35, D24, D29
Applicable Internal Holders ☞ E38

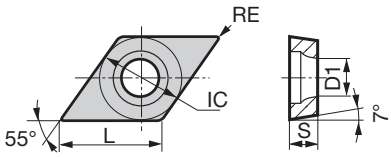
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FYS		DCGT32.5.001RFYS	DCGT11T3003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT32.5.001LFYS	DCGT11T3003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT32.50RFYS	DCGT11T301R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT32.50LFYS	DCGT11T301L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT32.50.5RFYS	DCGT11T302R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT32.50.5LFYS	DCGT11T302L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT32.51RFYS	DCGT11T304R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
		15°	DCGT32.51LFYS	DCGT11T304L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
	(R/L)FYS		DCET32.5.001RFYS	DCET11T3003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.5.001LFYS	DCET11T3003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.50RFYS	DCET11T301R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.50LFYS	DCET11T301L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.50.5RFYS	DCET11T302R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.50.5LFYS	DCET11T302L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.51RFYS	DCET11T304R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
		15°	DCET32.51LFYS	DCET11T304L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
	(R/L)FY		DCGT32.5.001RFY	DCGT11T3003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT32.5.001LFY	DCGT11T3003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
			DCGT32.50RFY	DCGT11T301R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	★	—	—	—	—	—
			DCGT32.50LFY	DCGT11T301L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	★	—	—	—	—	—
			DCGT32.50.5RFY	DCGT11T302R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	★	—	—	—	★	—	—	—	—	—
			DCGT32.50.5LFY	DCGT11T302L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	★	—	—	—	—	—
			DCGT32.51RFY	DCGT11T304R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	★	—	—	—	★	—	—	—	—	—
		15°	DCGT32.51LFY	DCGT11T304L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	★	—	—	—	—	—
	(R/L)FY		DCET32.5.001RFY	DCET11T3003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.5.001LFY	DCET11T3003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.5.003RFY	DCET11T3008R-FY	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.5.003LFY	DCET11T3008L-FY	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.50RFY	DCET11T301R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.50LFY	DCET11T301L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.5.007RFY	DCET11T3018R-FY	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.5.007LFY	DCET11T3018L-FY	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			DCET32.51RFY	DCET11T304R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
		15°	DCET32.51LFY	DCET11T304L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
Finishing to Light Cutting	(R/L)		DCGT32.51R	DCGT11T304R-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	★	●	—	—	—	—
			DCGT32.51L	DCGT11T304L-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	★	★	—	—	—	—
			DCGT32.52R	DCGT11T308R-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	★	★	—	—	—	—
		0°	DCGT32.52L	DCGT11T308L-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	★	★	—	—	—	—
Light Cutting	ELB		DCMT32.50.5ELB	DCMT11T302N-LB	.0078		★	●	●				●	★	★						—						—	★	★					—	—
			DCMT32.51ELB	DCMT11T304N-LB	.0156		●	●	★				●	★	★						—						—	★	★					—	—
			DCMT32.52ELB	DCMT11T308N-LB	.0313	●	●	●	●				●	★	★						—						—	★	★					—	—
		15°																																		
	ESU		DCMT32.50.5ESU	DCMT11T302N-SU	.0078	★	●	●	●		▲	▲	●	●	★	▲					—	●	●	●	▲	▲	★	—	●	★	★	●				—
			DCMT32.51ESU	DCMT11T304N-SU	.0156	●	●	●	●	▲	▲	▲	●	●	●	▲		●	●		—	●	●	●	▲	▲	●	—	●	★	★	●				—
			DCMT32.52ESU	DCMT11T308N-SU	.0313	●	●	●	●	▲	▲	▲	●	●	●	▲		●	●		—	●	●	●	▲	▲	★	—	●	★	★	★				—
		8°																																		

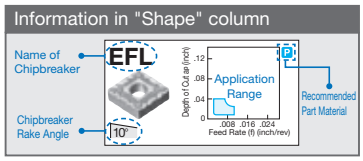
Values for nose radius RE prefixed with "<" indicate negative tolerances.

55° Diamond Positive Inserts

DC 55° Diamond 7° Pos. With Hole



Information in "Shape" column



● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

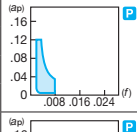
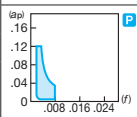
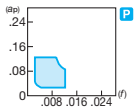
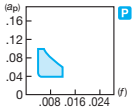
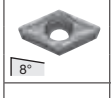
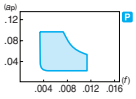
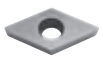
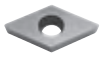
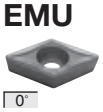
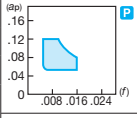
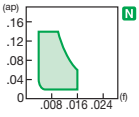
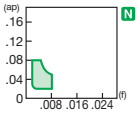
DC■■32.5●

Dimensions (inch)	Cutting Edge Length L	.4567	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts L57 SUMIDIA (PCD) Inserts M15 SUMIDIA Binderless Inserts M27
Applicable External Holders C35, D24, D29 Applicable Internal Holders E38

Recommended Application

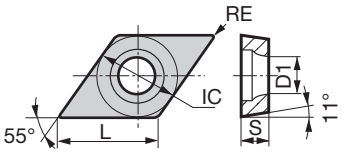
	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	(M)ESI 15°		DCGT32.50MESI	DCGT11T301MN-SI	< .0039	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—	—	●	●	●	▲	▲	●	●	●	★	★	●				
			DCGT32.50.5MESI	DCGT11T302MN-SI	< .0078	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—	—	●	●	●	▲	▲	●	●	●	★	★	●				
			DCGT32.51MESI	DCGT11T304MN-SI	< .0156	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—	—	●	●	●	▲	▲	●	●	●	★	★	●				
			DCGT32.52MESI	DCGT11T308MN-SI	< .0313	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	●	●	●	▲	▲	●	●	●	★	★	●				
	(M)ESL 15°		DCGT32.50MESL	DCGT11T301MN-SL	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	—	★	—	—	—	—	—	—	—	—
			DCGT32.50.5MESL	DCGT11T302MN-SL	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	—	—	—	★	—	—	—	—	—	—	—	—
			DCGT32.51MESL	DCGT11T304MN-SL	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	—	—	—	●	—	—	—	—	—	—	—	—
	ENK 8°		DCMT32.51ENK	DCMT11T304N-SK	.0156			●	●		▲	▲									—							—	—	—	—	—	—	—	—	—
			DCMT32.52ENK	DCMT11T308N-SK	.0313			●	●		▲										—							—	—	—	—	—	—	—	—	—
	(M)EFM 6°		DCGT32.5.001EFM	DCGT11T3003N-SC	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						★	●			★	●				
			DCGT32.50MEFM	DCGT11T301MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	●	●	★	★	●				
			DCGT32.50EFM	DCGT11T301N-SC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						●		●				●				
			DCGT32.50.5MEFM	DCGT11T302MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	●	★	★	★	●				
			DCGT32.50.5EFM	DCGT11T302N-SC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						●										
			DCGT32.51MEFM	DCGT11T304MN-SC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	●	★	★	★	●				
			DCGT32.51EFM	DCGT11T304N-SC	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						●										
			DCGT32.52MEFM	DCGT11T308MN-SC	< .0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	●	★	★	★	●				
	EGU  8°		DCMT32.50.5EGU	DCMT11T302N-GU	.0078		●						★								—							—		★						—
			DCMT32.51EGU	DCMT11T304N-GU	.0156	★	●	●	●				●	●	★						—	●	●	●				—	●	★		★				—
			DCMT32.52EGU	DCMT11T308N-GU	.0313	●	●	●	●				●	●	●						—							—	●	★		★				—
			DCMT32.53EGU	DCMT11T312N-GU	.0469			●						★							—							—	—	—	—	—	—	—	—	—
		—	DCMA32.51	DCMW11T304	.0156												★	●	●	▲	—							—	—	—	—	—	—	—	—	—
			DCMA32.52	DCMW11T308	.0313												★	★	●	▲	—							—	—	—	—	—	—	—	—	—
		—	DCGA32.50.5	DCGW11T302	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—	—	—	—	—
			DCGA32.51	DCGW11T304	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—	—	—	—	—
			DCGA32.52	DCGW11T308	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—	—	—	—	—
Light to Medium Cutting	EMU  0°		DCMT32.51EMU	DCMT11T304N-MU	.0156	●	★	●			▲		●	★			★	●	●	▲	—							—	—	—	—	—	—	—	—	—
			DCMT32.52EMU	DCMT11T308N-MU	.0313	●	●	●	●	▲	▲	▲	●	★			★	★	●	▲	—							—	—	—	—	—	—	—	—	—
For Aluminium	NAG 20°		DCGT32.50.5NAG	DCGT11T302N-AG	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
			DCGT32.51NAG	DCGT11T304N-AG	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
			DCGT32.52NAG	DCGT11T308N-AG	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●
	(R/L)AY 15°		DCGT32.50RAY	DCGT11T301R-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			DCGT32.50LAY	DCGT11T301L-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			DCGT32.50.5RAY	DCGT11T302R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			DCGT32.50.5LAY	DCGT11T302L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			DCGT32.51RAY	DCGT11T304R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			DCGT32.51LAY	DCGT11T304L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	

Values for nose radius RE prefixed with "<" indicate negative tolerances.

55° Diamond Positive Inserts

DP 55° Diamond 11° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

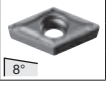
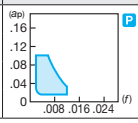
● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended / General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended / Interrupted Cutting 2nd Recommended

DP■■21.5●

Dimensions (inch)				
	Cutting Edge Length L	.3031	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

Applicable Internal Holders ☞ E42

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	ESU  8°		DPMT21.51ESU	DPMT070204N-SU	.0156		●	●			▲										—	●	●	●	▲	▲		—	—	—	—	—			—	—

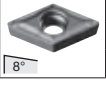
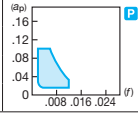
● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended / General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended / Interrupted Cutting 2nd Recommended

DP■■32.5●

Dimensions (inch)				
	Cutting Edge Length L	.4567	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

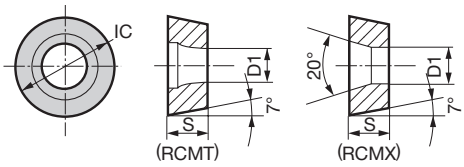
Applicable Internal Holders ☞ E42

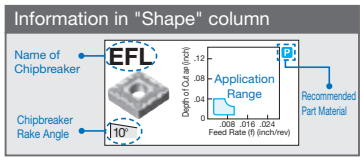
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	ESU  8°		DPMT32.51ESU	DPMT11T304N-SU	.0156		●	●			▲										—	●	●	●				—	—	—	—	—			—	—
			DPMT32.52ESU	DPMT11T308N-SU	.0313		●	●			▲										—	●	●	●	▲			—	—	—	—	—			—	—

Round Positive Inserts

RC Round 7° Pos. With Hole





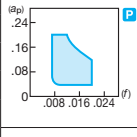
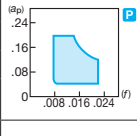
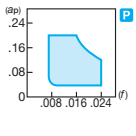
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

RC■■●●●●●●

Dimensions (inch)	Inscribed Circle IC	.394 to 1.260	Thickness S	.125 to .375
	Hole Dia. D1	.142 to .374		

Applicable External Holders C36

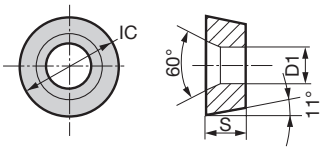
Recommended Application		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✿															◒	◒	✖	●	◒					
M	Stainless Steel								●	◒	✖	✿											◒									
K	Cast Iron						✿						✖	●	◒	✖							◒			●						
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✿									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	IC	S	D1	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium to Roughing	RX I -15°		RCMT100300	RCMT1003M0N-RX	.3937	.1252	.1732	★	★	★	★	▲	▲	▲																								
			RCMT120400	RCMT1204M0N-RX	.4724	.1874	.1732	●	●	●	●	▲	▲	▲																								
			RCMT160600	RCMT1606M0N-RX	.6299	.2500	.1969	●	★	★	●	▲	▲	▲																								
			RCMT200600	RCMT2006M0N-RX	.7874	.2500	.2559	●	★	★	●	▲	▲	▲																								
			RCMT250700	RCMT2507M0N-RX	.9843	.3126	.2992	●	●	●	●	▲	▲	▲																								
	ERH I -15°		RCMT120400ERH	RCMT1204M0N-RH	.4724	.1874	.1732	★	★	★	★																											
			RCMT160600ERH	RCMT1606M0N-RH	.6299	.2500	.1969	★	★	★	★																											
			RCMT200600ERH	RCMT2006M0N-RH	.7874	.2500	.2559	★	★	★	★																											
Roughing	RP I -15°		RCMX100300	RCMX1003M0N-RP	.3937	.1252	.1417	★	★	★	●	▲	▲	▲					★	★	★	▲																
			RCMX120400	RCMX1204M0N-RP	.4724	.1874	.1654	●	★	★	●		▲	▲					★	●	★	▲		★	●	●												
			RCMX160600	RCMX1606M0N-RP	.6299	.2500	.2047	●	★	★	●		▲	▲					★	★	★	▲																
			RCMX200600	RCMX2006M0N-RP	.7874	.2500	.2559	★	★	★	●	▲	▲	▲										★	★	★												
			RCMX250700	RCMX2507M0N-RP	.9843	.3126	.2835	●	●	★	★		▲	▲																								
			RCMX320900	RCMX3209M0N-RP	1.2598	.3748	.3740	★	●	★																												

Round Positive Inserts

RP

Round
7° Pos.
With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

RP■■●●●●●●

Dimensions (inch)	Inscribed Circle IC	.315 to .630	Thickness S	.125 to .1874
	Hole Dia. D1	.1299 to .2087		

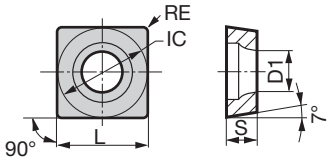
SUMIDIA (PCD) Inserts ☞ M28

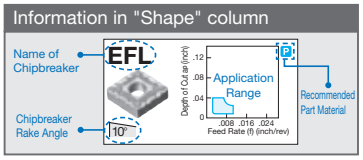
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	IC	S	D1	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting		—	RPGA080300	RPGW0803M0	.3150	.1252	.1299	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	—	—	—	—	—	—	—	—	—
			RPGA100400	RPGW1004M0	.3937	.1874	.1496	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	—	—	—	—	—	—	—	—	—
			RPGA120400	RPGW1204M0	.4724	.1874	.1693	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	—	—	—	—	—	—	—	—	—

Square Positive Inserts

SC Square 7° Pos. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

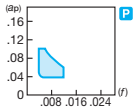
SC■■2.51.5●

Dimensions (inch)	Cutting Edge Length L	.3125	Thickness S	.0937
	Inscribed Circle IC	.3125	Hole Dia. D1	.1339

SUMIDIA (PCD) Inserts ☞ M16

Applicable External Holders ☞ C38, D31

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	(M)EFM		SCGT2.51.50MEFM	SCGT070201MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★					
			SCGT2.51.50EFM	SCGT070201N-SC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			SCGT2.51.50.5MEFM	SCGT070202MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	●					

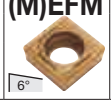
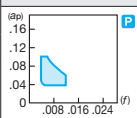
Values for nose radius RE prefixed with "<" indicate negative tolerances.

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

SC■■32●

Dimensions (inch)	Cutting Edge Length L	.3750	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

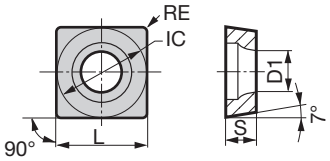
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	(M)EFM 		SCGT320MEFM	SCGT090301MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★		—	—		—
			SCGT320.5MEFM	SCGT090302MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★		—	—		—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

Square Positive Inserts

SC Square 7° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

SC■■32.5●

Dimensions (inch)				
	Cutting Edge Length L	.3750	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

Applicable External Holders ☞ C38, D31
Applicable Internal Holders ☞ E43

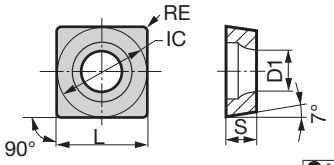
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	●	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB** 20°	(ap) .08 .04 0 .008 .016 (f) P	SCMT32.51EFB	SCMT09T304N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
			SCMT32.52EFB	SCMT09T308N-FB	.0313																—						★	—	●	★	★	★				—
	ELU 15°	(ap) .08 .04 0 .008 .016 (f) P	SCMT32.51ELU	SCMT09T304N-LU	.0156	●	★	●		▲	▲			★	★	▲					—							—	●	★	★					—
			SCMT32.52ELU	SCMT09T308N-LU	.0313	●	★	●			▲			★	★						—							—	★	★	★					—
	EFP 10°	(ap) .08 .04 0 .008 .016 (f) P	SCMT32.51EFP	SCMT09T304N-FP	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				★	—	—		—
			SCMT32.52EFP	SCMT09T308N-FP	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		—
	(R/L)FX 15° *1	(ap) .08 .04 0 .008 .016 (f) P	SCGT32.50.5RFX	SCGT09T302R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	★	—	—	—	—			—	—
			SCGT32.50.5LFX	SCGT09T302L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	★	—	—	—	—			—	—
			SCGT32.51RFX	SCGT09T304R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	★	—	—	—	—			—	—
			SCGT32.51LFX	SCGT09T304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	★	—	—	—	—			—	—
Light Cutting	**ELB** 15°	(ap) .08 .04 0 .008 .016 (f) P	SCMT32.51ELB	SCMT09T304N-LB	.0156		★	●	●				●	★	★						—							—	★	★						—
			SCMT32.52ELB	SCMT09T308N-LB	.0313		★	●	★				●	★	★						—							—	★	★						—
	ESU 8°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) P	SCMT32.51ESU	SCMT09T304N-SU	.0156	●	★	●	★	▲	▲	▲	★	●	●	▲					—	●	★	●				—	●							—
			SCMT32.52ESU	SCMT09T308N-SU	.0313	●	●	●	●	▲	▲	▲	●	●	●	▲					—	●	●	●				—	—	—	—	—			—	—
	ENK 8°	(ap) .24 .16 .08 0 .008 .016 .024 (f) P	SCMT32.51ENK	SCMT09T304N-SK	.0156						▲	▲									—							—	—	—	—	—			—	—
			SCMT32.52ENK	SCMT09T308N-SK	.0313			●	●		▲	▲									—							—	—	—	—	—			—	—
	(M)EFM 6°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) P	SCGT32.50MEFM	SCGT09T301MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★			★					
			SCGT32.50EFM	SCGT09T301N-SC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★		—	—	—	—				—	—
			SCGT32.50.5MEFM	SCGT09T302MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								●			★	●					
	EGU 8°	(ap) .12 .08 .04 .004 .008 .012 .016 (f) P	SCMT32.51EGU	SCMT09T304N-GU	.0156	●	★	●	★				★	●	★						—							—	—	—	—	—			—	—
			SCMT32.52EGU	SCMT09T308N-GU	.0313	●	●	●	●				★	●	●						—							—	—	—	—	—			—	—
		—	SCMA32.52	SCMW09T308	.0313												★	★	★	▲	—							—	—	—	—	—			—	—
Light to Medium Cutting	**EMU** 0°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) P	SCMT32.52EMU	SCMT09T308N-MU	.0313	★	★	●		▲	▲		●	★			●	★	★	▲	—							—	—	—	—	—			—	—

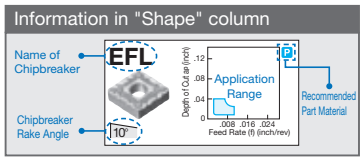
*1: Photo shows left hand.
Values for nose radius RE prefixed with "<" indicate negative tolerances.

Square Positive Inserts

SC Square 7° Pos. With Hole



Information in "Shape" column



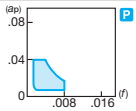
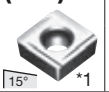
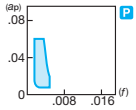
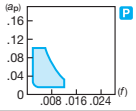
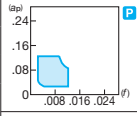
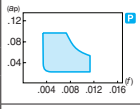
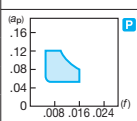
SC■■43●

Dimensions (inch)	Cutting Edge Length L	.5000	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2165

Applicable External Holders C38, D31 | Applicable Internal Holders E43

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

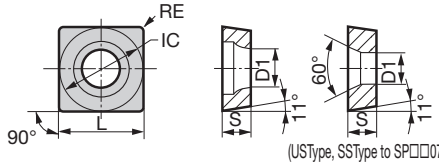
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✪																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✪												◕								
K	Cast Iron						✪						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	EFP 10°		SCMT432EFP	SCMT120408N-FP	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—
Finishing	(R/L)FX  15° *1		SCGT431RFX SCGT431LFX	SCGT120404R-FX SCGT120404L-FX	.0156 .0156	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	★ ★	★ ★	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —
Light Cutting	ESU 8°		SCMT431ESU SCMT432ESU	SCMT120404N-SU SCMT120408N-SU	.0156 .0313	★ ★	● ●	● ●	● ●		▲ ▲	 ▲									— —							— —	— —	— —	— —	— —			— —	— —
Light Cutting	ENK 8°		SCMT431ENK SCMT432ENK SCMT433ENK	SCMT120404N-SK SCMT120408N-SK SCMT120412N-SK	.0156 .0313 .0469			● ● 	● ● ●		▲ ▲ 	▲ ▲ ▲									— — —							— — —	— — —	— — —	— — —	— — —			— — —	— — —
Light Cutting	EGU 8°		SCMT432EGU	SCMT120408N-GU	.0313	★	●	●	★												—							—	—	—	—	—			—	—
Light Cutting		—	SCMA432 SCMA433	SCMW120408 SCMW120412	.0313 .0469												● ●	★ ★	● ★	▲ ▲	— —							— —	— —	— —	— —	— —			— —	— —
Light to Medium Cutting	EMU 0°		SCMT432EMU	SCMT120408N-MU	.0313	●	★	★		▲	▲						●	●	●	▲	—							—	—	—	—	—			—	—

*1: Photo shows left hand.

Square Positive Inserts

SP Square 11° Pos. With Hole



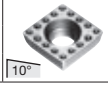
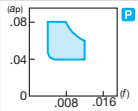
Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
Ⓓ General Cutting 1st Recommended Ⓒ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

SP■■21.5●

Dimensions (inch)				
	Cutting Edge Length L	.2500	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	Ⓓ	Ⓓ	✖	◯	Ⓒ	✖																Ⓓ	Ⓓ	✖	●	Ⓓ				
M	Stainless Steel								●	Ⓓ	✖	✖												Ⓓ								
K	Cast Iron						✖						✖	●	Ⓓ	✖								Ⓓ			●					
N	Non-Ferrous Metal																														Ⓓ	Ⓓ
S	Exotic Alloy																	●	Ⓓ	✖	◯	Ⓒ	✖									
H	Hardened Steel																●															

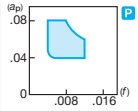
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	ENS  10°		SPMT21.51ENS	SPMT060204N-US	.0156									●	●	▲					—							—	—	—	—	—			—	—

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
Ⓓ General Cutting 1st Recommended Ⓒ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

SP■■2.52●

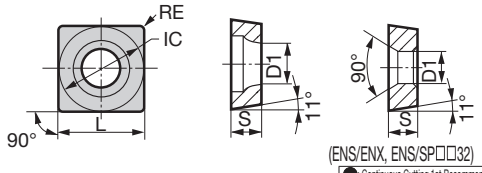
Dimensions (inch)				
	Cutting Edge Length L	.3125	Thickness S	.1250
	Inscribed Circle IC	.3125	Hole Dia. D1	.1339

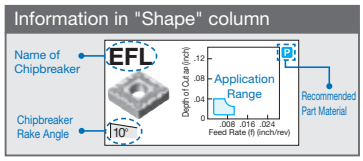
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	Ⓓ	Ⓓ	✖	◯	Ⓒ	✖																Ⓓ	Ⓓ	✖	●	Ⓓ				
M	Stainless Steel								●	Ⓓ	✖	✖												Ⓓ								
K	Cast Iron						✖						✖	●	Ⓓ	✖								Ⓓ			●					
N	Non-Ferrous Metal																														Ⓓ	Ⓓ
S	Exotic Alloy																	●	Ⓓ	✖	◯	Ⓒ	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	ENS 10°		SPMT2.522ENS	SPMT070308N-US	.0313									●	●	▲					—							—	—	—	—	—			—	—

Square Positive Inserts

SP Square 11° Pos. With Hole





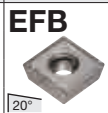
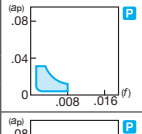
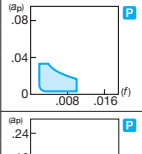
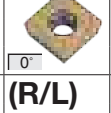
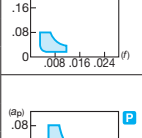
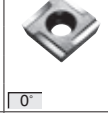
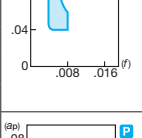
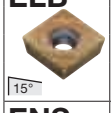
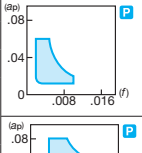
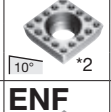
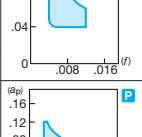
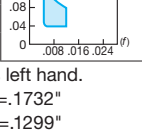
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

SP■■32●

Dimensions (inch)	Cutting Edge Length L	.3750	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

Applicable Internal Holders ☞ E44

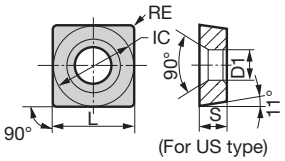
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✿																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✿												◒								
K	Cast Iron						✿						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✿									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB**  20°		SPMT321EFB	SPMT090304N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
			SPMT322EFB	SPMT090308N-FB	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
Finishing	**ELU** 15°		SPMT321ELU	SPMT090304N-LU	.0156	★	★	★						●	★	▲					—							—		★	★					—
			SPMT322ELU	SPMT090308N-LU	.0313	●	★	★			▲			●	●						—							—		★	★					—
Finishing	**EFK**  0°		SPMT322EFK	SPMT090308N-FK	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●				—	—		—
Finishing to Light Cutting	**(R/L)**  0°		SPGG320.5R	SPGT090302R-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			SPGG320.5L	SPGT090302L-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			SPGG321R	SPGT090304R-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			SPGG321L	SPGT090304L-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
			SPGG322R	SPGT090308R-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
			SPGG322L	SPGT090308L-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	★	—	—		—
Light Cutting	**ELB**  15°		SPMT321ELB	SPMT090304N-LB	.0156		★	★	●				●	★	★						—							—	★	★						—
			SPMT322ELB	SPMT090308N-LB	.0313		★	★	●				●	★	★						—							—	★	★						—
Light Cutting	**ENS**  10° *2		SPMT322ENS	SPMT090308N-US	.0313									●	●	▲					—							—	—	—	—	—	—		—	—
Light to Medium Cutting	**ENF** 0° *3		SPMT321ENF	SPMT090304N-SF	.0156			★	★		▲	▲									—							—	—	—	—	—	—		—	—
			SPMT322ENF	SPMT090308N-SF	.0313			★	●		▲	▲									—							—	—	—	—	—	—		—	—

*1: Photo shows left hand.
*2: Hole Dia. D1=.1732"
*3: Hole Dia. D1=.1299"

Square Positive Inserts

SP Square 11° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

SP■■32.5●

Dimensions (inch)				
	Cutting Edge Length L	.3750	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✖												◒								
K Cast Iron						✖						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																														◒	◒
S Exotic Alloy																	●	◒	✖	○	◔	✖									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	ENX 10°	(ap) .08 .04 0 .008 .016 (f) P	SPMT32.52ENX	SPMT09T308N-US	.0313									●	●	▲					—							—	—	—	—	—			—	—

SP■■43●

Dimensions (inch)				
	Cutting Edge Length L	.5000	Thickness S	.1875
	Inscribed Circle IC	.5000	Hole Dia. D1	.2165

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✖												◒								
K Cast Iron						✖						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																														◒	◒
S Exotic Alloy																	●	◒	✖	○	◔	✖									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	ENS 10°	(ap) .08 .04 0 .008 .016 (f) P	SPMT432ENS	SPMT120408N-US	.0313									●	●	▲					—							—	—	—	—	—			—	—

SP■■53●

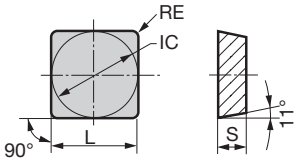
Dimensions (inch)				
	Cutting Edge Length L	.6250	Thickness S	.1875
	Inscribed Circle IC	.6250	Hole Dia. D1	.2559

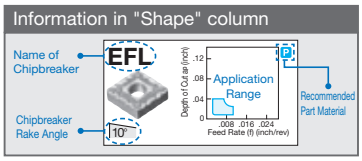
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✖												◒								
K Cast Iron						✖						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																														◒	◒
S Exotic Alloy																	●	◒	✖	○	◔	✖									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	ENS 10°	(ap) .08 .04 0 .008 .016 (f) P	SPMT532ENS	SPMT150408N-US	.0313											▲					—							—	—	—	—	—			—	—

Square Positive Inserts

SP Square 11° Pos. Without Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

SP■■2.51.5●

Dimensions (inch)	Cutting Edge Length L	.3125	Thickness S	.0937
	Inscribed Circle IC	.3125		

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◔	◔	✖	○	◔	✖																◔	◔	✖	●	◔				
M Stainless Steel								●	◔	✖	✖												◔								
K Cast Iron						✖						✖	●	◔	✖								◔			●					
N Non-Ferrous Metal																														◔	◔
S Exotic Alloy																	●	◔	✖	○	◔	✖									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting		—	SPG2.51.51	SPGN070204	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	—

*1: Photo shows left hand.

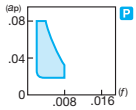
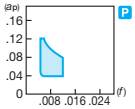
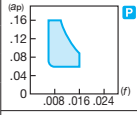
SP■■32●

Dimensions (inch)	Cutting Edge Length L	.3750	Thickness S	.1250
	Inscribed Circle IC	.3750		

SUMIBORON (CBN) Inserts ☞ L67
SUMIDIA (PCD) Inserts ☞ M17
Applicable Internal Holders ☞ E45

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

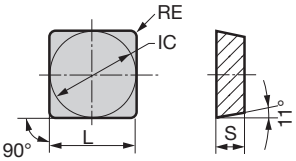
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◔	◔	✖	○	◔	✖																◔	◔	✖	●	◔				
M Stainless Steel								●	◔	✖	✖												◔								
K Cast Iron						✖						✖	●	◔	✖								◔			●					
N Non-Ferrous Metal																														◔	◔
S Exotic Alloy																	●	◔	✖	○	◔	✖									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFK**		SPMR321EFK	SPMR090304N-FK	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	●	—	—		—
			SPMR322EFK	SPMR090308N-FK	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
Light to Medium Cutting	**ENF**		SPMR321ENF	SPMR090304N-SF	.0156			★	★		▲	▲									—						—	—	—	—	—	—			—	—
			SPMR322ENF	SPMR090308N-SF	.0313			★	★		▲	▲									—						—	—	—	—	—	—			—	—
	EUJ		SPMR321EUJ	SPMR090304N-UJ	.0156			★													—						—	—	—	—	—	—			—	—
			SPMR322EUJ	SPMR090308N-UJ	.0313			★	★												—						—	—	—	—	—	—			—	—
Medium Cutting		—	SPMN321	SPMN090304	.0156												★	●	★	▲	—						—			★					—
			SPMN322	SPMN090308	.0313		●	●			▲						★	★	★	▲	—						—			★	★				—
		—	SPG321	SPGN090304	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●	—	—	★	—
			SPG322	SPGN090308	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				—			★	●			★	

*1: Photo shows left hand.

Square Positive Inserts

SP Square 11° Pos. Without Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖◯ Interrupted Cutting 2nd Recommended

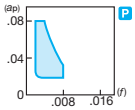
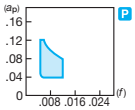
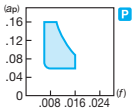
SP■■42●

Dimensions (inch)	Cutting Edge Length L	.5000	Thickness S	.1250
	Inscribed Circle IC	.5000		

SUMIDIA (PCD) Inserts ☞ M17

Ceramic Inserts ☞ B133

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	◯	◔	✖◯																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖◯												◐								
K	Cast Iron						✖◯						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	◯	◔	✖◯									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	EFK		SPMR421EFK	SPMR120304N-FK	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
			SPMR422EFK	SPMR120308N-FK	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	●	—	—		—
Light to Medium Cutting	ENF		SPMR421ENF	SPMR120304N-SF	.0156			★	★		▲	▲									—							—	—	—	—	—			—	—
			SPMR422ENF	SPMR120308N-SF	.0313			★	●		▲	▲									—							—	—	—	—	—			—	—
			SPMR423ENF	SPMR120312N-SF	.0469			★													—							—	—	—	—	—			—	—
	EUJ		SPMR421EUJ	SPMR120304N-UJ	.0156			★													—							—	—	—	—	—			—	—
			SPMR422EUJ	SPMR120308N-UJ	.0313			★	★												—							—	—	—	—	—			—	—
Medium Cutting		—	SPMN421	SPMN120304	.0156		●	●			▲						★	●	★	▲	—							—	—	—	—	—			—	—
			SPMN422	SPMN120308	.0313		●	●									★	★	★	▲	—	★	★	★				—			★	★				—
			SPMN423	SPMN120312	.0469												★	★	★	▲	—	★	★	★				—			★	★				—
		—	SPG421	SPGN120304	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●							★	●				
			SPG422	SPGN120308	.0313	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—			●	●	▲				●			★	●				
			SPG423	SPGN120312	.0469	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—									—	—	—	—	—			—	—

SP■■43●

Dimensions (inch)	Cutting Edge Length L	.5000	Thickness S	.1875
	Inscribed Circle IC	.5000		

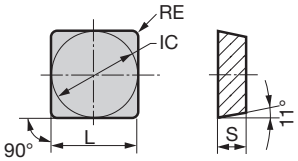
Ceramic Inserts ☞ B133

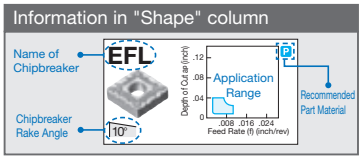
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	◯	◔	✖◯																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖◯												◐								
K	Cast Iron						✖◯						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	◯	◔	✖◯									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting		—	SPG432	SPGN120408	.0313	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			SPG433	SPGN120412	.0469	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Square Positive Inserts

SP Square 11° Pos. Without Hole





SP■■53●

Dimensions (inch)	Cutting Edge Length L	.6250	Thickness S	.1875
	Inscribed Circle IC	.6250		

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting		—	**SPMN532**	**SPMN150408**	.0313																—	★	★	★				—	—	—	—	—			—	—

SP■■63●

Dimensions (inch)	Cutting Edge Length L	.7500	Thickness S	.1875
	Inscribed Circle IC	.7500		

Ceramic Inserts B133

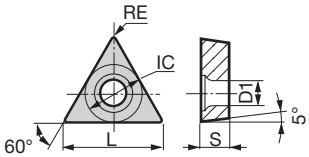
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting		—	**SPMN634**	**SPMN190416**	.0625		●	●			▲										—							—	—	—	—	—			—	—
		—	**SPG632**	**SPGN190408**	.0313	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—								—	—	—	—			—	—
			SPG633	**SPGN190412**	.0469	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—								—	—	—	—			—	—
			SPG634	**SPGN190416**	.0625	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—								—	—	—	—			—	—

Triangular Positive Inserts

TB Triangular 5° Pos. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

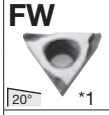
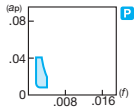
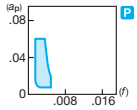
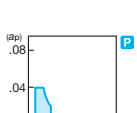
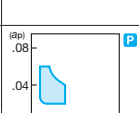
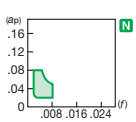
TB■■52●

Dimensions (inch)	Cutting Edge Length L	.2717	Thickness S	.0626
	Inscribed Circle IC	.1563	Hole Dia. D1	.0866

SUMIDIA (PCD) Inserts ☞ M18

Applicable Internal Holders ☞ E46

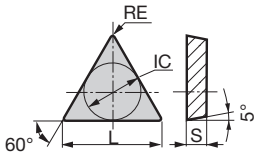
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

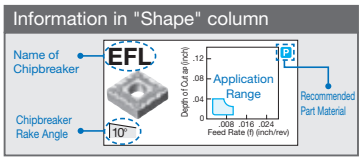
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	FW  20° *1		TBGT520.5RFW	TBGT060102R-FW	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			●	—	—		—
			TBGT520.5LFW	TBGT060102L-FW	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●			●	—	—		—
			TBGT521RFW	TBGT060104R-FW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★			★	—	—		—
			TBGT521LFW	TBGT060104L-FW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●			★	—	—		—
	(R/L)FX 15° *1		TBGT520.5RFX	TBGT060102R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★		●	●	—	—	—	—	—	—	—	—	—
			TBGT520.5LFX	TBGT060102L-FX	.0078	—	—	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	●	★	▲		★	★	—	—	—	—	—	—	—	—	—
			TBGT521RFX	TBGT060104R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	▲		★	★	—	—	—	—	—	—	—	—	—
			TBGT521LFX	TBGT060104L-FX	.0156	—	—	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	●	★	▲		★	●	—	—	—	—	—	—	—	—	—
	(R/L)FY *1 15°		TBGT520RFY	TBGT060101R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★			★	●	—	—	—	—	—	—	—	—	—
			TBGT520LFY	TBGT060101L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★			●	★	—	—	—	—	—	—	—	—	—
			TBGT520.5RFY	TBGT060102R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★				★			★	★					
			TBGT520.5LFY	TBGT060102L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★				★			★						
			TBGT521RFY	TBGT060104R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★				★			★	★					
			TBGT521LFY	TBGT060104L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★			★	★			★	●					
Finishing to Light Cutting	(R/L)W *1 0°		TBGT520.5R	TBGT060102R-W	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★		★	●				
			TBGT520.5L	TBGT060102L-W	.0078	—	—	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	●	★	★	●				
			TBGT521R	TBGT060104R-W	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★			★	●				
			TBGT521L	TBGT060104L-W	.0156	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●			★	●				
For Aluminium	(R/L)AY *1 15°		TBGT520RAY	TBGT060101R-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TBGT520LAY	TBGT060101L-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TBGT520.5RAY	TBGT060102R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TBGT520.5LAY	TBGT060102L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TBGT521RAY	TBGT060104R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TBGT521LAY	TBGT060104L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	

*1: Photo shows left hand.

Triangular Positive Inserts

TB Triangular 5° Pos. Without Hole





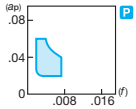
TB■■52●

Dimensions (inch)	Cutting Edge Length L	.2717	Thickness S	.0626
	Inscribed Circle IC	.1563		

SUMIBORON (CBN) Inserts ☞ L75
SUMIDIA (PCD) Inserts ☞ M18

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

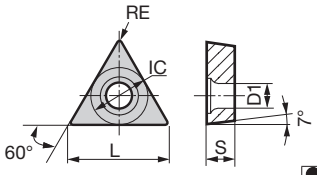
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing to Light Cutting	(R/L)W 0° *1		TBGR521LW	TBGR060104L-W	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				★	—	—		—
Light Cutting		—	TBGE521	TBGN060104	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	

*1: Photo shows left hand.

Insert
B
Neg.
Pos.
C
D
R
S
T
V
W
Ceramics Solid CBN

Triangular Positive Inserts

TC Triangular 7° Pos. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

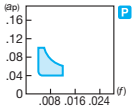
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended ◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

TC■■63●

Dimensions (inch)				
	Cutting Edge Length L	.3228	Thickness S	.0937
	Inscribed Circle IC	.1875	Hole Dia. D1	.0906

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	◯	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	◯	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	(M)EFM 6°		TCGT630MEFM	TCGT080201MN-SC	< .0038																							★			★	★				
			TCGT630EFM	TCGT080201N-SC	.0038																					★										
			TCGT630.5MEFM	TCGT080202MN-SC	< .0078																							★			★	★				
			TCGT630.5EFM	TCGT080202N-SC	.0078																					●										

Values for nose radius RE prefixed with "<" indicate negative tolerances.

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended ◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

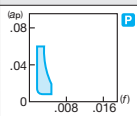
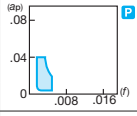
TC■■1.81.5●

Dimensions (inch)				
	Cutting Edge Length L	.3780	Thickness S	.0937
	Inscribed Circle IC	.2189	Hole Dia. D1	.0984

SUMIDIA (PCD) Inserts ☞ M18

Applicable External Holders ☞ C39, D32

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	◯	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	◯	◔	✖									
H	Hardened Steel																●															

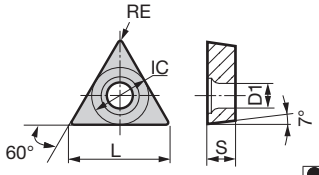
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FX 15° *1		TCGT1.81.50RFX	TCGT090201R-FX	.0039																		★	★			★	★								
			TCGT1.81.50LFX	TCGT090201L-FX	.0039																		★	★				★								
			TCGT1.81.50.5RFX	TCGT090202R-FX	.0078																		★	★			★	★								
			TCGT1.81.50.5LFX	TCGT090202L-FX	.0078																		★	★			★	★								
	(R/L)FY 15° *1		TCGT1.81.50RFY	TCGT090201R-FY	.0039																		★	★				★								
			TCGT1.81.50LFY	TCGT090201L-FY	.0039																		★	★			★	★								
			TCGT1.81.50.5RFY	TCGT090202R-FY	.0078																		★	★				★								
			TCGT1.81.50.5LFY	TCGT090202L-FY	.0078																		★	★				★								
Light Cutting	(M)EFM 6°		TCGT1.81.50MEFM	TCGT090201MN-SC	< .0039																							★			★					
			TCGT1.81.50EFM	TCGT090201N-SC	.0039																											★				
			TCGT1.81.50.5MEFM	TCGT090202MN-SC	< .0078																							★			★					
			TCGT1.81.50.5EFM	TCGT090202N-SC	.0078																					●						●				

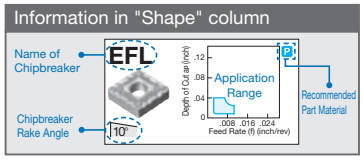
*1: Photo shows left hand.

Values for nose radius RE prefixed with "<" indicate negative tolerances.

Triangular Positive Inserts

TC Triangular 7° Pos. With Hole





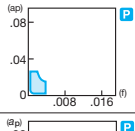
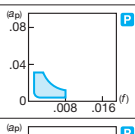
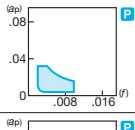
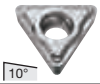
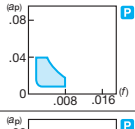
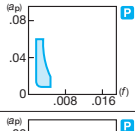
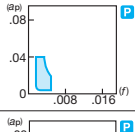
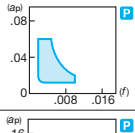
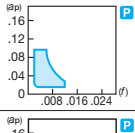
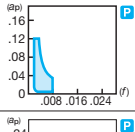
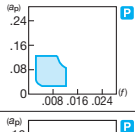
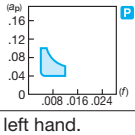
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		Coated Carbide																						Coated Cermet		Cermet		Carbide			
		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																													◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✪								
H	Hardened Steel																●														

TC■■21.5●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

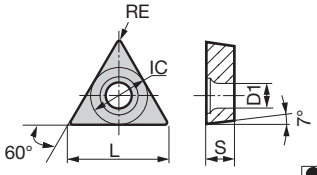
SUMIBORON (CBN) Inserts L75 SUMIDIA (PCD) Inserts M18
Applicable External Holders C39, D32 Applicable Internal Holders E47

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	(M)EFF 15°		TCGT21.50MEFF	TCGT110201MN-FF	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	●	—	—	—	—	—	—	—	—	—
			TCGT21.50.5MEFF	TCGT110202MN-FF	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	●	—	—	—	—	—	—	—	—	—
			TCGT21.51MEFF	TCGT110204MN-FF	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	●	—	—	—	—	—	—	—	—	—
Finishing	EFB 20°		TCMT21.51EFB	TCMT110204N-FB	.0156																—						★	—	●	★	★	●				—
			TCMT21.52EFB	TCMT110208N-FB	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
	ELU 15°		TCMT21.51ELU	TCMT110204N-LU	.0156	●	★	★		▲	▲			●	★	▲					—							—	●	★	★					—
			TCMT21.52ELU	TCMT110208N-LU	.0313	●	★	★		▲	▲			●	★	▲					—							—	★	★	★					—
	EFP  10°		TCMT21.51EFP	TCMT110204N-FP	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		—
			TCMT21.52EFP	TCMT110208N-FP	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				★	—	—		—
	(R/L)FX 15° *1		TCGT21.50RFX	TCGT110201R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★			★	★	—	—	—	—	—	—	—	—
			TCGT21.50LFX	TCGT110201L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★			★	★	—	—	—	—	—	—	—	—
			TCGT21.50.5RFX	TCGT110202R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★			●	★	—	—	—	—	—	—	—	—
			TCGT21.50.5LFX	TCGT110202L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—	—	—	—	—
	(R/L)FY 15° *1		TCGT21.50RFY	TCGT110201R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—	—	—	—	—
			TCGT21.50LFY	TCGT110201L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—	—	—	—	—
			TCGT21.50.5RFY	TCGT110202R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—	—	—	—	—
			TCGT21.50.5LFY	TCGT110202L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★			★	★	—	—	—	—	—	—	—	—
Light Cutting	ELB		TCMT21.51ELB	TCMT110204N-LB	.0156		★	●	●				●	★	★						—							—	★	★						—
			TCMT21.52ELB	TCMT110208N-LB	.0313		●	●	●				●	★	★						—							—	★	★						—
	ESU 8°		TCMT21.51ESU	TCMT110204N-SU	.0156	●	●	●	●	▲	▲	▲	●	●	●	▲		●	●		—	●	●	●	▲	▲		—	●	★						—
			TCMT21.52ESU	TCMT110208N-SU	.0313	●	●	●	★	▲	▲		●	●	●	▲	●	●	●		—	●	●	●	▲	▲		—	—	—	—	—	—	—	—	—
	(M)ESI 15°		TCGT21.50MESI	TCGT110201MN-SI	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—	—	—	—	—
			TCGT21.50.5MESI	TCGT110202MN-SI	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—	—	—	—	—
			TCGT21.51MESI	TCGT110204MN-SI	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	●				★	★	★	★	●				
Ceramics Solid CBN	ENK 8°		TCMT21.51ENK	TCMT110204N-SK	.0156	●		●	●	▲	▲										—							—	—	—	—	—	—	—	—	—
			TCMT21.52ENK	TCMT110208N-SK	.0313	●		●	●	▲	▲	▲									—							—	—	—	—	—	—	—	—	—
	(M)EFM 6°		TCGT21.50EFM	TCGT110201N-SC	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						●		—	—	—	—	—	—	—	—
			TCGT21.50MEFM	TCGT110201MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●			★	★					
			TCGT21.50.5EFM	TCGT110202N-SC	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						●		—	—	—	—	—	—	—	—
			TCGT21.50.5MEFM	TCGT110202MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	●		★	●				

*1: Photo shows left hand.
Values for nose radius RE prefixed with "<" indicate negative tolerances.

Triangular Positive Inserts

TC Triangular 7° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

TC■■21.5●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts ☞ L75 SUMIDIA (PCD) Inserts ☞ M18

Applicable External Holders ☞ C39, D32 Applicable Internal Holders ☞ E47

● Continuous Cutting 1st Recommended ○ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended ◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																						Coated Cermet			Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting		—	TCMA21.51	TCMW110204	.0156												★	★	●	▲	—							—	—	—	—	—			—	—
			TCMA21.52	TCMW110208	.0313												★	★	★	▲	—							—	—	—	—	—			—	—

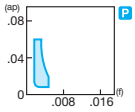
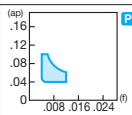
*1: Photo shows left hand.
Values for nose radius RE prefixed with "<" indicate negative tolerances.

TC■■22●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.1250
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

● Continuous Cutting 1st Recommended ○ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended ◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

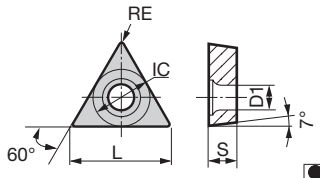
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																						Coated Cermet			Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

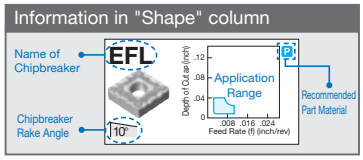
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FX *1		TCGT221LFX	TCGT110304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				★	—	—		—
Light Cutting	(M)EFM		TCGT220MEFM	TCGT110301MN-SC	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
			TCGT220.5MEFM	TCGT110302MN-SC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—

*1: Photo shows left hand.
Values for nose radius RE prefixed with "<" indicate negative tolerances.

Triangular Positive Inserts

TC Triangular 7° Pos. With Hole





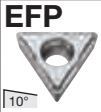
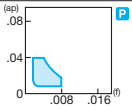
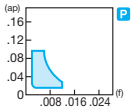
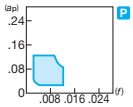
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✿																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✿												◒								
K	Cast Iron						✿						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✿									
H	Hardened Steel																●															

TC■■32.5●

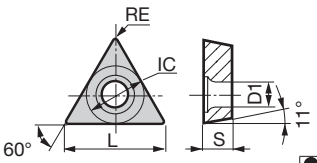
Dimensions (inch)				
Cutting Edge Length L	.6496	Thickness S	.1563
Inscribed Circle IC	.3750	Hole Dia. D1	.1693

SUMIBORON (CBN) Inserts ☞ L76
Applicable External Holders ☞ C39, D32
Applicable Internal Holders ☞ E47

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFP**  10°		TCMT32.51EFP	TCMT16T304N-FP	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—
			TCMT32.52EFP	TCMT16T308N-FP	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—
Light Cutting	**ESU** 8°		TCMT32.51ESU	TCMT16T304N-SU	.0156	●	●	●	●	▲	▲		●	●	●	▲		●	●		—	●	●	●	▲	▲		—	—	—	—	—			—	—
			TCMT32.52ESU	TCMT16T308N-SU	.0313	●	●	●	●	▲	▲	▲	●	●	●	▲		●	●		—	●	●	●		▲		—	—	—	—	—			—	—
	ENK 8°		TCMT32.51ENK	TCMT16T304N-SK	.0156	●		●	●		▲	▲									—							—	—	—	—	—			—	—
			TCMT32.52ENK	TCMT16T308N-SK	.0313	●		●	●	▲	▲	▲									—							—	—	—	—	—			—	—
			TCMT32.53ENK	TCMT16T312N-SK	.0469			●													—							—	—	—	—	—			—	—
		—	TCMA32.51	TCMW16T304	.0156												★	●	★	▲	—							—	—	—	—	—			—	—
			TCMA32.52	TCMW16T308	.0313												★	●	●	▲	—							—	—	—	—	—			—	—
			TCMA32.53	TCMW16T312	.0469												●	★	★	▲	—							—	—	—	—	—			—	—

Triangular Positive Inserts

TP Triangular 11° Pos. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TP■■63●

Dimensions (inch)	Cutting Edge Length L	.3228	Thickness S	.0937
	Inscribed Circle IC	.1875	Hole Dia. D1	.0945

SUMIBORON (CBN) Inserts ☞ L77
SUMIDIA (PCD) Inserts ☞ M19
SUMIDIA (PCD) Binderless Inserts ☞ M27
Applicable Internal Holders ☞ E46

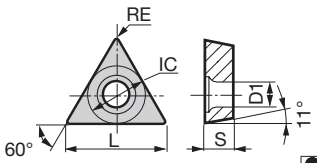
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

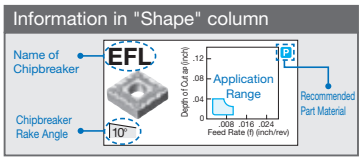
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	(M)EFF		TPGT630MEFF	TPGT080201MN-FF	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●				●	—	—	—	—			—	—
			TPGT630.5MEFF	TPGT080202MN-FF	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●				●	—	—	—	—			—	—
			TPGT631MEFF	TPGT080204MN-FF	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●				●	—	—	—	—			—	—
Finishing	EFB		TPMT630.5EFB	TPMT080202N-FB	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★		—	—		—
			TPMT631EFB	TPMT080204N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★		—	—		—
	ELU		TPMT630.5ELU	TPMT080202N-LU	.0078									★	★						—						—			★					—
			TPMT631ELU	TPMT080204N-LU	.0156									★	★						—					★	—		★	★					—
	FW *1		TPGT630.5RFW	TPGT080202R-FW	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
			TPGT630.5LFW	TPGT080202L-FW	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●		★	●	—	—		—
			TPGT631RFW	TPGT080204R-FW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●		★	★	—	—		—
			TPGT631LFW	TPGT080204L-FW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
	(R/L)FX		TPGT630.5RFX	TPGT080202R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●	▲		★	★	—	—	—	—			—	—
			TPGT630.5LFX	TPGT080202L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●	▲		★	●	—	—	—	—			—	—
			TPGT631RFX	TPGT080204R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●	▲		★	★	—	—	—	—			—	—
			TPGT631LFX	TPGT080204L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	●	▲		●	●	—	—	—	—			—	—
	(R/L)FY *1		TPGT63.001RFY	TPGT0802003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT63.001LFY	TPGT0802003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●				★	—	—	—	—			—	—
			TPGT630RFY	TPGT080201R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			●	★	—	—	—	—			—	—
			TPGT630LFY	TPGT080201L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●			★	●	—	—	—	—			—	—
			TPGT630.5RFY	TPGT080202R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	★	—		★	★			—	—
			TPGT630.5LFY	TPGT080202L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	●	—		★	★			—	—
			TPGT631RFY	TPGT080204R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—		★	●			—	—
			TPGT631LFY	TPGT080204L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	●	—		★	★			—	—
Finishing to Light Cutting	(R/L)W *1		TPGT630.5R	TPGT080202R-W	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	★	●	★	★	●				
			TPGT630.5L	TPGT080202L-W	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					▲		★	★	●	★	★	●				
			TPGT631R	TPGT080204R-W	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	★	★		★	●				
			TPGT631L	TPGT080204L-W	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	●	●	●	★	●				
Light Cutting	ELB		TPMT630.5ELB	TPMT080202N-LB	.0078		★	●	●				●	★	★						—							—	★	★						—
			TPMT631ELB	TPMT080204N-LB	.0156		★	●	●				●	★	★						—							—	★	★						—
	ESU		TPMT630.5ESU	TPMT080202N-SU	.0078								●	★	★						—	★	★	★				—			★					—
			TPMT631ESU	TPMT080204N-SU	.0156								●	★	★						—	★	★	★			●	—			★					—
	(M)ESI		TPGT630MESI	TPGT080201MN-SI	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT630.5MESI	TPGT080202MN-SI	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT631MESI	TPGT080204MN-SI	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—

*1: Photo shows left hand.

Triangular Positive Inserts

TP Triangular 11° Pos. With Hole





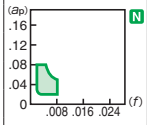
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TP■■63●

Dimensions (inch)	Cutting Edge Length L	.3228	Thickness S	.0937
	Inscribed Circle IC	.1875	Hole Dia. D1	.0945

SUMIBORON (CBN) Inserts ☞ L77
SUMIDIA (PCD) Inserts ☞ M19
SUMIDIA (PCD) Binderless Inserts ☞ M27
Applicable Internal Holders ☞ E46

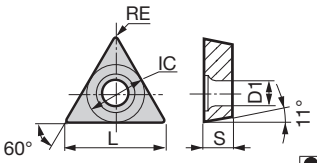
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting		—	TPGD630.5	TPGW080202	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—		—
For Aluminium	(R/L)AY 15°		TPGT630RAY	TPGT080201R-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT630LAY	TPGT080201L-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT630.5RAY	TPGT080202R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT630.5LAY	TPGT080202L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT631RAY	TPGT080204R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT631LAY	TPGT080204L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	

*1: Photo shows left hand.

Triangular Positive Inserts

TP Triangular 11° Pos. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

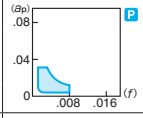
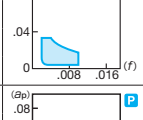
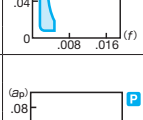
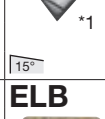
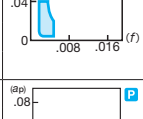
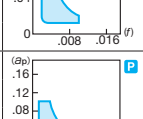
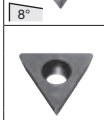
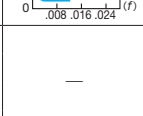
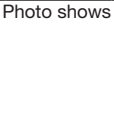
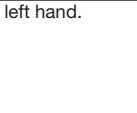
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◕ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

TP■■1.81.5●

Dimensions (inch)				
	Cutting Edge Length L	.3780	Thickness S	.0937
	Inscribed Circle IC	.2189	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts ☞ L78
SUMIDIA (PCD) Inserts ☞ M19
Applicable Internal Holders ☞ E48

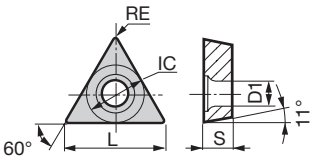
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

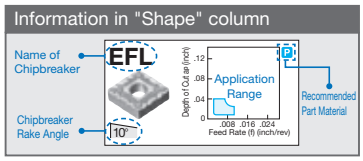
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB** 20°		TPMT1.81.50EFB	TPMT090201N-FB	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲	—	—	—	—	—	—	—	—	—	—
			TPMT1.81.50.5EFB	TPMT090202N-FB	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
			TPMT1.81.51EFB	TPMT090204N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
	ELU 15°		TPMT1.81.50.5ELU	TPMT090202N-LU	.0078	★	★	★			▲										—						—	★	★	★	★				—
			TPMT1.81.51ELU	TPMT090204N-LU	.0156	★	●	★			▲										—						—	★	★	★	★				—
	(R/L)FX 15° *1		TPGT1.81.51LFX	TPGT090204L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●	—	—		—
	(R/L)FY  *1 15°		TPGT1.81.50RFY	TPGT090201R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	—	—	—	—	—	—	—	—
			TPGT1.81.50LFY	TPGT090201L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	—	—	—	—	—	—	—	—
			TPGT1.81.50.5RFY	TPGT090202R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	—	—	—	—	—	—	—	—
			TPGT1.81.50.5LFY	TPGT090202L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★				★				—
			TPGT1.81.51RFY	TPGT090204R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	—	—	—	—	—	—	—	—
			TPGT1.81.51LFY	TPGT090204L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	—	—	—	—	—	—	—	—
Light Cutting	**ELB** 15°		TPMT1.81.50.5ELB	TPMT090202N-LB	.0078		★	●	★				●	★	★						—						—	★	★						—
			TPMT1.81.51ELB	TPMT090204N-LB	.0156		★	●	★				●	★	★						—						—	★	★						—
	ESU  8°		TPMT1.81.50.5ESU	TPMT090202N-SU	.0078		●	●			▲										—			●		▲	—	—	—	—	—			—	—
			TPMT1.81.51ESU	TPMT090204N-SU	.0156		●	●			▲										—	★	★	●		▲	—	—	—	—	—			—	—
		—	TPEW1.81.51	TPEW090204	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—
		—	TPG1.81.51	TPGN090204	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPG1.81.52	TPGN090208	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
For Aluminium	**(R/L)AY**  15° *1		TPGT1.81.50RAY	TPGT090201R-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT1.81.50LAY	TPGT090201L-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT1.81.50.5RAY	TPGT090202R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT1.81.50.5LAY	TPGT090202L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT1.81.51RAY	TPGT090204R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			TPGT1.81.51LAY	TPGT090204L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	

*1: Photo shows left hand.

Triangular Positive Inserts

TP Triangular 11° Pos. With Hole





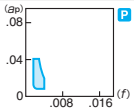
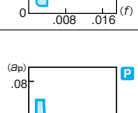
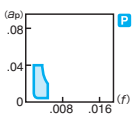
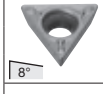
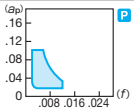
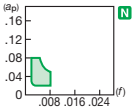
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TP■■21.5●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts ☞ L79
SUMIDIA (PCD) Inserts ☞ M20
Applicable Internal Holders ☞ E48

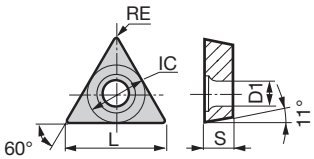
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◕	◕	✖	○	◔	✪																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✪												◕								
K	Cast Iron						✪						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✪									
H	Hardened Steel																●															
		Coated Carbide																							Coated Cermet		Cermet		Carbide			

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FW 15° *1		TPGT21.50.5RFW	TPGT110202R-FW	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
			TPGT21.50.5LFW	TPGT110202L-FW	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●		★	●	—	—		—
			TPGT21.51RFW	TPGT110204R-FW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●		★	★	—	—		—
			TPGT21.51LFW	TPGT110204L-FW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●		★	●	—	—		—
	(R/L)FX *1 15°		TPGT21.50.5RFX	TPGT110202R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	▲	—	—	—	—	—	—	—	—	—		—
			TPGT21.50.5LFX	TPGT110202L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	▲	—	—	—	—	—	—	—	—	—		—
			TPGT21.51RFX	TPGT110204R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	▲	—	—	—	—	—	—	—	—	—		—
			TPGT21.51LFX	TPGT110204L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	▲	—	—	—	—	—	—	—	—	—		—
			TPGT21.52RFX	TPGT110208R-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★		—	—	—	—	—	—	—	—	—		—
			TPGT21.52LFX	TPGT110208L-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	▲	—	—	—	—	—	—	—	—	—		—
Finishing	(R/L)FY 15°		TPGT21.50.5RFY	TPGT110202R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
			TPGT21.50.5LFY	TPGT110202L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
			TPGT21.51RFY	TPGT110204R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
			TPGT21.51LFY	TPGT110204L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
			TPGT21.52LFY	TPGT110208L-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		—
Light Cutting	ESU  8°		TPMT21.50.5ESU	TPMT110202N-SU	.0078	●	●	●		▲	▲										—	●	●	●	▲	▲	—	—	—	—	—	—	—		—	—
			TPMT21.51ESU	TPMT110204N-SU	.0156	●	●	●			▲										—	●	●	●	▲	▲	—	—	—	—	—	—	—		—	—
			TPMT21.52ESU	TPMT110208N-SU	.0313	●	●	●			▲										—	●	●	●	▲	▲	—	—	—	—	—	—	—		—	—
		—	TPEW21.51	TPEW110204	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	●	
For Aluminium	(R/L)AY 15° *1		TPGT21.50.5RAY	TPGT110202R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TPGT21.50.5LAY	TPGT110202L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TPGT21.51RAY	TPGT110204R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TPGT21.51LAY	TPGT110204L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	

*1: Photo shows left hand.

Triangular Positive Inserts

TP Triangular 11° Pos. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	EFB 20°		TPMT220.5EFB	TPMT110302N-FB	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
			TPMT221EFB	TPMT110304N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	★	★	★	★	—	—	—	—
			TPMT222EFB	TPMT110308N-FB	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	—	—	—	—	—	—
	ELU 15°		TPMT220.5ELU	TPMT110302N-LU	.0078	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
			TPMT221ELU	TPMT110304N-LU	.0156	●	★	●	—	—	▲	—	—	●	●	▲	—	—	—	—	—	—	—	—	—	—	★	—	●	★	★	—	—	—	—	—
			TPMT222ELU	TPMT110308N-LU	.0313	★	★	●	—	▲	▲	—	—	●	●	▲	—	—	—	—	—	—	—	—	—	—	★	—	●	★	—	—	—	—	—	—
	EFK 0°		TPMT221EFK	TPMT110304N-FK	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—
			TPMT222EFK	TPMT110308N-FK	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—
	(M)EFC 15°		TPGT220.5MEFC	TPGT110302MN-FC	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	●	—	—	—	★	—	—	★	●	—	—	—	—
			TPGT220.5EFC	TPGT110302N-FC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—
			TPGT221MEFC	TPGT110304MN-FC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	●	—	—	★	●	—	—	★	●	—	—	—	—
			TPGT221EFC	TPGT110304N-FC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—
	(R/L)FX *1 15°		TPGT220.5RFX	TPGT110302R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	★	★	—	—	—	—	—	—	—	—
			TPGT220.5LFX	TPGT110302L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	●	—	—	★	★	—	—	—	—	—	—	—	—
			TPGT221RFX	TPGT110304R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	★	●	—	—	—	—	—	—	—	—
			TPGT221LFX	TPGT110304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	●	●	—	—	—	—	—	—	—	—
			TPGT222RFX	TPGT110308R-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	★	—	—	—	—	—	—	—	—
			TPGT222LFX	TPGT110308L-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	—	★	—	—	—	—	—	—	—	—
	(R/L)FY *1 15°		TPGT22.001RFY	TPGT1103003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—
			TPGT22.001LFY	TPGT1103003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	—	—	—	—	—	—	—	—
			TPGT220RFY	TPGT110301R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	●	—	—	—	—	—	—	—
			TPGT220LFY	TPGT110301L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	—	—	—	—	—	—
			TPGT220.5RFY	TPGT110302R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	★	—	—	★	★	—	—	—	—
			TPGT220.5LFY	TPGT110302L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	★	★	—	★	★	—	—	—	—
			TPGT221RFY	TPGT110304R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	★	★	—	—	★	★	—	—	—	—
			TPGT221LFY	TPGT110304L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	●	★	★	★	●	—	—	—	—
			TPGT222RFY	TPGT110308R-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	★	—	—	—	—	★	—	—	—	—
			TPGT222LFY	TPGT110308L-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	●	★	—	—	—	—	—	—	—	—
Finishing to Light Cutting	(R/L) *1 0°		TPGG220.5R	TPGT110302R-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	★	●	—	—	—	—
			TPGG220.5L	TPGT110302L-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	★	★	●	—	—	—	—
			TPGG221R	TPGT110304R-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲	—	★	★	★	★	★	●	—	—	—	—
			TPGG221L	TPGT110304L-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	▲	—	★	★	●	★	★	●	—	—	—	—
			TPGG222R	TPGT110308R-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	★	★	—	—	—	—
			TPGG222L	TPGT110308L-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	★	●	—	—	—	—
	(R/L)W *1 → B134 Wiper 0°		TPGG221RW	TPGX110304R-SDW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—
			TPGG221LW	TPGX110304L-SDW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—
			TPGG222RW	TPGX110308R-SDW	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—
			TPGG222LW	TPGX110308L-SDW	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—

*1: Photo shows left hand.

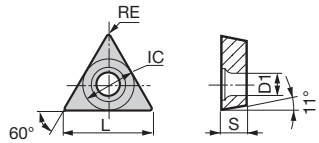
Values for nose radius RE prefixed with "<" indicate negative tolerances.

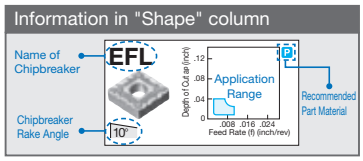
SUMIBORON (CBN) Inserts ☞ L81
SUMIDIA (PCD) Inserts ☞ M20
SUMIDIA Binderless Inserts ☞ M27
Applicable Internal Holders ☞ E46

TP■■22●				
Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.1250
	Inscribed Circle IC	.2500	Hole Dia. D1	.1339

Triangular Positive Inserts

TP Triangular 11° Pos. With Hole





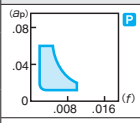
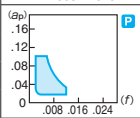
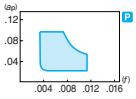
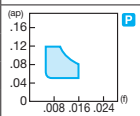
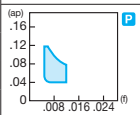
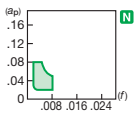
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

TP■■22●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.1250
	Inscribed Circle IC	.2500	Hole Dia. D1	.1339

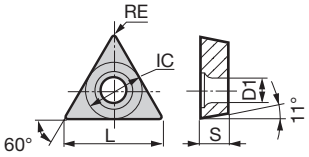
SUMIBORON (CBN) Inserts ☞ L81
SUMIDIA (PCD) Inserts ☞ M20
SUMIDIA Binderless Inserts ☞ M27
Applicable Internal Holders ☞ E46

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	**ELB** 15°		TPMT220.5ELB	TPMT110302N-LB	.0078		★	●	●				●	★	★						—							—	★	★						—
			TPMT221ELB	TPMT110304N-LB	.0156		★	●	●				●	★	★						—							—	★	★						—
			TPMT222ELB	TPMT110308N-LB	.0313		●	●	●				●	★	★						—							—	★	★						—
	ESU 8°		TPMT220.5ESU	TPMT110302N-SU	.0078	★	●	●	★		▲	▲	●	●	●	▲					—	★	★	★				—	●	★	★	●				—
			TPMT221ESU	TPMT110304N-SU	.0156	●	●	●	★	▲	▲	▲	●	●	●	▲					—	★	★	★			★	—	●	●	★	●				—
			TPMT222ESU	TPMT110308N-SU	.0313	●	★	●	★		▲	▲	●	●	★	▲					—	★	★	★				—	●	★	★	★				—
		—	TPGA220.5	TPGW110302	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲								—	—	—	—				—	
			TPGA221	TPGW110304	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲		★	★							★	●				
			TPGA222	TPGW110308	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲										★	●				
	EGU 8°		TPMT221EGU	TPMT110304N-GU	.0156	★	●	●	★				●	●	★						—							—	●	★		●				—
			TPMT222EGU	TPMT110308N-GU	.0313	●	●	●	★				●	●	★						—							—	●	★		●				—
Light to Medium Cutting	**EMU** 0°		TPMT221EMU	TPMT110304N-MU	.0156	★	★	★			▲		●	★			★	★	★	▲	—							—	—	—	—	—			—	—
			TPMT222EMU	TPMT110308N-MU	.0313	●	★	●		▲	▲		●	★			★	★	★	▲	—							—	—	—	—	—			—	—
	ENF 0°		TPMT221ENF	TPMH110304N-SF	.0156			●	★		▲	▲									—		●		▲			—	—	—	—	—			—	—
			TPMT222ENF	TPMH110308N-SF	.0313			●	●		▲	▲									—		●		▲			—	—	—	—	—			—	—
For Aluminium	**(R/L)AY** *1 15°		TPGT220RAY	TPGT110301R-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TPGT220LAY	TPGT110301L-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TPGT220.5RAY	TPGT110302R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TPGT220.5LAY	TPGT110302L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TPGT221RAY	TPGT110304R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TPGT221LAY	TPGT110304L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	

*1: Photo shows left hand.

Triangular Positive Inserts

TP Triangular 11° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended ◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

TP■■32●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts ☞ L85 SUMIDIA (PCD) Inserts ☞ M21
Applicable External Holders ☞ C53 Applicable Internal Holders ☞ E48

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	◯	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	◯	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB** 20°	(ap) .08 .04 0 .008 .016 (f) P	TPMT321EFB	TPMT160304N-FB	.0156																—						★	—	★	★	★					—
			TPMT322EFB	TPMT160308N-FB	.0313																—						★	—	★	★						—
Finishing	**(R/L)FX** *1 15°	(ap) .08 .04 0 .008 .016 (f) P	TPGT321RFX	TPGT160304R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT321LFX	TPGT160304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT322RFX	TPGT160308R-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT322LFX	TPGT160308L-FX	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
Finishing	**(R/L)FY** *1 15°	(ap) .08 .04 0 .008 .016 (f) P	TPGT320.5RFY	TPGT160302R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT320.5LFY	TPGT160302L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT321RFY	TPGT160304R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT321LFY	TPGT160304L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT322RFY	TPGT160308R-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			TPGT322LFY	TPGT160308L-FY	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
Finishing to Light Cutting	**(R/L)** *1 0°	(ap) .08 .04 0 .008 .016 (f) P	TPGG321R	TPGT160304R-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—	—	—
Light Cutting	**ELB** 15°	(ap) .08 .04 0 .008 .016 (f) P	TPMT321ELB	TPMT160304N-LB	.0156		●	●	●				★	★	★						—							—	★	★						—
			TPMT322ELB	TPMT160308N-LB	.0313		●	★	●				★	★	★						—							—	★	★						—

*1: Photo shows left hand.

● Continuous Cutting 1st Recommended ◯ Continuous Cutting 2nd Recommended
◒ General Cutting 1st Recommended ◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended ✖ Interrupted Cutting 2nd Recommended

TP■■32.5●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1563
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

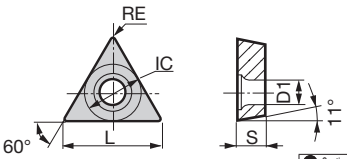
Applicable Internal Holders ☞ E48

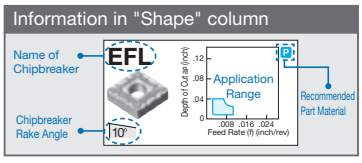
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	◯	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	◯	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	**ESU** 8°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) P	TPMT32.51ESU	TPMT16T304N-SU	.0156	●	●	●		▲	▲										—	●	●	●	▲	▲		—	—	—	—	—			—	—
			TPMT32.52ESU	TPMT16T308N-SU	.0313	●	●	●		▲	▲										—	●	●	●	▲	▲		—	—	—	—	—			—	—

Triangular Positive Inserts

TP Triangular 11° Pos. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TP■■33●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts L85
SUMIDIA (PCD) Inserts M21
SUMIDIA Binderless Inserts M27
Applicable Internal Holders E46

Recommended Application

	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

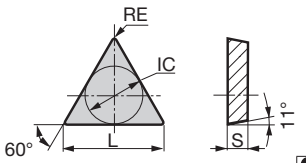
	Coated Carbide																						Coated Cermet			Cermet		Carbide			

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB** 20°		TPMT331EFB	TPMT160404N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★		—	—		—
			TPMT332EFB	TPMT160408N-FB	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★		—	—		—
Finishing	**EFK** 0°		TPMT331EFK	TPMT160404N-FK	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	●	—	—		—
			TPMT332EFK	TPMT160408N-FK	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				●	—	—		—
Finishing to Light Cutting	**(R/L)** *1 0°		TPGG330.5R	TPGT160402R-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
			TPGG330.5L	TPGT160402L-SD	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●		★	●	—	—		—
			TPGG331R	TPGT160404R-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	▲	—	—	—	★	★	★	●	—	—		—
			TPGG331L	TPGT160404L-SD	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	▲	—	—	—	●	★	★	●	—	—		—
			TPGG332R	TPGT160408R-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★	★	—	—		—
			TPGG332L	TPGT160408L-SD	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●		★	●	—	—		—
Finishing to Light Cutting	**(R/L)W** *1 0° → B134 Wiper		TPGX331RW	TPGX160404R-SDW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★				—	—		—
			TPGX331LW	TPGX160404L-SDW	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★				—	—		—
			TPGX332RW	TPGX160408R-SDW	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★				—	—		—
			TPGX332LW	TPGX160408L-SDW	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★				—	—		—
Light Cutting	**ELB** 15°		TPMT331ELB	TPMT160404N-LB	.0156		★	●	●				★	★	★						—						—	★	★						—
			TPMT332ELB	TPMT160408N-LB	.0313		★	●	●				★	★	★						—						—	★	★						—
Light Cutting	**ESU** 8°		TPMT331ESU	TPMT160404N-SU	.0156	★	★	●	●		▲	▲	★	●	●	▲					—	★	★	★			—	●	●	★	★				—
			TPMT332ESU	TPMT160408N-SU	.0313	★	●	●	●		▲	▲	★	●	●	▲					—	★	★	★			—	●	★	★	★				—
		—	TPGA331	TPGW160404	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				—	—	—	—	—			—	—
Light Cutting	**EGU** 8°		TPMT331EGU	TPMT160404N-GU	.0156	★	●	●	●				●	●	★						—						—	★	★		★				—
			TPMT332EGU	TPMT160408N-GU	.0313	★	●	●	★				●	●	★						—						—	●	★		★				—
Light to Medium Cutting	**EMU** 0°		TPMT331EMU	TPMT160404N-MU	.0156	★	★	●			▲		●	★			★	★	★	▲	—						—	—	—	—	—			—	—
			TPMT332EMU	TPMT160408N-MU	.0313	★	★	●			▲		●	★			●	★	★	▲	—						—	—	—	—	—			—	—
Light to Medium Cutting	**ENF** 0°		TPMT331ENF	TPMT160404N-SF	.0156			●	●		▲	▲									—		●		▲		—	—	—	—	—			—	—
			TPMT332ENF	TPMT160408N-SF	.0313			●	●		▲	▲									—		●		▲		—	—	—	—	—			—	—

*1: Photo shows left hand.

Triangular Positive Inserts

TP Triangular 11° Pos. Without Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

TP■■1.81.5●

Dimensions (inch)	Cutting Edge Length L	.3780	Thickness S	.0937
	Inscribed Circle IC	.2189		

SUMIBORON (CBN) Inserts ☞ L88 SUMIDIA (PCD) Inserts ☞ M22

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	EFK 0°	(ap) .08 .04 0 .008 .016 (f) P	TPMR1.81.51EFK	TPMR090204N-FK	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●			●	—	—		—
			TPMR1.81.52EFK	TPMR090208N-FK	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●				—	—		—

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

TP■■22●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.1250
	Inscribed Circle IC	.2500		

SUMIBORON (CBN) Inserts ☞ L88 SUMIDIA (PCD) Inserts ☞ M22
Ceramic Inserts ☞ B133 Applicable Internal Holders ☞ E49

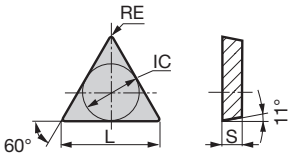
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✖																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✖												◐								
K	Cast Iron						✖						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✖									
H	Hardened Steel																●															

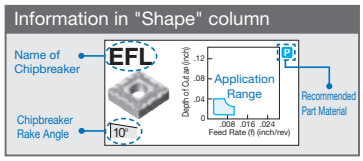
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	EFK 0°	(ap) .08 .04 0 .008 .016 (f) P	TPMR220.5EFK	TPMR110302N-FK	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—		—
			TPMR221EFK	TPMR110304N-FK	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
			TPMR222EFK	TPMR110308N-FK	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●		★	●	—	—		—
Finishing to Light Cutting	R/L 0° *1	(ap) .08 .04 0 .008 .016 (f) P	TPGR220.5R	TPGR110302R-W	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TPGR220.5L	TPGR110302L-W	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TPGR221R	TPGR110304R-W	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TPGR221L	TPGR110304L-W	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TPGR222L	TPGR110308L-W	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
Light to Medium Cutting	ENF 0°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) P	TPMR221ENF	TPMR110304N-SF	.0156			●	★		▲	▲									—							—	—	—	—	—			—	—
			TPMR222ENF	TPMR110308N-SF	.0313	●		●	★		▲	▲									—							—	—	—	—	—			—	—
	EUJ 0°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) P	TPMR221EUJ	TPMR110304N-UJ	.0156			★	★			▲									—							—	—	—	—	—			—	—
			TPMR222EUJ	TPMR110308N-UJ	.0313			★	★												—							—	—	—	—	—			—	—
Medium Cutting		—	TPMN221	TPMN110304	.0156												★	★	★	▲	—	★	★	★				—	—	—	—	—			—	—
			TPMN222	TPMN110308	.0313												●	★	●	▲	—	★	★	★				—	—	—	—	—			—	—

*1: Photo shows left hand.

Triangular Positive Inserts

TP Triangular 11° Pos. Without Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TP■■22●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.1250
	Inscribed Circle IC	.2500		

SUMIBORON (CBN) Inserts ☞ L88 SUMIDIA (PCD) Inserts ☞ M22
Ceramic Inserts ☞ B133 Applicable Internal Holders ☞ E49

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

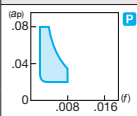
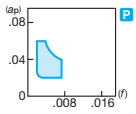
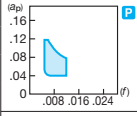
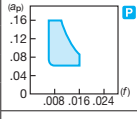
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting		—	TPG220.5	TPGN110302	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	●	—
			TPG221	TPGN110304	.0156	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	—	—	—	★	●	—	—	★	—
			TPG222	TPGN110308	.0313	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	●	—	—	★	—

TP■■32●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1250
	Inscribed Circle IC	.3750		

SUMIBORON (CBN) Inserts ☞ L90 SUMIDIA (PCD) Inserts ☞ M22
Ceramic Inserts ☞ B133
Applicable External Holders ☞ C53 Applicable Internal Holders ☞ E49

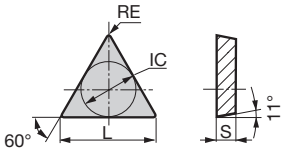
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M Stainless Steel								●	◐	✖	✪												◐								
K Cast Iron						✪						✖	●	◐	✖								◐			●					
N Non-Ferrous Metal																														◐	◐
S Exotic Alloy																	●	◐	✖	○	◔	✪									
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFK** 0°		TPMR321EFK	TPMR160304N-FK	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
			TPMR322EFK	TPMR160308N-FK	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●	★	★	●	—	—		—
			TPMR323EFK	TPMR160312N-FK	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	—	—			—
Finishing to Light Cutting	**R/L** *1		TPGR320.5R	TPGR160302R-W	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TPGR320.5L	TPGR160302L-W	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TPGR321R	TPGR160304R-W	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TPGR321L	TPGR160304L-W	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TPGR322R	TPGR160308R-W	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
			TPGR322L	TPGR160308L-W	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★		★		—	—		—
Light to Medium Cutting	**ENF** 0°		TPMR321ENF	TPMR160304N-SF	.0156			●	●		▲	▲									—							—	—	—	—	—	—		—	—
			TPMR322ENF	TPMR160308N-SF	.0313	●		●	●		▲	▲									—							—	—	—	—	—	—		—	—
			TPMR323ENF	TPMR160312N-SF	.0469			●	●		▲	▲									—							—	—	—	—	—	—		—	—
	EUJ 0°		TPMR321EUJ	TPMR160304N-UJ	.0156			★	★												—							—	—	—	—	—	—		—	—
			TPMR322EUJ	TPMR160308N-UJ	.0313			●	★												—							—	—	—	—	—	—		—	—
Ceramics Solid CBN / Medium Cutting		—	TPMN321	TPMN160304	.0156		●	●									●	★	★	▲	—	★	●	★				—	—	—	—	—	—		—	—
			TPMN322	TPMN160308	.0313		●	●									●	★	★	▲	—	★	★	★				—			★	★			—	—
			TPMN323	TPMN160312	.0469												★	★	★	▲	—							—	—	—	—	—	—		—	—
Medium Cutting		—	TPG320.5	TPGN160302	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	●		★	●	—	—		—
			TPG321	TPGN160304	.0156	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	●	●	▲	—	—	—	●		★	●	—	—	★	—
			TPG322	TPGN160308	.0313	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	●	●	▲	—	—	—	●		★	●	—	—	★	—
			TPG323	TPGN160312	.0469	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			TPG324	TPGN160316	.0625	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

*1: Photo shows left hand.

Triangular Positive Inserts

TP Triangular 11° Pos. Without Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

TP■■33●

Dimensions (inch)				
	Cutting Edge Length L	.6496	Thickness S	.1875
	Inscribed Circle IC	.3750		

Ceramic Inserts ☞ B133

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◒	◒	✖	◯	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	◯	◔	✖									
H	Hardened Steel																●															
		Coated Carbide																							Coated Cermet		Cermet		Carbide			

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Medium Cutting		—	TPG332	TPGN160408	.0313	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—								—	—	—	—	—			—	—

● Continuous Cutting 1st Recommended
◯ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

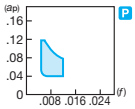
TP■■43●

Dimensions (inch)				
	Cutting Edge Length L	.8661	Thickness S	.1875
	Inscribed Circle IC	.5000		

SUMIBORON (CBN) Inserts ☞ L91 SUMIDIA (PCD) Inserts ☞ M23

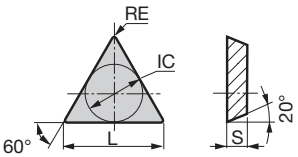
Ceramic Inserts ☞ B133 Applicable External Holders ☞ C53

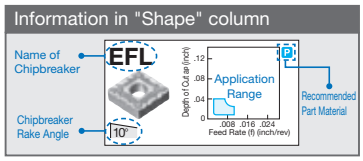
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◒	◒	✖	◯	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	◯	◔	✖									
H	Hardened Steel																●															
		Coated Carbide																							Coated Cermet		Cermet		Carbide			

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting	**ENF** 0°		TPMR432ENF	TPMR220408N-SF	.0313			●	●		▲	▲									—							—	—	—	—	—				—	—
			TPMR433ENF	TPMR220412N-SF	.0469			●	●		▲										—							—	—	—	—	—				—	—
Medium Cutting		—	TPMN432	TPMN220408	.0313		●	●			▲										—	★	★	★				—			★	★				—
			TPMN433	TPMN220412	.0469		●	●													—	★	★	★				—	—	—	—	—				—	—
		—	TPG431	TPGN220404	.0156	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—								—	—	—	—	—			—	—
			TPG432	TPGN220408	.0313	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—			●	★	▲				—	—	—	●				—	—
			TPG433	TPGN220412	.0469	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—									—	—	—	—				—	—
			TPG434	TPGN220416	.0625	—	●	●	—	—	▲	—	—	—	—	—	—	—	—	—									—	—	—	—				—	—
			TPG436	TPGN220424	.0938	—	—	●	—	—	▲	—	—	—	—	—	—	—	—	—									—	—	—	—				—	—

Triangular Positive Inserts

TE Triangular 20° Pos. Without Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
● General Cutting 1st Recommended
◐ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✖ Interrupted Cutting 2nd Recommended

TE■■21.5●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.0937
	Inscribed Circle IC	.2500		

SUMIDIA (PCD) Inserts ☞ M23

Recommended Application: P Steel; M Stainless Steel; K Cast Iron; N Non-Ferrous Metal; S Exotic Alloy; H Hardened Steel

Coated Carbide: AC8015P, AC8020P, AC8025P, AC8035P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6040M, AC630M, AC4125K, AC4010K, AC4015K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC510U, AC520U, AC530U, AC1030U
Coated Cermet: T1500Z, T2500Z, T1000A, T1500A
Cermet: EH510, EH520
Carbide: H1, DL1000

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting		—	TEGE21.50.5	TEGN110202	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	●	
			TEGE21.51	TEGN110204	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	

TE■■22●

Dimensions (inch)	Cutting Edge Length L	.4331	Thickness S	.1250
	Inscribed Circle IC	.2500		

SUMIDIA (PCD) Inserts ☞ M23

Recommended Application: P Steel; M Stainless Steel; K Cast Iron; N Non-Ferrous Metal; S Exotic Alloy; H Hardened Steel

Coated Carbide: AC8015P, AC8020P, AC8025P, AC8035P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6040M, AC630M, AC4125K, AC4010K, AC4015K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC510U, AC520U, AC530U, AC1030U
Coated Cermet: T1500Z, T2500Z, T1000A, T1500A
Cermet: EH510, EH520
Carbide: H1, DL1000

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting		—	TEGN220.5	TEGN110302	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	●	
			TEGN221	TEGN110304	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TEGN222	TEGN110308	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	

TE■■32●

Dimensions (inch)	Cutting Edge Length L	.6496	Thickness S	.1250
	Inscribed Circle IC	.3750		

SUMIDIA (PCD) Inserts ☞ M23

Recommended Application: P Steel; M Stainless Steel; K Cast Iron; N Non-Ferrous Metal; S Exotic Alloy; H Hardened Steel

Coated Carbide: AC8015P, AC8020P, AC8025P, AC8035P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6040M, AC630M, AC4125K, AC4010K, AC4015K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC510U, AC520U, AC530U, AC1030U
Coated Cermet: T1500Z, T2500Z, T1000A, T1500A
Cermet: EH510, EH520
Carbide: H1, DL1000

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting		—	TEGN320.5	TEGN160302	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	●	
			TEGN321	TEGN160304	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			TEGN322	TEGN160308	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				★	—	—	★	

TE■■43●

Dimensions (inch)	Cutting Edge Length L	.8661	Thickness S	.1875
	Inscribed Circle IC	.5000		

Recommended Application: P Steel; M Stainless Steel; K Cast Iron; N Non-Ferrous Metal; S Exotic Alloy; H Hardened Steel

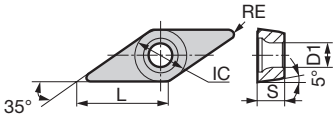
Coated Carbide: AC8015P, AC8020P, AC8025P, AC8035P, AC810P, AC820P, AC830P, AC6020M, AC6030M, AC6040M, AC630M, AC4125K, AC4010K, AC4015K, AC420K, AC503U, AC5005S, AC5015S, AC5025S, AC510U, AC520U, AC530U, AC1030U
Coated Cermet: T1500Z, T2500Z, T1000A, T1500A
Cermet: EH510, EH520
Carbide: H1, DL1000

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light to Medium Cutting		—	TEGN431	TEGN220404	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	

Insert
B
Neg.
Pos.
C
D
R
S
T
V
W
Ceramics Solid CBN

35° Diamond Positive Inserts

VB 35° Diamond 5° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

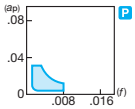
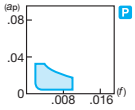
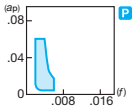
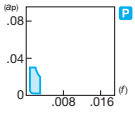
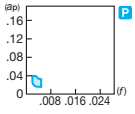
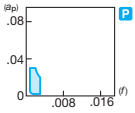
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

VB■■22●

Dimensions (inch)				
	Cutting Edge Length L	.4370	Thickness S	.1250
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

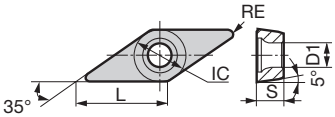
SUMIBORON (CBN) Inserts ☞ L97
Applicable Internal Holders ☞ E53
Applicable External Holders ☞ C41, D33

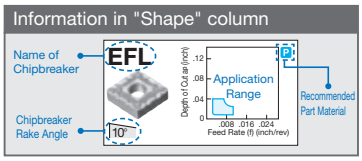
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB** 20°		VBMT220.5EFB	VBMT110302N-FB	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★		—	—		—
			VBMT221EFB	VBMT110304N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★		—	—		—
			VBMT222EFB	VBMT110308N-FB	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★		—	—		—
	ELU 15°		VBMT220.5ELU	VBMT110302N-LU	.0078																—						★	—	★	★	★					—
			VBMT221ELU	VBMT110304N-LU	.0156	●	★	★		▲	▲			●	●	▲					—						●	—	●	★	★					—
			VBMT222ELU	VBMT110308N-LU	.0313	★	★	★						★	★						—							—	—	—	—	—			—	—
	(R/L)FX 15°		VBGT220RFX	VBGT110301R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★		★					
			VBGT220LFX	VBGT110301L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★		★					
			VBGT220.5RFX	VBGT110302R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★		★					
			VBGT220.5LFX	VBGT110302L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★			★	★	★		★					
			VBGT221RFX	VBGT110304R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★		★					
			VBGT221LFX	VBGT110304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★		★					
	(R/L)FYS 15°		VBGT22.001RFYS	VBGT1103003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT22.001LFYS	VBGT1103003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT220RFYS	VBGT110301R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT220LFYS	VBGT110301L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT220.5RFYS	VBGT110302R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT220.5LFYS	VBGT110302L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT221RFYS	VBGT110304R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT221LFYS	VBGT110304L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT222RFYS	VBGT110308R-FYS	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT222LFYS	VBGT110308L-FYS	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
	(R/L)FY 15°		VBGT220RFY	VBGT110301R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★		★					
			VBGT220LFY	VBGT110301L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★		★					
			VBGT220.5RFY	VBGT110302R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★		★					
			VBGT220.5LFY	VBGT110302L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	★		★					
			VBGT221RFY	VBGT110304R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VBGT221LFY	VBGT110304L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
	(R/L)FYS 15°		VBET22.001RFYS	VBET1103003R-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
			VBET22.001LFYS	VBET1103003L-FYS	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
			VBET220RFYS	VBET110301R-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
			VBET220LFYS	VBET110301L-FYS	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
			VBET220.5RFYS	VBET110302R-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
			VBET220.5LFYS	VBET110302L-FYS	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
			VBET221RFYS	VBET110304R-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
			VBET221LFYS	VBET110304L-FYS	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
			VBET222RFYS	VBET110308R-FYS	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—
			VBET222LFYS	VBET110308L-FYS	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—								★	—	—	—	—			—	—

35° Diamond Positive Inserts

VB 35° Diamond 5° Pos. With Hole





VB■■22●

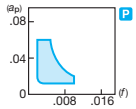
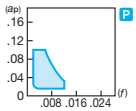
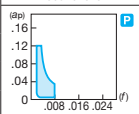
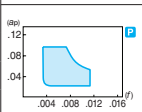
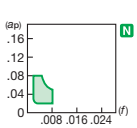
Dimensions (inch)	Cutting Edge Length L	.4370	Thickness S	.1250
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts ☞ L97

Applicable Internal Holders ☞ E53 Applicable External Holders ☞ C41, D33

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

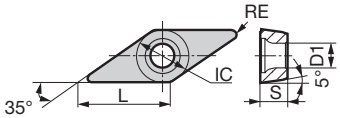
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✪																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✪												◕								
K	Cast Iron						✪						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Light Cutting	**ELB** 15°		VBMT220.5ELB	VBMT110302N-LB	.0078		★	★	●				●	★	★						—							—	★	★						—
			VBMT221ELB	VBMT110304N-LB	.0156		★	★	●				●	★	★						—							—	★	★		★				—
			VBMT222ELB	VBMT110308N-LB	.0313		●	★	●				●	★	★						—							—	★	★		★				—
	ESU 8°		VBMT220.5ESU	VBMT110302N-SU	.0078																—	★	★	★				—	—	—	—	—			—	—
			VBMT221ESU	VBMT110304N-SU	.0156	●	●	●		▲	▲			●	★	▲					—	●	●	●		▲		—	●	★					—	—
			VBMT222ESU	VBMT110308N-SU	.0313	●	●	●			▲		●	●	★						—	★	●	●	▲			—	●							—
	(M)ESI 15°		VBGT220MESI	VBGT110301MN-SI	< .0039	—	—	—	—	—	—	—		●	—	—	—	—	—	—		●	●	●	▲	▲	●	★	—	—	—	—	—	—	—	—
			VBGT220.5MESI	VBGT110302MN-SI	< .0078	—	—	—	—	—	—	—		●	—	—	—	—	—	—		●	●	●	▲	▲	●	●	—	—	—	—	—	—	—	—
			VBGT221MESI	VBGT110304MN-SI	< .0156	—	—	—	—	—	—	—		●	—	—	—	—	—	—		●	●	●	▲	▲	●	●	—	—	—	—	—	—	—	—
			VBGT222MESI	VBGT110308MN-SI	< .0313	—	—	—	—	—	—	—		●	—	—	—	—	—	—		●	★	●	▲	▲	●	★	—	—	—	—	—	—	—	—
	EGU 8°		VBMT221EGU	VBMT110304N-GU	.0156	●	●	●	★				●	●	★						—	●	●	●				—	★	★		★				—
			VBMT222EGU	VBMT110308N-GU	.0313	●	●	●	★				●	●	★						—	●	●	●				—	★	★		★				—
For Aluminium	**(R/L)AY** 15°		VBGT220RAY	VBGT110301R-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			VBGT220LAY	VBGT110301L-AY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			VBGT220.5RAY	VBGT110302R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			VBGT220.5LAY	VBGT110302L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			VBGT221RAY	VBGT110304R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			VBGT221LAY	VBGT110304L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	

Values for nose radius RE prefixed with "<" indicate negative tolerances.

35° Diamond Positive Inserts

VB 35° Diamond 5° Pos. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

VB■■33●

Dimensions (inch)	Cutting Edge Length L	.6535	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

SUMIBORON (CBN) Inserts ☞ L98 | Applicable Internal Holders ☞ E53 | Applicable External Holders ☞ C41, D33

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

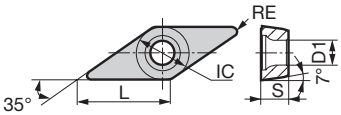
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																						Coated Cermet		Cermet		Carbide			
P Steel	●	◒	◒	✖	○	◔	✖															◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✖											◒								
K Cast Iron						✖						✖	●	◒	✖							◒			●					
N Non-Ferrous Metal																													◒	◒
S Exotic Alloy																	●	◒	✖	○	◔	✖								
H Hardened Steel																●														

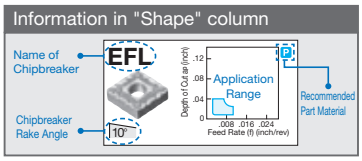
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB** 20°	P .08 .04 0 .008 .016 (ap) (f)	VBMT331EFB	VBMT160404N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	★	—	—		—
			VBMT332EFB	VBMT160408N-FB	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	★	—	—		—
	ELU 15°	P .08 .04 0 .008 .016 (ap) (f)	VBMT331ELU	VBMT160404N-LU	.0156	●	●	●		▲	▲			●	★	▲					—							—	●	●	★	★				—
			VBMT332ELU	VBMT160408N-LU	.0313	●	●	●		▲	▲			●	★	▲					—						▲	—	●	●	★	★				—
	(R/L)FX 15°	P .08 .04 0 .008 .016 (ap) (f)	VBGT330.5RFX	VBGT160402R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
			VBGT330.5LFX	VBGT160402L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★	—	—		—
			VBGT331RFX	VBGT160404R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★		—	—		—
			VBGT331LFX	VBGT160404L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★		—	—		—
Light Cutting	**ELB** 15°	P .08 .04 0 .008 .016 (ap) (f)	VBMT331ELB	VBMT160404N-LB	.0156		●	●	●				●	★	★						—							—	★	★		★				—
			VBMT332ELB	VBMT160408N-LB	.0313		●	●	●				●	★	★						—							—	★	★		★				—
			VBMT333ELB	VBMT160412N-LB	.0469		★	★	●				●	★	★						—							—	★	★		★				—
	ESU 8°	P .16 .12 .08 .04 0 .008 .016 .024 (ap) (f)	VBMT331ESU	VBMT160404N-SU	.0156	●	●	●	★	▲	▲	▲	●	●	★	▲					—	●	●	●	▲	▲		—	●	★	★	●				—
			VBMT332ESU	VBMT160408N-SU	.0313	●	●	●	●	▲	▲	▲	●	●	★	▲					—	●	●	●	▲	▲		—	●	★	★	●				—
			VBMT333ESU	VBMT160412N-SU	.0469	★	★	★													—							—	—	—	—	—				—
	(M)ESI 15°	P .16 .12 .08 .04 0 .008 .016 .024 (ap) (f)	VBGT330MESI	VBGT160401MN-SI	< .0039	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—		●	●	●	▲	▲	●	★	—	—	—	—			—	—
			VBGT330.5MESI	VBGT160402MN-SI	< .0078	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—		●	●	●	▲	▲	●	●	—	—	—	—			—	—
			VBGT331MESI	VBGT160404MN-SI	< .0156	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—		●	●	●	▲	▲	●	★	—	—	—	—			—	—
			VBGT332MESI	VBGT160408MN-SI	< .0313	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—		●	●	●	▲	▲	●	●	—	—	—	—			—	—
	ENK 8°	P .24 .16 .08 0 .008 .016 .024 (ap) (f)	VBMT332ENK	VBMT160408N-SK	.0313			●			▲										—							—	—	—	—	—			—	—
	EGU 8°	P .12 .08 .04 .004 .008 .012 .016 (ap) (f)	VBMT331EGU	VBMT160404N-GU	.0156	●	●	●	★				●	●	★						—	●	●	●				—	★	★		★				—
			VBMT332EGU	VBMT160408N-GU	.0313	●	●	●	●				●	●	★						—	●	●	●				—	★	★		★				—
Light to Medium Cutting		—	VBMA331	VBMW160404	.0156												★	★	★	▲	—							—	—	—	—	—			—	—
			VBMA332	VBMW160408	.0313												●	★	★	▲	—							—	—	—	—	—			—	—
For Aluminium	**(R/L)AY** 15°	N .16 .12 .08 .04 0 .008 .016 .024 (ap) (f)	VBGT330.5RAY	VBGT160402R-AY	.0078	—	—	—	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			VBGT330.5LAY	VBGT160402L-AY	.0078	—	—	—	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			VBGT331RAY	VBGT160404R-AY	.0156	—	—	—	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			VBGT331LAY	VBGT160404L-AY	.0156	—	—	—	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—					—	—	★	

Values for nose radius RE prefixed with "<" indicate negative tolerances.

35° Diamond Positive Inserts

VC 35° Diamond 7° Pos. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

VC■■63●

Dimensions (inch)	Cutting Edge Length L	.3268	Thickness S	.0937
	Inscribed Circle IC	.1875	Hole Dia. D1	.0906

SUMIBORON (CBN) Inserts L100 | SUMIDIA (PCD) Inserts M24 | SUMIDIA Binderless Inserts M27 | Applicable Internal Holders E59

Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✪												◒								
K Cast Iron						✪						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																														◒	◒
S Exotic Alloy																●	◒	✖	○	◔	✪										
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB** 20°	(ap) .08 .04 0 .008 .016 (f) P	VCMT630.5EFB	VCMT080202N-FB	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
			VCMT631EFB	VCMT080204N-FB	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	★	—	—	—	—	—
	(M)EFC 15°	(ap) .08 .04 0 .008 .016 (f) P	VCGT631MEFC	VCGT080204MN-FC	< .0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
Light Cutting	**ELB** 15°	(ap) .08 .04 0 .008 .016 (f) P	VCMT630.5ELB	VCMT080202N-LB	.0078		★	★	●				★	★	★						—							—	★	★						—
			VCMT631ELB	VCMT080204N-LB	.0156		★	●	●				★	★	★						—							—	★	★						—
	ESU 8°	(ap) .16 .12 .08 .04 0 .008 .016 .024 (f) P	VCMT631ESU	VCMT080204N-SU	.0156								★	★	★						—	★	★	★			●	—	—	—	—	—			—	—

Values for nose radius RE prefixed with "<" indicate negative tolerances.

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

VC■■22●

Dimensions (inch)	Cutting Edge Length L	.4370	Thickness S	.1250
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts L101 | SUMIDIA (PCD) Inserts M24 | SUMIDIA Binderless Inserts M27 | Applicable External Holders C42, D33 | Applicable Internal Holders E58

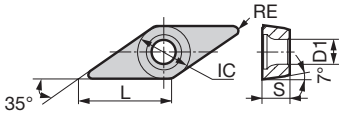
Recommended Application	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
	Coated Carbide																							Coated Cermet		Cermet		Carbide			
P Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M Stainless Steel								●	◒	✖	✪												◒								
K Cast Iron						✪						✖	●	◒	✖								◒			●					
N Non-Ferrous Metal																														◒	◒
S Exotic Alloy																●	◒	✖	○	◔	✪										
H Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	**(M)EFF** 15°	(ap) .08 .04 0 .008 .016 (f) P	VCGT220MEFF	VCGT110301MN-FF	< .0039																		●	●			●									
			VCGT220.5MEFF	VCGT110302MN-FF	< .0078																		●	●			●									
			VCGT221MEFF	VCGT110304MN-FF	< .0156																		●	●			●									
Finishing	**EFC** 15°	(ap) .08 .04 0 .008 .016 (f) P	VCGT220MEFC	VCGT110301MN-FC	< .0039	—	—	—	—	—	—	—	—	—	—	—		—	—	—		●	★	●			●			★	●					
			VCGT220EFC	VCGT110301N-FC	.0039	—	—	—	—	—	—	—	—	—	—	—		—	—	—							●				●						
			VCGT220.5MEFC	VCGT110302MN-FC	< .0078	—	—	—	—	—	—	—	—	—	—	—		—	—	—		●	★	●			●			★	●						
			VCGT220.5EFC	VCGT110302N-FC	.0078	—	—	—	—	—	—	—	—	—	—	—		—	—	—							●				●						
			VCGT221MEFC	VCGT110304MN-FC	< .0156	—	—	—	—	—	—	—	—	—	—	—		—	—	—		●	★	●			●			★	●						
			VCGT221EFC	VCGT110304N-FC	.0156	—	—	—	—	—	—	—	—	—	—	—		—	—	—							●				●						

Values for nose radius RE prefixed with "<" indicate negative tolerances.

35° Diamond Positive Inserts

VC 35° Diamond 7° Pos. With Hole



Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

VC■■22●

Dimensions (inch)	Cutting Edge Length L	.4370	Thickness S	.1250
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

SUMIBORON (CBN) Inserts ☞ L101
SUMIDIA (PCD) Inserts ☞ M24
SUMIDIA Binderless Inserts ☞ M27
Applicable External Holders ☞ C42, D33
Applicable Internal Holders ☞ E58

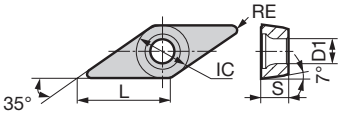
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

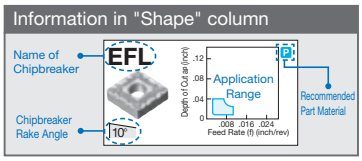
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FX		VCGT220RFX	VCGT110301R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			●	●			★	★				
			VCGT220LFX	VCGT110301L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			★	●			★	★				
			VCGT220.5RFX	VCGT110302R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			●	●			★	●				
			VCGT220.5LFX	VCGT110302L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	●			●	★			★	★				
			VCGT221RFX	VCGT110304R-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★			●	★	—	—	—	—			—	—
			VCGT221LFX	VCGT110304L-FX	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★			●	★	—	—	—	—			—	—
	(R/L)FX		VCET22.003RFX	VCET1103008R-FX	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET22.003LFX	VCET1103008L-FX	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET22.007RFX	VCET1103018R-FX	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET22.007LFX	VCET1103018L-FX	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET220RFX	VCET110301R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET220LFX	VCET110301L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
	(R/L)FY		VCGT220RFY	VCGT110301R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★			★	★	—	—	—	—			—	—
			VCGT220LFY	VCGT110301L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—			—	—
			VCGT220.5RFY	VCGT110302R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★			★	★	—	—	—	—			—	—
			VCGT220.5LFY	VCGT110302L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—			—	—
			VCGT221RFY	VCGT110304R-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—			—	—
			VCGT221LFY	VCGT110304L-FY	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		★	★				★	—	—	—	—			—	—
	(R/L)FY		VCET22.003RFY	VCET1103008R-FY	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET22.003LFY	VCET1103008L-FY	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET22.007RFY	VCET1103018R-FY	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET22.007LFY	VCET1103018L-FY	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET220RFY	VCET110301R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
			VCET220LFY	VCET110301L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							★	—	—	—	—			—	—
Light Cutting	ESU		VCMT220.5ESU	VCMT110302N-SU	.0078								●	★	★						—	★	★	★				—	—	—	—	—			—	—
			VCMT221ESU	VCMT110304N-SU	.0156		★	★					●	★	★						—	★	★	★				—	—	—	—	—			—	—
			VCMT222ESU	VCMT110308N-SU	.0313		★	★					●	★	★						—	★	★	★				—	—	—	—	—			—	—
	(M)ESI		VCGT220MESI	VCGT110301MN-SI	< .0039	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—		●	●	●	▲	▲	●	●	●	★	★	●				
			VCGT220.5MESI	VCGT110302MN-SI	< .0078	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—		●	●	●	▲	▲	●	●	●	★	★	●				
			VCGT221MESI	VCGT110304MN-SI	< .0156	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—		●	●	●	▲	▲	●	●	●	★	★	●				
			VCGT222MESI	VCGT110308MN-SI	< .0313	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—		●	●	●	▲	▲	●	●	●	★	★	●				
	(M)ESL		VCGT220MESL	VCGT110301MN-SL	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			★	★				★	—	—	—	—			—	—
			VCGT220.5MESL	VCGT110302MN-SL	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	★				●	—	—	—	—			—	—
			VCGT221MESL	VCGT110304MN-SL	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			●	★				★	—	—	—	—			—	—
For Aluminium	NAG		VCGT220.5NAG	VCGT110302N-AG	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—														●	●
			VCGT221NAG	VCGT110304N-AG	.0156	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—														●	●

Values for nose radius RE prefixed with "<" indicate negative tolerances.

35° Diamond Positive Inserts

VC 35° Diamond 7° Pos. With Hole





● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

VC■■33●

Dimensions (inch)	Cutting Edge Length L	.6535	Thickness S	.1875
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

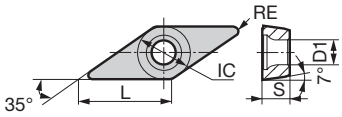
SUMIBORON (CBN) Inserts ☞ L102
SUMIDIA (PCD) Inserts ☞ M25
SUMIDIA Binderless Inserts ☞ M27
Applicable Internal Holders ☞ E58
Applicable External Holders ☞ C42

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✪																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✪												◒								
K	Cast Iron						✪						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**EFB** 20°		VCMT331EFB	VCMT160404N-FB	.0156																—							—	★	★	★	●				—
			VCMT332EFB	VCMT160408N-FB	.0313																—							—	★	★	★	●				—
Finishing	**ELU** 15°		VCMT331ELU	VCMT160404N-LU	.0156	●	●	●		▲	▲			●	★						—							—	●	●	★					—
			VCMT332ELU	VCMT160408N-LU	.0313	●	★	●		▲	▲			●	★						—							—	★	★	★					—
Light Cutting	**ELB** 15°		VCMT331ELB	VCMT160404N-LB	.0156		★	●	★				●	★	★						—							—	★	★						—
			VCMT332ELB	VCMT160408N-LB	.0313		★	●	★				●	★	★						—							—	★	★						—
Light Cutting	**ESU** 8°		VCMT331ESU	VCMT160404N-SU	.0156	●	●	●	★	▲	▲	▲	●	●	★	▲					—	●	●	●	▲	▲		—	—	—	—	—			—	—
			VCMT332ESU	VCMT160408N-SU	.0313	●	●	●	★	▲	▲	▲	●	●	★	▲					—	★	●	●		▲		—	—	—	—	—			—	—
Light Cutting	**(M)ESI** 15°		VCGT330MESI	VCGT160401MN-SI	< .0039	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—		●	●	●	▲	▲		●	●	★	★	●				
			VCGT330.5MESI	VCGT160402MN-SI	< .0078	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—		●	●	●	▲	▲	●	●	●	★	★	●				
			VCGT331MESI	VCGT160404MN-SI	< .0156	—	—	—	—	—	—	—	—	●	—	▲	—	—	—	—		●	●	●	▲	▲	●	●	●	★	★	●				
			VCGT332MESI	VCGT160408MN-SI	< .0313	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—		●	●	●	▲	▲	★	●								
Light Cutting	**ENK** 8°		VCMT331ENK	VCMT160404N-SK	.0156			●	●		▲										—							—	—	—	—	—			—	—
			VCMT332ENK	VCMT160408N-SK	.0313			●	●		▲	▲									—							—	—	—	—	—			—	—
Light Cutting	**EGU** 8°		VCMT331EGU	VCMT160404N-GU	.0156	●	●	●	●				●	●	★						—	●	●	●				—	—	—	—	—			—	—
			VCMT332EGU	VCMT160408N-GU	.0313	●	●	●	★				●	●	★						—	●	●	●				—	—	—	—	—			—	—
For Aluminium	**NAW** 25°	—	VCGT332NAW	VCGT160408N-AW	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
			VCGT333NAW	VCGT160412N-AW	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	
For Aluminium	**NAG** 20°		VCGT332NAG	VCGT160408N-AG	.0313	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—							●	●
			VCGT333NAG	VCGT160412N-AG	.0469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—					—	—	★	

35° Diamond Positive Inserts

VC 35° Diamond 7° Pos. With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

Insert Grade Selection by Part Material ☞ A10 on

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

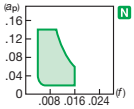
VC■■2205●

Dimensions (inch)	Cutting Edge Length L	.7953	Thickness S	.2189
	Inscribed Circle IC	.5000	Hole Dia. D1	.2165

SUMIDIA (PCD) Inserts ☞ M25

Applicable External Holders ☞ C59

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✖												◕								
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																														◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖									
H	Hardened Steel																●															

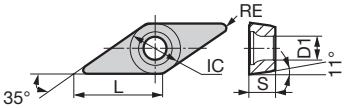
	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
For Aluminium	**NAW** 25°	—	VCGT220520NAW	VCGT220520N-AW	.0787	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
			VCGT220530NAW	VCGT220530N-AW	.1181	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	
	NAG 20°		VCGT220530NAG	VCGT220530N-AG	.1181	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	

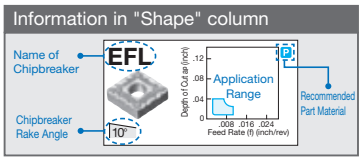
35° Diamond Positive Inserts

VP 35° Diamond type | 11° Pos. | With Hole

VP■■63●

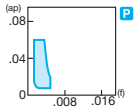
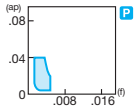
Dimensions (inch)	Cutting Edge Length L	.3268	Thickness S	.0937
	Inscribed Circle IC	.1874	Hole Dia. D1	.0945





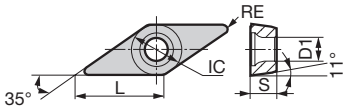
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																						Coated Cermet	Cermet			Carbide			
P	Steel	●	◕	◕	✖	○	◔	✪															◕	◕	✖	●	◕				
M	Stainless Steel								●	◕	✖	✪											◕								
K	Cast Iron						✪						✖	●	◕	✖							◕			●					
N	Non-Ferrous Metal																													◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✪								
H	Hardened Steel																●														

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	(R/L)FX 15°		VPET63.003RFX	VPET0802008R-FX	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.003LFX	VPET0802008L-FX	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.006RFX	VPET0802015R-FX	.0059	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.006LFX	VPET0802015L-FX	.0059	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.007RFX	VPET0802018R-FX	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.007LFX	VPET0802018L-FX	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
	(R/L)FY 15°		VPET63.003RFY	VPET0802008R-FY	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.003LFY	VPET0802008L-FY	.0031	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.006RFY	VPET0802015R-FY	.0059	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.006LFY	VPET0802015L-FY	.0059	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.007RFY	VPET0802018R-FY	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—
			VPET63.007LFY	VPET0802018L-FY	.0071	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—

35° Diamond Positive Inserts

VP 35° Diamond type / 11° Pos. / With Hole



Grade Selection ☞ A2, A3

Chipbreaker Selection ☞ B10 on

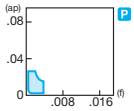
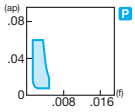
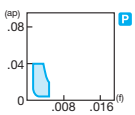
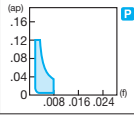
Insert Grade Selection by Part Material ☞ A10 on

VP■■22●

Dimensions (inch)	Cutting Edge Length L	.4370	Thickness S	.1252
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

Applicable External Holders ☞ C43

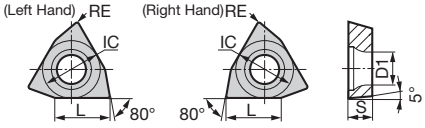
Recommended Application		Coated Carbide																						Coated Cermet		Cermet		Carbide			
		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
P	Steel	●	◕	◕	✖	○	◔	✖																◕	◕	✖	●	◕			
M	Stainless Steel								●	◕	✖	✖												◕							
K	Cast Iron						✖						✖	●	◕	✖								◕			●					
N	Non-Ferrous Metal																													◕	◕
S	Exotic Alloy																	●	◕	✖	○	◔	✖								
H	Hardened Steel																●														

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Fine Cutting	(M)EFF 15°		VPGT220MEFF	VPGT110301MN-FF	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
			VPGT220.5MEFF	VPGT110302MN-FF	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
Finishing	(R/L)FX 15°		VPET22.001RFX	VPET1103003R-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET22.001LFX	VPET1103003L-FX	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET220RFX	VPET110301R-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET220LFX	VPET110301L-FX	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET220.5RFX	VPET110302R-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET220.5LFX	VPET110302L-FX	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
	(R/L)FY 15°		VPET22.001RFY	VPET1103003R-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET22.001LFY	VPET1103003L-FY	.0012	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET220RFY	VPET110301R-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET220LFY	VPET110301L-FY	.0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET220.5RFY	VPET110302R-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
			VPET220LFY	VPET110302L-FY	.0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	—	—	—	—	—	—	—	—	—
Light Cutting	(M)ESI 15°		VPGT220MESI	VPGT110301MN-SI	< .0039	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—
			VPGT220.5MESI	VPGT110302MN-SI	< .0078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	★	★	—	—	★	—	—	—	—	—	—	—	—	—

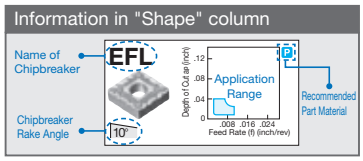
Values for nose radius RE prefixed with "<" indicate negative tolerances.

Trigon Positive Inserts

WB Trigon 5° Pos. With Hole



*Uneven Trigon



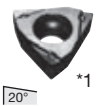
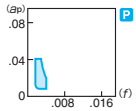
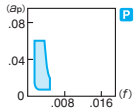
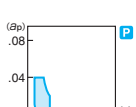
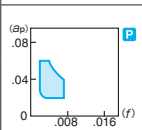
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✪ Interrupted Cutting 2nd Recommended

WB■■52●

Dimensions (inch)				
	Cutting Edge Length L	.1260	Thickness S	.0626
	Inscribed Circle IC	.1563	Hole Dia. D1	.0866

SUMIBORON (CBN) Inserts ☞ L105
SUMIDIA (PCD) Inserts ☞ M26
Applicable Internal Holders ☞ E61

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**FW**  *1 20°		WBGT520.5RFW	WBGT060102R-FW	.0078																								★			★				
			WBGT520.5LFW	WBGT060102L-FW	.0078																								●	★		★				
			WBGT521RFW	WBGT060104R-FW	.0156																								★			★				
			WBGT521LFW	WBGT060104L-FW	.0156																								●	★		★				
	(R/L)FX *1 15°		WBGT520.5RFX	WBGT060102R-FX	.0078																		★	★				★								
			WBGT520.5LFX	WBGT060102L-FX	.0078																		●	★				●								
			WBGT521RFX	WBGT060104R-FX	.0156																		★	★				★								
			WBGT521LFX	WBGT060104L-FX	.0156																		●	★				★								
	(R/L)FY *1 15°		WBGT52.001LFY	WBGT0601003L-FY	.0012																						●					★				
			WBGT520LFY	WBGT060101L-FY	.0039																						●									
			WBGT520.5RFY	WBGT060102R-FY	.0078																		★	★				★			★	★				
			WBGT520.5LFY	WBGT060102L-FY	.0078																		★	★			●	●			★	★				
			WBGT521RFY	WBGT060104R-FY	.0156																		★	★				★			★	★				
			WBGT521LFY	WBGT060104L-FY	.0156																		★	★			★	★			★	●				
Finishing to Light Cutting	**(R/L)W** *1 0°		WBGT520.5R	WBGT060102R-W	.0078																										★					
			WBGT520.5L	WBGT060102L-W	.0078																										★	●				
			WBGT521R	WBGT060104R-W	.0156																										★	★				
			WBGT521L	WBGT060104L-W	.0156																								●		★	★				

*1: Photo shows left hand.

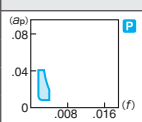
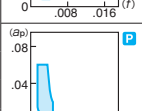
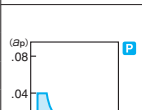
● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
◐ General Cutting 1st Recommended
◔ General Cutting 2nd Recommended
✖ Interrupted Cutting 1st Recommended
✪ Interrupted Cutting 2nd Recommended

WB■■63●

Dimensions (inch)				
	Cutting Edge Length L	.1811	Thickness S	.0937
	Inscribed Circle IC	.1875	Hole Dia. D1	.0945

Applicable Internal Holders ☞ E61

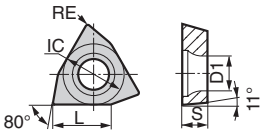
Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◐	◐	✖	○	◔	✪																◐	◐	✖	●	◐				
M	Stainless Steel								●	◐	✖	✪												◐								
K	Cast Iron						✪						✖	●	◐	✖								◐			●					
N	Non-Ferrous Metal																														◐	◐
S	Exotic Alloy																	●	◐	✖	○	◔	✪									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
Finishing	**FW** *1 15°		WBGT630.5RFW	WBGT080202R-FW	.0078																								★			★				
			WBGT630.5LFW	WBGT080202L-FW	.0078																								★	★		★				
			WBGT631RFW	WBGT080204R-FW	.0156																								★			★				
			WBGT631LFW	WBGT080204L-FW	.0156																								★	★		★				
	(R/L)FX *1 15°		WBGT630.5RFX	WBGT080202R-FX	.0078																		★	★			★	★								
			WBGT630.5LFX	WBGT080202L-FX	.0078																		★	★			★	★								
			WBGT631RFX	WBGT080204R-FX	.0156																		★	★			★	★								
			WBGT631LFX	WBGT080204L-FX	.0156																		★	★			★	★								
	(R/L)FY *1 15°		WBGT630RFY	WBGT080201R-FY	.0039																										★					
			WBGT630LFY	WBGT080201L-FY	.0039																										★					
			WBGT630.5RFY	WBGT080202R-FY	.0078																										★					
			WBGT630.5LFY	WBGT080202L-FY	.0078																										★					
			WBGT631RFY	WBGT080204R-FY	.0156																										★					
			WBGT631LFY	WBGT080204L-FY	.0156																										★					

*1: Photo shows left hand.

Trigon Positive Inserts

WP Trigon 11° Pos. With Hole



※不等辺六角形

Grade Selection ☞ A2, A3
Chipbreaker Selection ☞ B10 on
Insert Grade Selection by Part Material ☞ A10 on

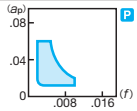
WP■■21.5●

Dimensions (inch)	Cutting Edge Length L	.1693	Thickness S	.0937
	Inscribed Circle IC	.2500	Hole Dia. D1	.1102

Applicable Internal Holders ☞ E63

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE
Light Cutting	ELB 15°		WPMT21.51ELB	WPMT110204N-LB	.0156

Sumitomo Cat. No.	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
WPMT21.51ELB		★	★	★			▲	★	★	★						—							—	★	★		★				—

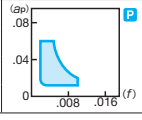
WP■■32●

Dimensions (inch)	Cutting Edge Length L	.2559	Thickness S	.1250
	Inscribed Circle IC	.3750	Hole Dia. D1	.1732

Applicable Internal Holders ☞ E63

● Continuous Cutting 1st Recommended
○ Continuous Cutting 2nd Recommended
General Cutting 1st Recommended
General Cutting 2nd Recommended
Interrupted Cutting 1st Recommended
Interrupted Cutting 2nd Recommended

Recommended Application		AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
		Coated Carbide																							Coated Cermet		Cermet		Carbide			
P	Steel	●	◒	◒	✖	○	◔	✖																◒	◒	✖	●	◒				
M	Stainless Steel								●	◒	✖	✖												◒								
K	Cast Iron						✖						✖	●	◒	✖								◒			●					
N	Non-Ferrous Metal																														◒	◒
S	Exotic Alloy																	●	◒	✖	○	◔	✖									
H	Hardened Steel																●															

	Shape	Application Range	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE
Light Cutting	ELB 15°		WPMT322ELB	WPMT160308N-LB	.0313

Sumitomo Cat. No.	AC8015P	AC8020P	AC8025P	AC8035P	AC810P	AC820P	AC830P	AC6020M	AC6030M	AC6040M	AC630M	AC4125K	AC4010K	AC4015K	AC420K	AC503U	AC5005S	AC5015S	AC5025S	AC510U	AC520U	AC530U	AC1030U	T1500Z	T2500Z	T1000A	T1500A	EH510	EH520	H1	DL1000
WPMT322ELB		★	★	★			▲	★	★	★						—							—	★	★		★				—

Ceramic Inserts

SN2000K* → Finishing and roughing of cast iron

SN2100K* → Interrupted turning /milling of cast iron

SN1000S → SiAlON grade for rough turning/ milling of exotic alloys

WX1500 → Cold pressed whiskered ceramic grade for continuous turning of exotic alloys

WX2000 → High speed turning of super alloys

NB150H → High speed finishing of hardened steels

*Ceramic grades not shown in stock can be made to order. Call for price and delivery.

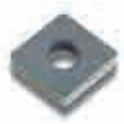
Edge Preps	SN2000K	SN2100K	SN1000S	SN1000S*	WX1500	WX2000	NB150H
	.008 X 25°	.008 X 25°	.003 X 20°	A2 "Hone Only"	.003 X 20°	.002 X 20°	.008 X 25°

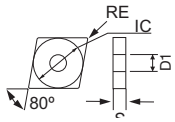
K Cast Iron
S Exotic Materials
H Hardened Steel

■ NEGATIVE

CNMA

Cutting Conditions: Continuous Cut ●, Medium Cut ●, Interrupted Cut

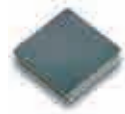


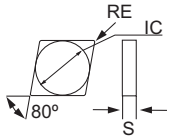


Catalog #	IC	S	RE	D1	SN2000K
CNMA432	.500	.1875	.0313	.2031	●
CNMA433			.0469		●
CNMA434			.0625		●
CNMA454		.3125	.0625		●
CNMA543	.625	.250	.0469	.250	●
CNMA544			.0625		●

CNMN

Cutting Conditions: Continuous Cut ●, Medium Cut ●, Interrupted Cut

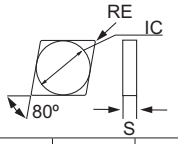




Catalog #	IC	S	RE	D1	SN2000K
CNMN434	.500	.1875	.0625	-	●

CNGX

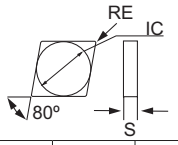
Cutting Conditions: Continuous Cut ●, Medium Cut ●, Interrupted Cut



Catalog #	IC	S	RE	D1	SN2000K
CNGX452	.500	.3125	.0313	-	●

CNMX

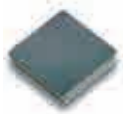
Cutting Conditions: Continuous Cut ●, Medium Cut ●, Interrupted Cut

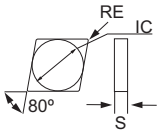


Catalog #	IC	S	RE	D1	SN2000K
CNMX453	.500	.3125	.0469	-	●
CNMX454	.500	.3125	.0625		●

CNG

Cutting Conditions: Continuous Cut ●, Medium Cut ●, Interrupted Cut; Grades

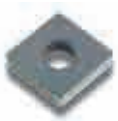


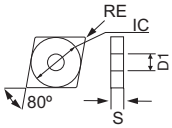


Catalog #	IC	S	RE	D1	SN2000K	WX2000
CNG432	.500	.1875	.0313	-	●	●
CNG433			.0469		●	●
CNG434			.0625		●	●
CNG452		.3125	.0313		●	
CNG453			.0469		●	
CNG454			.0625		●	
CNG643	.750	.250	.0469			

CNGA

Cutting Conditions: Continuous Cut ●, Medium Cut ●, Interrupted Cut; Grades

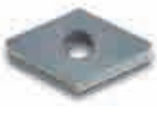


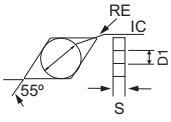


Catalog #	IC	S	RE	D1	SN2000K	SN2100K	SN1000S	WX1500	WX2000	NB150H
CNGA432	.500	.1875	.0313	.2031	●	●	●	●	●	●
CNGA433			.0469		●	●	●	●	●	●
CNGA434			.0625		●	●	●	●	●	●
CNGA542	.625	.250	.0313	.250	●					
CNGA543			.0469		●					
CNGA544			.0625		●					
CNGA643	.750		.0469	.3126	●					
CNGA644			.0625		●					

DNGA

Cutting Conditions: Continuous Cut ●, Medium Cut ●, Interrupted Cut; Grades





Catalog #	IC	S	RE	D1	SN2000K	SN1000S	WX2000	NB150H
DNGA432	.500	.1875	.0313	.2031	●	●	●	●
DNGA433			.0469		●	●	●	●
DNGA434			.0625		●			

Ceramic Inserts

SN2000K* → Finishing and roughing of cast iron

SN2100K* → Interrupted turning /milling of cast iron

SN1000S → SiAlON grade for rough turning/ milling of exotic alloys

WX1500 → Cold pressed whiskered ceramic grade for continuous turning of exotic alloys

WX2000 → High speed turning of super alloys

NB150H → High speed finishing of hardened steels

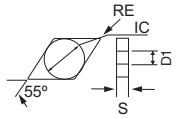
*SN2000K & SN2100K grades not shown in stock can be made to order. Call for price and delivery.

K Cast Iron
S Exotic Materials
H Hardened Steel

Edge Preps	SN2000K	SN2100K	SN1000S	SN1000S*	WX1500	WX2000	NB150H
	.008 X 25°	.008 X 25°	.003 X 20°	A2 "Hone Only"	.003 X 20°	.002 X 20°	.008 X 25°

DNMX

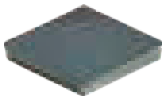
Cutting Conditions: Continuous Cut ●; Medium Cut ●; Interrupted Cut

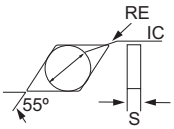


Catalog #	IC	S	RE	D1	SN2000K
DNMX354	.375	.3125	.0625	.2031 (dimple)	●
DNMX454	.500		.0625		●

DNG

Cutting Conditions: Continuous Cut ●; Medium Cut ●; Interrupted Cut

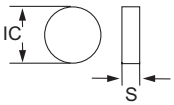




Catalog #	IC	S	RE	D1	SN2000K
DNG432	.500	.1875	.0313	—	●
DNG433			.0469		●
DNG434			.0625		●

RNG

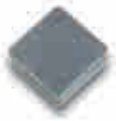
Cutting Conditions: Continuous Cut ●; Medium Cut ●; Interrupted Cut

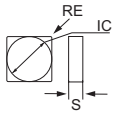


Catalog #	IC	S	RE	D1	SN2000K	SN2100K	SN1000S	WX1500	WX2000	NB150H
RNG32	.375	.125	—	—	●	●	●	●		●
RNG32A2							●			
RNG42	.500				●	●	●			
RNG42A2							●			
RNG43		.1875			●	●	●	●	●	●
RNG43A2							●			
RNG45		.3125			●	●	●	●	●	●
RNG45A2							●			
RNG55	.625				●	●	●	●		
RNG55A2							●			
RNG65	.750	.333					●	●	●	●
RNG86	1.00	.375								●

SNMN

Cutting Conditions: Continuous Cut ●; Medium Cut ●; Interrupted Cut

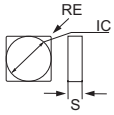




Catalog #	IC	S	RE	D1	SN2000K
SNMN434	.500	.1875	.0625	—	●

SNMX

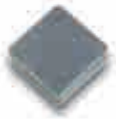
Cutting Conditions: Continuous Cut ●; Medium Cut ●; Interrupted Cut

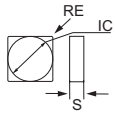


Catalog #	IC	S	RE	D1	SN2000K
SNMX453	.500	.3125	.0469	—	●
SNMX454	.500		.0625		●
SNMX554	.625		.0625		●

SNG

Cutting Conditions: Continuous Cut ●; Medium Cut ●; Interrupted Cut — Grades

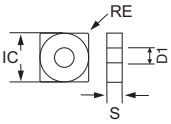




Catalog #	IC	S	RE	D1	SN2000K	SN2100K	WX2000
SNG432	.500	.1875	.0313	—	●	●	●
SNG433			.0469		●	●	●
SNG434			.0625		●	●	

SNGA

Cutting Conditions: Continuous Cut ●; Medium Cut ●; Interrupted Cut — Grades



Catalog #	IC	S	RE	D1	SN2000K	WX2000
SNGA432	.500	.1875	.0313	.2031	●	●
SNGA433			.0469		●	●
SNGA434			.0625		●	

SN2000K* → Finishing and roughing of cast iron

SN2100K* → Interrupted turning /milling of cast iron

SN1000S → SiAlON grade for rough turning/ milling of exotic alloys

WX1500 → Cold pressed whiskered ceramic grade for continuous turning of exotic alloys

WX2000 → High speed turning of super alloys

NB150H → High speed finishing of hardened steels

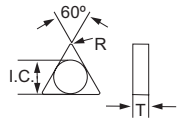
*SN2000K & SN2100K grades not shown in stock can be made to order. Call for price and delivery.

Edge Preps	SN2000K	SN2100K	SN1000S	SN1000S*	WX1500	WX2000	NB150H
	.008 X 25°	.008 X 25°	.003 X 20°	A2 "Hone Only"	.003 X 20°	.002 X 20°	.008 X 25°

K Cast Iron
S Exotic Materials
H Hardened Steel

TNG

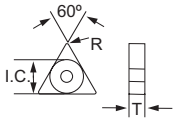
Cutting Conditions: Grade
- Continuous Cut
- Medium Cut
- Interrupted Cut



Catalog #	IC	S	RE	D1	SN2000K
TNG321	.375	.125	.0156	-	
TNG322			.0313		
TNG331		.1875	.0156		
TNG332			.0313		●
TNG333			.0469		●
TNG334			.0625		●
TNG352		.3125	.0313		●
TNG353			.0469		●
TNG432	.500	.1875	.0313		●
TNG433			.0469		●
TNG434			.0625		●
TNG436			.0938		●

TNGA

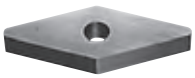
Cutting Conditions: Grades
- Continuous Cut
- Medium Cut
- Interrupted Cut

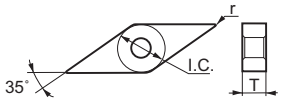


Catalog #	IC	S	RE	D1	SN2000K	NB150H
TNGA321	.375	.125	.0156	.150		●
TNGA322			.0313			●
TNGA332		.1875	.0313		●	●
TNGA333			.0469		●	●
TNGA334			.0625		●	
TNGA432	.500		.0313	.2031	●	
TNGA433			.0469		●	
TNGA434			.0625		●	
TNGA436			.0938		●	
TNGA438			.1250		●	
TNGA543	.625	.250	.0469	.250	●	
TNGA544			.0625		●	

VNGA

Cutting Conditions: Grades
- Continuous Cut
- Medium Cut
- Interrupted Cut

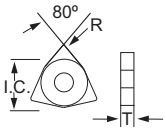




Catalog #	IC	S	RE	D1	SN2000K	WX2000	NB150H
VNGA331	.375	.1875	.0156	.150			
VNGA332			.0313		●	●	
VNGA333			.0469		●	●	
VNGA432	.500		.0313	.2031			●
VNGA433			.0469				●

WNGA

Cutting Conditions: Grades
- Continuous Cut
- Medium Cut
- Interrupted Cut



Catalog #	IC	S	RE	D1	SN2000K	SN2100K	SN1000S	WX2000	NB150H
WNGA432	.500	.1875	.0313	.2031	●	●	●	●	●
WNGA433			.0469		●		●	●	●
WNGA434			.0625				●		●

Ceramic Inserts

SN2000K* → Finishing and roughing of cast iron

SN2100K* → Interrupted turning /milling of cast iron

SN1000S → SiAlON grade for rough turning/ milling of exotic alloys

WX1500 → Cold pressed whiskered ceramic grade for continuous turning of exotic alloys

WX2000 → High speed turning of super alloys

NB150H → High speed finishing of hardened steels

*SN2000K & SN2100K grades not shown in stock can be made to order. Call for price and delivery.

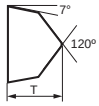
K Cast Iron
S Exotic Materials
H Hardened Steel

Edge Preps	SN2000K	SN2100K	SN1000S	SN1000S*	WX1500	WX2000	NB150H
	.008 X 25°	.008 X 25°	.003 X 20°	A2 "Hone Only"	.003 X 20°	.002 X 20°	.008 X 25°

■ Positive

RCGX

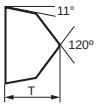
Cutting Conditions:	Grades			
Continuous Cut	●	●	●	●
Medium Cut	●	●	●	●
Interrupted Cut		●		



Catalog #	IC	S	RE	D1	SN2000K	SN1000S	WX1500	NB150H
RCGX35	.375	.3125	-	-	●	●	●	●
RCGX35A2						●		
RCGX45	.500				●	●	●	●
RCGX45A2						●		
RCGX55	.625							
RCGX55A2								

RPGX

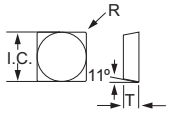
Cutting Conditions:	Grades		
Continuous Cut	●	●	●
Medium Cut	●	●	●
Interrupted Cut	●		●



Catalog #	IC	S	RE	D1	SN1000S	WX1500	WX2000
RPGX35	.375	.3125	-	-	●	●	●
RPGX35A2					●		
RPGX45	.500				●	●	●
RPGX45A2					●		
RPGX55	.625						
RPGX55A2							

SPG

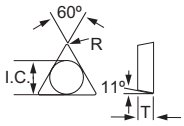
Cutting Conditions:	Grades	
Continuous Cut	●	
Medium Cut	●	●
Interrupted Cut		●



Catalog #	IC	S	RE	D1	SN2000K	SN2100K
SPG422	.500	.125	.0313	-	●	●
SPG423			.0469			●
SPG424			.0625			●
SPG432		.1875	.0313		●	●
SPG433			.0469		●	●
SPG632	.750		.0313			●
SPG633			.0469			●
SPG634			.0625			●

TPG

Cutting Conditions:	Grades	
Continuous Cut	●	
Medium Cut	●	●
Interrupted Cut		●

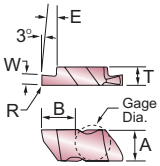


Catalog #	IC	S	RE	D1	SN2000K	SN2100K
TPG221	.250	.125	.0156	-		
TPG222			.0313			
TPG321	.375		.0156			
TPG322			.0313		●	●
TPG323			.0469		●	●
TPG332		.1875	.0313			
TPG432	.500		.0313		●	●
TPG433			.0469		●	●

■ For Grooving

SG

Cutting Conditions:	
Continuous Cut	●
Medium Cut	●
Interrupted Cut	

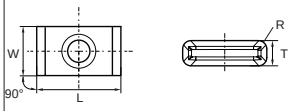


Catalog #	W ± .001	R	E ± .001	T	A	B	Gage Dia.	SN2000K
SG-3047R	.047	.005/.010	.075	.195	.344	.4050	.3750	●
SG-3062R	.062	.005/.010	.094					●
SG-3094R	.094	.005/.010	.150					●
SG-3125R	.125	.005/.010	.150					●

■ For Milling

LNGX

Cutting Conditions:	
Continuous Cut	
Medium Cut	●
Interrupted Cut	●



Catalog #	L	W	T	R	SN2100K
LNGX130508PNFN-W	.500	.375	.187	.031	●
LNGX130508PNFN-WO					●
LNGX160516PNFN-W	.625			.063	●
LNGX160516PNFN-WO					●

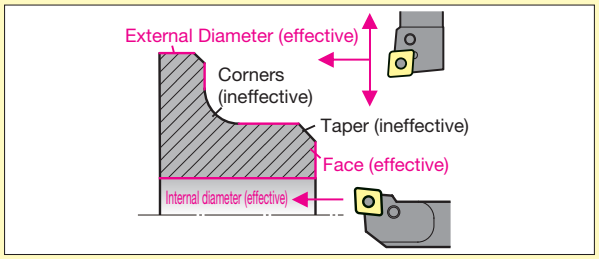
WO: Wiper Insert, 2 cutting edges

Precautions when Using Wiper Inserts

Effects of the wiper insert

Wiper inserts are effective for external/internal diameter machining and for facing as shown in the figure below, surface roughness of the machined surface can be maintained even in high-feed machining.

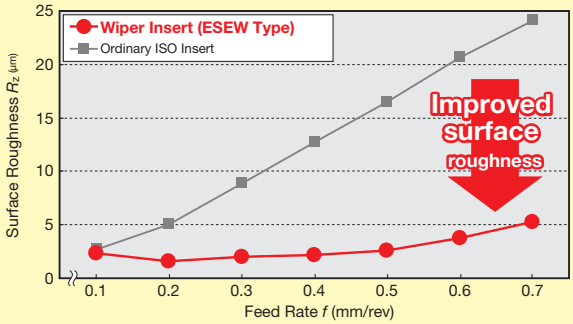
■ Effective Range of Wiper Inserts



* Note that wiper inserts leave the same machined surface roughness as normal inserts at tapers and corners.
* The cutting edge position may need to be offset depending on the insert shape. See the offset table below.

■ Machined Surface Roughness (actual measurements)

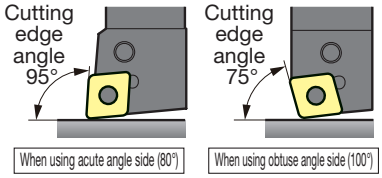
Cutting Conditions: CNMG120408, v_c=200m/min, a_p=1.0mm, SCM435



Coated Carbide / Coated Cermet / Cermet

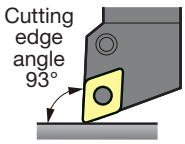
CNMG/WNMG/CCMT/CPMT Type ELUW / EGUW / ESEW Type Chipbreaker (ELUW Type chipbreaker only for CCMT / CPMT)

- Use a holder with a cutting edge angle of 95°.
- No tool compensation required.
  CNMG / WNMG / CCMT / CPMT type wiper inserts comply with the ISO standard, allowing use without correcting the machining program.
- The obtuse (100°) corner on the CNMG type can also provide a wiper effect.



DNMX Type ESEW Type Chipbreaker

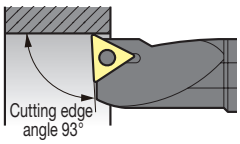
- Use a holder with a cutting edge angle of 93°.
- Tool compensation required.
  DNMX type wiper inserts do not comply with the ISO standard.
  Correct the machining program (tool offset) as explained on the next page (B135).



DNMX Type Tool Program Correction Guide (→ B135)

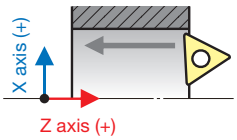
TPGX Type SDW Type Chipbreaker

- Use a boring bar with a 93° cutting edge angle.
- Tool compensation required.
  TPGX type wiper inserts do not comply with the ISO standard.
  Correct the cutting edge position (tool offset) as explained on the right.



Cutting Edge Position Correction for TPGX Type Breaker (SDW)

Internal boring



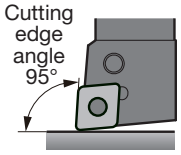
Nose Radius	X direction	Z direction
R0.4	0.12	-0.02
R0.8	0.12	-0.02

Note: Unlike the other profiles, the TPGX type is only effective for boring.

CBN (SUMIBORON / Coated SUMIBORON)

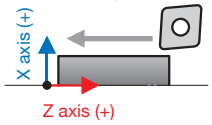
CNGA Type / CCGW Type / WNGA Type WG/WH Type Chipbreaker

- Use a holder with a cutting edge angle of 95°.
- Tool compensation required.
  CNGA, CCGW and WNGA type wiper inserts do not comply with the ISO standard. Correct the cutting edge position (tool offset) as explained on the right.



Cutting Edge Position Correction for CNGA/CCGW/WNGA Type Breaker (WG/WH Type)

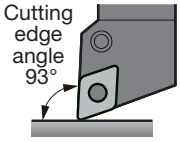
External Turning



Nose Radius	Type	X direction	Z direction
R0.4	WG Type	-0.02	-0.02
	WH Type	-0.06	-0.06
R0.8/R1.2	WG Type	-0.01	-0.01
	WH Type	-0.06	-0.06

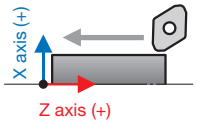
DNGA Type / DCGW Type WG/WH Type Chipbreaker

- Use a holder with a cutting edge angle of 93°.
- Tool compensation required.
  DNGA and DCGW type wiper inserts do not comply with the ISO standard.
  Correct the cutting edge position (tool offset) as explained on the right.



Cutting Edge Position Correction for DNGA/DCGW Type Breaker (WG/WH Type)

External Turning



Nose Radius	Type	X direction	Z direction
R0.4	WG Type	-0.17	-0.01
	WH Type	-0.70	-0.06
R0.8	WG Type	-0.05	0
	WH Type	-0.58	-0.05

Note: Unlike other contour shapes, the DNGA / DCGW Type can only obtain the wiper effect with outer diameter and inner diameter cutting techniques, and cannot be used for edge cutting.

Dimensions in mm

Tool Program Correction Guide for DNMX Type Wiper Inserts (Compensation: mm)

(1) Cutting edge position compensation (tool offset) in X and Z axes

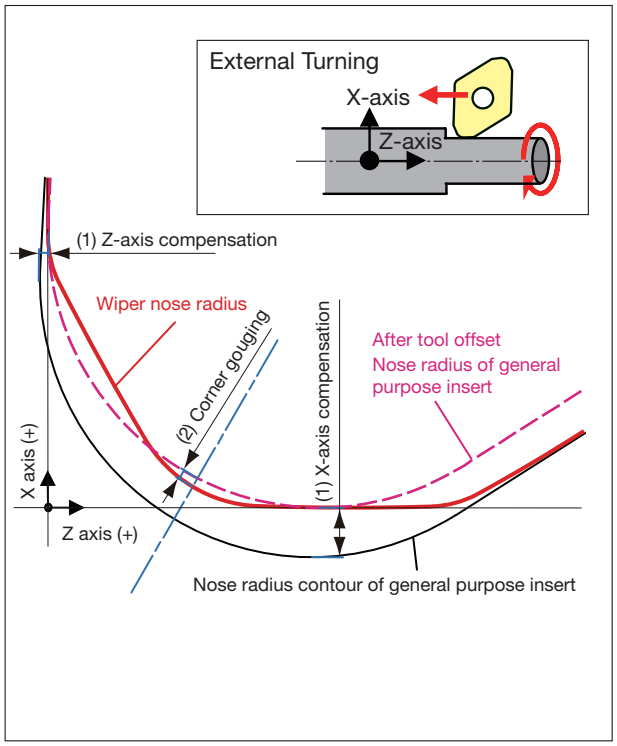
The cutting edge position for this insert differs from standard ISO inserts and therefore requires dimensional correction in the X and Z axes as shown in the table on the right.

*** The X axis compensation is positive for internal boring.**

External Turning

Nose Radius	X direction	Z direction
R0.4	-0.14	-0.02
R0.8	-0.14	-0.02
R1.2	-0.1	-0.03

● Nose Radius Tip Diagram

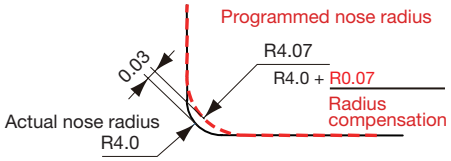


(2) Tool compensation for corners (based on compensation in step (1))

The nose radius must be corrected to prevent the insert from gouging the corner in the programmed tool path.

Programmed nose radius = actual nose radius + radius compensation

Example) To machine an R4.0 corner (using an R0.8 nose)



Nose Radius	Gouging	Radius compensation
R0.4	0.02	+R0.04
R0.8	**0.03**	**+R0.07**
R1.2	0.08	+R0.18

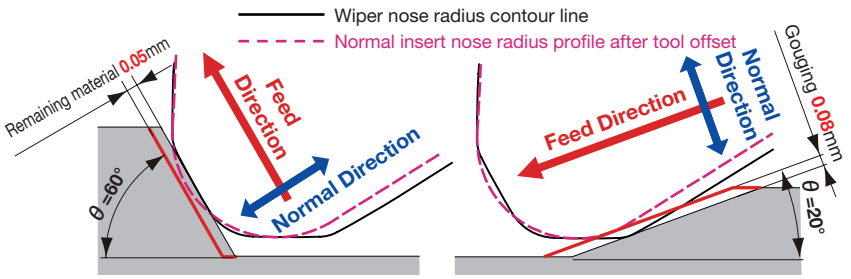
(3) Tool compensation for tapers (based on compensation in step (1))

Tool paths for tapers leave gouging and unmachined surfaces with respect to the programmed tool path. Correct the normal direction as shown below.

Compensation + indicates gouging
Compensation - indicates unmachined surfaces

Nose Radius	Taper Angle (θ)				
	-25°	**-20°**	-15°	-10°	-5°
R0.4	0.08	0.07	0.05	0.04	0.02
R0.8	0.09	**0.08**	0.06	0.05	0.02
R1.2	0.05	0.05	0.05	0.03	0.02

Example) To machine an R0.8 nose and 60°/-20° taper angle (θ)



Nose Radius	Taper Angle (θ)																		
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	**60°**	65°	70°	75°	80°	85°	90°
R0.4	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.04	-0.05	-0.05	-0.05	-0.03	-0.02	-0.02	-0.01	0.00
R0.8	0.00	0.01	0.02	0.03	0.03	0.03	0.03	0.02	0.01	0.00	-0.02	-0.03	**-0.05**	-0.04	-0.03	-0.02	-0.01	0.00	0.00
R1.2	0.00	0.02	0.04	0.06	0.07	0.08	0.08	0.07	0.06	0.05	0.03	0.00	-0.03	-0.02	-0.01	0.00	0.01	0.00	0.00

Dimensions in mm

MEMO

External Holders C

C1 to C62

Tool Holder Identification (Inch & Metric) ····· C2

		Cutting Edge Position Dimension	C4
Neg .	CN□□ Insert Applicable Holders	DCLN-J / DCLN	C5
		MCFN / MCGN / MCKN	C6
		MCLN / MCMN	C7
		MCRN / PCBN	C8
		PCFN / PCLN	C9
	DN□□ Insert Applicable Holders	WCLN / DDJN / DDHN	C10
		MDJN / MDPN	C11
		MDQN / PDJN	C12
	RN□□ Insert Applicable Holders	MRGN	C13
	SN□□ Insert Applicable Holders	DSDN / DSRN-AN	C14
		DSSN / MSDN	C15
		MSKN / MSRN	C16
		MSSN / PSBN	C17
		PSDN	C18
		PSSN / PSKN	C19
	TN□□ Insert Applicable Holders	DTGN / DTJN-AN / MTAN	C20
		MTCN / MTENNS	C21
		MTFN / MTGN	C22
		MTJNS / MTJN / MTXN	C23
		MTRN / PTFN	C24
		PTGN / PTTN	C25
		WTENNS / WTJNS	C26
	T-REX Toolholders	SumiTurn T-REX Toolholders	C27
		SumiTurn T-REX Inserts	C28
Neg.	VN□□ Insert Applicable Holders	DVJN-J / DVJN	C29
		DVVN / DVQN	C30
		MVJN / MVVN	C31
	WN□□ Insert Applicable Holders	DWLN-J / DWLN / MWLN	C32
		PWLN / WWLN	C33
Pos.	CC□□ Insert Applicable Holders	SCAC / SCLC / SCNC	C34
	DC□□ Insert Applicable Holders	SDAC /SDJC / SDNC / SDPC	C35
	RC□□ Insert Applicable Holders	PRDC / PRGC	C36
		SRDC / SRGC/ SRSC	C37
	SC□□ Insert Applicable Holders	SSBC / SSDC	C38
	TC□□ Insert Applicable Holders	STAC / STDC / STFC	C39
		STGC / STJC / STTC	C40
	VB□□ Insert Applicable Holders	SVAB / SVJB / SVNB	C41
	VC□□ Insert Applicable Holders	SVHC/ SVJC / SVLC / SVPC / SVVC	C42
	VP□□ Insert Applicable Holders	SVLP / SVPP	C43
Ceramic Toolholders: Neg.	CN□□ Insert Applicable Holders	CCKN-CD / CCKN-CX	C44
		CCLN-CD / CCLN-CX	C45
Ceramic Toolholders: Neg. / Pos.	DN□□ / RC□□ Insert Applicable Holders	CDJN-CD / CDJN-CX / CRDC-CD	C46
	RN□□ Insert Applicable Holders	CRDN-CD / CRSN-CD/ CRGN-CD	C47
Ceramic Toolholders: Neg.	SN□□ Insert Applicable Holders	CSDN-CD / CSDN-CX	C48
		CSKN-CD / CSKN-CX	C49
		CSRN-CD / CSRN-CX	C50
		CSSN-CD / CSSN-CX	C51
Ceramic Toolholders: Pos.	SP□□ Insert Applicable Holders	CSDP / CSKP / CSRP	C52
	TP□□ Insert Applicable Holders	CTAP / CTFP / CTGP	C53
Pin Lock Toolholders: Neg.	SN□□ Insert Applicable Holders	ESBN / ESDN	C54
		ESSN / ESKN	C55
	TN□□ Insert Applicable Holders	ETAN / ETGN	C56
		ETFN / ETEN / ETXN	C57
Pin Lock Toolholders: Pos.	For Aluminum Wheel Machining	Tool Holders for Aluminum Wheel Turning	C58
		MV Profiling Toolholders	C59
		GD Profiling Toolholders	C60
		External Holder Clamp Structure Description	C62

Stock Markings and Symbols

●: Standard stocked item
★ Worldwide Warehouse Item
▲: To be replaced by a new product, made to order, or discontinued (please confirm stock availability).

Blank: Made-to-order item
— mark: Not available

External Tool Identification Table

■ Catalog Classification System for Toolholders

M	W	L	N	R	16	4	D
(1)	(2)	(3)	(4)	(5)	(11)	(12)	(13)

- (1) Clamping System — Refer to Table 1
- (2) Insert Shape — Refer to Table 2
- (3) Holder Style — Refer to Table 3
- (4) Insert Relief Angle — Refer to Table 4
- (5) Feed Direction — Refer to Table 5
- (11) Shank Size — Refer to Table 11
- (12) Insert Size — Refer to Table 12
- (13) Qualifications — Refer to Table 13

Inch
Example:

Table 1

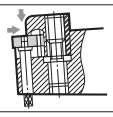
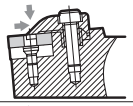
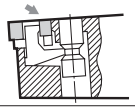
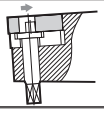
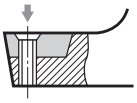
(1) Clamping System					
Symbol	Clamp	Structure	Symbol	Clamp	Structure
C	Top Clamp		M	Top Clamp + Pin Lock	
D	Double Clamp		P	Lever Lock (Insert is supported by 2 faces)	
E	Pin Lock (Eccentric Pin)		S	Screw-on	

Table 2

(2) Insert Shape		
Symbol	Insert Shape	
C	80° Angle Diamond Type	80°
D	55° Angle Diamond Type	55°
R	Round Type	
S	Square Type	
T	Triangular Type	
V	35° Angle Diamond Type	35°
W	Uneven Trigon Type	80°

Table 3

(3) Holder Style (▬ indicates major cutting edge)

Symbol	Shape	Offset	Symbol	Shape	Offset
A*	90°	No	L	95° 95°	Yes
B	75°	No	N	63°	No
D	45°	No	R	75°	Yes
E	60°	No	S	45°	Yes
F*	90°	Yes	T	60°	Yes
G*	90°	Yes	U	93°	Yes
J	93°	Yes	W	60°	Yes
K	75°	Yes	Y	85°	Yes

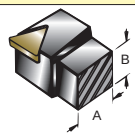
* 91° on our products

Table 4

(4) Insert Relief Angle	
Symbol	Relief Angle
B	5°
C	7°
D	15°
E	20°
F	25°
N	0°
P	11°

Table 11

(11) Shank Size



Square Shanks
This indicates the A & B dimensions in sixteenths (1/16).

Examples:
12 = 12/16 =3/4 sq.
16 = 16/16 =1.0 sq.
20 = 20/16 =1-1/4 sq.

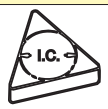
Rectangle Shanks
The first digit indicates the "A" dimension in eighths (1/8).

The second digit indicates the "B" dimension in quarters (1/4).

examples:
86 = A x B
1.0 x 1-1/2
85 = A x B
1.0 x 1-1/4

Table 12

(12) Insert Size



For equal sided inserts this indicates the inscribed circle (I.C.) in eighths (1/8)

Examples,
6 = 6/8 = 3/4" I.C.
4 = 4/8 = 1/2" I.C.
2.5 = 2.5/8 = 5/16 I.C.

For rectangles and parallelograms two digits are necessary.

1st digit = number of eighths (1/8) in width.

2nd digit = number of quarters (1/4) in length.

Table 13

(13) Qualifications

F±.003

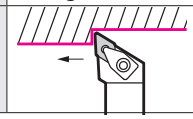
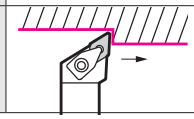
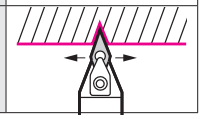
A = 4.000 ± .003
B = 4.500 ± .003
C = 5.000 ± .003
D = 6.000 ± .003
E = 7.000 ± .003
J = 3.500 ± .003*
V = 3.500 ± .003*

*Sumitomo standard only

Master Gage Insert Nose Radius Chart for Qualified Holders

Insert I.C.	Nose Radius
1/4, 5/16	.015
3/8, 1/2	.031
5/8, 3/4	.047
1.0	.062

Table 5

(5) Feed Direction					
Symbol	Right Hand	Symbol	Left Hand	Symbol	Neutral
R		L		N	

Example: **D T F N R 25 25 (–) M 16 (04 W)**

(1) → (1) Clamping System — Refer to Table 1

(2) → (2) Insert Shape — Refer to Table 2

(3) → (3) Holder Style — Refer to Table 3

(4) → (4) Insert Relief Angle — Refer to Table 4

(5) → (5) Feed Direction — Refer to Table 5

(6) → (6) Shank Height — Refer to Table 6

(7) → (7) Shank Width — Refer to Table 7

(8) → (8) Shank Length — Refer to Table 8

(9) → (9) Insert Cutting Edge Length — see Page B3 (Table 5)
Previous cat. nos.: See Table 9

(10) → (10) Insert Thickness — Refer to Table 10
Added only for holders with the same catalogue numbers but different insert thicknesses

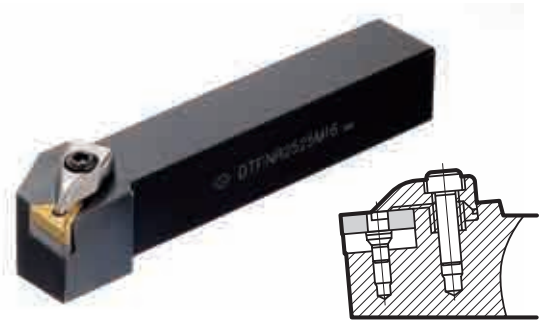
(11) → (11) Shim — Added only for holders with shims.
Added only for holders with shims meant for SEC-30/GD types.

Metric

Example:

• Identification Example

DTFNR2525M16



· Structure: Double Clamp Method
· Shape: With Triangle Insert, Cutting Edge Angle 91°
· Shank: H - 25mm, W - 25mm, L - 150mm

Table 8

(8) Shank Length	
Symbol	Length (mm)
F	80
H	100
K	125
M	150
N	160
P	170
Q	180
S	250
T	300
U	350

For some previous catalogue numbers, a hyphen (-) is used instead of a letter.

Table 9 Applicable for previous cat. nos. only

Insert Inscribed Circle			Insert Thickness	
Symbol	Inscribed Circle (mm)	+	Symbol	Thickness (mm)
3	9.525		2	3.18
4	12.70		3	4.76
5	15.875		4	6.35
6	19.05		5	7.94
8	25.40		6	9.52

Previous cat. nos. indicated an inscribed circle symbol and insert thickness symbol displayed in 2 columns.

For Round Type Inserts

Symbol	Inscribed Circle (mm)
10	10
12	12
16	16
20	20
25	25
32	32

Table 10

(10) Insert Thickness			
Symbol	Thickness (mm)	Symbol	Thickness (mm)
X1	1.40 / 1.80*	04	4.76
01	1.59	05	5.56
02	2.38	06	6.35
T2	2.78	07	7.94
03	3.18	09	9.52
T3	3.97		

* CCET03X1→1.40, CCET04X1→1.80

Table 6

(6) Shank Height	
Symbol	Height (mm)
12	12
16	16
20	20
25	25
32	32
40	40
50	50

Table 7

(7) Shank Width	
Symbol	Width (mm)
12	12
16	16
20	20
25	25
32	32
40	40
50	50

2 digits are used for shank height and width dimensions in mm.

Clamp Set Parts

Applicable Clamp Sets Cat. No.	Spring	Stock	Cap Screw	Stock	N·m
SCP-1	CSP08	★	CP-M5-20-1	★	
SCP-2	CSP08	★	CP-M5-20-1	★	
SCP-3	CSP08	★	CP-M5-20-1	★	5.0
SCP-4	CSP25	★	CP-M5-20-1	★	
SCP-5	CSP08	★	CP-M5-20-1	★	
SCP-6	CSP12	★	CP-M8-25-1	★	6.0

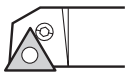
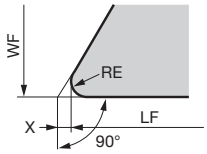
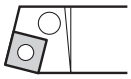
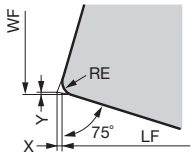
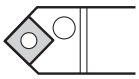
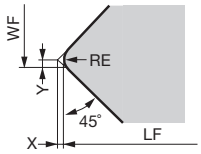
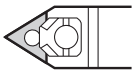
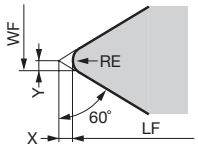
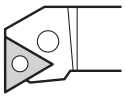
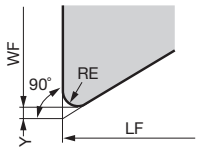
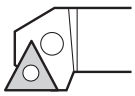
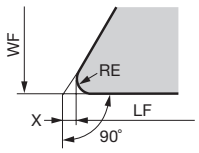
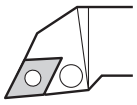
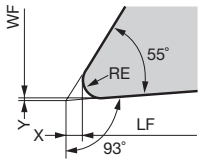
CP-M5-20-1 can also be fastened from under the screw.
★= Worldwide Warehouse item

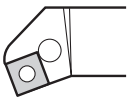
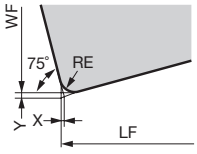
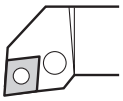
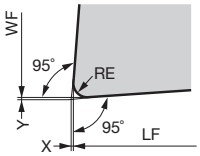
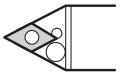
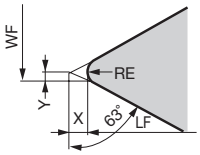
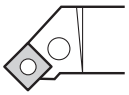
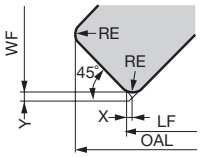
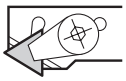
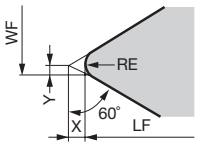
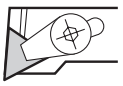
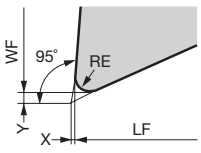
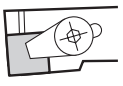
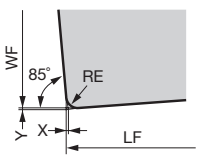
Cutting Edge Position Dimension

■ Cutting Position Dimension and Nose Radius

● Cutting position dimension by nose radius (ISO standard)

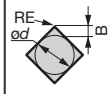
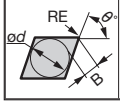
(Values for X and Y in the table are with lateral rake angle and cutting edge angle of 0°.)

Tool Shape			Dimensions (mm)		
Symbol	Shape	Close-up of Cutting Edge	RE	X	Y
A			0.4	0.291	—
			0.8	0.581	—
			1.2	0.872	—
			1.6	1.162	—
			2.4	1.743	—
B			0.4	0.089	0.024
			0.8	0.178	0.048
			1.2	0.268	0.072
			1.6	0.357	0.096
			2.4	0.535	0.143
D			0.4	0.164	0.164
			0.8	0.329	0.329
			1.2	0.493	0.493
			1.6	0.658	0.658
			2.4	0.986	0.986
E			0.4	0.396	0.229
			0.8	0.793	0.458
			1.2	1.190	0.687
			1.6	1.587	0.916
			2.4	2.381	1.374
F			0.4	—	0.291
			0.8	—	0.581
			1.2	—	0.872
			1.6	—	1.162
			2.4	—	1.743
G			0.4	0.291	—
			0.8	0.581	—
			1.2	0.872	—
			1.6	1.162	—
			2.4	1.743	—
J			0.4	0.344	0.033
			0.8	0.687	0.079
			1.2	1.031	0.118
			1.6	1.375	0.157
			2.4	2.062	0.236

Tool Shape			Dimensions (mm)		
Symbol	Shape	Close-up of Cutting Edge	RE	X	Y
K			0.4	0.024	0.089
			0.8	0.048	0.178
			1.2	0.072	0.268
			1.6	0.096	0.357
			2.4	0.143	0.535
L			0.4	0.040	0.040
			0.8	0.079	0.079
			1.2	0.119	0.119
			1.6	0.159	0.159
			2.4	0.238	0.238
N			0.4	0.463	0.263
			0.8	0.925	0.471
			1.2	1.388	0.707
			1.6	1.850	0.943
			2.4	2.776	1.414
S			0.4	0.164	0.164
			0.8	0.329	0.329
			1.2	0.493	0.493
			1.6	0.658	0.658
			2.4	0.986	0.986
T			0.4	0.396	0.229
			0.8	0.793	0.458
			1.2	1.190	0.687
			1.6	1.587	0.916
			2.4	2.381	1.374
U			0.4	0.253	0.058
			0.8	0.506	0.116
			1.2	0.759	0.175
			1.6	1.013	0.233
			2.4	1.519	0.350
Y			0.4	0.002	0.033
			0.8	0.005	0.066
			1.2	0.008	0.099
			1.6	0.011	0.132
			2.4	0.017	0.198

● Nose radius position calculation

Calculation Formula for Nose Radius Position (mm)

Shape		Formula
	Triangular Type	$B = 3/2d - RE$
	Square Type	$B = (\sqrt{2} - 1) \times (d/2 - RE)$
	Diamond Type	$B = (1/\mathrm{Sin}(\theta/2) - 1) \times (d/2 - RE)$

Values of IC and RE for the Calculation of B (mm)

Inscribed Circle Nominal Value	IC for Calculation
3.97	3.9688
4.76	4.7625
5.56	5.5562
6.35	6.3500
7.94	7.9375
9.525	9.5250
12.70	12.7000
15.875	15.8750
19.05	19.0500
25.40	25.4000

Nose Radius	Nominal Value	RE for Calculation
02	0.2	0.203
04	0.4	0.397
08	0.8	0.794
12	1.2	1.191
16	1.6	1.588
24	2.4	2.381

DCLN-J / DCLN

Internal Coolant

SEC-D series Holder - General Turning, Facing and Profiling
Internal Coolant Supply Double Clamp

DCLN-J

External Turning and Facing

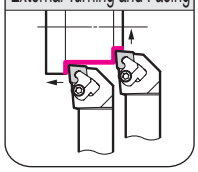


Fig 1

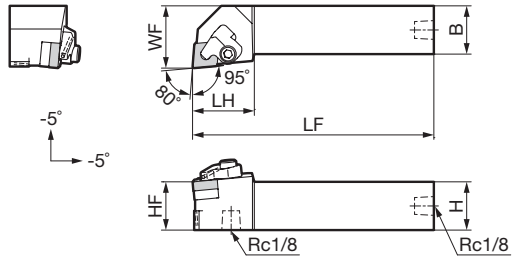


Figure shows right-handed (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Plate	Cap Screw	N·m	Spring	O-ring	Shim	Shim Screw	Wrench for Shim (For Torx hole)	Top Hex Wrench (For Hexagonal hole)	Bottom Hex Wrench (For Hexagonal hole)	Plug
DCLN R/L2020K12-J	★	★	20	20	125	25	20	32	CN□□43□	**B22**	1	JC R/L-01	CP-M5-20-1	5.0	CSP12J	SS060	CNS1204	BFTX0409N	TRX15(*)	LH040	LH025	XP02
DCLN R/L2525K12-J	★	★	25	25	125	32	25	32														

*Wrench for shim is sold separately from the main body.

D Style Holder - General Turning, Facing and Profiling
Double Clamp

DCLN

External Turning and Facing

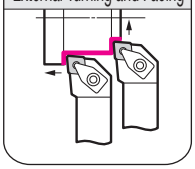
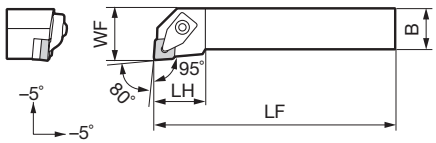


Fig 1



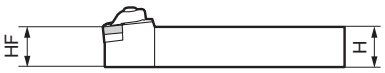


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Shim Wrench (For Torx Holes)	Clamp Wrench (Hex Socket)	Pin/ Shim Wrench (Hex Socket)	Clamp	Spring	Clamp Screw	Optional Hardware Clamp for Dimple CBN	
Inch	**DCLN R/L 124BN**	•	•	0.750	0.750	4.50	1.000	0.750	1.250	CN□□43□	**B22**	1	—	3.5	ICSN442	ST-1766	—	LH040		CL-2712	SP-4295	CLB-1696	CL-2435	ST-1086
Inch	**DCLN R/L 164DN**	•	•	1.000	1.000	6.00	1.250	1.000	1.250			1												
Inch	**DCLN R/L 204DN**	•	•	1.250	1.250	6.00	1.500	1.250	1.250			1												
Inch	**DCLN R/L 205DN**	•	•	1.250	1.250	6.00	1.500	1.250	1.375	CN□□54□	**B26**	1	—	3.5	ICSN533	ST-1768	—	LH040		CL-2716			—	—
Inch	**DCLN R/L 245EN**	•	•	1.500	1.500	7.00	2.000	1.500	1.375			1												
Inch	**DCLN R/L 206DN**	•	•	1.250	1.250	6.00	1.500	1.250	1.653	CN□□64□	**B28**	1	—	3.5	ICSN633	ST-1770	—	LH040		CL-2719				
Inch	**DCLN R/L 246EN**	•	•	1.500	1.500	7.00	2.000	1.500	1.653			1												
Inch	**DCLN R/L 124BAN***	•	•	0.750	0.750	4.5	1.000	0.750	1.250	CN□□43□	**B22**	1	—	3.5	ICSN442	ST-1766	—	LH040		CL-2712	SP-4295	CLB-1696	CL-2435	ST-1086
Inch	**DCLN R/L 164DAN***	•	•	1.000	1.000	6.0	1.250	1.000	1.250			1												
Inch	**DCLN R/L 204DAN***	•	•	1.250	1.250	6.0	1.500	1.250	1.250			1												
Inch	**DCLN R/L 205DAN***	•	•	1.250	1.250	6.0	1.500	1.250	1.375	CN□□54□	**B26**	1	—	3.5	ICSN533	ST-1768	—	LH040		CL-2716			—	—
Inch	**DCLN R/L 245EAN***	•	•	1.500	1.500	7.0	2.000	1.500	1.375			1												
Inch	**DCLN R/L 206DAN***	•	•	1.250	1.250	6.0	1.500	1.250	1.653	CN□□64□	**B28**	1	—	3.5	ICSN633	ST-1770	—	LH040		CL-2719				
Inch	**DCLN R/L 246EAN***	•	•	1.500	1.500	7.0	2.000	1.500	1.653			1												
Metric	**DCLN R/L 2020K12**	★	★	20	20	125	25	20	32	CN□□43□	**B22**	1	SCP-2	5.0	CNS1204	BFTX0409N	TRX15(*)	LH040	LH025	—	—	—	—	—
Metric	**DCLN R/L 2525M12**	★	★	25	25	150	32	25	32			1												
Metric	**DCLN R/L 2525M16**	★	★	25	25	150	32	25	32	CN□□54□	**B26**	1	SCP-3	5.0	CNS1606	BFTX0509N	TRX20(*)	LH040	LH025	—	—	—		
Metric	**DCLN R/L 3232P16**	★	★	32	32	170	40	32	32			1												
Metric	**DCLN R/L 3232P19**	★	★	32	32	170	40	32	42	CN□□64□	**B28**	1	SCP-5	5.0	CNS1906	BFTX0511N	TRX20(*)	LH040	LH025	—	—	—		
Metric	**DCLN R/L 4040S19**	★	★	40	40	250	50	40	42			1												
Metric	**DCLN R/L 4040S25**	★	★	40	40	250	50	40	53	CN□□86□	**B30**	1	SCP-6	6.0	CNS2509	BFTX0615N	TRD25(*)	LH060	—	—	—	—		

Wrench for shim is sold separately from the main body.

Clamp Set Parts ☞ C3

* Coolant Through (see page F29 for example and list of coolant-through parts)

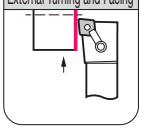
●= USA Stocked Item ★= World Wide Warehouse Item

MCFN / MCGN / MCKN

C 80° 95° 95°

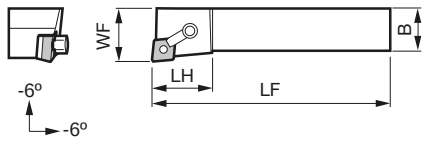
MCFN

External Turning and Facing



M Style Holder - General Turning and Facing
Clamp-on + Pin Lock

Fig 1



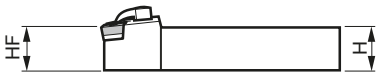


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

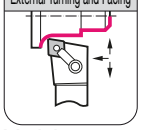
	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MCFN R/L 124B**	•	•	0.750	0.750	4.500	1.000	0.750	1.120	CN□□43□	**B22**	1	3.0	NL46	LH1/8	LH3/32	CL20	XNS48
	MCFN R/L 164D	•	•	1.000	1.000	6.000	1.250	1.000	1.120			1						
	MCFN R/L 204D	•	•	1.250	1.250	6.000	1.500	1.250	1.120			1						
	MCFN R/L 854D	•	•	1.250	1.000	6.000	1.250	1.250	1.120			1						
	MCFN R/L 165D	•	•	1.000	1.000	6.000	1.250	1.000	1.250	CN□□54□	**B26**	1	3.5	NL58	LH040	LH030	CL12	XNS510
	MCFN R/L 205D	•	•	1.250	1.250	6.000	1.500	1.250	1.250			1						
	MCFN R/L 245D	•	•	1.500	1.500	6.000	2.000	1.500	1.250			1						
	MCFN R/L 166D	•	•	1.000	1.000	6.000	1.250	1.000	1.310	CN□□64□	**B28**	1	3.5	NL68	LH040	LH9/64	CL12	XNS510
	MCFN R/L 206D	•	•	1.250	1.250	6.000	1.500	1.250	1.310			1						
	MCFN R/L 246D	•	•	1.500	1.500	6.000	2.000	1.500	1.310			1				LH030		

Clamp Set Parts ☞ C3

C 80° 95° 95°

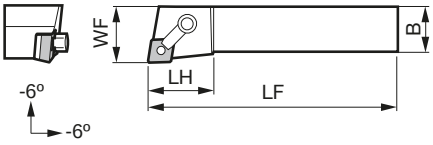
MCGN

External Turning and Facing



M Style Holder - General Turning and Facing Clamp-on
+ Pin Lock

Fig 1



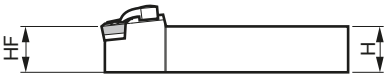


Figure shows right-hand (R) tool.

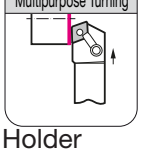
Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MCGN R/L 124B**	•	•	0.750	0.750	4.500	1.000	0.750	1.120	CN□□43□	**B22**	1	3.0	ICSN433	NL46	LH1/8	LH3/32	CL20	XNS48
	MCGN R/L 164D	•	•	1.000	1.000	6.000	1.250	1.000	1.120			1							
	MCGN R/L 204D	•	•	1.250	1.250	6.000	1.500	1.250	1.120			1							
	MCGN R/L 244D	•	•	1.500	1.500	6.000	2.000	1.500	1.250			1							
	MCGN R/L 165D	•	•	1.000	1.000	6.000	1.250	1.000	1.500	CN□□54□	**B26**	1	3.5	ICSN533	NL58	LH040	LH030	CL12	XNS510
	MCGN R/L 205D	•	•	1.250	1.250	6.000	1.500	1.250	1.500			1							
	MCGN R/L 245D	•	•	1.500	1.500	6.000	2.000	1.500	1.500			1							
	MCGN R/L 206D	•	•	1.250	1.250	6.000	1.500	1.250	1.650	CN□□64□	**B28**	1	3.5	ICSN633	NL68	LH040	LH9/64	CL12	XNS510
	MCGN R/L 246D	•	•	1.500	1.500	6.000	2.000	1.500	1.650			1							

C 80° 95° 95°

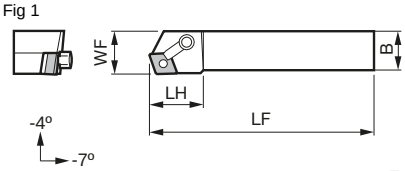
MCKN

Multipurpose Turning



M Style Holder - Multipurpose Turning
Clamp-on + Pin Lock

Fig 1



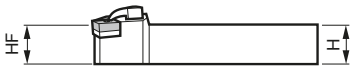


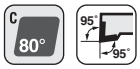
Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MCKN R/L 124B**	•	•	0.750	0.750	4.500	1.000	0.750	1.200	CN□□43□	**B22**	1	3.0	ICSN433	NL46	LH1/8	LH3/32	CL20	XNS48
	MCKN R/L 164D	•	•	1.000	1.000	6.000	1.250	1.000	1.200			1							
	MCKN R/L 204D	•	•	1.250	1.250	6.000	1.500	1.250	1.200			1							
	MCKN R/L 165D	•	•	1.000	1.000	6.000	1.250	1.000	1.350	CN□□54□	**B26**	1	3.5	ICSN533	NL58	LH040	LH030	CL12	XNS510
	MCKN R/L 205D	•	•	1.250	1.250	6.000	1.500	1.250	1.350			1							
	MCKN R/L 166D	•	•	1.000	1.000	6.000	1.250	1.000	1.470	CN□□64□	**B28**	1	3.5	ICSN633	NL68	LH040	LH9/64	CL12	XNS510
	MCKN R/L 246D	•	•	1.500	1.500	6.000	2.000	1.500	1.470			1							

●= USA Stocked Item

MCLN / MCMN



M Style Holder - General Turning, Facing and Profiling
Clamp-on + Pin Lock

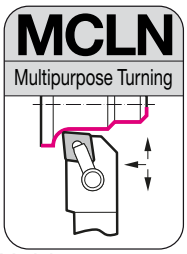
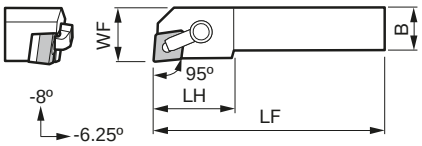


Fig 1



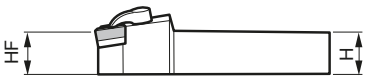


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench	Shim Wrench	Clamp	Clamp Screw
Inch	**MCLN R/L 083A**	•	•	.500	.500	4.000	0.750	0.500	1.000	CN□□32□	**B20**	1	3.0	N/A	NL-33	—	—	CL-6	XNS-37
	MCLN R/L 103A	•	•	.625	.625	4.000	0.875	0.625	1.000			1							
	MCLN R/L 123B	•	•	.750	.750	4.500	1.000	0.750	1.000			1							
	MCLN R/L 124B	•	•	.750	.750	4.500	1.000	0.750	1.130	CN□□43□	**B22**	1	3.0	ICSN433	NL46	LH1/8	LH3/32	CL20	XNS48
	MCLN R/L 164D	•	•	1.000	1.000	6.000	1.250	1.000	1.130			1							
	MCLN R/L 204D	•	•	1.250	1.250	6.000	1.500	1.250	1.130			1							
	MCLN R/L 244D	•	•	1.500	1.500	6.000	2.000	1.250	1.130			1							
	MCLN R/L 854D	•	•	1.250	1.000	6.000	1.250	1.250	1.130			1							
	MCLN R/L 165D	•	•	1.000	1.000	6.000	1.250	1.000	1.470	CN□□54□	**B26**	1	3.5	ICSN533	NL58	LH040	LH030	CL12	XNS510
	MCLN R/L 205D	•	•	1.250	1.250	6.000	1.500	1.250	1.470			1							
	MCLN R/L 245D	•	•	1.500	1.500	6.000	2.000	1.500	1.470			1							
	MCLN R/L 166D	•	•	1.000	1.000	6.000	1.250	1.000	1.510	CN□□64□	**B28**	1	3.5	ICSN633	NL68	LH040	LH9/64	CL12	XNS510
	MCLN R/L 206D	•	•	1.250	1.250	6.000	1.500	1.250	1.510			1							
	MCLN R/L 246D	•	•	1.500	1.500	6.000	2.000	1.500	1.510			1							
	MCLN R/L 246E	•	•	1.500	1.500	7.000	2.000	1.500	1.500			1							
	MCLN R/L 856D	•	•	1.250	1.000	6.000	1.250	1.250	1.510			1							
	MCLN R/L 866E	•	•	1.500	1.000	7.000	1.250	1.500	1.510			1							

M Style Holder - General Turning and Facing
Clamp-on + Pin Lock

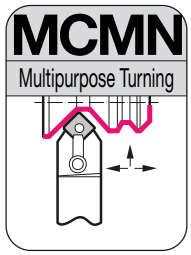
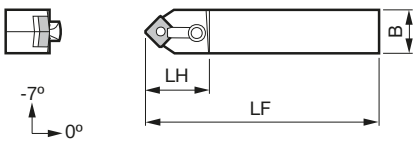


Fig 1



Holder

Parts

Dimensions (inch)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench	Shim Wrench	Clamp	Clamp Screw
Inch	**MCMNN124B**	•	0.750	0.750	4.500	–	0.750	1.280	CN□□43□	**B22**	1	3.0	ICSN433	NL46	LH1/8	LH3/32	CL20	XNS48
	MCMNN164D	•	1.000	1.000	6.000	–	1.000	1.280			1							
	MCMNN204D	•	1.250	1.250	6.000	–	1.250	1.390			1							
	MCMNN854D	•	1.250	1.000	6.000	–	1.250	1.280			1							
	MCMNN165D	•	1.000	1.000	6.000	–	1.000	1.750	CN□□54□	**B26**	1	3.5	ICSN533	NL58	LH040	LH1/8	CL12	XNS510
	MCMNN205D	•	1.250	1.250	6.000	–	1.250	1.610			1							
	MCMNN245D	•	1.500	1.500	6.000	–	1.500	1.610			1							
	MCMNN246D	•	1.500	1.500	6.000	–	1.500	1.670	CN□□64□	**B28**	1		ICSN633	NL68				

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	N (Non-ferrous) High-precision/Finishing	N (Non-ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	SUMIBORON BN7000/BNC500	EUZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIDIA DA1000	AX H1	SUMIBORON BNC2010	SUMIBORON BN1000
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIDIA DA1000	AX H1	SUMIBORON BNC2020	SUMIBORON BN2000
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC420K	No Chipbreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIDIA DA1000	-	SUMIBORON BNC300	SUMIBORON BN350
Recommended Cutting Conditions	A10 on			A14 on			A16 on			A18 on			A22 on		A20 on	

BNC500 is for ductile cast iron.

●= USA Stocked Item

MCRN / PCBN

M Style Holder - General Turning
Clamp-on + Pin Lock

MCRN

External Turning

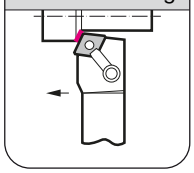
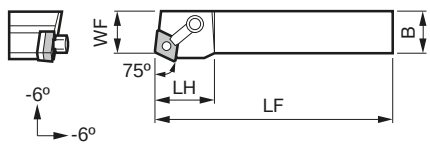


Fig 1



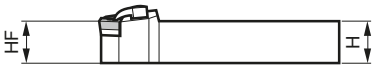


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	MCRN R/L 124B	•	•	0.750	0.750	4.500	0.878	0.750	1.180	CN□□43□	B22	1	3.0	ICSN432	NL46	LH1/8	LH3/32	CL20	XNS48
	MCRN R/L 164D	•	•	1.000	1.000	6.000	1.128	1.000	1.180			1							
	MCRN R/L 204D	•	•	1.250	1.250	6.000	1.318	1.250	1.180			1							
	MCRN R/L 165D	•	•	1.000	1.000	6.000	1.101	1.000	1.101	CN□□54□	B26	1	3.5	ICSN533	NL58	LH040	LH1/8	CL12	XNS510
	MCRN R/L 205D	•	•	1.250	1.250	6.000	1.351	1.250	1.351			1							
	MCRN R/L 206D	•	•	1.250	1.250	6.000	1.318	1.250	1.318	CN□□64□	B28	1	3.5	ICSN633	NL68	LH040	LH9/64	CL12	XNS510
	MCRN R/L 246D	•	•	1.500	1.500	6.000	1.818	1.500	1.818			1							

70 Style Holder - General Turning
Lever Lock

PCBN

External Turning

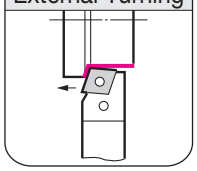


Fig 1

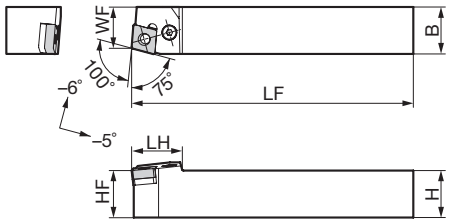


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PCBN R/L 2020K12	★	★	20	20	125	17	20	27	CN□□43□	B22	1	LCL4	LCS4	LSC42	LSP4	LH030
PCBN R/L 2520M12			25	20	150	17	25	27			1					
PCBN R/L 2525M12	★	★	25	25	150	22	25	27			1					
PCBN R/L 3225P12			32	25	170	22	32	27			1					
PCBN R/L 2525M16			25	25	150	22	25	33	CN□□54□	B26	1	LCL5	LCS5	LSC53	LSP5	LH030
PCBN R/L 3225P16			32	25	170	22	32	33			1					
PCBN R/L 3232P16			32	32	170	27	32	33			1					
PCBN R/L 3232P19			32	32	170	27	32	38	CN□□64□	B28	1	LCL6	LCS6	LSC63	LSP6	LH040
PCBN R/L 4040R19			40	40	200	35	40	38			1					

Applicable Inserts DCLN / PCLN / PCBN / PCFN

1st Recommended Insert

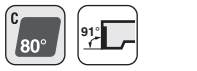
- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	N (Non-ferrous) High-precision/Finishing	N (Non-ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	SUMIBORON BN7000/BNC500	EUZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIDIA DA1000	AX H1	SUMIBORON BNC2010	SUMIBORON BN1000
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIDIA DA1000	AX H1	SUMIBORON BNC2020	SUMIBORON BN2000
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC420K	No Chipbreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIDIA DA1000	-	SUMIBORON BNC300	SUMIBORON BN350
Recommended Cutting Conditions	A10 on			A14 on			A16 on			A18 on			A22 on		A20 on	

BNC500 is for ductile cast iron. ●= USA Stocked Item ★= World Wide Warehouse Item

PCFN / PCLN



70 Style Holder - General Turning, Facing and Profiling
Lever Lock

PCFN

Facing

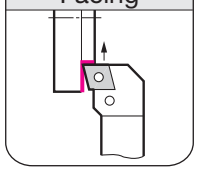


Fig 1

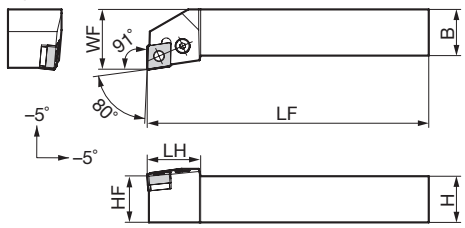
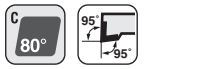


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PCFN R/L 2020K12	★	★	*20*	*20*	*125*	*25*	*20*	*28*	CN□□43□	**B22**	1	LCL4	LCS4	LSC42	LSP4	LH030
PCFN R/L 2520M12			*25*	*20*	*150*	*25*	*25*	*28*			1					
PCFN R/L 2525M12	★	★	*25*	*25*	*150*	*32*	*25*	*28*			1					
PCFN R/L 3225P12			*32*	*25*	*170*	*32*	*32*	*28*			1					

When using handed breaker inserts for facing, the holder and insert are opposite handed.



70 Style Holder - General Turning, Facing and Profiling
Lever Lock

PCLN

External / Facing

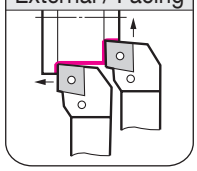
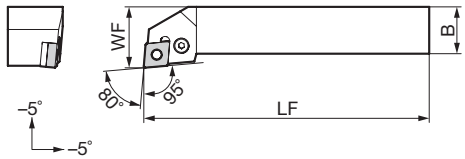


Fig 1



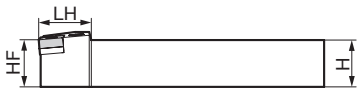


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (*mm*)

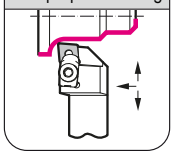
Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PCLN R/L 1616H0903	★	★	*16*	*16*	*100*	*20*	*16*	*20*	CN□□32□	**B20**	1	LCL3	LCS3	LSC32	LSP3	LH025
PCLN R/L 2020K0904	★	★	*20*	*20*	*125*	*25*	*20*	*20*	CN□□33□	**B21**	1	LCL3	LCS3	LSC317	LSP3	LH025
PCLN R/L 2525M0904	★	★	*25*	*25*	*150*	*32*	*25*	*20*			1					
PCLN R/L 2020K12	★	★	*20*	*20*	*125*	*25*	*20*	*28*	CN□□43□	**B22**	1	LCL4	LCS4	LSC42	LSP4	LH030
PCLN R/L 2520M12			*25*	*20*	*150*	*25*	*25*	*28*			1					
PCLN R/L 2525M12	★	★	*25*	*25*	*150*	*32*	*25*	*28*			1					
PCLN R/L 3225P12	★	★	*32*	*25*	*170*	*32*	*32*	*28*			1					
PCLN R/L 3232P12	★	★	*32*	*32*	*170*	*40*	*32*	*28*			1					
PCLN R/L 2525M16	★	★	*25*	*25*	*150*	*32*	*25*	*33*	CN□□54□	**B26**	1	LCL5	LCS5	LSC53	LSP5	LH030
PCLN R/L 3225P16			*32*	*25*	*170*	*32*	*32*	*33*			1					
PCLN R/L 3232P16	★	★	*32*	*32*	*170*	*40*	*32*	*33*			1					
PCLN R/L 3225P19	★	★	*32*	*25*	*170*	*32*	*32*	*38*	CN□□64□	**B28**	1	LCL6	LCS6	LSC63	LSP6	LH040
PCLN R/L 3232P19	★	★	*32*	*32*	*170*	*40*	*32*	*38*			1					
PCLN R/L 4040R19	★	★	*40*	*40*	*200*	*50*	*40*	*38*			1					

★ = World Wide Warehouse Item

WCLN / DDJN / DDHN

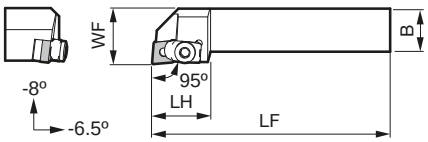
WCLN

Multipurpose Turning



W Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

Fig 1



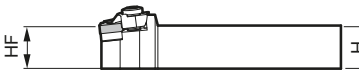


Figure shows right-hand (R)

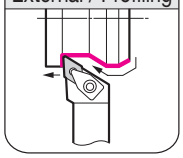
Holder — Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**WCLN R/L 124B**	•	•	0.750	0.750	4.500	1.000	0.750	1.130	CN□□43□	**B22**	1	4.0	ICSN432	PN-1661	LH3/16	CL-2019	ST-1394
	WCLN R/L 164D	•	•	1.000	1.000	6.000	1.250	1.000	1.130			1						
	WCLN R/L 204D	•	•	1.250	1.250	6.000	1.500	1.250	1.130			1						
	WCLN R/L 166D	•	•	1.000	1.000	6.000	1.250	1.000	1.510	CN□□64□	**B28**	1	4.0	SH-3619	ST-1682	LH3/16	CL-2029	ST-1296
	WCLN R/L 206D	•	•	1.250	1.250	6.000	1.500	1.250	1.510			1						
	WCLN R/L 246D	•	•	1.500	1.500	6.000	2.000	1.500	1.510			1						

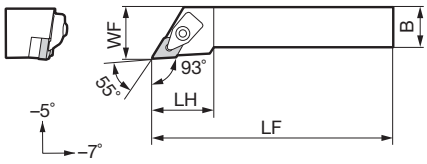
DDJN

External / Profiling



D Style Holder - General Turning and Profiling
Double Clamp

Fig 1



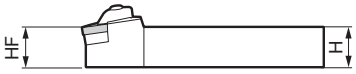


Figure shows right-hand (R) tool.

Holder — Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Shim Wrench (For Torx Holes)	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Spring	Clamp Screw
Inch	**DDJN R/L 124BN**	•	•	0.750	0.750	4.500	1.000	0.750	1.535	DN□□43□	**B32**	1	–	3.5	IDSN-442	ST-1766	–	LH040		CL-2712	SP-4295	CLB-1696
	DDJN R/L 164DN	•	•	1.000	1.000	6.000	1.250	1.000	1.535			1										
	DDJN R/L 204DN	•	•	1.250	1.250	6.000	1.500	1.250	1.535			1										
	DDJN R/L 244EN	•	•	1.500	1.500	7.000	2.000	1.500	1.535			1										
	DDJN R/L 124BAN*	•	•	0.750	0.750	4.500	1.000	0.750	1.535	DN□□43□		1	–	3.5	IDSN-442	ST-1766	–	LH040		CL-2712	SP-4295	CLB-1696
	DDJN R/L 164DAN*	•	•	1.000	1.000	6.000	1.250	1.000	1.535			1										
	DDJN R/L 204DAN*	•	•	1.250	1.250	6.000	1.500	1.250	1.535			1										
	DDJN R/L 244EAN*	•	•	1.500	1.500	7.000	2.000	1.500	1.535			1										
Metric	**DDJN R/L 2020K15**	★	★	*20*	*20*	*125*	*25*	*20*	*38*	DN□□43□		1	SCP-2	5.0	DNS1504	BFTX0409N	TRX15(*)	LH040	LH025	–	–	–
	DDJN R/L 2525M15	★	★	*25*	*25*	*150*	*32*	*25*	*38*			1										
	DDJN R/L 2525M15E	★	★	*25*	*25*	*150*	*32*	*25*	*38*	DN□□44□	**B36**	1	SCP-2	5.0	DNS1506	BFTX0409N	TRX15(*)	LH040	LH025	CL-2716	–	–

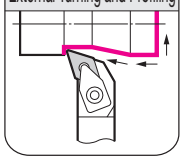
Wrench for shim is sold separately from the main body.

Clamp Set Parts ☞ C3

* Coolant Through (see page F29 for example and list of coolant-through parts)

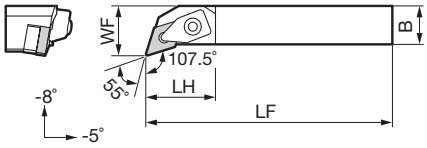
DDHN

External Turning and Profiling



D Style Holder - General Turning and Profiling
Double Clamp

Fig 1



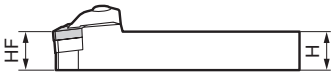


Figure shows right-handed (R) tool.

Holder — Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shim (For Torx hole)	Top Hex Wrench (For Hexagonal hole)	Bottom Hex Wrench (For Hexagonal hole)
DDHN R/L2020K15	★	★	*20*	*20*	*125*	*25*	*20*	*35*	DN□□43□	**B32**	1	SCP-2	5.0	DNS1504	BFTX0409N	TRX15(*)	LH040	LH025
DDHN R/L2525M15	★	★	*25*	*25*	*150*	*32*	*25*	*35*			1							

*Wrench for shim is sold separately from the main body.

Clamp Set Parts ☞ C3

●= USA Stocked Item ★= World Wide Warehouse Item

MDJN / MDPN

M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

MDJN

External / Profiling

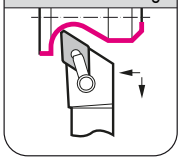
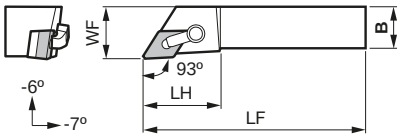


Fig 1



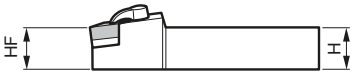


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench	Shim Wrench	Clamp	Clamp Screw
Inch	MDJN R/L 083A	•	•	0.500	0.500	4.000	0.625	0.500	1.062	DN□□33□	B31	1	3.5	–	NL33L	LH3/32 (For Hex Socket)	LH5/64 (For Hex Socket)	CL7	XNS36
	MDJN R/L 103B	•	•	0.625	0.625	4.500	0.875	0.625	1.250			1							
	MDJN R/L 123B	•	•	0.750	0.750	4.500	1.000	0.750	1.250			1		IDSN322	NL34L		LH020		
	MDJN R/L 163D	•	•	1.000	1.000	6.000	1.250	1.000	1.250			1							
	MDJN R/L 124B	•	•	0.750	0.750	4.500	1.000	0.750	1.500	DN□□43□	B32	1	3.0	IDSN432	NL46	LH1/8	LH3/32	CL20	XNS48
	MDJN R/L 164D	•	•	1.000	1.000	6.000	1.250	1.000	1.500			1							
	MDJN R/L 204D	•	•	1.250	1.250	6.000	1.500	1.250	1.500			1							
	MDJN R/L 244D	•	•	1.500	1.500	6.000	2.000	1.500	1.500			1							
	MDJN R/L 854D	•	•	1.250	1.000	6.000	1.250	1.250	1.500			1							
	MDJN R/L 165D	•	•	1.000	1.000	6.000	1.250	1.000	1.440	DN□□54□	B38	1	3.5	IDSN533	NL58	LH040	LH1/8	CL12	XNS510
	MDJN R/L 205D	•	•	1.250	1.250	6.000	1.500	1.250	1.440			1							
	MDJN R/L 245D	•	•	1.500	1.500	6.000	2.000	1.500	1.440			1							
	MDJN R/L 855D	•	•	1.250	1.000	6.000	1.250	1.250	1.440			1							

M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

MDPN

External / Copying

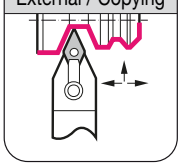
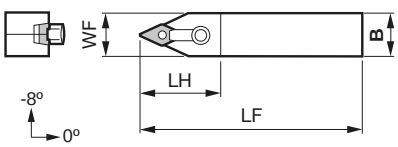
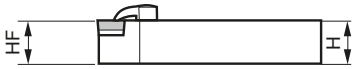


Fig 1





Holder / Parts — Dimensions (inch)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench	Shim Wrench	Clamp	Clamp Screw
Inch	MDPNN123B	•	0.750	0.750	4.500	—	.750	1.620	DN□□33□	B31	1	3.0	–	NL34L	LH020 (For Hex Socket)	LH3/32 (For Hex Socket)	CL7	XNS36
	MDPNN124B	•	0.750	0.750	4.500	—	0.750	1.620	DN□□43□	B32	1		IDSN432	NL46	LH1/8		CL22	XNS48
	MDPNN164D	•	1.000	1.000	6.000	—	1.000	1.620			1						CL20	
	MDPNN204D	•	1.250	1.250	6.000	—	1.250	1.620			1							
	MDPNN165D	•	1.000	1.000	6.000	—	1.000	1.880	DN□□54□	B38	1	3.5	IDSN533	NL58	LH040	LH1/8	CL12	XNS510
	MDPNN205D	•	1.250	1.250	6.000	—	1.250	1.880			1							
	MDPNN245E	•	1.500	1.500	7.000	—	1.500	1.880			1							
	MDPNN855D	•	1.250	1.000	6.000	—	1.250	1.880			1							
	MDPNN865D	•	1.500	1.000	6.000	—	1.500	1.880			1							

Applicable Inserts ◄·· DDJN / DDHN / DDNN / PDJN

1st Recommended Insert

- ⋆ Refer as well to the Insert Selection Guide (page A10).
- ⋆ Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD Photo — EGU; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P Medium Cutting	P Roughing	M (Stainless Steel) Finishing	M Medium Cutting	M Roughing	K (Cast Iron) High-speed Finishing	K Finishing to Medium Cutting	K Medium to Roughing	S (Exotic Alloy) Finishing	S Medium Cutting	S Roughing	N (Non-ferrous) High-precision Finishing	N Finishing to Medium Cutting	H (Hardened Steel) Coated	H Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	CBN BN7000/BNC500	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	PCD DA1000	AX H1	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	PCD DA1000	AX H1	CBN BNC2020	CBN BN2000	PCD DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC420K	No Chipbreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	PCD DA1000	-	CBN BNC300	CBN BN350	-
Recommended Cutting Conditions	A10 on			A14 on			A16 on			A18 on			A22 on		A20 on		M2 on

●= USA Stocked Item ★= World Wide Warehouse Item

MDQN / PDJN

M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

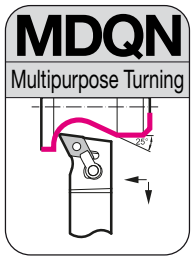
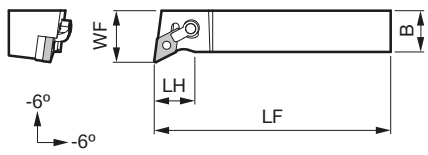


Fig 1



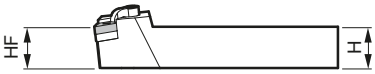


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MDQN R/L 124B**	★	★	0.750	0.750	4.500	1.000	0.750	1.370	DN□□43□	**B32**	1	**3.0**	IDSN432	NL46	LH1/8	LH3/32	CL20	XNS48
	MDQN R/L 164D	★	★	1.000	1.000	6.000	1.250	1.000	1.370			1							
	MDQN R/L 204D	★	★	1.250	1.250	6.000	1.500	1.250	1.370			1							
	MDQN R/L 244E	★	★	1.500	1.500	7.000	2.000	1.500	1.370			1							

70 Style Holder - General Turning and Profiling
Lever Lock

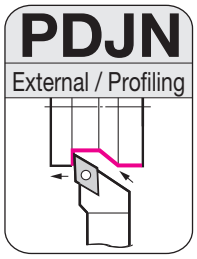


Fig 1

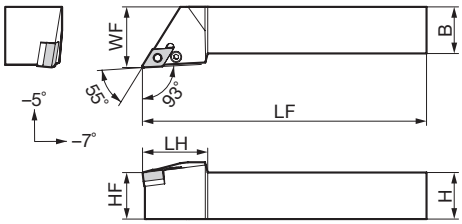


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PDJN R/L 2020K11	★	★	20	20	125	25	20	25	DN□□33	**B31**	1	LCL3	LCS3	LSD317	LSP3	LH025
PDJN R/L 2525M11	★	★	25	25	150	32	25	25			1					
PDJN R/L 2020K1504	★	★	20	20	125	25	20	35	DN□□43	**B32**	1	LCL4	LCS4	LSD42	LSP4	LH030
PDJN R/L 2525M1504	★	★	25	25	150	32	25	35			1					
PDJN R/L 3225P1504			32	25	170	32	32	35			1					
PDJN R/L 3232P1504	★	★	32	32	170	40	32	35			1					
PDJN R/L 2525M1506	★	★	25	25	150	32	25	35	DN□□44	**B36**	1	LCL4	LCS4	LSD42	LSP4	LH030
PDJN R/L 3225P1506			32	25	170	32	32	35			1					
PDJN R/L 3232P1506			32	32	170	40	32	35			1					

Applicable Inserts DDJN / DDHN / DDNN / PDJN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	N (Non-ferrous) High-precision/Finishing	N (Non-ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	SUMIBORON BN7000/BNC500	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIDIA DA1000	AX H1	SUMIBORON BNC2010	SUMIBORON BN1000	SUMIDIA Binderless NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIDIA DA1000	AX H1	SUMIBORON BNC2020	SUMIBORON BN2000	SUMIDIA DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC420K	No Chipbreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIDIA DA1000	-	SUMIBORON BNC300	SUMIBORON BN350	-
Recommended Cutting Conditions	A10 on			A14 on			A16 on			A18 on			A22 on		A20 on		M2 on

★ = World Wide Warehouse Item

M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

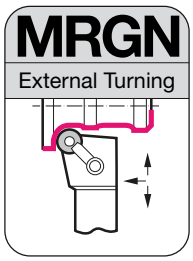
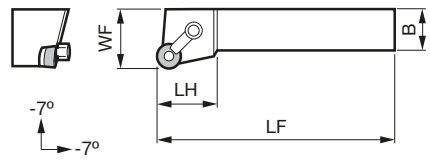


Fig 1



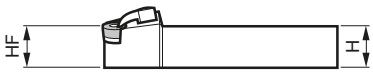


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MRGN R/L 123B**	★	★	0.750	0.750	4.500	1.000	0.750	0.810	RN□□32□	B39	1	3.0	—	NL33	LH1/8	LH5/64	CL20	XNS48
	MRGN R/L 124B	★	★	0.750	0.750	4.500	1.000	0.750	1.060	RN□□43□		1	3.0	IRSN43	NL46	LH1/8	LH3/32	CL20	XNS48
	MRGN R/L 164D	★	★	1.000	1.000	6.000	1.250	1.000	1.060			1							
	MRGN R/L 204D	★	★	1.250	1.250	6.000	1.500	1.250	1.060			1							
	MRGN R/L 854D	★	★	1.250	1.000	6.000	1.250	1.250	1.060			1							
	MRGN R/L 864D	★	★	1.500	1.000	6.000	1.250	1.500	1.060			1							
	MRGN R/L 165D	★	★	1.000	1.000	6.000	1.250	1.000	1.250	RN□□54□		1	3.5	IRSN53	NL58	LH040	LH1/8	CL12	XNS510
	MRGN R/L 205D	★	★	1.250	1.250	6.000	1.500	1.250	1.250			1							
	MRGN R/L 166D	★	★	1.000	1.000	6.000	1.250	1.000	1.380	RN□□64□		1	3.5	IRSN63	NL68	LH040	LH9/64	CL12	XNS510
	MRGN R/L 206D	★	★	1.250	1.250	6.000	1.500	1.250	1.380			1							
	MRGN R/L 246E	★	★	1.500	1.500	7.000	2.000	1.500	1.380			1							
	MRGN R/L 248E	★	★	1.500	1.500	7.000	2.000	1.500	1.440	RN□□86□		1	3.5	IRSN84	NL810	LH040	LH040	CL30	XNS510

★ = World Wide Warehouse Item

DSDN / DSRN-AN

S 90° 45°

D Style Holder - General Turning and Chamfering
Double Clamp

DSDN

External / Chamfering

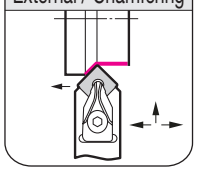


Fig 1

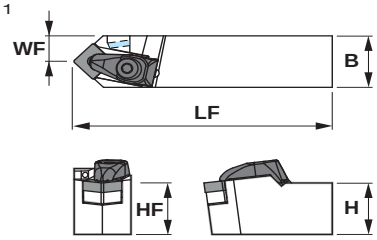
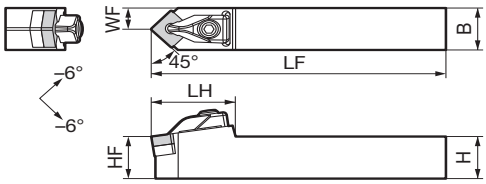


Fig 2



Dimensions (inch/ *mm*)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	Clamp Set N·m	Shim	Shim Screw	Shim Wrench (Torx Holes)	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)	Clamp	Spring	Clamp Screw	Optional Hardware Clamp for Dimple CBN	
Inch	**DSDNN124BAN***	★	0.750	0.750	4.50	0.375	0.750	–	SN□□43□	**B41**	1	—	3.5	ISSN442	ST-1766	—	LH040	LH025	CL-2712	SP-4295	CLB-1696	CL-2435	ST-1086
Inch	**DSDNN164DAN***	★	1.000	1.000	6.00	0.500	1.000	–			1												
Inch	**DSDNN205DAN***	★	1.250	1.250	6.00	0.625	1.250	–	SN□□54□	**B44**	1	—	3.5	ISSN533	ST-1768	—			CL-2716	SP-4295	CLB-1696	—	—
Inch	**DSDNN206DAN***	★	1.250	1.250	6.00	0.625	1.250	–	SN□□64□	**B46**	1	—	3.5	ISSN633	ST-1770	—			CL-2719	SP-4295	CLB-1696		
Inch	**DSDNN246EAN***	★	1.500	1.500	7.00	0.750	1.500	–			1												
Metric	**DSDNN2020K12**	★	*20*	*20*	*125*	*10.0*	*20*	*36*	SN□□43□	**B41**	2	SCP-2	5.0	SNS1204	BFTX0409N	TRX15			—	—	—		
Metric	**DSDNN2525M12**	★	*25*	*25*	*150*	*12.5*	*25*	*36*			2												

* Coolant Through (see page F29 for example and list of coolant-through parts)

Clamp Set Parts ☞ C63

S 90° 45°

D Style Holder - General Turning, Facing and Chamfering
Double Clamp

DSRN

External Turning

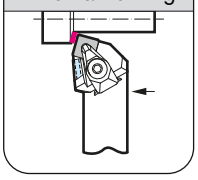
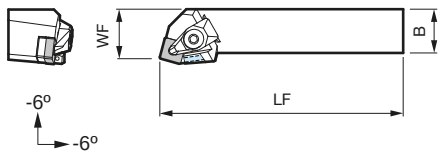


Fig 1



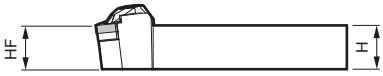


Figure shows right-hand (R) tool.

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Shim Screw	Clamp Wrench (Hex Socket)	Shim Wrench (Hex Socket)	Clamp	Spring	Clamp Screw	Optional Hardware Clamp for Dimple CBN	
Inch	**DSRN R/L 124BAN***	★	★	0.750	0.750	4.50	0.880	0.750	1.375	SN□□43□	**B41**	1	3.5	ISSN442	ST-1766	LH050		CL-2712	SP-4295	CLB-1696	CL-2435	ST-1086
Inch	**DSRN R/L 164DAN***	★	★	1.000	1.000	6.00	1.130	1.000	1.375			1										
Inch	**DSRN R/L 205DAN***	★	★	1.250	1.250	6.00	1.353	1.250	1.375	SN□□54□	**B44**	1	3.5	ISSN533	ST-1768	LH050		CL-2716	SP-4295	CLB-1696	–	–
Inch	**DSRN R/L 206DAN***	★	★	1.250	1.250	6.00	1.321	1.250	1.375	SN□□64□	**B46**	1	3.5	ISSN633	ST-1770	LH050		CL-2719	SP-4295	CLB-1696		

* Coolant Through (see page F29 for example and list of coolant-through parts)

Applicable Inserts ◄·· DSBN/DSDN/DSSN/PSBN/PSDN/PSSN/PSKN/ESBN/ESDN/ESSN/ESKN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Process \ Cutting Range	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	SUMIBORON BN7000/BNC500	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIBORON BNC2010	SUMIBORON BN1000	SUMIDIA Binderless NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN2000	SUMIDIA DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC420K	No Chipbreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN350	-
Recommended Cutting Conditions	☞ A10 on			☞ A14 on			☞ A16 on			☞ A18 on			☞ A20 on		☞ M2 on

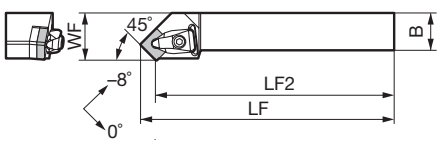
BNC500 is for ductile cast iron.

★ = World Wide Warehouse Item

DSSN / MSDN

D Style Holder - General Turning, Facing and Chamfering
Double Clamp

Fig 1



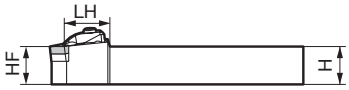


Figure shows right-hand (R) tool.

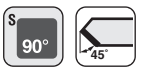
Holder / Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Shim Wrench (For Torx Holes)	Clamp Wrench (Hex Socket)	Pin/ Shim Wrench (Hex Socket)	Clamp	Spring	Clamp Screw	Optional Hardware Clamp for Dimple CBN
Inch	**DSSN R/L 124BN**	★	★	0.750	0.750	4.50	1.000	0.750	1.457	SN□□43□	**B41**	1	-	3.5	ISSN442	ST-1766	–	LH040		CL-2712	SP-4295	CLB-1696	CL-2435	ST-1086
	DSSN R/L 164DN	★	★	1.000	1.000	6.00	1.250	1.000	1.457			1											
	DSSN R/L 204DN	★	★	1.250	1.250	6.00	1.500	1.250	1.457			1											
	DSSN R/L 206DN	★	★	1.250	1.250	6.00	1.500	1.250	1.772	SN□□64□	**B46**	1	-	3.5	ISSN633	ST-1770	–	LH040		CL-2719				
	DSSN R/L 246EN	★	★	1.500	1.500	7.00	2.000	1.500	1.772			1											
Metric	**DSSN R/L 2020K12**	★	★	*20*	*20*	*133.3*	*25*	*20*	*30*	SN□□43□	**B41**	1	SCP-2	5.0	SNS1204	BFTX0409N	TRX15(*)	LH040	LH025	–	–	–	–	–
	DSSN R/L 2525M12	★	★	*25*	*25*	*158.3*	*32*	*25*	*30*			1												
	DSSN R/L 2525M15	★	★	*25*	*25*	*160.2*	*32*	*25*	*30*	SN□□54□	**B44**	1	SCP-3	5.0	SNS1506	BFTX0509N	TRX20(*)	LH040	LH025	–	–	–	–	–
	DSSN R/L 3232P15	★	★	*32*	*32*	*180.2*	*40*	*32*	*30*			1												
	DSSN R/L 3232P19	★	★	*32*	*32*	*182.5*	*40*	*32*	*36*	SN□□64□	**B46**	1	SCP-5	5.0	SNS1906	BFTX0511N	TRX20(*)	LH040	LH025	–	–	–	–	–
	DSSN R/L 4040S19	★	★	*40*	*40*	*262.5*	*50*	*40*	*36*			1												
	DSSN R/L 4040S2507	★	★	*40*	*40*	*266.0*	*50*	*40*	*47*	SN□□85□	**B47**	1	SCP-6	6.0	SNS2507	BFTX0615N	TRD25(*)	LH060	–	–	–	–	–	–
	DSSN R/L 4040S2509	★	★	*40*	*40*	*266.0*	*50*	*40*	*47*	SN□□86□	**B48**	1	SCP-6	6.0	SNS2509	BFTX0615N	TRD25(*)	LH060	–	–	–	–	–	–

Wrench for shim is sold separately from the main body.

Clamp Set Parts ☞ C3



M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

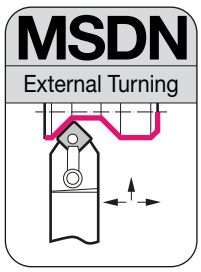
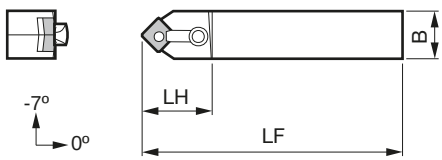
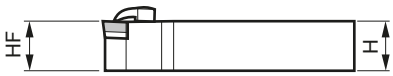


Fig 1





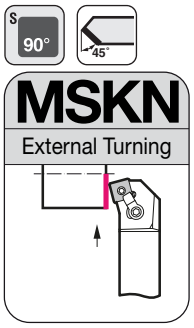
Holder / Parts

Dimensions (inch)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MSDNN083A**	★	0.500	0.500	4.00	–	0.500	1.000	SN□□32□	**B40**	1	3.5	ISSN322	NL34	LH3/32	LH5/64	CL6	XNS36
	MSDNN103B	★	0.625	0.625	4.50	–	0.625	1.000			1							
	MSDNN124B	★	0.750	0.750	4.50	–	0.750	1.300	SN□□43□	**B41**	1	3.0	ISSN432	NL46	LH1/8	LH3/32	CL20	XNS48
	MSDNN164D	★	1.000	1.000	6.00	–	1.000	1.300			1							
	MSDNN854D	★	1.250	1.000	6.00	–	1.250	1.300			1							
	MSDNN165D	★	1.000	1.000	6.00	–	1.000	1.500	SN□□54□	**B44**	1	3.5	ISSN533	NL58	LH040	LH1/8	CL12	XNS510
	MSDNN205D	★	1.250	1.250	6.00	–	1.250	1.500			1							
	MSDNN855D	★	1.250	1.000	6.00	–	1.250	1.500			1							
	MSDNN166D	★	1.000	1.000	6.00	–	1.000	1.730	SN□□64□	**B46**	1	3.5	ISSN633	NL68	LH040	LH9/64	CL12	XNS510
	MSDNN206D	★	1.250	1.250	6.00	–	1.250	1.730			1							
	MSDNN246E	★	1.500	1.500	7.00	–	1.500	1.730			1							
	MSDNN856D		1.250	1.000	6.00	–	1.250	1.730			1							

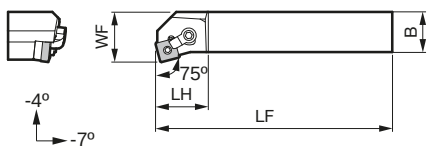
★= World Wide Warehouse Item

MSKN / MSRN



M Style Holder - Facing
Clamp-on + Pin Lock

Fig 1



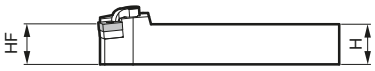
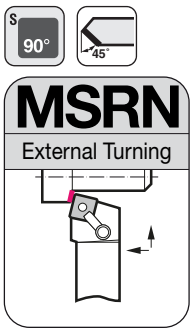


Figure shows right-hand (R) tool.

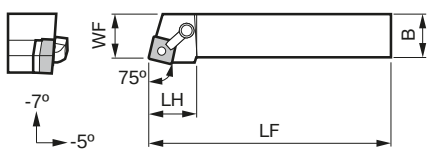
Holder / Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	MSKN R/L 124B	★	★	0.750	0.750	4.500	1.000	0.750	1.220	SN□□43□	B41	1	3.0	ISSN432	NL46	LH1/8	LH3/32	CL20	XNS48
	MSKN R/L 164D	★	★	1.000	1.000	6.000	1.250	1.000	1.220			1							
	MSKN R/L 165D	★	★	1.000	1.000	6.000	1.250	1.000	1.410	SN□□54□	B44	1	3.5	ISSN533	NL58	LH040	LH1/8	CL12	XNS510
	MSKN R/L 205D	★	★	1.250	1.250	6.000	1.500	1.250	1.410			1							
	MSKN R/L 855D	★	★	1.250	1.000	6.000	1.250	1.250	1.410			1							
	MSKN R/L 206D	★	★	1.250	1.250	6.000	1.500	1.250	1.500	SN□□64□	B46	1	3.5	ISSN633	NL68	LH040	LH9/64	CL12	XNS510
	MSKN R/L 246E	★	★	1.500	1.500	7.000	2.000	1.500	1.500			1							



M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

Fig 1



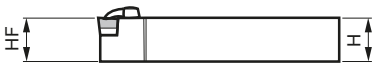


Figure shows right-hand (R) tool.

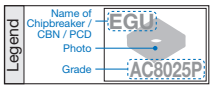
Holder / Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	MSRN R/L 124B	•	•	0.750	0.750	4.500	0.880	0.750	1.250	SN□□43□	B41	1	3.0	ISSN432	NL46	LH1/8	LH3/32	CL20	XNS48
	MSRN R/L 164D	•	•	1.000	1.000	6.000	1.130	1.000	1.250			1							
	MSRN R/L 165D	★	★	1.000	1.000	6.000	1.103	1.000	1.500	SN□□54□	B44	1	3.5	ISSN533	NL58	LH040	LH1/8	CL12	XNS510
	MSRN R/L 205D	•	•	1.250	1.250	6.000	1.353	1.250	1.500			1							
	MSRN R/L 206D	•	•	1.250	1.250	6.000	1.321	1.250	1.590	SN□□64□	B46	1	3.5	ISSN633	NL68	LH040	LH9/64	CL12	XNS510
	MSRN R/L 246E	★	★	1.500	1.500	7.000	1.821	1.500	1.590			1							
	MSRN R/L 248E	★	★	1.500	1.500	7.000	1.770	1.500	1.890	SN□□86□	B48	1	3.5	ISSN846	NL810	LH040	LH040	CL30	XNS510

Applicable Inserts ◄·· DSBN/DSDN/DSSN/PSBN/PSDN/PSSN/PSKN/ESBN/ESDN/ESSN/ESKN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	SUMIBORON BN7000/BNC500	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIBORON BNC2010	SUMIBORON BN1000	SUMIDIA Binderless NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN2000	SUMIDIA DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC420K	No Chipbreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN350	-
Recommended Cutting Conditions	A10 on			A14 on			A16 on			A18 on			A20 on		M2 on

BNC500 is for ductile cast iron.

●= USA Stocked Item ★= World Wide Warehouse Item

MSSN / PSBN

M Type Style - General Turning and Profiling
Clamp-on + Pin Lock

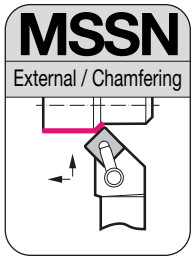
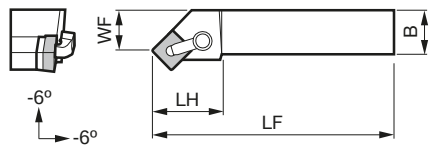


Fig 1



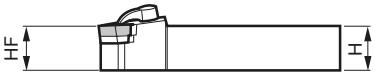


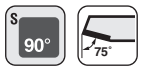
Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MSSN R/L 124B**	★	★	0.750	0.750	4.500	0.675	0.750	1.230	SN□□43□	**B41**	1	3.0	ISSN432	NL46	LH1/8	LH3/32	CL20	XNS48
	MSSN R/L 164D	★	★	1.000	1.000	6.000	0.925	1.000	1.230			1							
	MSSN R/L 165D	•	★	1.000	1.000	6.000	0.847	1.000	1.380	SN□□54□	**B44**	1	3.5	ISSN533	NL58	LH040	LH1/8	CL12	XNS510
	MSSN R/L 205D	•	★	1.250	1.250	6.000	1.097	1.250	1.380			1							
	MSSN R/L 206D	★	★	1.250	1.250	6.000	1.011	1.250	1.470	SN□□64□	**B46**	1	3.5	ISSN633	NL68	LH040	LH9/64	CL12	XNS510
	MSSN R/L 246E	•	★	1.500	1.500	7.000	1.511	1.500	1.470			1							
	MSSN R/L 866E	★	★	1.500	1.000	7.000	0.761	1.500	1.470			1							



70 Type Style - General Turning and Profiling
Lever Lock

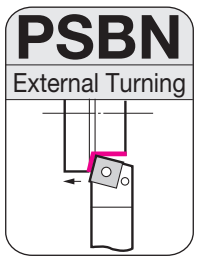


Fig 1

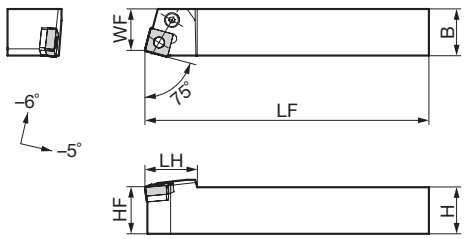


Figure shows right-hand (R) tool.

Holder

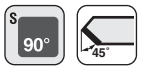
Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PSBN R/L 1616H09	★	★	*16*	*16*	*100*	*13*	*16*	*22*	SN□□32□	**B40**	1	LCL3	LCS3	LSS32	LSP3	LH025
PSBN R/L 2020K12	★	★	*20*	*20*	*125*	*17*	*20*	*28*	SN□□43□	**B41**	1	LCL4	LCS4	LSS42	LSP4	LH030
PSBN R/L 2520M12			*25*	*20*	*150*	*17*	*25*	*28*			1					
PSBN R/L 2525M12	★	★	*25*	*25*	*150*	*22*	*25*	*28*			1					
PSBN R/L 3225P12			*32*	*25*	*170*	*22*	*32*	*28*			1					
PSBN R/L 3232P12			*32*	*32*	*170*	*27*	*32*	*35*			1					
PSBN R/L 3225P15			*32*	*25*	*170*	*22*	*32*	*35*	SN□□54□	**B44**	1	LCL5	LCS5	LSS53	LSP5	LH030
PSBN R/L 3232P15	★	★	*32*	*32*	*170*	*27*	*32*	*35*			1					
PSBN R/L 3232P19	★	★	*32*	*32*	*170*	*27*	*32*	*40*	SN□□64□	**B46**	1	LCL6	LCS6	LSS63	LSP6	LH040
PSBN R/L 4040R19			*40*	*40*	*200*	*35*	*40*	*40*			1					
PSBN R/L 5050S25			*50*	*50*	*250*	*43*	*50*	*50*	SN□□86□	**B48**	1	LCL8	LCS8	LSS84	LSP8	LH050

●= USA Stocked Item ★= World Wide Warehouse Item

PSDN



70 Style Holder - General Turning and Chamfering
Lever Lock

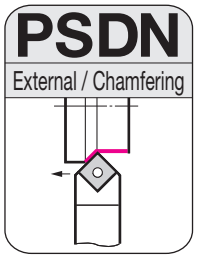
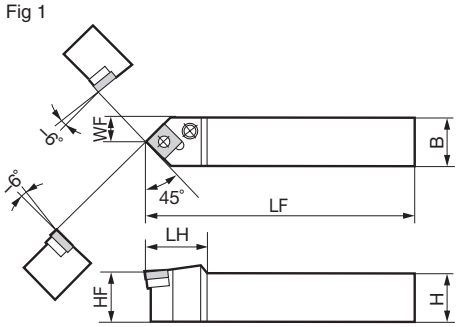


Fig 1



Holder

Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Parts: Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PSDNN1616H09	★	*16*	*16*	*100*	*8.0*	*16*	*22*	SN□□32□	**B40**	1	LCL3	LCS3	LSS32	LSP3	LH025
PSDNN2020K12	★	*20*	*20*	*125*	*10.0*	*20*	*30*	SN□□43□	**B41**	1	LCL4	LCS4	LSS42	LSP4	LH030
PSDNN2520M12		*25*	*20*	*150*	*10.0*	*25*	*30*			1					
PSDNN2525M12	★	*25*	*25*	*150*	*12.5*	*25*	*30*			1					
PSDNN3225P12		*32*	*25*	*170*	*12.5*	*32*	*30*			1					
PSDNN3232P12	★	*32*	*32*	*170*	*16.0*	*32*	*40*			1					
PSDNN3225P15		*32*	*25*	*170*	*12.5*	*32*	*40*	SN□□54□	**B44**	1	LCL5	LCS5	LSS53	LSP5	LH030
PSDNN3232P15		*32*	*32*	*170*	*16.0*	*32*	*40*			1					
PSDNN3232P19	★	*32*	*32*	*170*	*16.0*	*32*	*40*	SN□□64□	**B46**	1	LCL6	LCS6	LSS63	LSP6	LH040
PSDNN4040R19		*40*	*40*	*200*	*20.0*	*40*	*40*			1					

Applicable Inserts ◄·· DSBN/DSDN/DSSN/PSBN/PSDN/PSSN/PSKN/ESBN/ESDN/ESSN/ESKN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Process \ Cutting Range	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	SUMIBORON BN7000/BNC500	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIBORON BNC2010	SUMIBORON BN1000	SUMIDIA Binderless NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN2000	SUMIDIA DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC420K	No ChipBreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN350	-
Recommended Cutting Conditions	☞ A10 on			☞ A14 on			☞ A16 on			☞ A18 on			☞ A20 on		☞ M2 on

★ = World Wide Warehouse Item

BNC500 is for ductile cast iron.

PSSN / PSKN

70 Style Holder - General Turning, Facing and Chamfering
Lever Lock

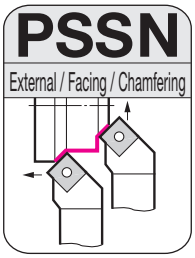


Fig 1

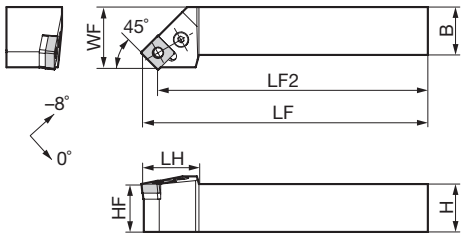


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Overall Length 2 LF2	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PSSN R/L 1616H09	★	★	*16*	*16*	*100*	*93.8*	*20*	*16*	*22*	SN□□32□	**B40**	1	LCL3	LCS3	LSS32	LSP3	LH025
PSSN R/L 2020K12	★	★	*20*	*20*	*125*	*116.7*	*25*	*20*	*30*	SN□□43□	**B41**	1	LCL4	LCS4	LSS42	LSP4	LH030
PSSN R/L 2520M12			*25*	*20*	*150*	*141.7*	*25*	*25*	*30*			1					
PSSN R/L 2525M12	★	★	*25*	*25*	*150*	*141.7*	*32*	*25*	*30*			1					
PSSN R/L 3225P12			*32*	*25*	*170*	*161.7*	*32*	*32*	*30*			1					
PSSN R/L 3232P12			*32*	*32*	*170*	*161.7*	*40*	*32*	*30*			1					
PSSN R/L 3225P15			*32*	*25*	*170*	*159.8*	*32*	*32*	*40*	SN□□54□	**B44**	1	LCL5	LCS5	LSS53	LSP5	LH030
PSSN R/L 3232P15	★	★	*32*	*32*	*170*	*159.8*	*40*	*32*	*40*			1					
PSSN R/L 3232P19	★	★	*32*	*32*	*170*	*157.5*	*40*	*32*	*40*	SN□□64□	**B46**	1	LCL6	LCS6	LSS63	LSP6	LH040
PSSN R/L 4040R19			*40*	*40*	*200*	*187.5*	*50*	*40*	*40*			1					

When using handed breaker inserts for facing, the holder and insert are opposite handed.

70 Style Holder - Facing
Lever Lock

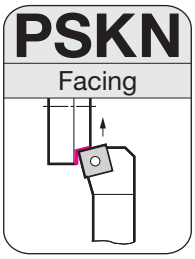


Fig 1

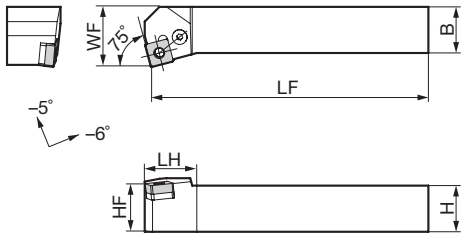


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PSKN R/L 1616H09	★	★	*16*	*16*	*100*	*20*	*16*	*20*	SN□□32□	**B40**	1	LCL3	LCS3	LSS32	LSP3	LH025
PSKN R/L 2020K12	★	★	*20*	*20*	*125*	*25*	*20*	*26*	SN□□43□	**B41**	1	LCL4	LCS4	LSS42	LSP4	LH030
PSKN R/L 2520M12			*25*	*20*	*150*	*25*	*25*	*26*			1					
PSKN R/L 2525M12	★	★	*25*	*25*	*150*	*32*	*25*	*26*			1					
PSKN R/L 3225P12			*32*	*25*	*170*	*32*	*32*	*26*			1					
PSKN R/L 3232P12			*32*	*32*	*170*	*32*	*32*	*26*			1					
PSKN R/L 3225P15			*32*	*25*	*170*	*32*	*32*	*32*	SN□□54□	**B44**	1	LCL5	LCS5	LSS53	LSP5	LH030
PSKN R/L 3232P15			*32*	*32*	*170*	*32*	*32*	*32*			1					
PSKN R/L 3232P19	★	★	*32*	*32*	*170*	*40*	*32*	*36*	SN□□64□	**B46**	1	LCL6	LCS6	LSS63	LSP6	LH040
PSKN R/L 4040R19			*40*	*40*	*200*	*50*	*40*	*36*			1					
PSKN R/L 5050S25			*50*	*50*	*250*	*60*	*50*	*50*	SN□□86□	**B48**	1	LCL8	LCS8	LSS84	LSP8	LH050

When using handed breaker inserts for facing, the holder and insert are opposite handed.

★= World Wide Warehouse Item

DTGN / DTJN-AN / MTAN

T 60° 91°

D Style Holder - General Turning and Profiling
Double Clamp

DTGN

External Turning

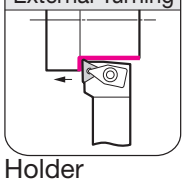
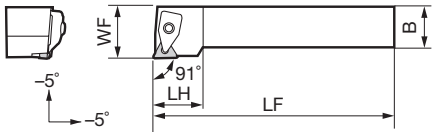


Fig 1



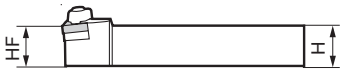


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Shim Wrench (For Torx Holes)	Clamp Wrench (For Hex Socket)	Pin/ Shim Wrench (For Hex Socket)	Clamp	Spring	Clamp Screw
Inch	**DTGN R/L 123BN**	★	★	0.750	0.750	4.500	0.750	0.750	1.102	TN□□33□	**B52**	1	—	**3.5**	ITSN342	ST-1764	—	LH040		CL-2708	SP-4294	CLB-1695
	DTGN R/L 163DN	★	★	1.000	1.000	6.000	1.000	1.000	1.102			1										
	DTGN R/L 164DN	★	★	1.000	1.000	6.000	1.250	1.000	1.338	TN□□43□	**B56**	1	—	**3.5**	ITSN443	ST-1766	—	LH040		CL-2712	SP-4295	CLB-1696
	DTGN R/L 204DN	★	★	1.250	1.250	6.000	1.250	1.250	1.338			1										
Metric	**DTGN R/L 2020K16**	★	★	*20*	*20*	*125*	*25*	*20*	*31*	TN□□33□	**B52**	1	SCP-1	**5.0**	TNS1604	BFTX0307N	TRX10	LH040	LH025	—	—	—
	DTGN R/L 2525M16	★	★	*25*	*25*	*150*	*32*	*25*	*31*			1										

* Wrench for shim is sold separately from the main body.

Clamp Set Parts C3

DTJN-AN

Toolholder / Multipurpose

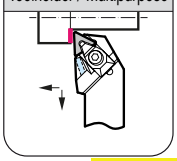
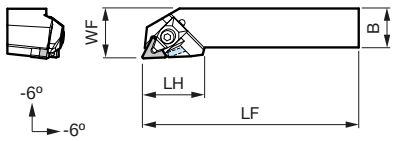


Fig 1



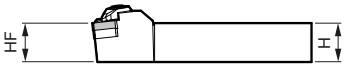


Figure shows right-hand (R) tool.

Holder *Coolant Through (see page F29 for example and list of coolant-through parts) Parts

Clamp Set Parts C3

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Spring	Clamp Screw
Inch	**DTJN R/L 123BAN***	★	★	0.750	0.750	4.500	1.000	0.750	1.250	TN□□33□	**B52**	1	**3.5**	ITSN342	ST-1764	LH040		CL-2708	SP-4294	CLB-1695
	DTJN R/L 163DAN*	★	★	1.000	1.000	6.000	1.250	1.000	1.250			1								
	DTJN R/L 164DAN*	★	★	1.000	1.000	6.000	1.250	1.000	1.375	TN□□43□	**B56**	1	**3.5**	ITS443	ST-1766	LH040		CL-2712	SP-4295	CLB-1696
	DTJN R/L 204DAN*	★	★	1.250	1.250	6.000	1.500	1.250	1.250			1								
	DTJN R/L 244EAN*	★	★	1.500	1.500	7.000	2.000	1.500	1.375			1								

T 60° 91°

M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

MTAN

External / Profiling

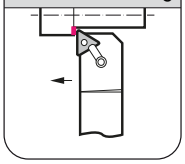
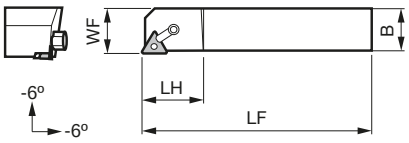


Fig 1



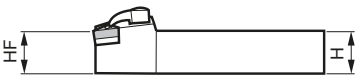


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MTAN R/L 082A**	★	★	0.500	0.500	4.000	0.500	0.500	0.875	TN□□22□	**B51**	1	**3.5**	—	NL23	LH3/32	LH1/16	CL7	XNS-34
	MTAN R/L 103B			0.625	0.625	4.500	0.625	0.625	0.875	TN□□32□		1	**3.0**	ITSN323	NL34L	LH020	LH030	CL20	XNS48
	MTAN R/L 123B	★	★	0.750	0.750	4.500	0.750	0.750	1.060	TN□□33□	**B52**	1	**3.0**			LH1/8	LH5/64		
	MTAN R/L 163D	★	★	1.000	1.000	6.000	1.000	1.000	1.060			1							
	MTAN R/L 164D	★	★	1.000	1.000	6.000	1.000	1.000	1.220	TN□□43□	**B56**	1	**3.0**	ITSN433	NL46	LH1/8	LH3/32		
	MTAN R/L 205D	★	★	1.250	1.250	6.000	1.250	1.250	1.430	TN□□54□	**B59**	1	**3.5**	ITSN533	NL58	LH040	LH1/8	CL12	XNS-510
	MTAN R/L 245D	★	★	1.500	1.500	6.000	1.500	1.500	1.430			1							

★ = World Wide Warehouse Item

MTCN / MTENNS

M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

MTCN
External Turning

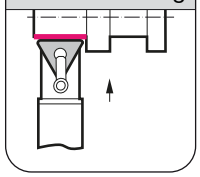
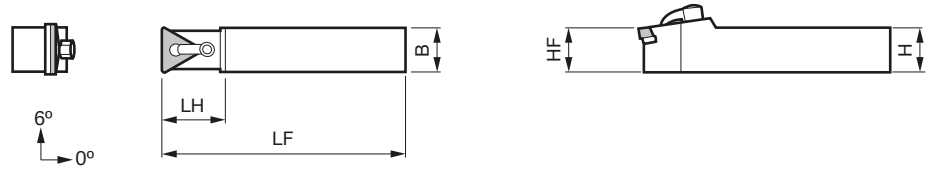


Fig 1



Holder / Parts — Dimensions (inch)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MTCNN443F**	★	1.000	0.500	8.000	—	1.000	0.875	TN□□33□	**B52**	1	3.0	ITSN-322	NL34L	LH1/8	LH5/64	CL20	XNS48
	MTCNN124B	★	0.750	0.750	4.500	—	0.750	1.060	TN□□43□	**B56**	1	3.5	ITSN-433	NL46	LH040	LH3/32	CL12	XNS58
	MTCNN644F	★	1.000	0.750	8.000	—	1.000	1.060			1							XNS510
	MTCNN664F	★	1.500	0.750	8.00	—	1.500	1.220			1							

M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

MTENNS
External / Copying

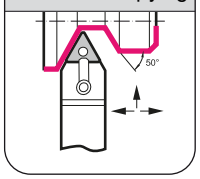
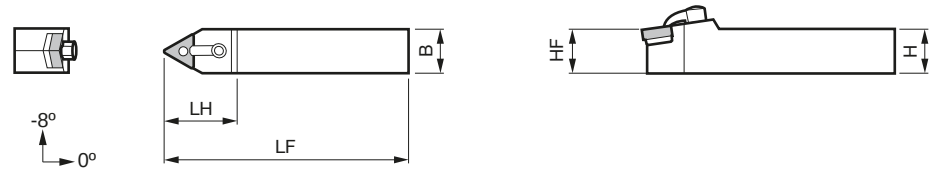


Fig 1



Holder / Parts — Dimensions (inch)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MTENNS082A**	★	0.500	0.500	4.000	—	0.500	1.000	TN□□22□	**B51**	1	3.5	—	NL23	LH3/32	LH1/16	CL7	XNS-34
	MTENNS103B	★	0.625	0.625	4.500	—	0.625	1.125	TN□□33□	**B52**	1	3.5	ITSN322	NL34L	LH3/32	LH5/64	CL6	XNS36
	MTENNS123B	★	0.750	0.750	4.500	—	0.750	1.300			1	3.0			LH1/8		CL20	XNS48
	MTENNS163D	★	1.000	1.000	6.000	—	1.000	1.300			1							
	MTENNS164D	★	1.000	1.000	6.000	—	1.000	1.500	TN□□43□	**B56**	1	3.0	ITSN433	NL46	LH1/8	LH3/32	CL20	XNS48
	MTENNS205D	★	1.250	1.250	6.000	—	1.250	1.732	TN□□54□	**B59**	1	3.5	ITSN533	NL58	LH040	LH1/8	CL12	XNS510
	MTENNS246E	★	1.500	1.500	7.000	—	1.500	2.086	TN□□66□	**B60**	1	3.5	ITSN637	NL68L	LH040	LH9/64	CL12	XNS510

Applicable Inserts ◀·· DTGN/DTFN/PTGN/PTTN/PTFN/ETGN/ETAN/ETFN/ETEN/ETXN/MTJN/MTXN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	N (Non-ferrous) —	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	SUMIBORON BN7000/BNC500	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIDIA DA1000	SUMIBORON BNC2010	SUMIBORON BN1000
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIDIA DA1000	SUMIBORON BNC2020	SUMIBORON BN2000
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC420K	EGZ AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIDIA DA1000	SUMIBORON BNC300	SUMIBORON BN350
Recommended Cutting Conditions	☞ A10 on			☞ A14 on			☞ A16 on			☞ A18 on			☞ A22 on	☞ A20 on	

★ = World Wide Warehouse Item

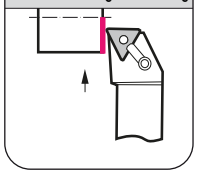
BNC500 is for ductile cast iron.

N·m Recommended Tightening Torque (N·m)

MTFN / MTGN

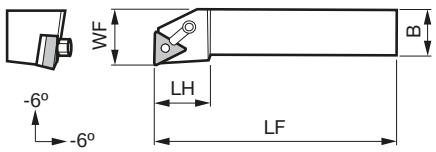
MTFN

External Turning and Facing



M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

Fig 1



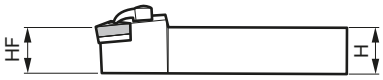


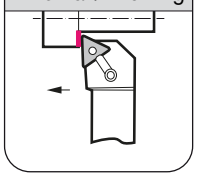
Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MTFN R/L 123B**	★	★	0.750	0.750	4.500	1.000	0.750	1.000	TN□□33□	**B52**	1	3.0	ITSN322	NL34L	LH1/8	LH5/64	CL20	XNS48
	MTFN R/L 163D	★	★	1.000	1.000	6.000	1.250	1.000	1.000			1							
	MTFN R/L 164D	★	★	1.000	1.000	6.000	1.250	1.000	1.000	TN□□43□	**B56**	1	3.0	ITSN433	NL46	LH1/8	LH3/32	CL20	XNS48
	MTFN R/L 204D	★	★	1.250	1.250	6.000	1.500	1.250	1.000			1							
	MTFN R/L 854D	★	★	1.250	1.000	6.000	1.250	1.250	1.000			1							
	MTFN R/L 864D	★	★	1.500	1.000	6.000	1.250	1.500	1.000			1							
	MTFN R/L 165D	★	★	1.000	1.000	6.000	1.250	1.000	1.440	TN□□54□	**B59**	1	3.5	ITSN533	NL58	LH040	LH1/8	CL12	XNS510
	MTFN R/L 205D	★	★	1.250	1.250	6.000	1.500	1.250	1.440			1							
	MTFN R/L 245E	★	★	1.500	1.500	7.000	2.000	1.500	1.440			1							
	MTFN R/L 855D	★	★	1.250	1.000	6.000	1.250	1.250	1.440			1							
	MTFN R/L 865D	★	★	1.500	1.000	6.000	1.250	1.500	1.440			1							

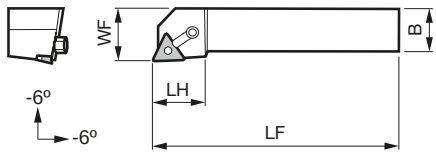
MTGN

External / Profiling



M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

Fig 1



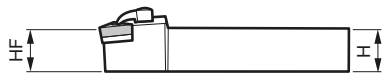


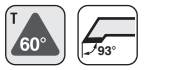
Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (inch)

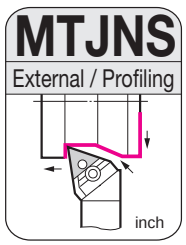
	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MTGN R/L 082A**	★	★	0.500	0.500	4.000	0.625	0.500	0.875	TN□□22□	**B51**	1	3.5	—	NL23	LH3/32	LH1/16	CL7	XNS-34
	MTGN R/L 103B	★	★	0.625	0.625	4.500	0.875	0.625	1.000	TN□□33□	**B52**	1	3.0	ITSN323	NL34L	LH1/8	LH5/64	CL20	XNS48
	MTGN R/L 123B	★	★	0.750	0.750	4.500	1.000	0.750	1.060			1							
	MTGN R/L 163D	★	★	1.000	1.000	6.000	1.250	1.000	1.375			1							
	MTGN R/L 164C	★	★	1.000	1.000	5.000	1.250	1.000	1.220	TN□□43□	**B56**	1	3.0	ITSN433	NL46	LH1/8	LH3/32	CL20	XNS48
	MTGN R/L 164D	★	★	1.000	1.000	6.000	1.250	1.000	1.220			1							
	MTGN R/L 204D	★	★	1.250	1.250	6.000	1.250	1.250	1.220			1							
	MTGN R/L 854D	★	★	1.250	1.000	6.000	1.250	1.250	1.220			1							
	MTGN R/L 864D	★	★	1.500	1.000	6.000	1.250	1.500	1.220			1							
	MTGN R/L 165D	★	★	1.000	1.000	6.000	1.250	1.000	1.440	TN□□54□	**B59**	1	3.5	ITSN533	NL-58	LH040	LH1/8	CL12	XNS510
	MTGN R/L 205D	★	★	1.250	1.250	6.000	1.250	1.250	1.440			1							
	MTGN R/L 245E	★	★	1.500	1.500	7.000	2.000	1.500	1.440			1							
	MTGN R/L 855D	★	★	1.250	1.000	6.000	1.250	1.250	1.440			1							
	MTGN R/L 865D	★	★	1.500	1.000	6.000	1.250	1.500	1.440			1							
	MTGN R/L 246E	★	★	1.500	1.500	7.000	2.000	1.500	1.500	TN□□66□	**B60**	1	3.5	ITSN637	NL68L	LH040	LH9/64	CL12	XNS510

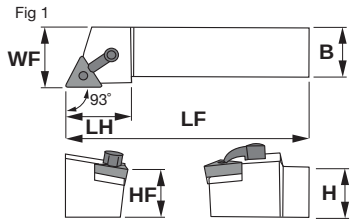
★ = World Wide Warehouse Item

MTJN(S) / MTXN



M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock





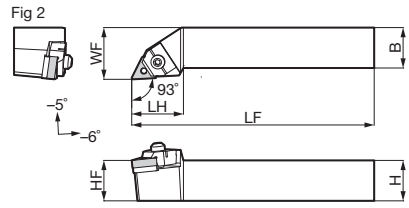


Figure shows right-hand (R) tool.

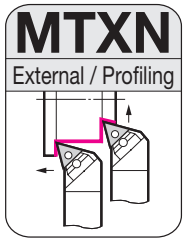
Holder Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp	Clamp Screw	Wedge	Lock Pin	Shim	Bolt	N·m	Nut	Ring	Bolt Wrench (For Hex Socket)	Pin Wrench (For Hex Socket)
Inch	**MTJN R/L 123B**	▲	▲	0.750	0.750	4.500	1.000	0.750	1.030	TN□□32□	**B51**		CL20	XNS48	—	NL34L	ITSN323	—	**3.0**	—	—	LH020	LH030
	MTJN R/L 163B	▲	▲	1.000	1.000	6.000	1.250	1.000	1.030														
	MTJN RS/LS 123B	★	★	0.750	0.750	4.500	1.000	0.750	1.030	TN□□33□	**B52**	1	CL20	XNS48	—	NL34L	ITSN-333	—	**3.0**	—	—	LH1/8	LH5/64
	MTJN RS/LS 163D	★	★	1.000	1.000	6.000	1.250	1.000	1.030			1											
	MTJNR124B	▲		0.750	0.750	4.500	1.000	0.750	1.190	TN□□43□	**B56**		CL20	XNS48	—	NL46	ITSN433	—	**3.0**	—	—	LH030	LH030
	MTJN R/L 164D	▲	▲	1.000	1.000	6.000	1.250	1.000	1.250														
	MTJN RS/LS 164D	★	★	1.000	1.000	6.000	1.250	1.000	1.250			1										LH1/8	LH3/32
	MTJN R/L 204E	▲	▲	1.250	1.250	7.000	1.250	1.250	1.190													LH030	
	MTJN RS/LS 204D	★	★	1.250	1.250	6.000	1.500	1.250	1.250			1										LH1/8	
	MTJN RS/LS 205D	★	★	1.250	1.250	6.000	1.500	1.250	1.440	TN□□ 54□	**B59**	1	CL12	XNS510	—	NL58	ITSN533	—	**3.5**	—	—	LH040	LH1/8
	MTJN RS/LS 246E	★	★	1.500	1.500	7.000	2.000	1.500	1.625	TN□□ 66□	**B60**	1	CL12	XNS510	—	NL68L	ITSN637	—	**3.5**	—	—	LH040	LH9/64
* Metric	**MTJN R/L 2020K16**	★	★	*20*	*20*	*125*	*25*	*20*	*32*	TN□□33□	**B52**	2	—	—	MMW30	MP317S	STW323	BHA0525	**4.0**	CPM32N	ER04	LH030	LH030
**	**MTJN R/L 2520M16**			*25*	*20*	*150*	*25*	*25*	*32*			2				MP320S							
**	**MTJN R/L 2525M16**	★	★	*25*	*25*	*150*	*32*	*25*	*32*			2				MP320S							
	MTJN R/L 2525M22	★	★	*25*	*25*	*150*	*32*	*25*	*38*	TN□□43□	**B56**	2	—	—	MMW40	MP420	STW434	BHA0625	**4.5**	CPM43N	ER05	LH040	LH030
	MTJN R/L 3225P22	★	★	*32*	*25*	*170*	*32*	*32*	*38*			2				MP420							

When using CIS standard inserts, the pin for holders marked * is MP317 and the pin for holders marked ** is MP320.

M Style Holder - General Turning and Facing
Clamp-on + Pin Lock



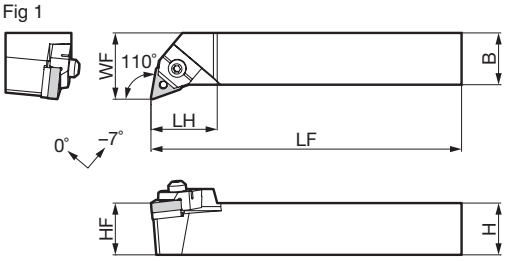


Figure shows right-hand (R) tool.

Holder Parts

Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Wedge	Lock Pin	Shim	Bolt	N·m	Nut	Ring	Bolt Wrench (For Hex Socket)	Pin Wrench (For Hex Socket)
*	**MTXN R/L 2020K16**	★	★	*20*	*20*	*125*	*25*	*20*	*32*	TN□□33□	**B52**	1	MMW30	MP317S	STW323	BHA0525	**4.0**	CPM32N	ER04	LH030	LH030
**	**MTXN R/L 2525M16**	★	★	*25*	*25*	*150*	*32*	*25*	*32*			1		MP320S							
	MTXN R/L 2525M22	★	★	*25*	*25*	*150*	*32*	*25*	*38*	TN□□43□	**B56**	1	MMW40	MP420	STW434	BHA0625	**4.5**	CPM43N	ER05	LH040	LH030

When using CIS standard inserts, the pin for holders marked * is MP317 and the pin for holders marked ** is MP320.
When using handed breaker inserts for facing, the holder and insert are opposite handed.

Applicable Inserts ◀·· DTGN/DTFN/PTGN/PTTN/PTFN/ETGN/ETAN/ETFN/ETEN/ETXN/MTJN/MTXN

1st Recommended Insert

* Refer as well to the Insert Selection Guide (page A10).
* Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD; Photo; Grade — EFU, EGU, AC8025P

Process \ Cutting Range	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	N (Non-ferrous) —	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	CBN BN7000/BNC500	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	PCD DA1000	CBN BNC2010	CBN BN1000
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	PCD DA1000	CBN BNC2020	CBN BN2000
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC420K	EGZ AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	PCD DA1000	CBN BNC300	CBN BN350
Recommended Cutting Conditions	☞ A10			☞ A14			☞ A16			☞ A18			☞ A22	☞ A20	

BNC500 is for ductile cast iron.

▲= Limited Availability Item ★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

M Style Holder - General Turning and Profiling
Clamp-on + Pin Lock

MTRN
External Turning

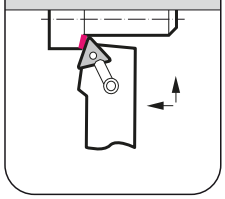
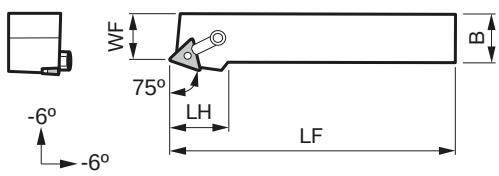


Fig 1



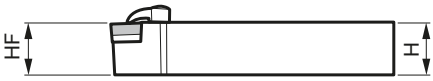


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MTRN R/L 123B**	★	★	0.750	0.750	4.500	0.855	0.750	1.160	TN□□33□	**B52**	1	**3.0**	ITSN-322	NL34L	LH1/8	LH5/64	CL20	XNS48
	MTRN R/L 163D	★	★	1.000	1.000	6.000	1.105	1.000	1.160			1							
	MTRN R/L 164D	★	★	1.000	1.000	6.000	1.048	1.000	1.380	TN□□43□	**B56**	1	**3.0**	ITSN433	NL46	LH1/8	LH3/32	CL20	XNS48
	MTRN R/L 204D	★	★	1.250	1.250	6.000	1.298	1.250	1.380			1							
	MTRN R/L 205D	★	★	1.250	1.250	6.000	1.252	1.250	1.560	TN□□54□	**B59**	1	**3.5**	ITSN533	NL58	LH040	LH1/8	CL12	XNS510
	MTRN R/L 245E	★	★	1.500	1.500	7.000	1.752	1.500	1.560			1							

70 Style Holder - Facing
Lever Lock

PTFN
Facing

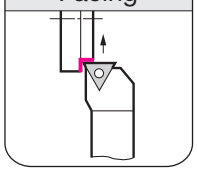
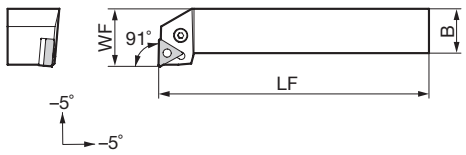


Fig 1



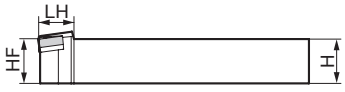


Figure shows right-hand (R) tool.

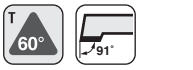
Holder — Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PTFN R/L 1616H16	★	★	*16*	*16*	*100*	*20*	*16*	*20*	TN□□33□	**B52**	1	LCL3	LCS3	LST317	LSP3	LH025
PTFN R/L 2020K16	★	★	*20*	*20*	*125*	*25*	*20*	*20*			1					
PTFN R/L 2520M16			*25*	*20*	*150*	*25*	*25*	*20*			1					
PTFN R/L 2525M16	★	★	*25*	*25*	*150*	*32*	*25*	*20*			1					
PTFN R/L 3225P16			*32*	*25*	*170*	*32*	*32*	*20*			1					
PTFN R/L 2525M22	★	★	*25*	*25*	*150*	*32*	*25*	*25*	TN□□43□	**B56**	1	LCL4	LCS4	LST42	LSP4	LH030
PTFN R/L 3225P22			*32*	*25*	*170*	*32*	*32*	*25*			1					
PTFN R/L 3232P22	★	★	*32*	*32*	*170*	*40*	*32*	*25*			1					
PTFN R/L 3232P27			*32*	*32*	*170*	*40*	*32*	*34*	TN□□54□	**B59**	1	LCL5	LCS5	LST53	LSP5	LH030
PTFN R/L 4040R27			*40*	*40*	*200*	*50*	*40*	*34*			1					

When using handed breaker inserts for facing, the holder and insert are opposite handed.

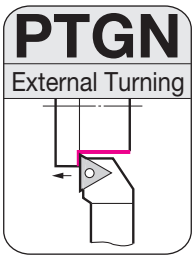
★= World Wide Warehouse Item

PTGN / PTTN



PTGN

External Turning



70 Style Holder - General Turning and Profiling
Lever Lock

Fig 1

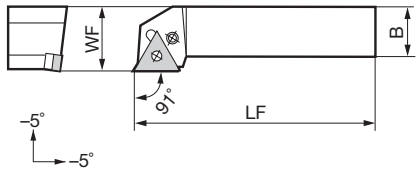


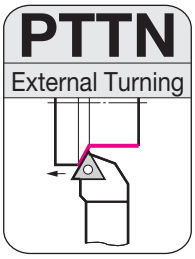
Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PTGN R/L 1616H16	★	★	*16*	*16*	*100*	*20*	*16*	*20*	TN□□33□	**B52**	1	LCL3	LCS3	LST317	LSP3	LH025
PTGN R/L 2020K16	★	★	*20*	*20*	*125*	*25*	*20*	*20*			1					
PTGN R/L 2520M16			*25*	*20*	*150*	*25*	*25*	*20*			1					
PTGN R/L 2525M16	★	★	*25*	*25*	*150*	*32*	*25*	*20*			1					
PTGN R/L 3225P16			*32*	*25*	*170*	*32*	*32*	*20*			1					
PTGN R/L 2525M22	★	★	*25*	*25*	*150*	*32*	*25*	*28*	TN□□43□	**B56**	1	LCL4	LCS4	LST42	LSP4	LH030
PTGN R/L 3225P22			*32*	*25*	*170*	*32*	*32*	*28*			1					
PTGN R/L 3232P22			*32*	*32*	*170*	*40*	*32*	*28*			1					
PTGN R/L 3232P27			*32*	*32*	*170*	*40*	*32*	*33*	TN□□54□	**B59**	1	LCL5	LCS5	LST53	LSP5	LH030
PTGN R/L 4040R27			*40*	*40*	*200*	*50*	*40*	*33*			1					

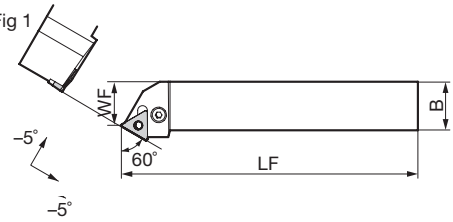
PTTN

External Turning



70 Style Holder - General Turning and Profiling
Lever Lock

Fig 1



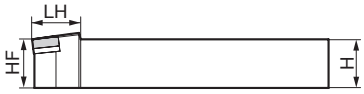


Figure shows right-hand (R) tool.

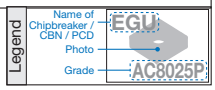
Holder / Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PTTN R/L 1616H16	★	★	*16*	*16*	*100*	*13*	*16*	*25*	TN□□33□	**B52**	1	LCL3	LCS3	LST317	LSP3	LH025
PTTN R/L 2020K16	★	★	*20*	*20*	*125*	*17*	*20*	*25*			1					
PTTN R/L 2520M16			*25*	*20*	*150*	*17*	*25*	*25*			1					
PTTN R/L 2525M16	★	★	*25*	*25*	*150*	*22*	*25*	*25*			1					
PTTN R/L 3225P16			*32*	*25*	*170*	*22*	*32*	*25*			1					
PTTN R/L 2525M22			*25*	*25*	*150*	*22*	*25*	*25*	TN□□43□	**B56**	1	LCL4	LCS4	LST42	LSP4	LH030
PTTN R/L 3225P22			*32*	*25*	*170*	*22*	*32*	*25*			1					

Applicable Inserts ◀·· DTGN/DTFN/PTGN/PTTN/PTFN/ETGN/ETAN/ETFN/ETEN/ETXN/MTJN/MTXN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	N (Non-ferrous) -	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	CBN BN7000/BNC500	EUZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	PCD DA1000	CBN BNC2010	CBN BN1000
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	PCD DA1000	CBN BNC2020	CBN BN2000
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC420K	EGZ AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	PCD DA1000	CBN BNC300	CBN BN350
Recommended Cutting Conditions	☞ A10 on			☞ A14 on			☞ A16 on			☞ A18 on			☞ A22 on	☞ A20 on	

BNC500 is for ductile cast iron.

★= World Wide Warehouse Item

WTENNS / WTJNS

70 Style Holder - General Turning and Profiling
Lever Lock

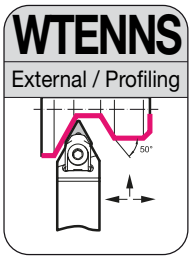
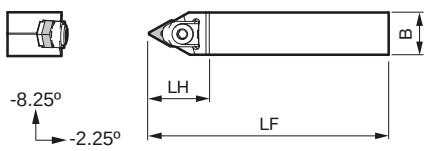
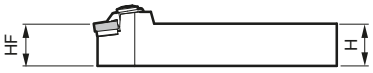


Fig 1





Holder | Parts

Dimensions (inch)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench	Shim Wrench	Wedge Clamp	Clamp Screw
Inch	**WTENNS123B**	★	0.750	0.750	4.500	–	0.750	1.300	TN□□33□	**B52**	1	4.0	SH-3414	PN-1642	LH3/16 (For Hex Socket)	(For Hex Socket)	CL-2013	CLB-1393
	WTENNS163D	★	1.000	1.000	6.000	–	1.000	1.300			1							
	WTENNS164D	★	1.000	1.000	6.000	–	1.000	1.500	TN□□43□	**B56**	1	4.0	ITSN433	PN-1661	LH3/16		CL-2029	CLB-1394
	WTENNS204D	★	1.250	1.250	6.000	–	1.250	1.500			1							

70 Style Holder - General Turning and Profiling
Lever Lock

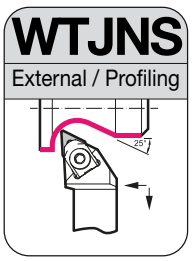
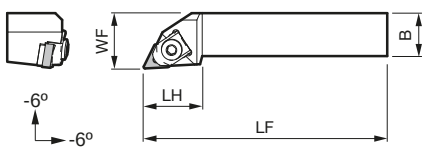


Fig 1



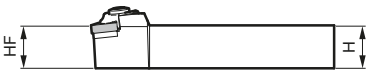


Figure shows right-hand (R) tool.

Holder | Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench	Shim Wrench	Wedge Clamp	Clamp Screw
Inch	**WTJN RS/LS 123B**	★	★	0.750	0.750	4.500	1.000	0.750	1.030	TN□□33□	**B52**	1	4.0	SH-3414	PN-1642	LH3/16 (For Hex Socket)	(For Hex Socket)	CL-2013	CLB-1393
	WTJN RS/LS 163D	★	★	1.000	1.000	6.000	1.250	1.000	1.030			1							
	WTJN RS/LS 164D	★	★	1.000	1.000	6.000	1.250	1.000	1.250	TN□□43□	**B56**	1	4.0	ITSN433	PN-1661	LH3/16		CL-2029	ST-1394
	WTJN RS/LS 204D	★	★	1.250	1.250	6.000	1.500	1.250	1.250			1							

★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

External Profiling
Double Clamp

SumiTurn T-REX

DTR55C

External / Profiling

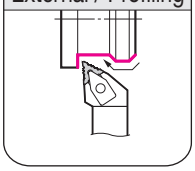


Fig 1

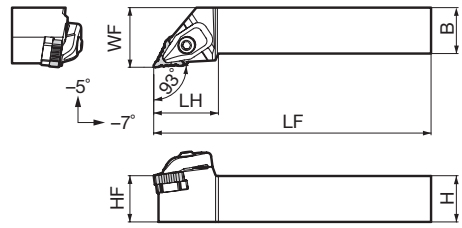


Figure shows right-hand (R) tool.

Holder Parts

Dimensions (Inch / *mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Fig	Clamp	Spring	Cap Screw	Cap Screw N·m	Shim	Shim Screw	Wrench (For Hex Socket)	Shim Wrench (For Torx Holes)
DTR55C R/L 123B	▲		.750	.750	4.50	1.00	.750	1.375	1	TRCP3	S-SP4-20	BX0520	3.5 to 4.5	TRW5505	BFTX0307N	TSW040	TRX10
DTR55C R/L 163D	▲	▲	1.00	1.00	6.00	1.25	1.00	1.375	1								
DTR55C R/L 2020-K17	★	★	*20*	*20*	*125*	*25*	*20*	*35*	1								
DTR55C R/L 2525-M17	★	★	*25*	*25*	*150*	*32*	*25*	*35*	1								

Wrench for shim is sold separately from the main body. S-DTR55C Type: Internal Profiling ☞ E27

External Profiling
Double Clamp

SumiTurn T-REX

DTR55Q

External Turning and Face Profiling

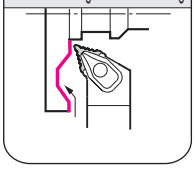


Fig 1

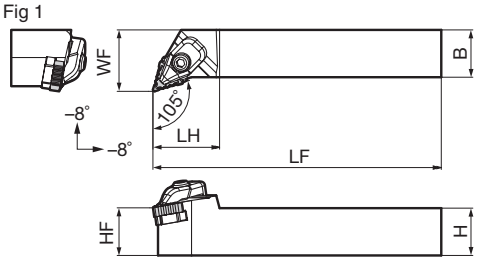


Figure shows right-hand (R) tool.

Holder Parts

Dimensions (Inch / *mm*)

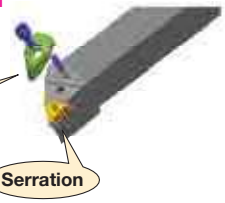
Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Fig	Clamp	Spring	Cap Screw	Cap Screw N·m	Shim	Shim Screw	Wrench (For Hex Socket)	Shim Wrench (For Torx Holes)
DTR55Q R/L 163D	▲	▲	1.00	1.00	6.00	1.26	1.00	1.378	1	TRCP3	S-SP4-20	BX0520	3.5 to 4.5	TRW5505	BFTX0307N	TSW040	TRX10
DTR55Q R/L 2020-K17	★	★	*20*	*20*	*125*	*28.5*	*20*	*35*	1								
DTR55Q R/L 2525-M17	★	★	*25*	*25*	*150*	*32.0*	*25*	*35*	1								

■ Features

- 55° Included Angle with 6 Cutting Edges
  1.5 times more cutting edges compared to DNMG inserts, for greatly reduced machining costs

- Extra-Strong Clamping
  Powerful clamping with double clamp-on lock and serrated insert design

· Prevents the cutting edge position from shifting during profiling
· Reliable even in interrupted machining



● T-REX Insert/Tool Holder Identification

Insert
TRM 55 17 08 -GU
T-REX Insert | Angle | Insert Size | Nose Radius | Name of Chipbreaker

External Holder
DTR 55 C R 2525 -M 17
T-REX Holders | Angle | Cutting Edge Angle | Feed Direction | Shank Size | Shank Length | Insert Size

Note: Cutting Edge Angle
C: 93° (95.5° for major cutting edge)
Q: 105° (107.5° for major cutting edge)

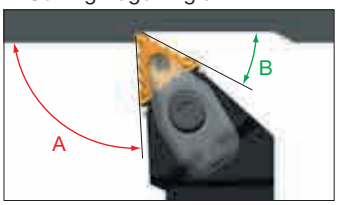
■ Important Notes

● Depth of Cut

Maximum depth of cut should be .098".

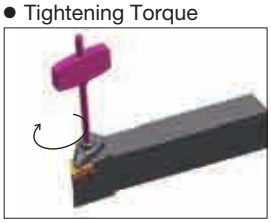
●= USA Stocked Item
★= World Wide Warehouse Item

● Cutting Edge Angle



Holder Cat. No.	A	B	Note
DTR55C	93°	27°	Main blade cutting edge angle is 95.5°
DTR55Q	105°	15°	Main blade cutting edge angle is 107.5°

● Tightening Torque



For the insert clamp, use the included dedicated wrench (TSW040) to tighten at 3.5 to 4.5N·m torque.

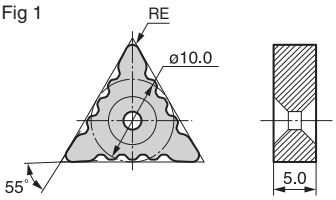
TRM 55°

Insert (Coated Carbide / Cermet)

Dimensions (*mm*)

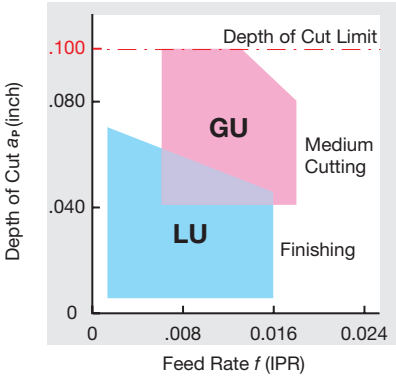
Applications	Appearance	Cat. No.	Nose Radius RE	AC810P	AC8025P	AC820P	AC830P	AC700G	AC610M	AC6020M	AC6030M	AC630M	T3000Z	Fig
Fine Cutting	FL	**TRM551704-FL**	.0157" / *0.4*		●	●							▲	1
		TRM551708-FL	.0313" / *0.8*		●	●							▲	1
Finishing	LU	**TRM551704-LU**	.0157" / *0.4*	●	●	●	●	●					▲	1
		TRM551708-LU	.0313" / *0.8*	●	●	●	●	●					▲	1
		TRM551712-LU	.0472" / *1.2*	●	●	●	●	●					▲	1
	SU	**TRM551704-SU**	.0157" / *0.4*	●	●	●			●	●	●	●	▲	1
		TRM551708-SU	.0313" / *0.8*	●	●	●			●	●	●	●	▲	1
		TRM551712-SU	.0472" / *1.2*	●	●	●			●	●	●	●	▲	1
Medium Cutting	GU	**TRM551704-GU**	.0157" / *0.4*	●	●	●	●	●		●		●		1
		TRM551708-GU	.0313" / *0.8*	●	●	●	●	●	●	●	●	●		1
		TRM551712-GU	.0472" / *1.2*	●	●	●	●	●		●	●	●		1

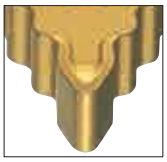
Fig 1



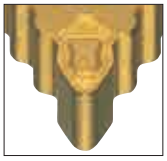
■ Chipbreaker Application Range

● Main Chipbreakers



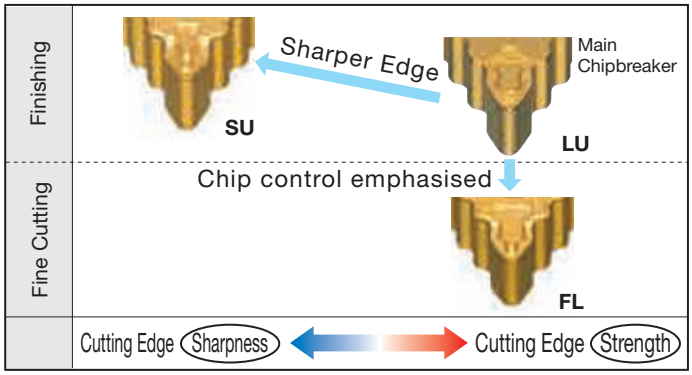


GU



LU

● Finishing Sub-Chipbreakers



■ Application Range by Grade (Numbers in Table are Recommended Cutting Speed V_c (SFM))

Insert Grade			AC810P	AC8025P	AC820P	AC830P	AC630M	T3000Z
Grade Classification			Coated Carbide	Coated Carbide	Coated Carbide	Coated Carbide	Coated Carbide	Coated Cermet
Work Material	P	Low Carbon Steel	660 1,312	490 1,148	490 1,148	394 984	394 984	330 1,312
	P	General Steel / Alloy Steel	490 1,082	330 825	330 825	262 660	262 755	330 825
	M	Stainless Steel				164 490	330 524	
Applications		Finishing	⊙	○	○	○	○	⊙
		Medium Cutting	○	⊙	⊙	○	⊙	○
		Interrupted Cutting		○	○	⊙	○	○

⊙: Ideal, ○: Suitable

●= USA Stocked Item ▲= Limited Availability Item

DVJN-J / DVJN

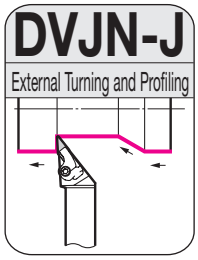


Fig 1

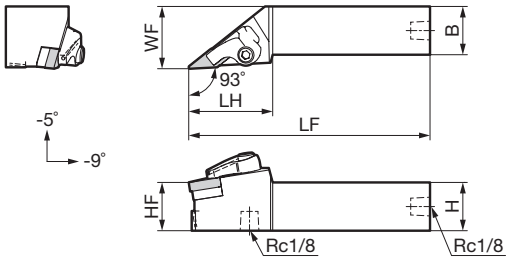


Figure shows right-handed (R) tool.

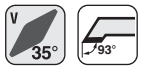
SEC-D series Holder - General Turning and Profiling
Internal Coolant Supply Double Clamp

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Plate	Cap Screw	N·m	Spring	O-ring	Shim	Shim Screw	Wrench for Shim	Top Hex Wrench	Bottom Hex Wrench	Plug
																			(For Torx hole)	(For Hexagonal hole)	(For Hexagonal hole)	
DVJN R/L2020K16-J	★	★	20	20	125	25	20	43	VN□□33□	**B62**	1	JV R/L-01	CP-M5-20-1	5.0	CSP12J	SS060	VNS1604	BFTX0307N	TRX10(*)	LH040	LH025	XP02
DVJN R/L2525K16-J	★	★	25	25	125	32	25	43														

*Wrench for shim is sold separately from the main body.



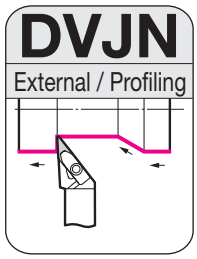


Fig 1

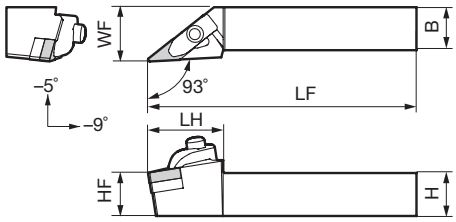


Figure shows right-hand (R) tool.

D Style Holder - General Turning and Profiling
Double Clamp

Holder / Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shims	Clamp	Clamp Screw	Spring	Lower Surface Wrench
																	(For Torx Holes)				(For Hex Socket)
Inch	**DVJN R/L 123BAN***	★	★	0.750	0.750	4.500	1.000	0.750	–	VN□□33□	**B62**	1	—	3.5	IVSN322	ST-1764		CL-2708	CLB-1695	SP-4294	LH040
Inch	**DVJN R/L 163DAN***	★	★	1.000	1.000	6.000	1.250	1.000	–			1									
Inch	**DVJN R/L 203DAN***	★	★	1.250	1.250	6.000	1.500	1.250	–			1									
Inch	**DVJN R/L 243EAN***	★	★	1.500	1.500	7.000	2.000	1.500	–			1									
Metric	**DVJN R/L 2020K16**	★	★	20	20	125	25	20	35			1	SCP-4	5.0	VNS1604	BFTX0307N	TRX10	—	—	—	LH025
Metric	**DVJN R/L 2525M16**	★	★	25	25	150	32	25	35			1									

Wrench for shim is sold separately from the main body.

Clamp Set Parts ☞ C3

*Coolant Through (see page F29 for example and list of coolant-through parts)

Applicable Inserts ◄·· DVJN / DVVN / DVQN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Process \ Cutting Range	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	N (Non-ferrous) -	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EEF AC6020M	EEG AC6020M	CBN BN7000/BNC500	ENZ AC4010K	EEF AC5015S	EEG AC5015S	SUMIDIA DA1000	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EEF AC6030M	EEG AC6030M	CBN BN7000/BNC500	EGZ AC4015K	EEF AC5015S	EEG AC5015S	SUMIDIA DA1000	CBN BNC2020	CBN BN2000	PCD DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EEF AC6030M	EEG AC6040M	CBN BN7000/BNC500	EGZ AC420K	EEF AC5025S	EEG AC5025S	SUMIDIA DA1000	CBN BNC300	CBN BN350	-
Recommended Cutting Conditions	☞ A10 on		☞ A14 on		☞ A16		☞ A18 on		☞ A22 on	☞ A20 on		☞ M2 on

★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

DVVN /DVQN

D Style Holder - General Turning and Profiling
Double Clamp

DVVN

External / Profiling

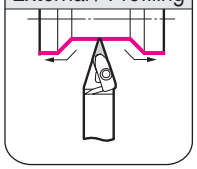
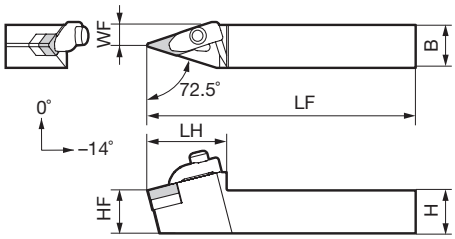


Fig 1



Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shims (For Torx Holes)	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)
DVVNN2020K16	★	*20*	*20*	*125*	*10.0*	*20*	*37*	VN□□33□	**B62**	1	SCP-4	5.0	VNS1604	BFTX0307N	TRX10	LH040	LH025
DVVNN2525M16	★	*25*	*25*	*150*	*12.5*	*25*	*37*			1							

Wrench for shim is sold separately from the main body.

Clamp Set Parts ☞ C3

D Holder - General Turning, Profiling and Undercutting
Double Clamp

DVQN

External / Profiling / Undercutting

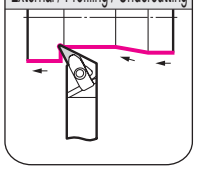


Fig 1

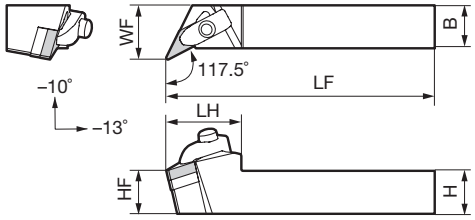


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shims (For Torx Holes)	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)
DVQN R/L 2020K16	★	★	*20*	*20*	*125*	*25*	*20*	*35*	VN□□33□	**B62**	1	SCP-4	5.0	VNS1604	BFTX0307N	TRX10(*)	LH040	LH025
DVQN R/L 2525M16	★	★	*25*	*25*	*150*	*32*	*25*	*35*			1							

*Wrench for shim is sold separately from the main body.

Clamp Set Parts ☞ C3

Applicable Inserts ◄·· DVJN / DVVN / DVQN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Process \ Cutting Range	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	N (Non-ferrous) -	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EEF AC6020M	EEG AC6020M	CBN BN7000/BNC500	ENZ AC4010K	EEF AC5015S	EEG AC5015S	PCD DA1000	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EEF AC6030M	EEG AC6030M	CBN BN7000/BNC500	EGZ AC4015K	EEF AC5015S	EEG AC5015S	PCD DA1000	CBN BNC2020	CBN BN2000	PCD DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EEF AC6030M	EEG AC6040M	CBN BN7000/BNC500	EGZ AC420K	EEF AC5025S	EEG AC5025S	PCD DA1000	CBN BNC300	CBN BN350	-
Recommended Cutting Conditions	☞ A10		☞ A14		☞ A16		☞ A18		☞ A22	☞ A20		☞ M2

BNC500 is for ductile cast iron.

★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

MVJN / MVVN

M Holder - General Turning and Profiling
Clamp-on + Pin Lock

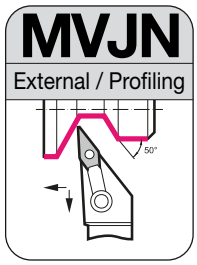
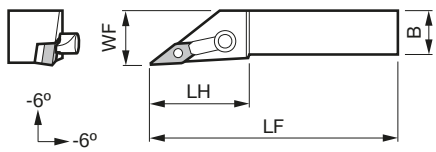


Fig 1



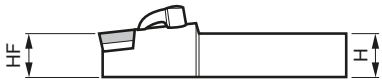


Figure shows right-hand (R) tool.

Holder | Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MVJN R/L 123B**	•	•	0.750	0.750	4.500	1.000	0.750	1.620	VN□□33□	**B62**	1	3.0	IVSN322	NL34L	LH1/8	LH5/64	CL22	XNS48
	MVJN R/L 163D	•	•	1.000	1.000	6.000	1.250	1.000	1.620			1							
	MVJN R/L 203D	•	•	1.250	1.250	6.000	1.500	1.250	1.620			1							
	MVJN R/L 164D	•	•	1.000	1.000	6.000	1.250	1.000	1.880	VN□□43□	**B64**	1	3.5	IVSN433	NL46	LH040	LH3/32	CL30	XNS510
	MVJN R/L 204D	•	•	1.250	1.250	6.000	1.500	1.250	1.880			1							
	MVJN R/L 244E	★	★	1.500	1.500	7.000	2.000	1.500	1.880			1							
	MVJN R/L 854D	★	★	1.250	1.000	6.000	1.250	1.250	1.880			1							
	MVJN R/L 864D	★	★	1.500	1.000	6.000	1.250	1.500	1.880			1							

M Type Holder - General Turning and Profiling
Clamp-on + Pin Lock

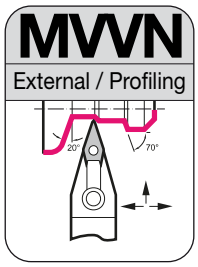
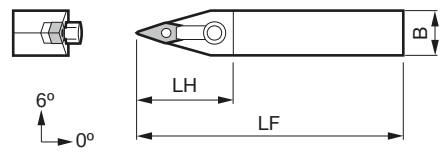
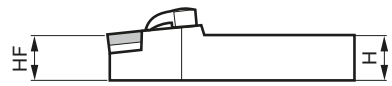


Fig 1





Holder | Parts

Dimensions (inch)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Clamp Wrench (For Hex Socket)	Shim Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**MVVNN123B**	★	0.750	0.750	4.500	–	0.750	1.620	VN□□33□	**B62**	1	3.0	IVSN322	NL34L	LH1/8	LH5/64	CL22	XNS48
	MVVNN163D	★	1.000	1.000	6.000	–	1.000	1.620			1							
	MVVNN203D	★	1.250	1.250	6.000	–	1.250	1.620			1							
	MVVNN243E	★	1.500	1.500	7.000	–	1.500	1.620			1							
	MVVNN164D	★	1.000	1.000	6.000	–	1.000	2.060	VN□□43□	**B64**	1	3.5	IVSN433	NL46	LH040	LH3/32	CL30	XNS510
	MVVNN204D	★	1.250	1.250	6.000	–	1.250	2.060			1							
	MVVNN244E	★	1.500	1.500	7.000	–	1.500	2.060			1							

• : Stock Standard Item ★= World Wide Warehouse Item

DWLN-J / DWLN / MWLN

W 80° | 95° | Internal Coolant

SEC-D series Holder - General Turning and Facing
Internal Coolant Supply Double Clamp

DWLN-J

External Turning and Facing

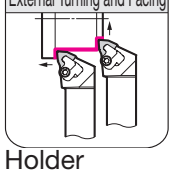
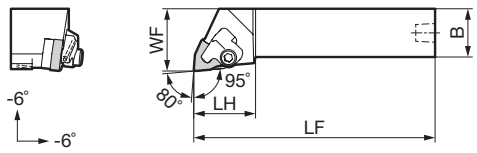


Fig 1



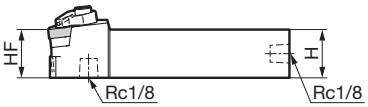


Figure shows right-handed (R) tool.

Holder — Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Plate	Cap Screw	Cap Screw N·m	Spring	O-ring	Shim	Shim Screw	Wrench for Shim (For Torx hole)	Top Hex Wrench (For Hexagonal hole)	Bottom Hex Wrench (For Hexagonal hole)	Plug
DWLN R/L2020K08-J	★	★	20	20	125	25	20	32	WN□□43□	B67	1	JC R/L-01	CP-M5-20-1	5.0	CSP12J	SS060	WNS0804	BFTX0409N	TRX15(*)	LH040	LH025	XP02
DWLN R/L2525K08-J	★	★	25	25	125	32	25	32														

*Wrench for shim is sold separately from the main body.

W 80° | 95° | 95°

D Holder - General Turning and Facing
Double Clamp

DWLN

External Turning and Facing

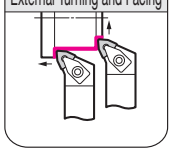
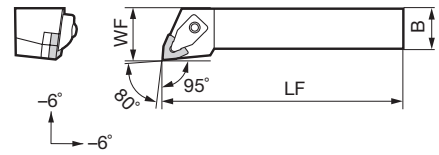


Fig 1



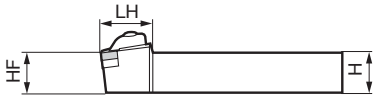


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions inch/ (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	Clamp Set N·m	Clamp	Clamp Screw	Shim	Shim Screw	Spring	Shim Wrench (For Torx Holes)	Clamp Wrench (For Hex Socket)	Pin Wrench (For Hex Socket)
Inch	DWLN R/L 123BN	●	●	0.750	0.750	4.500	1.000	0.750	1.000	WN□□33□	B65	1	—	5.0	CL-2708	CLB-1695	IWSN-322	ST-1764	SP-4294	TRX15(*)	LH020	
Inch	DWLN R/L 163DN	●	●	1.000	1.000	6.000	1.250	1.000	1.000			1										
Inch	DWLN R/L 124BN	●	●	0.750	0.750	4.500	1.000	0.750	1.250	WN□□43□	B67	1	—	5.0	CL-2712	CLB-1696	IWSN433	ST-1766	SP-4295	SP-4295	LH040	
Inch	DWLN R/L 164DN	●	●	1.000	1.000	6.000	1.250	1.000	1.250			1										
Inch	DWLN R/L 204DN	●	●	1.250	1.250	6.000	1.500	1.250	1.250			1										
Inch	DWLN R/L 244EN	●	●	1.500	1.500	7.000	2.000	1.500	1.250			1										
Inch	DWLN R/L 124BAN*	★	★	0.750	0.750	4.500	1.000	0.750	1.250	WN□□43□		1	—	5.0	CL-2712	CLB-1696	IWSN433	ST-1766	SP-4295	SP-4295	LH040	
Inch	DWLN R/L 164DAN*	★	★	1.000	1.000	6.000	1.250	1.000	1.250			1										
Inch	DWLN R/L 204DAN*	★	★	1.250	1.250	6.000	1.500	1.250	1.250			1										
Inch	DWLN R/L 244EAN*	★	★	1.500	1.500	7.000	2.000	1.500	1.250			1										
Metric	DWLN R/L 2020K08	★	★	20	20	125	25	20	32	WN□□43□		1	SCP-2	5.0	–	–	WNS0804	BFTX0409N	–	TRX15(*)	LH040	LH025
Metric	DWLN R/L 2525M08	★	★	25	25	150	32	25	32			1										

Wrench for shim is sold separately from the main body.
When using handed breaker inserts for facing, the holder and insert are opposite handed.

Clamp Set Parts C3

*Coolant Through (see page F29 for example and list of coolant-through parts)

W 80° | 95° | 95°

M Holder - General Turning , Facing, Profiling and Undercutting
Clamp-on + Pin Lock

MWLN

External / Facing / Profiling / Undercutting

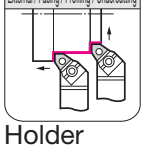


Fig 1

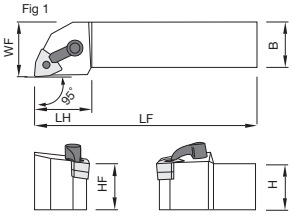


Fig 2

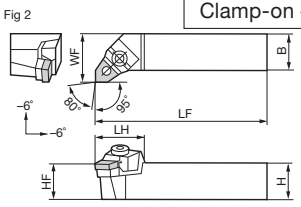


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Wedge	Clamp	Lock Pin	Shim	Clamp Screw	Clamp Screw N·m	Nut	Ring	Bolt Wrench (For Hex Socket)	Pin Wrench (For Hex Socket)
Inch	MWLN R/L 123B	●	●	0.750	0.750	4.500	1.000	1.000	0.750	WN□□33□	B65	1	—	CL6	NL34L	IWSN322	XNS-36	3.0	—	—		LH020
Inch	MWLN R/L 163D	●	●	1.000	1.000	5.000	1.250	1.000	1.000			1										
Inch	MWLN R/L 124B	●	●	0.750	0.750	4.500	1.000	0.750	1.070	WN□□43□	B67	1	—	CL20	NL46	IWSN433	XNS-48				LH1/8	LH3/32
Inch	MWLN R/L 164D	●	●	1.000	1.000	6.000	1.250	1.000	1.070			1										
Inch	MWLN R/L 204D	●	●	1.250	1.250	6.000	1.500	1.250	1.070			1										
Inch	MWLN R/L 244E	●	●	1.500	1.500	7.000	2.000	1.500	1.070			1										
Metric	MWLN R/L 2020K08	★	★	20	20	125	25	20	32	WN□□43□		2	MWW40	—	MP416	SWW433	BHA0625	4.5	CPM43S	ER05	LH040	LH030
Metric	MWLN R/L 2525M08	★	★	25	25	150	32	25	32			2			MP420				CPM43N			
Metric	MWLN R/L 3225P08	★	★	32	25	170	32	32	32			2			MP420				CPM43N			

When using handed breaker inserts for facing, the holder and insert are opposite handed. ●= USA Stocked Item ★= World Wide Warehouse Item

PWLN / WWLN

W 80° | 95° 95°

70 Holder - General Turning and Facing
Lever Lock

PWLN
External / Profiling

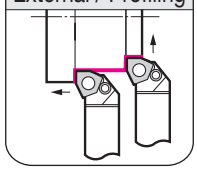


Fig 1

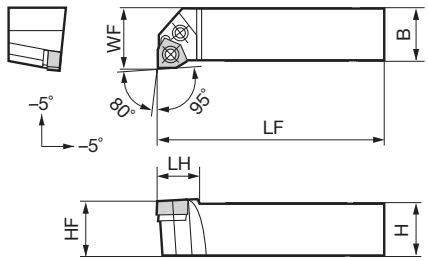


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench
																(For Hex Socket)
PWLN R/L 2020K06	★	★	*20*	*20*	*125*	*25*	*20*	*17*	WN□□33	**B65**	1	LCL3	LCS3	LSW317	LSP3	LH025
PWLN R/L 2525M06	★	★	*25*	*25*	*150*	*32*	*25*	*17*			1					

When using handed breaker inserts for facing, the holder and insert are opposite handed.

W 80° | 95° 95°

D Holder - General Turning and Facing
Double Clamp

WWLN
External / Multipurpose

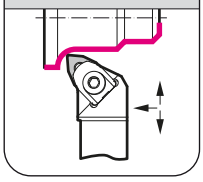
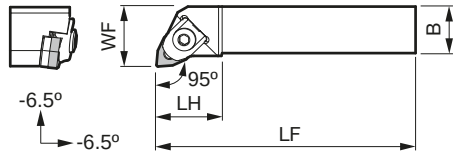


Fig 1



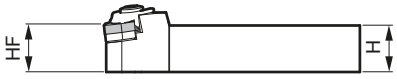
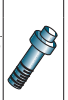


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Shim Pin	Nut	Clamp Wrench	Shim Wrench	Clamp	Clamp Screw	Alternate Parts if the lot # starts with I: Cam	Nut	Wedge Clamp	Clamp Screw
																	(For Hex Socket)	(For Hex Socket)						
Inch	**WWLN R/L 124B**	●	●	0.750	0.750	4.500	1.000	0.750	1.070	WN□□43□	**B67**	1	4.0	IWSN433	PN-1661	–	LH3/16		CL-2012	ST-1394	MP-416	CPM-43S	MWW-40	BHA0625
	WWLN R/L 164D	●	●	1.000	1.000	6.000	1.250	1.000	1.070			1									MP-420	CPM-43N		
	WWLN R/L 204D	●	●	1.250	1.250	6.000	1.500	1.250	1.070			1												
	WWLN R/L 244E	▲	▲	1.500	1.500	7.000	2.000	1.500	1.070			1									–	–	–	–
	WWLN R/L 165D	●	●	1.000	1.000	6.000	1.500	1.000	1.593	WN□□54□	**B69**	1		SWW544	MP531	CPM-54N	LH040			BHA0834				
	WWLN R/L 205D	●	●	1.250	1.250	6.000	1.500	1.250	1.593			1			MP534		LH060							

Applicable Inserts ◀·· DWLN / PWLN / MWLN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Process \ Cutting Range	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	CBN BNC2010	CBN BN2000
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	CBN BNC2020	CBN BN2000
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	EGZ AC420K	No Chipbreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	CBN BNC2020	CBN BN2000
Recommended Cutting Conditions	☞ A10			☞ A14			☞ A16		☞ A18			☞ A20	

●= USA Stocked Item ★= World Wide Warehouse Item ▲ = Limited Availability Item

N·m Recommended Tightening Torque (N·m)

SCAC / SCLC / SCNC

SC Holder - General Turning and Facing
Screw-on

SCAC

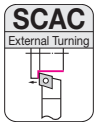
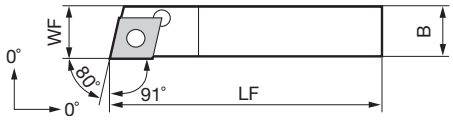


Fig 1

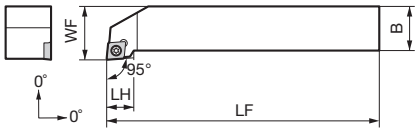


Holder — Parts — Dimensions (inch/ mm)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Ref. Page	Fig	Flat Insert Screw	N·m	Wrench (For Torx hole)
SCAC R/L 4.5D	●	●	0.281	0.281	6.00	0.281	0.281	CC□□21.5□	B72	1	ST-1225	0.9	TRD07
SCAC R/L 052D	●	●	0.312	0.312	6.00	0.312	0.312			1			
SCAC R/L 062B	●	●	0.375	0.375	4.50	0.375	0.375			1	TS25.456M2		
SCAC R/L 062D	●	●	0.375	0.375	6.00	0.375	0.375			1	ST-1225		
SCAC R/L 083B	●	●	0.500	0.500	4.50	0.500	0.500	CC□□32.5□	B75	1	TS4.710M1	3.0	TRD15
SCAC R/L 083D	●	●	0.500	0.500	6.00	0.500	0.500			1	ST-1240		
SCAC R/L 103B	●	●	0.625	0.625	4.50	0.625	0.625			1	TS4.710M1		
SCAC R/L 103D	●	●	0.625	0.625	6.00	0.625	0.625			1	ST-1240		
SCAC R/L0808-06	★		8	8	100	8.5	8	CC□□21.5□	B72	1	BFTX02506N	1.5	TRX08
SCAC R/L1010-06	★	★	10	10	100	10.5	10			1			
SCAC R/L1212-09	★	★	12	12	100	12.5	12	CC□□32.5□	B75	1	BFTX0409N	3.4	TRX15
SCAC R/L1616-09	★	★	16	16	100	16.5	16			1			
SCAC R/L2020-09	★	★	20	20	125	20.5	20			1			

SCLC

Fig 1



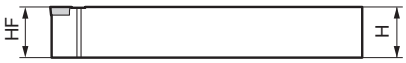
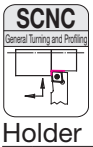


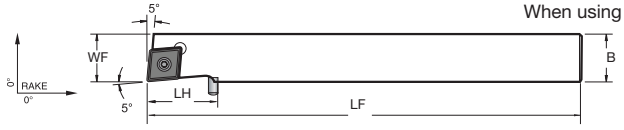
Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch/ mm)

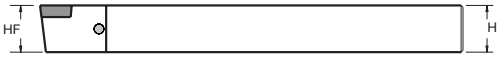
	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Ref. Page	Fig	Insert Screw	N·m	Wrench (For Torx Holes)
Inch	SCLC R/L 4.5D	●	●	0.281	0.281	6.000	0.281	0.281	–	CC□□21.5□	B72	1	ST-1225	0.9	TRD07
	SCLC R/L 052D	★	★	0.312	0.312	6.000	0.500	0.312	0.281			1			
	SCLC R/L 062	★	★	0.375	0.375	2.500	0.500	0.375	0.390			1			
	SCLC R/L 062D	★	★	0.375	0.375	6.000	0.500	0.375	0.390			1			
	SCLC R/L 083	★	★	0.500	0.500	3.500	0.625	0.500	0.630	CC□□32.5□	B75	1	ST-1240	3.0	TRD15
	SCLC R/L 083D	★	★	0.500	0.500	6.000	0.625	0.500	0.630						
	SCLC R/L 103	★	★	0.625	0.625	4.000	0.750	0.625	0.708						
	SCLC R/L 103D	★	★	0.625	0.625	6.000	0.750	0.625	0.708			1			
	SCLC R/L 123B	★	★	0.750	0.750	4.500	1.000	0.750	0.866			1			
	SCLC R/L 163D	★	★	1.000	1.000	6.000	1.250	1.000	0.630			1			
	SCLC R/L 124B	★	★	0.750	0.750	4.500	1.000	0.750	1.000	CC□□43□	B77	1	ST-1540	3.0	TRD17
	SCLC R/L 164D	★	★	1.000	1.000	6.000	1.250	1.000	1.000			1			
	SCLC R/L 204D	★	★	1.250	1.250	6.000	1.500	1.250	1.000			1			
Metric	SCLC R/L 0808H06	★	★	8	8	100	10	8	–	CC□□21.5□	B72	1	BFTX02506N	1.5	TRX08
	SCLC R/L 1010H06	★	★	10	10	100	12	10	15			1			
	SCLC R/L 1212H09	★	★	12	12	100	16	12	15	CC□□32.5□	B75	1	BFTX0409N	3.4	TRX15
	SCLC R/L 1616H09	★	★	16	16	100	20	16	15			1			
	SCLC R/L 2020K09	★	★	20	20	125	24	20	15			1			
	SCLC R/L 2525M09	★	★	25	25	150	30	25	15			1			

SCNC





When using handed breaker inserts for facing, the holder and insert are opposite handed.



Right Hand Shown, Left Hand Opposite

Holder — Parts — Dimensions (inch/ mm)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head Length LH	Applicable Inserts Cat. No.	Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	SCNC R/L 062B	●	●	0.375	0.375	4.50	0.375	0.375	1.000	CC□□21.5	B72	1	TS25.456M2	0.9	TRX08
	SCNC R/L 062D	●	●	0.375	0.375	6.00	0.375	0.375	1.000			1			
	SCNC R/L 082B	●	●	0.500	0.500	4.50	0.500	0.500	1.000			1			
	SCNC R/L 083B	●	●	0.500	0.500	4.50	0.500	0.500	1.000	CC□□32.5	B75	1	TS4.710M1	3.0	TRX15
	SCNC R/L 083D	●	●	0.500	0.500	6.00	0.500	0.500	1.000			1			
	SCNC R/L 103B	●	●	0.625	0.625	4.50	0.625	0.625	1.000			1			
	SCNC R/L 103D	●	●	0.625	0.625	6.00	0.625	0.625	1.000			1			

Applicable Inserts ◀·· SCLC / SCAC / SCNC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-Ferrous) High-precision/ Finishing	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Machining	EFB T1500Z	EGU AC8025P	EMU AC8025P	ELB AC6030M	EGU AC6030M	EMU AC6040M	CBN BN7125/BNC500	EMU AC4015K	No Chipbreaker AC4015K	ESU AC5015S	PCD DA1000	NAG H1	CBN BNC2125	CBN BN2000	PCD DA90
High-precision	MEFF AC1030U	MESI AC1030U	EFM AC1030U	MEFF AC1030U	MESI AC1030U	EFM AC1030U	CBN BN7125/BNC500	—	—	MESI AC5015S	PCD DA1000	—	CBN BNC2115	CBN BN1000	BINDERLESS PCD NPD10
Recommended Cutting Conditions	☞ A10~			☞ A14~			☞ A16~			☞ A18~	☞ A22~		☞ A20~		☞ M2~

●= USA Stocked Item ★= World Wide Warehouse Item

BNC500 is for ductile cast iron.

N·m Recommended Tightening Torque (N·m)

SDAC / SDJC / SDNC / SDPC

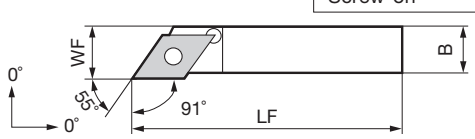
SD Style Profiling Tool Holder - General Turning , Facing and Profiling Screw-on

SDAC

External / Profiling

Holder

Fig 1



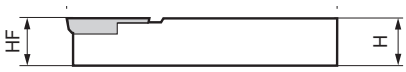


Figure shows right-hand (R) tool.

Parts Dimensions (inch/ mm)

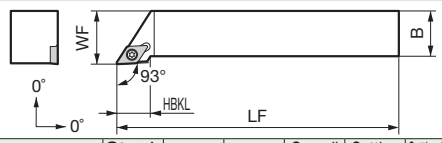
	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Flat Screw N·m	Wrench (For Torx Holes)
Inch	SDAC R/L 062B	●	●	0.375	0.375	4.500	0.375	0.375	0.625	DC□□21.5	B82	1	ST-1225	0.9	TRD07
	SDAC R/L 062D	●	●	0.375	0.375	6.000	0.375	0.375	0.625			1			
	SDAC R/L 082B	●	●	0.500	0.500	4.500	0.500	0.500	0.625			1			
	SDAC R/L 082D	●	●	0.500	0.500	6.000	0.500	0.500	0.625			1			
	SDAC R/L 083B	●	●	0.500	0.500	4.500	0.500	0.500	0.875	DC□□32.5	B86	1	ST-1240	3.0	TRD15
	SDAC R/L 083D	●	●	0.500	0.500	6.000	0.500	0.500	0.875			1			
	SDAC R/L 103B	●	●	0.625	0.625	4.500	0.625	0.625	0.875			1			
	SDAC R/L 103D	●	●	0.625	0.625	6.000	0.625	0.625	0.875			1			
	SDAC R/L 123B	●	●	0.750	0.750	4.500	0.750	0.750	0.875			1			
Metric	SDAC R/L 0808-07	★	★	8	8	100	8.5	8	–	DC□□21.5	B82	1	BFTX02506N	1.5	TRX08
	SDAC R/L 1010-07	★	★	10	10	100	10.5	10	–			1			
	SDAC R/L 1212-11	★	★	12	12	100	12.5	12	–	DC□□32.5	B86	1	BFTX0409N	3.4	TRX15
	SDAC R/L 1616-11	★	★	16	16	100	16.5	16	–			1			
	SDAC R/L 2020-11	★	★	20	20	125	20.5	20	–			1			

SDJC

External / Profiling / Facing

Holder

Fig 1



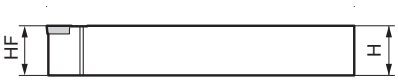


Figure shows right-hand (R) tool.

Parts Dimensions (inch/ mm)

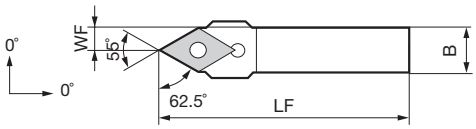
	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head HBKL	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Shim	Shim Screw	Insert Screw	Insert Screw N·m	Wrench (For Torx Holes)
Inch	SDJC R/L 062	★	★	0.375	0.375	2.500	0.500	0.375	–	DC□□21.5□	B82	1	–	–	ST-1225	0.9	TRD07
	SDJC R/L 062D	★	★	0.375	0.375	6.000	0.500	0.375	–			1					
	SDJC R/L 082	★	★	0.500	0.500	3.500	0.625	0.500	–			1					
	SDJC R/L 082D	★	★	0.500	0.500	6.000	0.625	0.500	–			1					
	SDJC R/L 102	★	★	0.625	0.625	4.000	0.750	0.625	–			1					
	SDJC R/L 122B	★	★	0.750	0.750	4.500	1.000	0.750	–			1					
	SDJC R/L 123B	★	★	0.750	0.750	4.500	1.000	0.750	–	DC□□32.5□	B86	1	SH-3714	ST-1750	ST-1335	3.0	TRD15
	SDJC R/L 163D	★	★	1.000	1.000	6.000	1.250	1.000	–			1					
Metric	SDJC R/L 0808H07	★		8	8	100	10	8	15	DC□□21.5□	B82	1	–	–	BFTX02506N	1.5	TRX08
	SDJC R/L 1010H07	★	★	10	10	100	12	10	18			1					
	SDJC R/L 1212-11	★	★	12	12	100	16	12	18	DC□□32.5□	B86	1	–	–	BFTX0409N	3.4	TRX15
	SDJC R/L 1616H11	★	★	16	16	100	20	16	18			1					
	SDJC R/L 2020K11	★	★	20	20	125	24	20	18			1					
	SDJC R/L 2525M11	★	★	25	25	150	29	25	18			1					

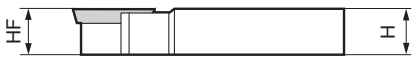
SDNC

External / Profiling

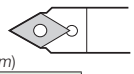
Holder

Fig 1





For SDNC N1616
SDNC N2020



Parts Dimensions (inch/ mm)

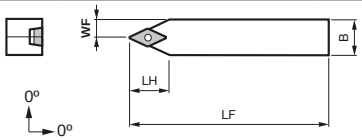
	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Flat Screw N·m	Wrench (For Torx Holes)
Inch	SDNCN062B	●	0.375	0.375	4.50	0.375	0.375	DC□□21.5	B82	1	ST-1225	0.9	TRD07
	SDNCN062D	●	0.375	0.375	6.00	0.375	0.375			1			
	SDNCN082B	●	0.500	0.500	4.50	0.500	0.500			1			
	SDNCN082D	●	0.500	0.500	6.00	0.500	0.500			1			
	SDNCN083D	●	0.500	0.500	6.00	0.500	0.500	DC□□32.5	B86	1	ST-1240	3.0	TRD15
	SDNCN103B	●	0.625	0.625	4.50	0.625	0.625			1			
	SDNCN103D	●	0.625	0.625	6.00	0.625	0.625			1			
Metric	SDNCN0808-07		8	8	100	4	8	DC□□21.5	B82	1	BFTX02506N	1.5	TRX08
	SDNCN1010-07	★	10	10	100	5	10			1			
	SDNCN1212-11	★	12	12	100	6	12	DC□□32.5	B86	1	BFTX0409N	3.4	TRX15
	SDNCN1616-11	★	16	16	100	8	16			1			
	SDNCN2020-11	★	20	20	125	10	20			1			

SDPC

External Turning

Holder

Fig 1



Parts Dimensions (inch/ mm)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head HBKL	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Shim	Shim Screw	Insert Screw	Insert Screw N·m	Wrench (For Torx Holes)
Inch	SDPCN062	★	0.375	0.375	2.500	0.197	0.370	–	DC□□21.5□	B82	1	–	–	ST-1225	0.9	TRD07
	SDPCN082	★	0.500	0.500	3.500	0.260	0.492	–			1					
	SDPCN103	★	0.625	0.625	4.000	0.323	0.630	–	DC□□32.5□	B86	1	SH-3714	ST-1750	ST-1335	3.0	TRD15
	SDPCN123B	★	0.750	0.750	4.500	0.383	0.744	–			1					
	SDPCN163D	★	1.000	1.000	6.000	0.520	0.984	–			1					

●= USA Stocked Item ★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

PRDC / PRGC

70 Holder - General Turning and Profiling
Lever Lock

PRDC

External / Profiling

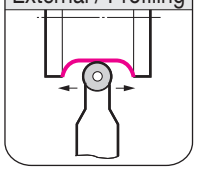
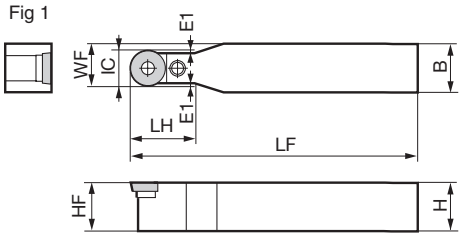


Fig 1



Holder / Parts — Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Cutting Edge Distance E1	Inscribed Circle IC	Applicable Insert Cat. No.	Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PRDCN2020M10	★	*20*	*20*	*150*	*15.0*	*20*	*22*	*1.0*	*10*	RCM□1003	**B90**	1	LCL10	LCS10	LSR10	LSP10	LH020
PRDCN2525M10	★	*25*	*25*	*150*	*17.5*	*25*	*22*	*1.0*	*10*			1					
PRDCN2525M12	★	*25*	*25*	*150*	*18.5*	*25*	*24*	*1.2*	*12*	RCM□1204		1	LCL12	LCS12	LSR12	LSP10	LH025
PRDCN3225Q12	★	*32*	*25*	*180*	*18.5*	*32*	*24*	*1.2*	*12*			1					
PRDCN3225Q16	★	*32*	*25*	*180*	*20.5*	*32*	*28*	*1.5*	*16*	RCM□1606		1	LCL16	LCS16	LSR16	LSP16	LH025
PRDCN3232Q20	★	*32*	*32*	*180*	*26.0*	*32*	*32*	*1.7*	*20*	RCM□2006		1	LCL20	LCS20	LSR20	LSP20	LH030
PRDCN4040T25		*40*	*40*	*300*	*32.5*	*40*	*42*	*2.0*	*25*	RCM□2507		1	LCL25	LCS25	LSR25	LSP25	LH040
PRDCN5050U32		*50*	*50*	*350*	*41.0*	*50*	*52*	*2.5*	*32*	RCM□3209		1	LCL32	LCS32	LSR32	LSP32	LH050

70 Holder - General Turning and Profiling
Lever Lock

PRGC

External / Profiling

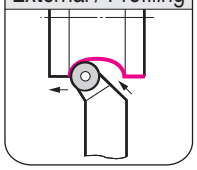


Fig 1

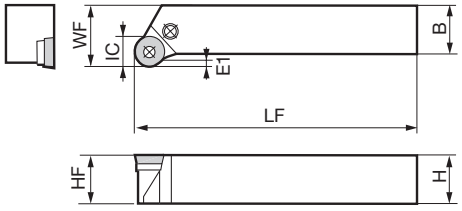


Figure shows right-hand (R) tool.

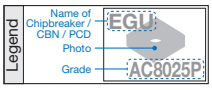
Holder / Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Cutting Edge Distance E1	Inscribed Circle IC	Applicable Insert Cat. No.	Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
PRGC R/L 2020K10	★	★	*20*	*20*	*125*	*25*	*20*	*1.5*	*10*	RCM□1003	**B90**	1	LCL10	LCS10	LSR10	LSP10	LH020
PRGC R/L 2525M10	★	★	*25*	*25*	*150*	*32*	*25*	*1.5*	*10*			1					
PRGC R/L 2020K12	★	★	*20*	*20*	*125*	*25*	*20*	*2.5*	*12*	RCM□1204		1	LCL12	LCS12	LSR12	LSP10	LH025
PRGC R/L 2525M12	★	★	*25*	*25*	*150*	*32*	*25*	*2.5*	*12*			1					
PRGC R/L 3225P12	★	★	*32*	*25*	*170*	*32*	*32*	*2.5*	*12*			1					
PRGC R/L 2525M16			*25*	*25*	*150*	*32*	*25*	*3.0*	*16*	RCM□1606		1	LCL16	LCS16	LSR16	LSP16	LH025
PRGC R/L 3225P16			*32*	*25*	*170*	*32*	*32*	*3.0*	*16*			1					
PRGC R/L 3232P20			*32*	*32*	*170*	*40*	*32*	*4.0*	*20*	RCM□2006		1	LCL20	LCS20	LSR20	LSP20	LH030
PRGC R/L 4040S25			*40*	*40*	*250*	*50*	*40*	*4.5*	*25*	RCM□2507		1	LCL25	LCS25	LSR25	LSP25	LH040
PRGC R/L 5050T32			*50*	*50*	*300*	*63*	*50*	*5.5*	*32*	RCM□3209		1	LCL32	LCS32	LSR32	LSP32	LH050

Applicable Inserts ◄·· PRGC / PRDC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Process \ Cutting Range	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	S (Exotic Alloy) Medium to Roughing
Continuous Cutting	RX AC8015P	RX AC8025P	RX AC8025P	RP AC4010K	RP AC4010K	RP AC5015S	RP AC5015S
General Cutting	RX AC8025P	RH AC8025P	RH AC8035P	RP AC4015K	RP AC4015K	RP AC5015S	RP AC5015S
Interrupted Cutting	RH AC8025P	RH AC8035P	RP AC8035P	RP AC420K	RP AC420K	RP AC5025S	RP AC5025S
Recommended Cutting Conditions	☞ A10 on			☞ A16 on		☞ A18 on	

●= USA Stocked Item
★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

SRDC / SRGC / SRSC

70 Holder - General Turning and Profiling
Screw-on

SRDC
External / Profiling

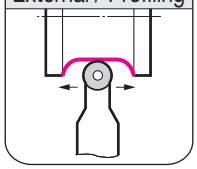
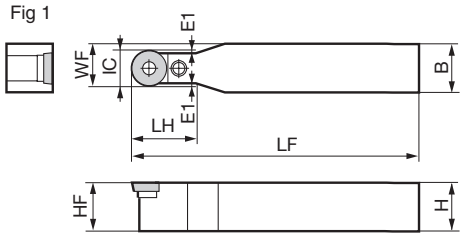


Fig 1



Holder — Parts — Dimensions (inch)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Shim Screw	Shim Wrench	Clamp Screw
SRDCN164D	●	1.000	1.000	6.00	0.736	1.000	1.000	RC□□1204	B90	1	3.0	SH-3814	ST-1335	TRD15	ST-1750
SRDCN204D	★	1.250	1.250	6.00	0.861	1.250	1.000			1					

70 Holder - General Turning and Profiling
Screw-on

SRGC
External / Profiling

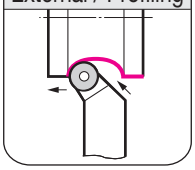


Fig 1

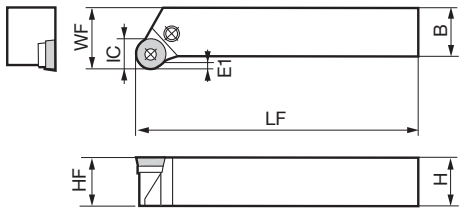


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Shim Screw	Shim Wrench	Clamp Screw
SRGC R/L 164D	★	★	1.000	1.000	6.00	1.250	1.000	-	RC□□1204	B90	1	3.0	SH-3814	ST-1335	TRD15	ST-1750
SRGC R/L 854D	★	★	1.250	1.000	6.00	1.250	1.250	-			1					
SRGC R/L 204D	★	★	1.250	1.250	6.00	1.500	1.250	-			1					

70 Holder - General Turning and Profiling
Screw-on

SRSC
External Turning

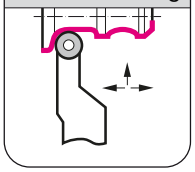


Fig 1

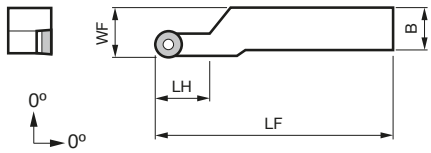


Figure shows right-hand (R) tool.

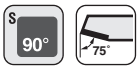
Holder — Parts — Dimensions (inch)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Shim Screw	Shim Wrench	Clamp Screw
SRSC R/L 124B	★	★	0.750	0.750	4.50	1.000	0.750	0.750	RC□□1204	B90	1	3.0	SH-3814	ST-1335	TRD15	ST-1750
SRSC R/L 164D	★	★	1.000	1.000	6.00	1.250	1.000	1.000			1					
SRSC R/L 204D	★	★	1.250	1.250	6.00	1.500	1.250	1.000			1					

●= USA Stocked Item ★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

SSBC / SSDC



General Turning
Screw-on

SSBC

External Turning

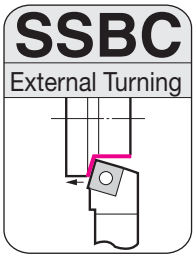


Fig 1

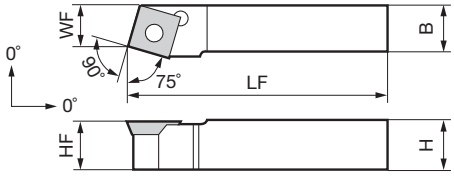
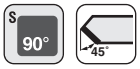


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SSBC R/L1010-07	★	★	*10*	*10*	*100*	*9*	*10*	SC□□2.51.5	**B92**	1	BFTX0307N	**2.0**	TRX10
SSBC R/L1212-09	★	★	*12*	*12*	*100*	*11*	*12*	SC□□32.5	**B93**	1	BFTX0409N	**3.4**	TRX15
SSBC R/L1616-09	★	★	*16*	*16*	*100*	*15*	*16*			1			
SSBC R/L2020-09	★	★	*20*	*20*	*125*	*19*	*20*			1			



SD Profiling Tool Holder - General Turning , Facing and Profiling
Screw-on

SSDC

External / Chamfering

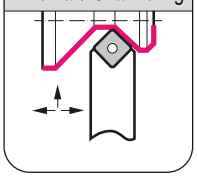
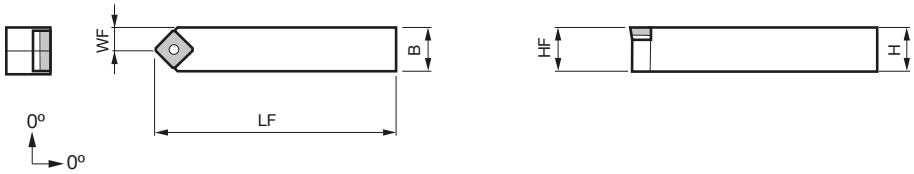


Fig 1



Holder / Parts

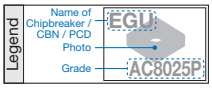
Dimensions (inch)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Insert Screw	Clamp Wrench (For Torx Holes)	Shim Screw
Inch	**SSDCN083**	★	0.500	0.500	3.50	0.263	0.500	–	SC□□32.5□	**B93**	1	**3.0**	–	ST-1240	TRD15	–
Inch	**SSDCN103**	★	0.625	0.625	4.00	0.325	0.625	–			1					
Inch	**SSDCN124B**	★	0.750	0.750	4.50	0.388	0.750	–	SC□□43□	**B94**	1	**3.0**	SH-3514	ST-1540	TRD17	ST-1760

Applicable Inserts ◀·· SSBC / SSDC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Depending on the insert size, some combinations cannot be made-to-order or manufactured.



Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	N (Non-Ferrous) –
General Machining	EFB T1500Z	EGU AC8025P	EMU AC8025P	ELB AC6030M	EGU AC6030M	EMU AC6040M	EMU AC4015K	No Chipbreaker AC4015K	PCD DA1000
High-precision	FX T1500A	EFM AC1030U	EFM AC1030U	FX AC1030U	EFM AC1030U	EFM AC1030U	—	—	PCD DA1000
Recommended Cutting Conditions	☞ A10~			☞ A14~			☞ A16~		☞ A22~

●= USA Stocked Item ★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

STAC / STDC / STFC

S Style Mini Holder - General Turning
Screw-on

STAC

External Turning

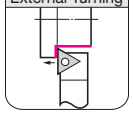


Fig 1

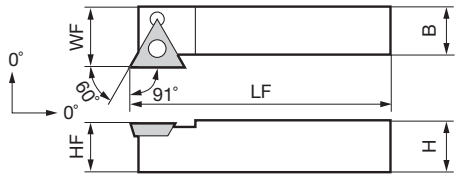


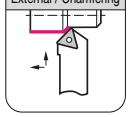
Figure shows right-hand (R) tool.

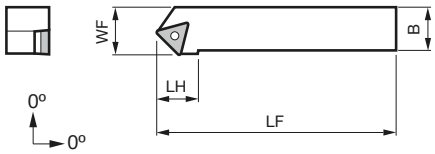
Holder / Parts — Dimensions (inch / mm)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	STAC R/L 062B	●	●	0.375	0.375	4.50	0.375	0.375	TC□□21.5	B104	1	ST-21.5		TRX08
	STAC R/L 062D	●	●	0.375	0.375	6.00	0.375	0.375			1			
	STAC R/L 082B	●	●	0.500	0.500	4.50	0.500	0.500			1			
	STAC R/L 082D	●	●	0.500	0.500	6.00	0.500	0.500			1			
	STAC R/L 102D	●	●	0.625	0.625	6.00	0.625	0.625			1			
	STAC R/L 103B	●	●	0.625	0.625	4.50	0.625	0.625	TC□□32.5	B106	1	ST-32.5		TRX15
	STAC R/L 103D	●	●	0.625	0.625	6.00	0.625	0.625			1			
Metric	STAC R/L 0808-09		★	8	8	100	8.5	8	TC□□1.81.5	B103	1	BFTX02205N	0.5	TRX06
	STAC R/L 1010-09	★		10	10	100	10.5	10			1			
	STAC R/L 1010-11*			10	10	100	12	10	TC□□21.5	B104	1	BFTX02506N	1.5	TRX08
	STAC R/L 1212-11	★	★	12	12	100	12.5	12			1			
	STAC R/L 1616-11	★	★	16	16	100	16.5	16			1			
	STAC R/L 1616-16*			16	16	100	20	16	TC□□32.5	B106	1			
	STAC R/L 2020-11	★	★	20	20	125	20.5	20	TC□□21.5	B104	1			

STDC

External / Chamfering





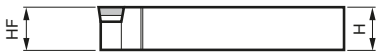


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Insert Screw	Shim Wrench (For Hex Socket)	Shim Screw
Inch	STDC R/L 062	★	★	0.375	0.375	2.50	0.433	0.375	0.410	TC□□21.5□	B104	1	0.9	—	ST-1225	TRD07	—
	STDC R/L 082	★	★	0.500	0.500	3.50	0.512	0.500	0.570			1					
	STDC R/L 103	★	★	0.625	0.625	4.00	0.669	0.625	1.000	TC□□32.5□	B106	1	3.0	SH-3414	ST1335	TRD15	ST-1750
	STDC R/L 123B	★	★	0.750	0.750	4.50	0.866	0.750	1.000			1					
	STDC R/L 163D	★	★	1.000	1.000	6.00	1.063	1.000	1.000			1					

STFC

External Turning and Facing

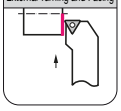
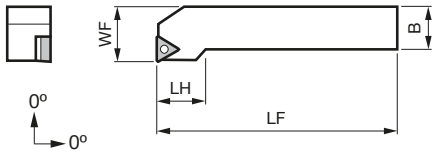


Fig 1



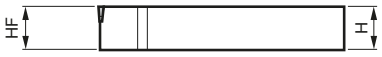


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Insert Screw	Shim Wrench (For Hex Socket)	Shim Screw
Inch	STFC R/L 062	★	★	0.375	0.375	2.50	0.500	0.375	0.400	TC□□21.5□	B104	1	0.9	—	ST-1225	TRD07	—
	STFC R/L 082	★	★	0.500	0.500	3.50	0.625	0.500	0.689			1					
	STFC R/L 103	★	★	0.625	0.625	4.00	0.750	0.625	1.000	TC□□32.5□	B106	1	3.0	SH-3414	ST-1335	TRD15	ST-1750
	STFC R/L 123B	★	★	0.750	0.750	4.50	1.000	0.750	1.000			1					
	STFC R/L 163D	★	★	1.000	1.000	6.00	1.250	1.000	1.000			1					

Applicable Inserts ◀·· STAC / STDC / STFC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Depending on the insert size, some combinations cannot be made-to-order or manufactured.

Legend: Name of Chipbreaker/CBN/PCD — Photo — Grade (EGU / AC8025P)

Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	N (Non-Ferrous) —
General Machining	ELU T1500Z	ESU AC8025P	ESU AC8025P	ELB AC6030M	ESU AC6030M	ESU AC6040M	EMU AC4015K	No Chipbreaker AC4015K	PCD DA1000
High-precision	MEFF AC1030U	MESI AC1030U	EFM AC1030U	MEFF AC1030U	MESI AC1030U	EFM AC1030U	—	—	PCD DA1000
Recommended Cutting Conditions	☞ A10~			☞ A14~			☞ A16~		☞ A22~

●= USA Stocked Item ★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

STGC / STJC / STTC

S Style Mini Holder - General Turning and Profiling Screw-on

STGC

External Turning

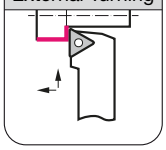
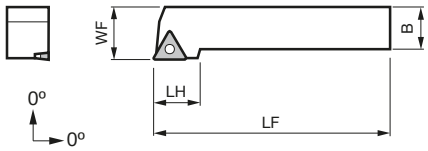


Fig 1



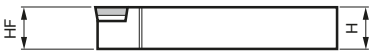


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Insert Screw	Shim Wrench (For Hex Socket)	Shim Screw
Inch	STGC R/L 062	★	★	0.375	0.375	2.500	0.500	0.375	0.500	TC□□21.5□	B104	1	0.9	—	ST-1225	TRD07	—
Inch	STGC R/L 082	★	★	0.500	0.500	3.500	0.625	0.500	0.560			1					
Inch	STGC R/L 103	★	★	0.625	0.625	4.000	0.750	0.625	1.000	TC□□32.5□	B106	1	3.0	SH-3414	ST1335	TRD15	ST-1750
Inch	STGC R/L 123B	★	★	0.750	0.750	4.500	1.000	0.750	1.000			1					
Inch	STGC R/L 163D	★	★	1.000	1.000	6.000	1.250	1.000	1.250			1					

STJC

External Turning and Facing

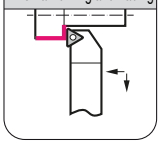
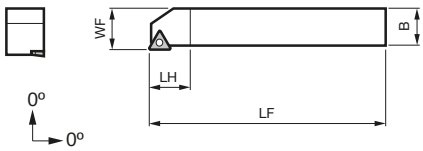


Fig 1



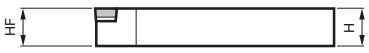


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Wrench (For Torx Holes)
STJC R/L 062D	●	●	0.375	0.375	6.000	0.375	0.375	0.625	TC□□21.5	B104	1	ST-1225	TRD07
STJC R/L 082D	●	●	0.500	0.500	6.000	0.500	0.500	0.625			1		
STJC R/L 102D	●	●	0.625	0.625	6.000	0.625	0.625	0.625					

STTC

External / Chamfering

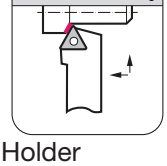


Fig 1

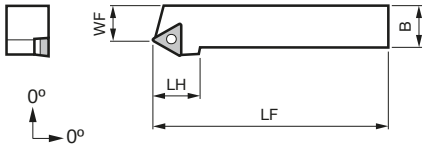


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Insert Screw	Shim Wrench (For Hex Socket)	Shim Screw
Inch	STTC R/L 123D	●	★	0.750	0.750	4.500	0.718	0.750	1.000	TC□□32.5□	B106	1	3.0	SH-3414	ST-1335	TRD15	ST-1750
Inch	STTC R/L 163D	★	★	1.000	1.000	6.000	0.860	1.000	1.000			1					

Applicable Inserts ◀·· STGC / STJC / STTC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Depending on the insert size, some combinations cannot be made-to-order or manufactured.

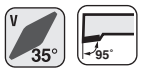
Legend: Name of Chipbreaker/CBN/PCD — Photo — Grade (EGU / AC8025P)

Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	N (Non-Ferrous)
General Machining	ELU T1500Z	ESU AC8025P	ESU AC8025P	ELB AC6030M	ESU AC6030M	ESU AC6040M	EMU AC4015K	No Chipbreaker AC4015K	PCD DA1000
High-precision	MEFF AC1030U	MESI AC1030U	EFM AC1030U	MEFF AC1030U	MESI AC1030U	EFM AC1030U	—	—	PCD DA1000
Recommended Cutting Conditions	☞ A10~			☞ A14~			☞ A16~		☞ A22~

●= USA Stocked Item ★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

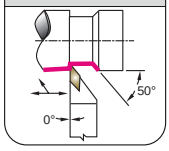
SVAB / SVJB / SVNB

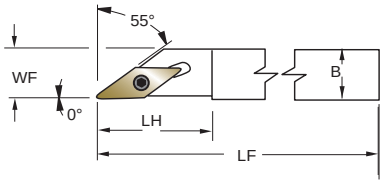


SV Style Mini Holder - General Turning and Profiling
Screw-on

SVAB

Profiling Multipurpose



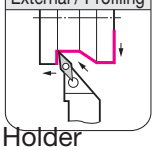


Holder — Parts — Dimensions (inch)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Insert Screw	N·m	Wrench (For Torx Holes)
SVAB R/L 062D	★	★	.375	.375	4.500	.375	.375	.875	VB□□22□	B119	1	TS-25.45-8M2	1.5	TRX08
SVAB R/L 082D	★	★	.500	.500	6.000	.500	.500	.875			1			
SVAB R/L 103B	★	★	.625	.625	6.000	.625	.625	1.375	VB□□33□	B121	1	ST-32.5		TRX15
SVAB R/L 103D	★	★	.625	.625	6.000	.625	.625	1.375			1			

SVJB

External / Profiling



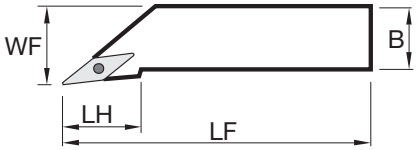


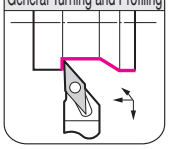
Figure shows right-hand (R) tool.

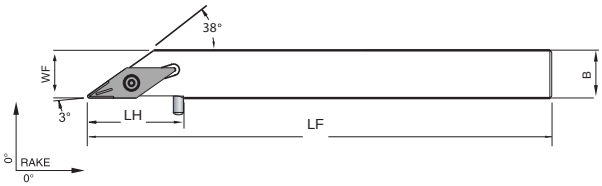
Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Insert Screw	Shim Wrench (For Torx Socket)	Shim Screw
Inch	SVJB R/L 123B	★	★	0.750	0.750	4.500	1.000	0.750	0.940	VB□□33□	B121	1	3.0	SH-3718	BFTX03515	TRX15	ST-1750
	SVJB R/L 163D	★	★	1.000	1.000	6.000	1.250	1.000	1.614			1					

SVNB

General Turning and Profiling



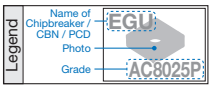


Right Hand Shown, Left Hand Opposite

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head Length LH	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Wrench (For Torx Holes)
Inch	SVNB R/L 062B	●	●	0.375	0.375	4.500	0.375	0.375	1.000	VB□□22□	B119	1	TS25.456M2	TRX08
	SVNB R/L 062D	●	●	0.375	0.375	6.000	0.375	0.375	1.000			1		
	SVNB R/L 082B	●	●	0.500	0.500	4.500	0.500	0.500	1.000			1		
	SVNB R/L 082D	●	●	0.500	0.500	6.000	0.500	0.500	1.000			1		
	SVNB R/L 103B	●	●	0.625	0.625	4.500	0.625	0.625	1.000	VB□□33□	B121	1	TS4.710M1	TRX15
	SVNB R/L 103D	●	●	0.625	0.625	6.000	0.625	0.625	1.000			1		

Applicable Inserts ◀ SVLC / SVLP / SVJB / SVJC / SVVC / SVPC



1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Process \ Application Range	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	S (Exotic Alloy) Finishing to Medium Cutting	S (Exotic Alloy) Medium to Roughing	N (Non-Ferrous) High-precision/ Finishing	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Machining	EFB T1500Z	EGU AC8025P	ELB AC6030M	EGU AC6030M	ESU AC5015S	ESU AC5025S	PCD DA1000	NAG H1	CBN BNC2125	CBN BN2000	PCD DA90
High-precision	MEFF AC1030U	MESI AC1030U	MEFF AC1030U	MESI AC1030U	MEFF AC1030U	MESI AC5015S	PCD DA1000	—	CBN BNC2115	CBN BN1000	BINDERLESS PCD NPD10
Recommended Cutting Conditions	☞ A10~		☞ A14~		☞ A18~		☞ A22~		☞ A20~		☞ M2~

●= USA Stocked Item ★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

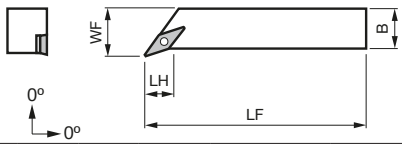
SVHC / SVJC / SVLC / SVPC / SVVC

SV Profiling Tool Holder - For External Profiling Screw-on

SVHC

Profiling Multipurpose

Fig 1



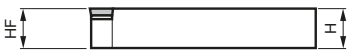


Figure shows right-hand (R) tool.

Holder Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Insert Screw	Shim Wrench (For Torx Socket)	Shim Screw
Inch	**SVHC R/L 123B**	★	★	0.750	0.750	4.500	1.000	0.750	0.740	VC□□33□	**B124**	1	**3.0**	SH-3718	ST-1335	TRD15	ST-1750
	SVHC R/L 163D	★	★	1.000	1.000	6.000	1.250	1.000	0.756			1					

SVJC

External / Profiling

Fig 1

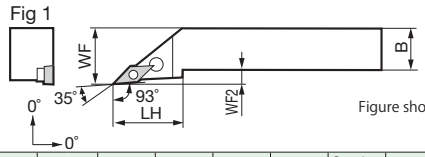


Figure shows right-hand (R) tool.

Holder Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Offset WF2	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Pin	Nut	Shim	Shim Screw	Insert Screw	N·m	Wrench (For Torx Holes)	Nut Wrench (For Hex Socket)
Inch	**SVJC R/L 123B**	★	★	0.750	0.750	4.500	1.000	0.750	1.614	–	VC□□33□	**B124**	1	–	–	SH-3718	ST-1750	ST-1335	**3.0**	TRD15	–
	SVJC R/L 163D	★	★	1.000	1.000	6.000	1.250	1.000	1.614	–			1								
	SVJC R/L 203D	★	★	1.250	1.250	6.000	1.250	1.250	1.614	–			1								
Metric	**SVJC R/L 2020K16**	★	★	*20*	*20*	*125*	*25*	*20*	*41*	*5*			1	VP20	CPV33N	SVP32	–	BFTX03508	**2.0**	TRX10	LH025
	SVJC R/L 2525M16	★	★	*25*	*25*	*150*	*32*	*25*	*41*	*7*			1	VP25							
	SVJC R/L 3225P16	★	★	*32*	*25*	*170*	*32*	*32*	*41*	*7*			1	VP32							

SVLC

External / Profiling

Fig 1

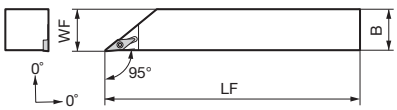


Figure shows right-hand (R) tool.

Holder Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Insert Screw	N·m	Wrench (For Torx Holes)
SVLC R/L 1010-H11	★	★	*10*	*10*	*100*	*10.5*	*10*	VC□□22□	**B122**	1	BFTX02508NV	**1.5**	TRX08
SVLC R/L 1212-H11	★	★	*12*	*12*	*100*	*12.5*	*12*			1			
SVLC R/L 1616-H11	★	★	*16*	*16*	*100*	*16.5*	*16*			1			
SVLC R/L 2020-K11*	★	★	*20*	*20*	*125*	*20.5*	*20*			1			
SVLC R/L 2525-M11	★	★	*25*	*25*	*150*	*25.5*	*25*			1			

* Old Cat. No. SVLC R/L 2020-H11

SVPC

External / Facing / Profiling / Undercutting

Fig 1

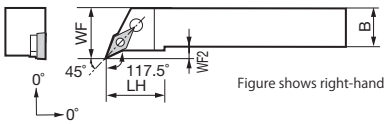


Figure shows right-hand (R) tool.

Holder Parts

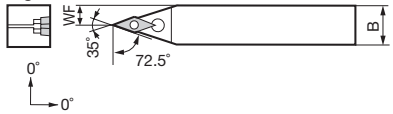
Dimensions (*mm*)

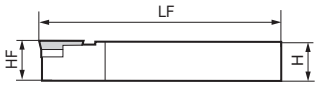
Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Offset WF2	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Pin	Nut	Shim	Insert Screw	N·m	Wrench (For Torx Holes)	Nut Wrench (For Hex Socket)
SVPC R/L 1010-H11	★	★	*10*	*10*	*100*	*14.5*	*10*	-	*4.5*	VC□□22□	**B122**	1	–	–	–	BFTX02508NV	**1.5**	TRX08	–
SVPC R/L 1212-H11	★	★	*12*	*12*	*100*	*16.5*	*12*	-	*4.5*			1							
SVPC R/L 1616-H11	★	★	*16*	*16*	*100*	*20.5*	*16*	-	*4.5*			1							
SVPC R/L 2020K16	★	★	*20*	*20*	*125*	*25*	*20*	*35*	*5.0*	VC□□33□	**B124**	1	VP20	CPV33N	SVP32	BFTX03508	**2.0**	TRX10	LH025
SVPC R/L 2525M16	★	★	*25*	*25*	*150*	*32*	*25*	*35*	*7.0*			1	VP25						
SVPC R/L 3225P16			*32*	*25*	*170*	*32*	*32*	*35*	*7.0*			1	VP32						

SVVC

External Turning

Fig 1





Holder Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Pin	Nut	Shim	Insert Screw	N·m	Wrench (For Torx Holes)	Nut Wrench (For Hex Socket)	Shim Screw
Inch	**SVVCN123B**	★	0.750	0.750	4.500	0.398	0.750	VC□□33□	**B124**	1	–	–	SH-3718	ST-1335	–	TRD15	–	ST-1750
	SVVCN163D	★	1.000	1.000	6.000	0.523	1.000			1								
	SVVCN203D	★	1.250	1.250	6.000	0.648	1.250			1								
Metric	**SVVCN2020K16**	★	*20*	*20*	*125*	*10.0*	*20*			1	VP20	CPV33N	SVP32	BFTX03508	**2.0**	TRX10	LH025	-
	SVVCN2525M16	★	*25*	*25*	*150*	*12.5*	*25*			1	VP25							
	SVVCN3225P16	★	*32*	*25*	*170*	*12.5*	*32*			1	VP32							

●= USA Stocked Item ★= World Wide Warehouse Item

SVLP / SVPP

SV Profiling Tool Holder - General Turning , Facing, Profiling and Undercutting
Screw-on

SVLP

External / Profiling

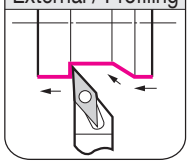


Fig 1

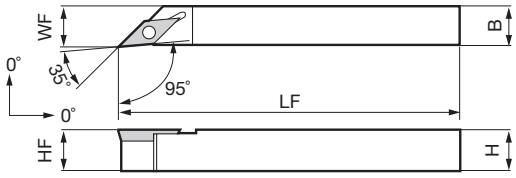


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SVLP R/L 1010-H11	★	★	*10*	*10*	*100*	*10.5*	*10*	VP□□22	B127	1	BFTX02508NV	1.5	TRX08
SVLP R/L 1212-H11	★	★	*12*	*12*	*100*	*12.5*	*12*			1			
SVLP R/L 1616-H11	★	★	*16*	*16*	*100*	*16.5*	*16*			1			

SVPP

Undercutting

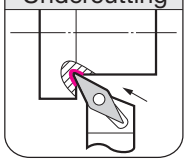


Fig 1

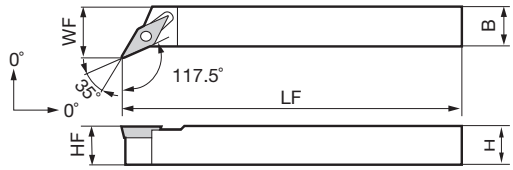


Figure shows right-hand (R) tool.

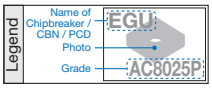
Holder / Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SVPP R/L 1010-H11	★	★	*10*	*10*	*100*	*14.5*	*10*	VP□□22	B127	1	BFTX02508NV	1.5	TRX08
SVPP R/L 1212-H11	★	★	*12*	*12*	*100*	*16.5*	*12*			1			
SVPP R/L 1616-H11	★	★	*16*	*16*	*100*	*20.5*	*16*			1			

Applicable Inserts ◀·· SVLP / SVPP

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Process \ Application Range	P (Steel) Finishing	M (Stainless Steel) Finishing
High-precision	FX AC1030U	FX AC1030U
Recommended Cutting Conditions	☞ A24~	☞ A24~

★ = World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

CCKN-CD / CCKN-CX

Toolholders for Ceramic Inserts
Clamp Style

Ceramic Style Inserts are available in B section

CCKN-CD

External Turning and Facing

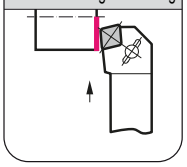
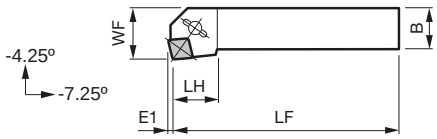


Fig 1



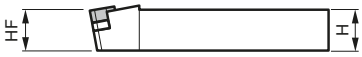


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Cutting Edge Distance E1	Applicable Insert Cat. No.	Fig	Alternate Shim for CN□□43□ inserts	Shim	Shim Screw New Part#	Shim Screw Old Part #	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Chipbreaker New Part#	Chipbreaker Old Part #
Inch	**CCKN R/L 164CD**	●	★	1.000	1.000	6.00	1.250	1.000	1.338	0.122	CN□□45	1	ICSN454*	ICSN434	ST-1160	BXD06135	LH040	CL-2417	CLCD45	CB-9414	CBCR45
	CCKN R/L 204CD	★	●	1.250	1.250	6.00	1.500	1.250	1.338	0.122		1									

* Alternate Shim for CN□□43 inserts only

CCKN-CX

External Turning and Facing

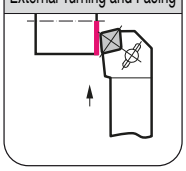
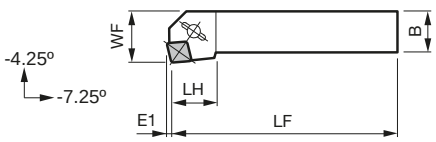


Fig 1



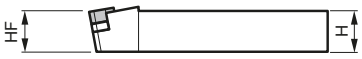


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Cutting Edge Distance E1	Applicable Insert Cat. No.	Fig	Alternate Shim for CN□□43 inserts	Shim	Shim Screw New Part#	Shim Screw Old Part #	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Chipbreaker New Part#	Chipbreaker Old Part #
Inch	**CCKN R/L 164CX**	★	★	1.000	1.000	6.00	1.250	1.000	1.338	0.122	CN□X45	1	ICSN454*	ICSN434	ST-1160	BXD06135	LH040	CL-2415	CLCX45	CB-9414	CBCR45
	CCKN R/L 204CX	●	★	1.250	1.250	6.00	1.500	1.250	1.338	0.122		1									

* Alternate Shim for CN□□43 inserts only

●= USA Stocked Item ★= World Wide Warehouse Item

CCLN-CD / CCLN-CX

Toolholders for Ceramic Inserts
Clamp Style

Ceramic Style Inserts are available in B section

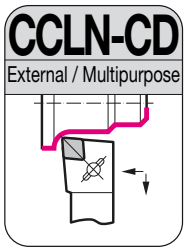
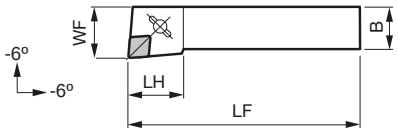


Fig 1



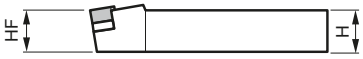


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Alternate Shim for CN□□43□ inserts	Shim	Shim Screw	Clamp Screw	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Chipbreaker New Part#	Chipbreaker Old Part #
Inch	**CCLN R/L 163CD**	●	●	1.000	1.000	6.00	1.250	1.000	1.300	CN□□32	1	—	ICSN-332	ST-1764	ST-1086	LH040	CL-2713		CB-9416	
	CCLN R/L 164CD	●	●	1.000	1.000	6.00	1.250	1.000	1.338	CN□□45	1	ICSN454	ICSN434	ST-1160	—		CL-2417	CLCD45	CB-9414	CBCR45
	CCLN R/L 204CD	●	●	1.250	1.250	6.00	1.500	1.250	1.338		1									

* Alternate Shim for CN□□43 inserts only

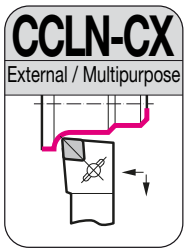
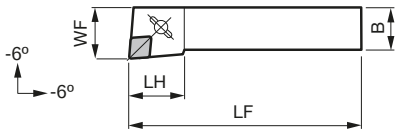


Fig 1



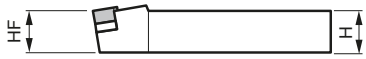


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Alternate Shim for CN□□43 Inserts	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Clamp	Chipbreaker
Inch	**CCLN R/L 164CX**	★	★	1.000	1.000	6.00	1.250	1.000	1.338	CN□X45	1	ICSN454	ICSN434	ST-1160	LH040	CL-2415	—
	CCLN R/L 204CX	●	●	1.250	1.250	6.00	1.500	1.250	1.338		1						

* Alternate Shim for CN□□43 inserts only

★= World Wide Warehouse Item ●= USA Stocked Item

CDJN-CD / CDJN-CX / CRDC-CD

Toolholders for Ceramic Inserts
Clamp Style

Ceramic Style Inserts are available in B section

CDJN-CD

External / Profiling

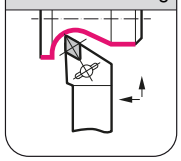
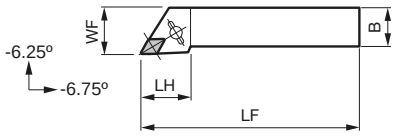


Fig 1



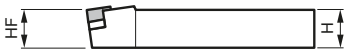


Figure shows right-hand (R) tool.

CD

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw New Part#	Shim Screw Old Part #	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Chipbreaker
Inch	CDJN R/L 164CD	●	●	1.000	1.000	6.000	1.250	1.000	1.496	DNG43□	1	IDSN452	ST-1160	BXD06135	LH040	CL-2417	CLCD45	—
	CDJN R/L 204CD	●	●	1.250	1.250	6.000	1.500	1.250	1.496		1							

Shim IDSN452 is sold separately

CDJN-CX

External / Profiling

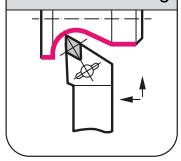
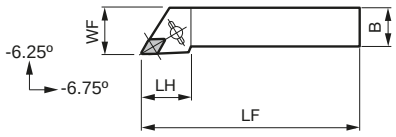


Fig 1



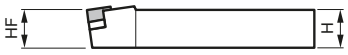


Figure shows right-hand (R) tool.

CX

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw New Part#	Shim Screw Old Part #	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Chipbreaker
Inch	CDJN R/L 164CX	●	●	1.000	1.000	6.000	1.250	1.000	1.496	DNMX45□	1	IDSN434	ST-1160	BXD06135	LH040	CL-2432	CLCXD45	—
	CDJN R/L 204CX	●	●	1.250	1.250	6.000	1.500	1.250	1.496		1							

CRDC-CD

External / Profiling

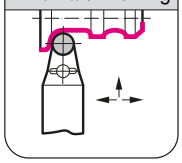
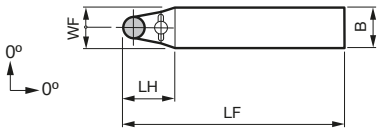


Fig 1



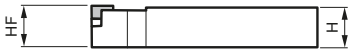


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock N	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Seat	Seat Screw New Part#	Seat Screw Old Part #	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Clamp Screw	Wrench
Inch	CRDCN162CD	●	1.000	1.000	6.000	0.500	1.000	1.420	RCGX22	1	—	—		LH030	CL-2120		ST-1335	TRD15
	CRDCN163CD	●	1.000	1.000	6.000	0.500	1.000	1.420	RCGX35	1	IRSC35	ST-1335	BFTX0315	LH030	CL-2121	CLCDRC45	BFTX0520	TRX15
	CRDCN203CD	★	1.250	1.250	6.000	0.625	1.250	1.420		1								
	CRDCN164CD	●	1.000	1.000	6.000	0.500	1.000	1.300	RCGX45	1	IRSC45	ST-1350		LH030	CLCDRC45		BFTX0309	TRX20
	CRDCN204CD	●	1.250	1.250	6.000	0.625	1.250	1.300		1								
	CRDCN205CD	●	1.250	1.250	6.000	0.625	1.250	1.300	RCGX55	1	SH-2817-55	ST-1230*		LH040	CL-2414		–	–
	CRDCN206CD	●	1.250	1.250	6.000	0.625	1.250	1.500	RCGX65	1	SH-3819-65							

CRDCN205CD & CRDCN206CD: Required Shim, sold separately

* 2 pcs of ST-1230 are required for each shim

●= USA Stocked Item ★= World Wide Warehouse Item

CRDN-CD / CRSN-CD / CRGN-CD

Ceramic Style Inserts are available in B section

Toolholders for Ceramic Inserts
Clamp Style

CRDN-CD

Profiling Multipurpose

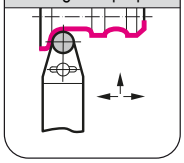
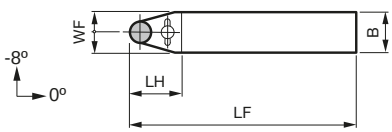
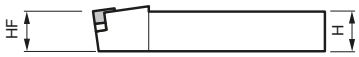


Fig 1





CD

Holder — Parts

Dimensions (inch / *mm*)

	Cat. No.	Stock N	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw New Part#	Shim Screw Old Part #	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Clamp Screw	Chipbreaker
Inch	**CRDNN162CD**	●	1.000	1.000	6.000	0.500	1.000	1.058	RNG22	1	N/A	N/A		TRD15	CL-2120		ST-1335	N/A
Inch	**CRDNN163CD**	●	1.000	1.000	6.000	0.500	1.000	1.058	RNG32	1	SH-3909	ST-1640		TRD20	CL-2121		ST-1250	N/A
Inch	**CRDNN164CD**	●	1.000	1.000	6.000	0.500	1.000	1.417	RNG45	1	IRSN43	ST-1160	BXD08135	LH040	CLCD45		—	CBCR45
Inch	**CRDNN204CD**	●	1.250	1.250	6.000	0.625	1.250	1.417		1								
Inch	**CRDNN205CD**	●	1.250	1.250	6.000	0.625	1.250	1.417	RNG55	1	IRSN53	ST-1180	BXD08135	LH040	CL-2417	CLCDRN55	—	CBCR45
Inch	**CRDNN245CD**	●	1.500	1.500	8.000	0.750	1.500	1.417		1								
Inch	**CRDNN206CD**	●	1.250	1.250	6.000	0.625	1.250	1.496	RNG65	1	SH-3919	ST-1182		LH040	CL-2417	CLCDRN55	—	CBCR45
Inch	**CRDNN246CD**	●	1.500	1.500	8.000	0.750	1.500	1.496		1	SH-3925	ST-1192						
Metric	**CRDNN2525-32**	★	*25*	*25*	*150*	*25*	*35*	*15*	RNG32	1	SRND32	SPP3		LT27	CCM8-LONG		WB8-22T	—
Metric	**CRDNN2525-42**	★	*25*	*25*	*150*	*25*	*35*	*20*	RNG42	1	SRND42							
Metric	**CRDNN2525-43**	★	*25*	*25*	*150*	*25*	*35*	*20*	RNG43	1	SRND43							

CRSN-CD

Profiling Multipurpose

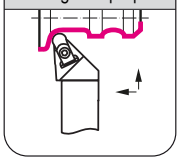
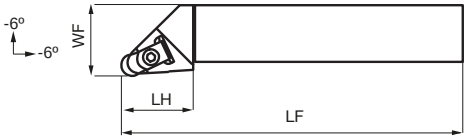


Fig 1



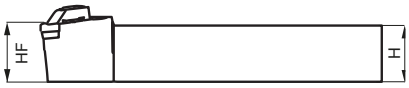


Figure shows right-hand (R) tool.

CD

Holder — Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Clamp	Clamp Screw	Chipbreaker
Inch	**CRSN R/L 162CD**	●	●	1.000	1.000	6.000	1.250	1.000	1.300	RNG22	1	N/A	N/A	TRD15	CL-2120	ST-1335	N/A
Inch	**CRSN R/L 163CD**	●	●	1.000	1.000	6.000	1.250	1.000	1.300	RNG32	1	SH-3909	ST-1640	TRD20	CL-2121	ST-1250	N/A

CRGN-CD

Profiling Multipurpose

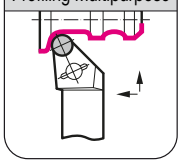


Fig 1

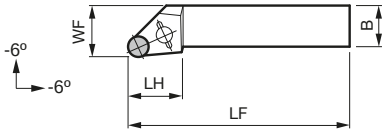


Figure shows right-hand (R) tool.

CD

Holder — Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw New Part#	Shim Screw Old Part #	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Chipbreaker New Part#	Chipbreaker Old Part #
Inch	**CRGN R/L 124CD**			0.750	0.750	4.500	1.000	0.750	1.250	RNG45	1	IRSN43	ST-1160	BXD06135	LH040	CLCD45	CLCDR45	CB-9414	CBCR45
Inch	**CRGN R/L 164CD**	●	●	1.000	1.000	6.000	1.250	1.000	1.338		1								
Inch	**CRGN R/L 204CD**	●	●	1.250	1.250	6.000	1.500	1.250	1.338		1								
Inch	**CRGN R/L 165CD**	●	●	1.000	1.000	6.000	1.250	1.000	1.338	RNG55	1	IRSN53	ST-1180	BXD08135	LH040	CL-2417	CLCDRN55	CB-9414	CBCR45
Inch	**CRGN R/L 205CD**	●	●	1.250	1.250	6.000	1.500	1.250	1.338		1								
Inch	**CRGN R/L 206CD**	●	●	1.250	1.250	6.000	1.500	1.250	1.653	RNG65	1	SH-3919	ST-1182		LH040	CL-2417		CB-9414	CBCR45

★= World Wide Warehouse Item ●= USA Stocked Item

CSDN-CD / CSDN-CX

Toolholders for Ceramic Inserts
Clamp Style

Ceramic Style Inserts are available in B section

CSDN-CD

External and Chamfering

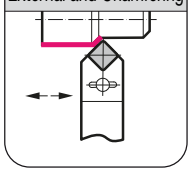
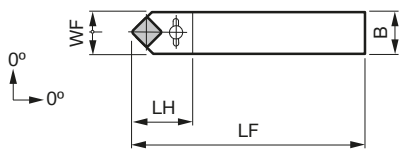


Fig 1



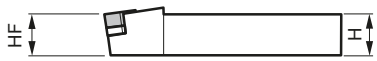


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock N	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Clamp	Chipbreaker
Inch	**CSDNN164CD**	●	1.000	1.000	6.000	0.500	1.000	1.653	SNG43	1	ISSN454	ST-1160	LH040	CLCX44	CB-9414
	CSDNN204CD	●	1.250	1.250	6.000	0.625	1.250	1.653		1					

Required shim for SNG43, sold separately

CSDN-CX

External and Chamfering

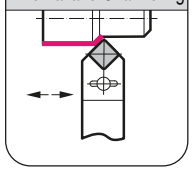
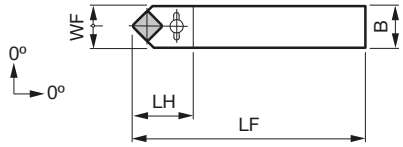


Fig 1



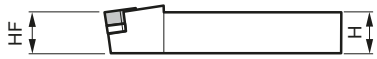


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock N	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Clamp	Chipbreaker
Inch	**CSDNN164CX**	★	1.000	1.000	6.000	0.500	1.000	1.653	SN□X45	1	ISSN434	ST-1160	LH040	CL-2415	—
	CSDNN204CX	★	1.250	1.250	6.000	0.625	1.250	1.653		1					
	CSDNN165CX	★	1.000	1.000	6.000	0.500	1.000	1.653	SN□X55	1	ISSN534	ST-1180			
	CSDNN205CX	★	1.250	1.250	6.000	0.625	1.250	1.653		1					

●= USA Stocked Item ★= World Wide Warehouse Item

CSKN-CD / CSKN-CX

Toolholders for Ceramic Inserts
Clamp Style

Ceramic Style Inserts are available in B section

CSKN-CD

External Turning

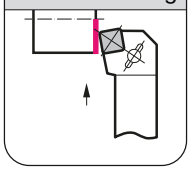
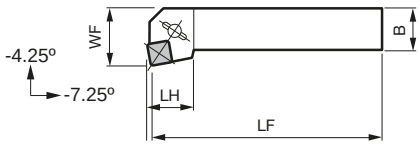


Fig 1



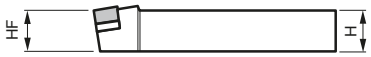


Figure shows right-hand (R) tool.

Holder | Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Chipbreaker
Inch	**CSKN R/L 164CD**	★	★	1.000	1.000	6.00	1.250	1.000	1.338	SNG43	1	ISSN454	ST-1160	LH040	CL-2417	CLCX44	CB-9414
	CSKN R/L 204CD	★	★	1.250	1.250	6.00	1.250	1.250	1.338		1						

Required shim for SNG43, sold separately

CSKN-CX

External Turning

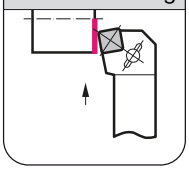
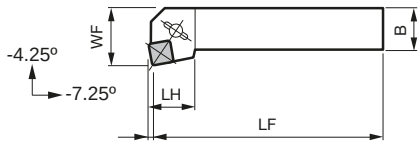


Fig 1



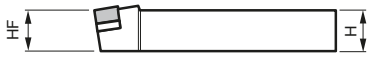


Figure shows right-hand (R) tool.

Holder | Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Clamp	Chipbreaker
Inch	**CSKN R/L 164CX**	★	★	1.000	1.000	6.00	1.250	1.000	1.338	SN□X45	1	ISSN434	ST-1160	LH040	CL-2415	CB-9414
	CSKN R/L 204CX	★	★	1.250	1.250	6.00	1.250	1.250	1.338		1					
	CSKN R/L 165CX	★	★	1.000	1.000	6.00	1.250	1.000	1.338	SN□X55	1	ISSN534	ST-1180	LH040	CL-2415	CB-9414
	CSKN R/L 205CX	★	★	1.250	1.250	6.00	1.500	1.250	1.338		1					

★= World Wide Warehouse Item ●= USA Stocked Item

CSRN-CD / CSRN-CX

Toolholders for Ceramic Inserts
Clamp Style

Ceramic Style Inserts are available in B section

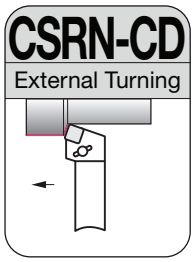
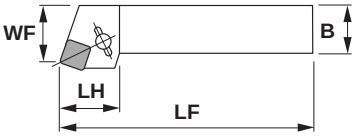
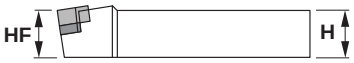


Fig 1





Holder | Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Cutting Edge Distance E1	Applicable Insert Cat. No.	Fig	Shim	Shim Screw	Clamp Screw	Clamp Wrench (For Hex Socket)	Clamp New Part#	Clamp Old Part #	Chipbreaker
Inch	**CSRN R/L 163CD**	★	★	1.000	1.000	6.000	1.162	1.000	1.300	0.088	SNG32□	1	ISSN-333	ST-1764	ST-1086	LH040	CL-2713		CB-9416
	CSRN R/L 164CD	★	★	1.000	1.000	6.000	1.130	1.000	1.338	0.120	SNG43□	1	ISSN454	ST-1160	—		CL-2417	CLCX44	CB-9414
	CSRN R/L 204CD	★	★	1.250	1.250	6.000	1.379	1.250	1.338	0.120		1							

Required shim for SNG43, sold separately

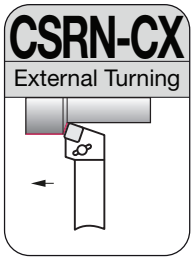
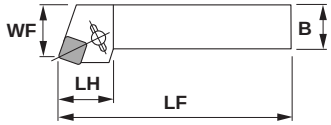
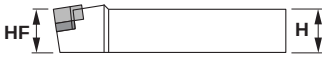


Fig 1





Holder | Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Cutting Edge Distance E1	Applicable Insert Cat. No.	Fig	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Clamp	Chipbreaker
Inch	**CSRN R/L 164CX**	●	★	1.000	1.000	6.000	1.130	1.000	1.338	0.120	SN□X45	1	ISSN434	ST-1160	LH040	CL-2415	CB-9414
	CSRN R/L 204CX	★	★	1.250	1.250	6.000	1.379	1.250	1.338	0.120		1					
	CSRN R/L 165CX	★	★	1.000	1.000	6.000	1.130	1.000	1.338	0.148	SN□X55	1	ISSN534	ST-1180			
	CSRN R/L 205CX	★	★	1.250	1.250	6.000	1.379	1.250	1.338	0.148		1					

●= USA Stocked Item ★= World Wide Warehouse Item

CSSN-CD / CSSN-CX

Toolholders for Ceramic Inserts
Clamp Style

Ceramic Style Inserts are available in B section

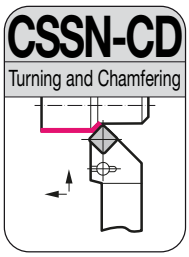
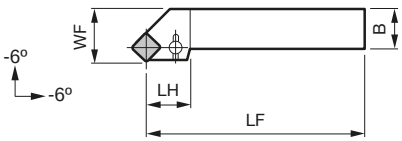


Fig 1



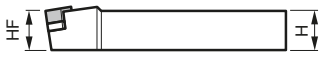


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Clamp	Chipbreaker
Inch	**CSSN R/L 164CD**	●	●	1.000	1.000	6.000	1.250	1.000	1.653	SNG43□	1	ISSN454	ST-1160	LH040	CLCX44	CB-9414
	CSSN R/L 204CD	●	●	1.250	1.250	6.00	1.500	1.250	1.653		1					

Required shim for SNG43, sold separately

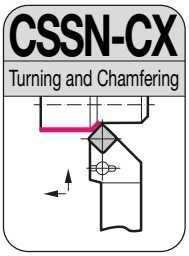
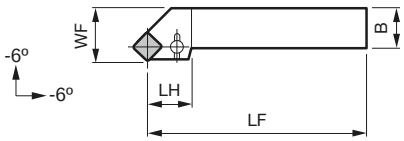


Fig 1



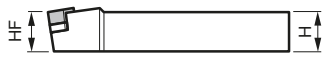


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Shim	Shim Screw	Clamp Wrench (For Hex Socket)	Clamp	Chipbreaker
Inch	**CSSN R/L 164CX**	●	●	1.000	1.000	6.000	1.250	1.000	1.653	SN□X45	1	ISSN434	ST-1160	LH040	CL-2415	CB-9414
	CSSN R/L 204CX	●	●	1.250	1.250	6.000	1.500	1.250	1.653		1					
	CSSN R/L 165CX	●	●	1.000	1.000	6.000	1.250	1.000	1.653	SN□X55	1	ISSN534	ST-1180			
	CSSN R/L 205CX	●	●	1.250	1.250	6.000	1.500	1.250	1.653		1					

★= World Wide Warehouse Item ●= USA Stocked Item

CSDP / CSKP / CSRP

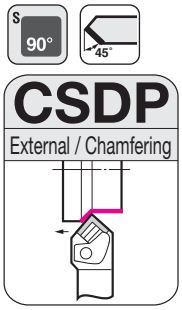
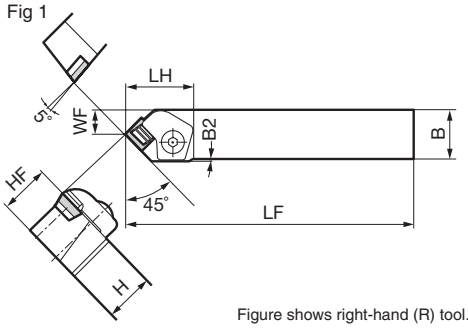


Fig 1



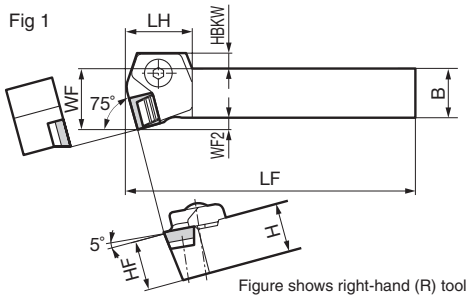
40 Style Holder - General Turning and Chamfering
Clamp-on

Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Step B2	Applicable Insert Cat. No.	Fig	Clamp	Clamp Screw	Chipbreaker Piece	Bolt	Shim	Shim Pin	Spring	Wrench (For Hex Socket)
CSDP R/L 1919-L12	★		*19*	*19*	*140*	*10.5*	*19*	*35*	*6*	SPG42□	1	DCR/L1	–	CBD4R/L	BH0824R/L	SSPD422	SPP3	DSP5	LH040
CSDP R/L 2525-N12	★		*25*	*25*	*160*	*12.5*	*25*	*35*	*2*		1				BH0830R/L				
CSDP R/L 3225-N12			*32*	*25*	*160*	*12.5*	*32*	*35*	*2*		1				BH0830R/L				

Fig 1



40 Style Holder - Facing
Clamp-on

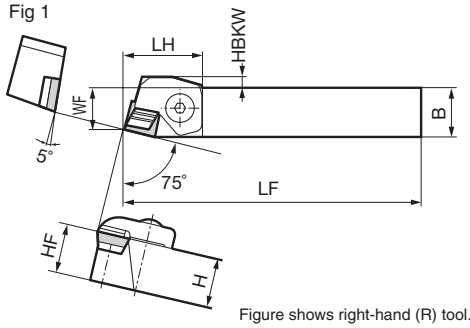
Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Offset WF2	Step HBKW	Applicable Insert Cat. No.	Fig	Clamp	Chipbreaker Piece	Bolt	Shim	Shim Pin	Spring	Wrench (For Hex Socket)
Metric	**CSKP R/L 1919-L12**			*19*	*19*	*140*	*25*	*19*	*22*	*6*	*7*	SP□□42□	1	DCL/R1	CBD4L/R	BH0824L/R	SSPD422	SPP3	DSP5	LH040
	CSKP R/L 2525-N12		★	*25*	*25*	*160*	*32*	*25*	*22*	*7*	–		1			BH0830L/R				
	CSKP R/L 3225-N12			*32*	*25*	*160*	*32*	*32*	*22*	*7*	–		1			BH0830L/R				
	CSKP R/L 2525-N15	★		*25*	*25*	*160*	*31*	*25*	*28*	*6*	*7*	SP□□53□	1	DCL/R3	CBD5L/R	BH1030L/R	SSPD522	SPP3	DSP5	LH050
	CSKP R/L 3232-Q15			*32*	*32*	*180*	*38*	*32*	*28*	*6*	–		1			BH1036L/R				

When using handed breaker inserts for facing, the holder and insert are opposite handed.

Fig 1



40 Type Holder - General / External Turning
Clamp-on

Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Step HBKW	Applicable Insert Cat. No.	Fig	Clamp	Chipbreaker Piece	Bolt	Shim	Shim Pin	Spring	Wrench (For Hex Socket)
Metric	**CSRP R/L 1919-L12**	★		*19*	*19*	*140*	*15.5*	*19*	*34.5*	5.0	SP□□42□	1	DCR/L1	CBD4R/L	BH0824R/L	SSPD422	SPP3	DSP5	LH040
	CSRP R/L 2525-N12	★		*25*	*25*	*160*	*21.5*	*25*	*34.5*	-		1			BH0830R/L				
	CSRP R/L 3225-N12			*32*	*25*	*160*	*21.5*	*32*	*34.5*	-		1			BH0830R/L				
	CSRP R/L 2525-N15	★		*25*	*25*	*160*	*21.5*	*25*	*40.0*	4.5	SP□□53□	1	DCR/L3	CBD5R/L	BH1030R/L	SSPD522	SPP3	DSP5	LH050
	CSRP R/L 3232-N15			*32*	*32*	*180*	*26.0*	*32*	*40.0*	-		1			BH1036R/L				

Ceramic Style Inserts are available in B section

★ Worldwide Warehouse item

CTAP / CTFP / CTGP

40 Type Holder - General Turning
Clamp-on

CTAP
External Turning

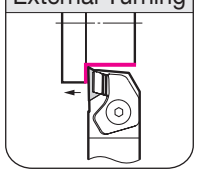


Fig 1

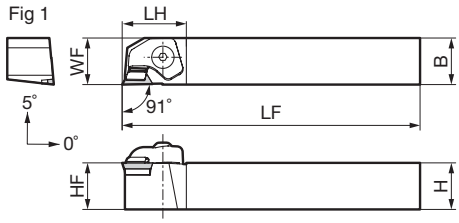
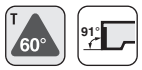


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Fig	Clamp	Chipbreaker Piece	Bolt	Shim	Shim Pin	Spring	Wrench (For Hex Socket)
CTAP R/L 2525-N16	★		*25*	*25*	*160*	*25*	*25*	*34.5*	TP□□32□	1	DCR/L2	CBD4R/L	BH0830R/L	STPD322	SPP3	DSP5	LH040
CTAP R/L 3225-N16			*32*	*25*	*160*	*25*	*32*	*34.5*		1							
CTAP R/L 3232-Q22			*32*	*32*	*180*	*32*	*32*	*41*	TP□□43□	1	DCR/L3	CBD5R/L	BH1036R/L	STPD422	SPP3	DSP5	LH050



40 Type Holder - Facing
Clamp-on

CTFP
Facing

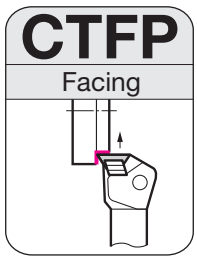
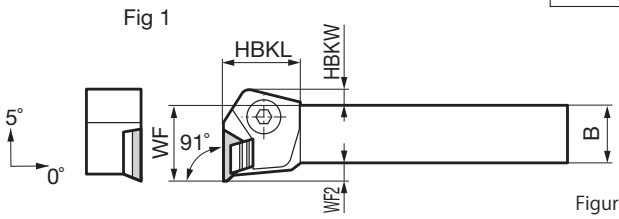


Fig 1



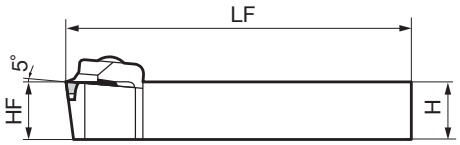


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head HBKL	Offset WF2	Step HBKW	Applicable Insert Cat. No.	Fig	Clamp	Chipbreaker Piece	Clamp Screw	Shim	Shim Pin	Spring	Wrench (For Hex Socket)
Metric	**CTFP R/L 1919-L16**	★		*19*	*19*	*140*	*25*	*19*	*26*	*6*	*8*	TP□□32□	1	DCL/R2	CBD4L/R	BH0824L/R	STPD322	SPP3	DSP5	LH040
	CTFP R/L 2525-N16	★		*25*	*25*	*160*	*32*	*25*	*26*	*7*	–		1			BH0830L/R				
	CTFP R/L 3225-N16			*32*	*25*	*160*	*32*	*32*	*26*	*7*	–		1	DCL/R2						
	CTFP R/L 2525-N22	★		*25*	*25*	*160*	*32*	*25*	*33*	*7*	*7*	TP□□43□	1	DCL/R3	CBD5L/R	BH1030L/R	STPD422	SPP3	DSP5	LH040
	CTFP R/L 3232-Q22			*32*	*32*	*180*	*39*	*32*	*33*	*7*	–		1	DCL/R3	CBD5L/R	BH1036L/R				

When using handed breaker inserts for facing, the holder and insert are opposite handed.

40 Type Holder - General Turning
Clamp-on

CTGP
External Turning

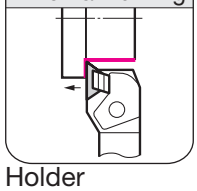
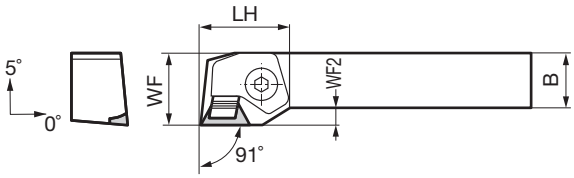


Fig 1



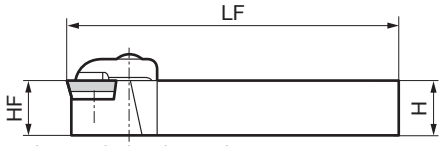


Figure shows right-hand (R) tool.

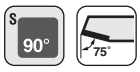
Holder — Parts — Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Offset WF2	Applicable Insert Cat. No.	Fig	Clamp	Chipbreaker Piece	Bolt	Shim	Shim Pin	Spring	Wrench (For Hex Socket)
Metric	**CTGP R/L 1919-L16**	★		*19*	*19*	*140*	*25*	*19*	*34.5*	*6*	TP□□32□	1	DCR/L2	CBD4R/L	BH0824R/L	STPD322	SPP3	DSP5	LH040
	CTGP R/L 2525-N22	★		*25*	*25*	*160*	*32*	*25*	*41*	*7*	TP□□43□	1	DCR/L3	CBD5R/L	BH1030R/L	STPD422	SPP3	DSP5	LH050

Ceramic Style Inserts are available in B section

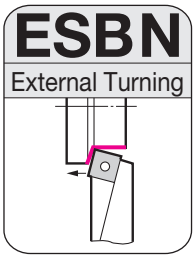
★ Worldwide Warehouse item

ESBN / ESDN



30 Style Holder - General Turning
Pin Lock

ESBN
External Turning



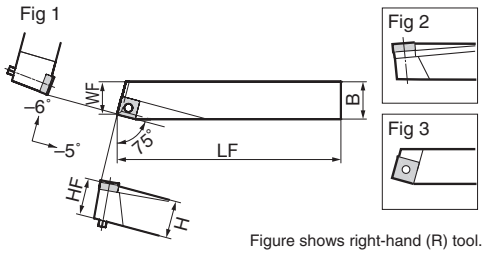


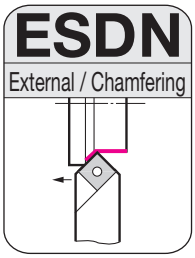
Figure shows right-hand (R) tool.

Holder — Parts Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Eccentric Shaft	Shim	Wrench
Metric	**ESBN R/L 1212F09**	★	★	12	12	80	9.5	11.5	SN□□32□	**B40**	1	P321US	-	KY40
	ESBN R/L 1616H09			16	16	100	13.0	15.5			1	P322US	-	
	ESBN R/L 1616H12			16	16	100	13.0	15.5	SN□□43□	**B41**	3	P432U	-	KY40
	ESBN R/L 2020K12			20	20	125	17.0	19.5			1	P433U	-	
	ESBN R/L 2020K12W	★	★	20	20	125	17.0	19.5			2	P433W	ESS42	
	ESBN R/L 2520M12			25	20	150	17.0	24.5			3	P434U	-	
	ESBN R/L 2520M12W			25	20	150	17.0	24.5			2	P434W	ESS42	
	ESBN R/L 2525M12			25	25	150	22.0	24.5			1	P434U	-	
	ESBN R/L 2525M12W	★		25	25	150	22.0	24.5			2	P434W	ESS42	

30 Style Holder - General Turning and Chamfering
Pin Lock

ESDN
External / Chamfering



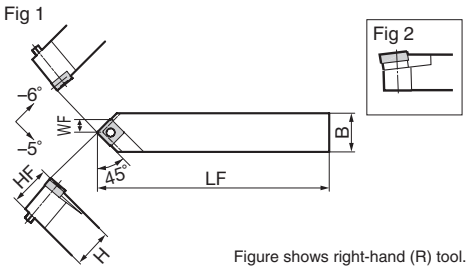


Figure shows right-hand (R) tool.

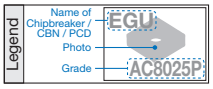
Holder — Parts Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Eccentric Shaft	Shim	Wrench
Metric	**ESDN R/L 1212F09**	★	★	12	12	80	6.0	11.5	SN□□32□	**B40**	1	P321US	-	KY40
	ESDN R/L 1616H09	★	★	16	16	100	8.0	15.5			1	P322US	-	
	ESDN R/L 2020K12			20	20	125	10.0	19.5	SN□□43□	**B41**	1	P433U	-	KY40
	ESDN R/L 2020K12W	★	★	20	20	125	10.0	19.5			2	P433W	ESS42	
	ESDN R/L 2520M12			25	20	150	10.0	24.5			1	P434U	-	
	ESDN R/L 2520M12W			25	20	150	10.0	24.5			2	P434W	ESS42	
	ESDN R/L 2525M12			25	25	150	12.5	24.5			1	P434U	-	
	ESDN R/L 2525M12W	★	★	25	25	150	12.5	24.5			2	P434W	ESS42	

Applicable Inserts ◀·· DSBN/DSDN/DSSN/PSBN/PSDN/PSSN/PSKN/ESBN/ESDN/ESSN/ESKN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	SUMIBORON BN7000/BNC500	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIBORON BNC2010	SUMIBORON BN1000	SUMIDIA Binderless NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN2000	SUMIDIA DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC420K	No Chipbreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN350	-
Recommended Cutting Conditions	☞ A10 on			☞ A14 on			☞ A16 on			☞ A18 on			☞ A20 on		☞ M2 on

★: Worldwide Warehouse item

BNC500 is for ductile cast iron.

ESSN / ESKN

30 Style Holder - General Turning, Facing and Chamfering
Pin Lock

ESSN

External / Facing / Chamfering

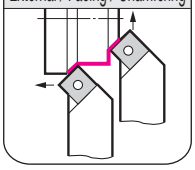


Fig 1

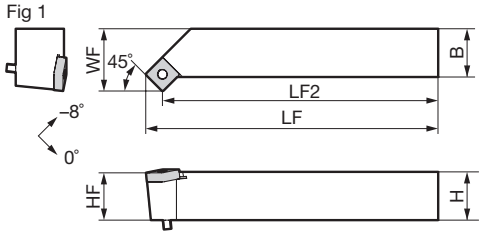


Fig 2

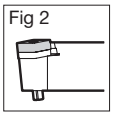


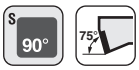
Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Overall Length 2 LF2	Cutting Edge WF	Cutting Edge Height HF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Eccentric Shaft	Shim	Wrench
Metric	**ESSN R/L 1212F09**	★	★	*12*	*12*	*80*	*73.8*	*16*	*11.5*	SN□□32□	**B40**	1	P321US	-	KY40
	ESSN R/L 1616H09	★	★	*16*	*16*	*100*	*93.8*	*20*	*15.5*			1	P322US	-	
	ESSN R/L 1616H12			*16*	*16*	*100*	*91.7*	*20*	*15.5*	SN□□43□	**B41**	1	P432U	-	KY40
	ESSN R/L 2020K12	★	★	*20*	*20*	*125*	*116.7*	*25*	*19.5*			1	P433U	-	
	ESSN R/L 2020K12W	★	★	*20*	*20*	*125*	*116.7*	*25*	*19.5*			2	P433W	ESS42	
	ESSN R/L 2520M12			*25*	*20*	*150*	*141.7*	*25*	*24.5*			1	P434U	-	
	ESSN R/L 2520M12W			*25*	*20*	*150*	*141.7*	*25*	*24.5*			2	P434W	ESS42	
	ESSN R/L 2525M12			*25*	*25*	*150*	*141.7*	*32*	*24.5*			1	P434U	-	
	ESSN R/L 2525M12W	★	★	*25*	*25*	*150*	*141.7*	*32*	*24.5*			2	P434W	ESS42	

When using handed breaker inserts for facing, the holder and insert are opposite handed.



30 Style Holder - Facing
Pin Lock

ESKN

Facing

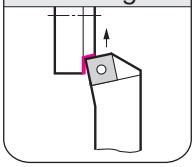


Fig 1

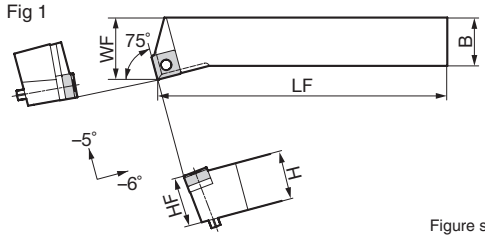


Fig 2

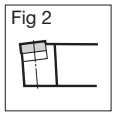


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

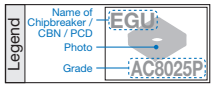
Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Eccentric Shaft	Shim	Wrench
ESKN R/L 1212F09	★	★	*12*	*12*	*80*	*16*	*11.5*	SN□□32□	**B40**	1	P321US	-	KY40
ESKN R/L 1616H09	★	★	*16*	*16*	*100*	*20*	*15.5*			1	P322US	-	
ESKN R/L 1616H12			*16*	*16*	*100*	*20*	*15.5*	SN□□43□	**B41**	1	P432U	-	KY40
ESKN R/L 2020K12			*20*	*20*	*125*	*25*	*19.5*			1	P433U	-	
ESKN R/L 2020K12W	★	★	*20*	*20*	*125*	*25*	*19.5*			2	P433W	ESS42	
ESKN R/L 2520M12			*25*	*20*	*150*	*25*	*24.5*			1	P434U	-	
ESKN R/L 2520M12W			*25*	*20*	*150*	*25*	*24.5*			2	P434W	ESS42	
ESKN R/L 2525M12			*25*	*25*	*150*	*32*	*24.5*			1	P434U	-	
ESKN R/L 2525M12W	★	★	*25*	*25*	*150*	*32*	*24.5*			2	P434W	ESS42	

When using handed breaker inserts for facing, the holder and insert are opposite handed.

Applicable Inserts ◀·· DSBN/DSDN/DSSN/PSBN/PSDN/PSSN/PSKN/ESBN/ESDN/ESSN/ESKN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	SUMIBORON BN7000/BNC500	ENZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIBORON BNC2010	SUMIBORON BN1000	SUMIDIA Binderless NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN2000	SUMIDIA DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	SUMIBORON BN7000/BNC500	EGZ AC420K	No ChipBreaker AC420K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIBORON BNC2020	SUMIBORON BN350	-
Recommended Cutting Conditions	☞ A10 on			☞ A14 on			☞ A16 on			☞ A18 on			☞ A20 on		☞ M2 on

BNC500 is for ductile cast iron.

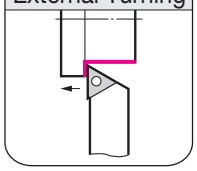
★: Worldwide Warehouse item

ETAN / ETGN

30 Style Holder - General Turning
Pin Lock

ETAN

External Turning



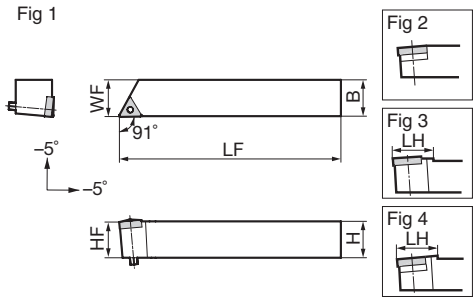


Figure shows right-hand (R) tool.

Holder / Parts

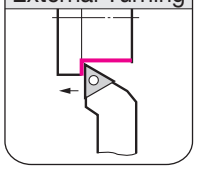
Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Eccentric Shaft	Shim	Wrench
ETAN R/L 1212F11	★	★	*12*	*12*	*80*	*12*	*11.5*	–	TN□□22□	**B51**	1	P221US	-	KY25
ETAN R/L 1616H1603			*16*	*16*	*100*	*16*	*15.5*	–	TN□□32□	**B51**	1	P322US	-	KY40
ETAN R/L 1616H1604	★	★	*16*	*16*	*100*	*16*	*15.5*	–	TN□□33□	**B52**	1	P332US	-	KY40
ETAN R/L 2020K1603			*20*	*20*	*125*	*20*	*19.5*	–	TN□□32□	**B51**	1	P323US	-	KY40
ETAN R/L 2020K1603W			*20*	*20*	*125*	*20*	*19.5*	–			2	P323WS	EST32	
ETAN R/L 2020K1604			*20*	*20*	*125*	*20*	*19.5*	–	TN□□33□	**B52**	1	P333US	-	KY40
ETAN R/L 2020K1604W	★	★	*20*	*20*	*125*	*20*	*19.5*	–			2	P333WS	EST32	
ETAN R/L 2520M1604			*25*	*20*	*150*	*20*	*24.5*	–			1	P334US	-	
ETAN R/L 2520M1604W			*25*	*20*	*150*	*20*	*24.5*	–			2	P334WS	EST32	
ETAN R/L 2525M1604			*25*	*25*	*150*	*25*	*24.5*	–			1	P334US	-	
ETAN R/L 2525M1604W	★	★	*25*	*25*	*150*	*25*	*24.5*	–			2	P334WS	EST32	
ETAN R/L 2525M22			*25*	*25*	*150*	*25*	*24.5*	30	TN□□43□	**B56**	3	P434U	-	KY40
ETAN R/L 2525M22W	★	★	*25*	*25*	*150*	*25*	*24.5*	30			4	P434W	EST43	

30 Style Holder - General Turning
Pin Lock

ETGN

External Turning



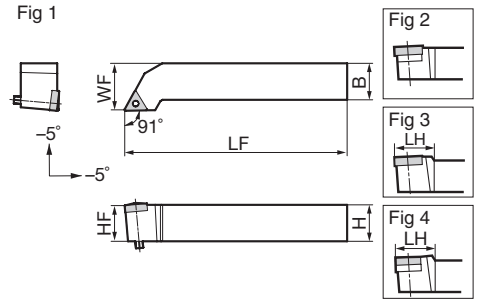


Figure shows right-hand (R) tool.

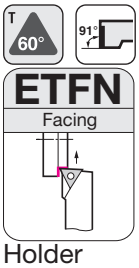
Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Eccentric Shaft	Shim	Wrench
ETGN R/L 1212F11	★	★	*12*	*12*	*80*	*16*	*11.5*	–	TN□□22□	**B51**	1	P221US	–	KY25
ETGN R/L 1616H1603	★	★	*16*	*16*	*100*	*20*	*15.5*	–	TN□□32□	**B51**	1	P322US	–	KY40
ETGN R/L 1616H1604	★	★	*16*	*16*	*100*	*20*	*15.5*	–	TN□□33□	**B52**	1	P332US	–	KY40
ETGN R/L 2020K1603			*20*	*20*	*125*	*25*	*19.5*	–	TN□□32□	**B51**	1	P323US	–	KY40
ETGN R/L 2020K1603W			*20*	*20*	*125*	*25*	*19.5*	–			2	P323WS	EST32	
ETGN R/L 2020K1604	★	★	*20*	*20*	*125*	*25*	*19.5*	–	TN□□33□	**B52**	1	P333US	–	KY40
ETGN R/L 2020K1604W	★	★	*20*	*20*	*125*	*25*	*19.5*	–			2	P333WS	EST32	
ETGN R/L 2520M1604			*25*	*20*	*150*	*25*	*24.5*	–			1	P334US	–	
ETGN R/L 2520M1604W			*25*	*20*	*150*	*25*	*24.5*	–			2	P334WS	EST32	
ETGN R/L 2525M1604			*25*	*25*	*150*	*32*	*24.5*	–			1	P334US	–	
ETGN R/L 2525M1604W	★	★	*25*	*25*	*150*	*32*	*24.5*	–			2	P334WS	EST32	
ETGN R/L 2525M22			*25*	*25*	*150*	*32*	*24.5*	30	TN□□43□	**B56**	3	P434U	–	KY40
ETGN R/L 2525M22W	★	★	*25*	*25*	*150*	*32*	*24.5*	30			4	P434W	EST43	

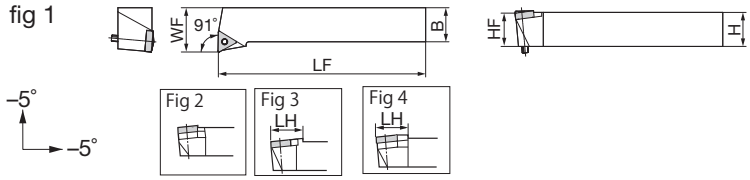
★: Worldwide Warehouse item

ETFN / ETEN / ETXN



30 Style Holder - Facing
Pin Lock

fig 1

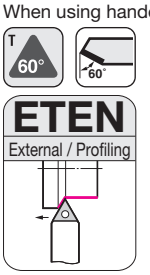


Holder | Parts

Dimensions (*mm*)

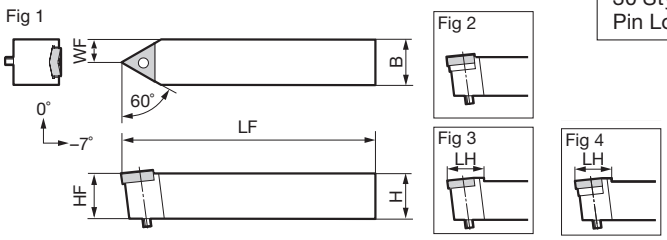
Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Eccentric Shaft	Shim	Wrench
ETFN R/L 1212F11	★	★	12	12	80	16	11.5	-	TN□□22□	**B51**	1	P221US	-	KY25
ETFN R/L 1616H1603			16	16	100	20	15.5	-	TN□□32□	**B51**	1	P322US	-	KY40
ETFN R/L 1616H1604	★	★	16	16	100	20	15.5	-	TN□□33□	**B52**	1	P332US	-	KY40
ETFN R/L 2020K1603			20	20	125	25	19.5	-	TN□□32□	**B51**	1	P323US	-	KY40
ETFN R/L 2020K1603W			20	20	125	25	19.5	-			2	P323WS	EST32	
ETFN R/L 2020K1604			20	20	125	25	19.5	-	TN□□33□	**B52**	1	P333US	-	KY40
ETFN R/L 2020K1604W	★	★	20	20	125	25	19.5	-			2	P333WS	EST32	
ETFN R/L 2520M1604			25	20	150	25	24.5	-			1	P334US	-	
ETFN R/L 2520M1604W			25	20	150	25	24.5	-			2	P334WS	EST32	
ETFN R/L 2525M1604			25	25	150	32	24.5	-			1	P334US	-	
ETFN R/L 2525M1604W	★	★	25	25	150	32	24.5	-			2	P334WS	EST32	
ETFN R/L 2525M22			25	25	150	32	24.5	30	TN□□43□	**B56**	3	P434U	-	KY40
ETFN R/L 2525M22W	★	★	25	25	150	32	24.5	30			4	P434W	EST43	

When using handed breaker inserts for facing, the holder and insert are opposite handed.



30 Style Holder - General Turning and Profiling
Pin Lock

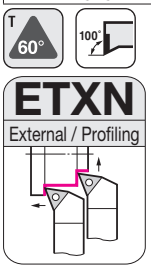
Fig 1



Holder | Parts

Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Eccentric Shaft	Shim	Wrench
ETENN1212F11	★	12	12	80	6.0	11.5	–	TN□□22□	**B51**	1	P221US	–	KY25
ETENN1616H1603		16	16	100	8.0	15.5	–	TN□□32□	**B51**	1	P322US	–	KY40
ETENN1616H1604	★	16	16	100	8.0	15.5	–	TN□□33□	**B52**	1	P332US	–	KY40
ETENN2020K1603		20	20	125	10.0	19.5	–	TN□□32□	**B51**	1	P323US	–	KY40
ETENN2020K1603W		20	20	125	10.0	19.5	–			2	P323WS	EST32	
ETENN2020K1604	★	20	20	125	10.0	19.5	–	TN□□33□	**B52**	1	P333US	–	KY40
ETENN2020K1604W	★	20	20	125	10.0	19.5	–			2	P333WS	EST32	
ETENN2520M1604		25	20	150	10.0	24.5	–			1	P334US	–	
ETENN2520M1604W		25	20	150	10.0	24.5	–			2	P334WS	EST32	
ETENN2525M1604		25	25	150	12.5	24.5	–			1	P334US	–	
ETENN2525M1604W	★	25	25	150	12.5	24.5	–			2	P334WS	EST32	
ETENN2525M22		25	25	150	12.5	24.5	30	TN□□43□	**B56**	3	P434U	–	KY40
ETENN2525M22W	★	25	25	150	12.5	24.5	30			4	P434W	EST43	



30 Style Holder - General Turning and Facing
Pin Lock

Fig 1

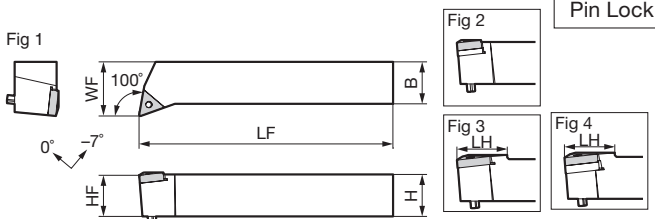


figure show right handed tools

Holder | Parts

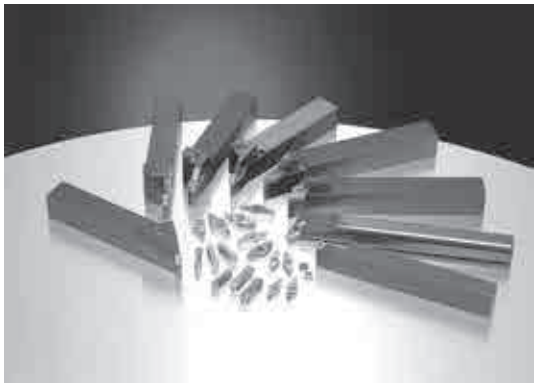
Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Eccentric Shaft	Shim	Wrench
ETXN R/L 1212F11	★	★	12	12	80	16	11.5	–	TN□□22□	**B51**	1	P221US	–	KY25
ETXN R/L 1616H1603			16	16	100	20	15.5	–	TN□□32□	**B51**	1	P322US	–	KY40
ETXN R/L 1616H1604	★	★	16	16	100	20	15.5	–	TN□□33□	**B52**	1	P332US	–	KY40
ETXN R/L 2020K1603			20	20	125	25	19.5	–	TN□□32□	**B51**	1	P323US	–	KY40
ETXN R/L 2020K1603W			20	20	125	25	19.5	–			2	P323WS	EST32	
ETXN R/L 2020K1604	★	★	20	20	125	25	19.5	–	TN□□33□	**B52**	1	P333US	–	KY40
ETXN R/L 2020K1604W	★	★	20	20	125	25	19.5	–			2	P333WS	EST32	
ETXN R/L 2520M1604			25	20	150	25	24.5	–			1	P334US	–	
ETXN R/L 2520M1604W			25	20	150	25	24.5	–			2	P334WS	EST32	
ETXN R/L 2525M1604			25	25	150	32	24.5	–			1	P334US	–	
ETXN R/L 2525M1604W	★	★	25	25	150	32	24.5	–			2	P334WS	EST32	
ETXN R/L 2525M22			25	25	150	32	24.5	30	TN□□43□	**B56**	3	P434U	–	KY40
ETXN R/L 2525M22W	★	★	25	25	150	32	24.5	30			4	P434W	EST43	

When using handed breaker inserts for facing, the holder and insert are opposite handed.

★: Worldwide Warehouse item

MV / GD Profiling Tool Holders



■ General Features

With a wide range of insert shapes (35° diamond shaped, dogbone and round) available in both cemented carbide and polycrystalline diamond grades for cutting edge, we are able to provide superior performance for a vast variety of applications and cutting conditions.

■ Features and Applications

- With our new range of holders for 35° diamond shaped inserts and AW chipbreakers, we are able to expand our applications to cover roughing to finishing processes.
  AW chipbreakers provide stable roughing with reduced cutting force and increased clamp rigidity due to the new tool holder design
- Wide variety of dogbone inserts
  AW chipbreakers, with their high rake design and newly designed dedicated tool holder, support a wide variety of tooling (straight, 15° angle, 45° angle)
- AW Chipbreaker for smooth chip control
- AG Chipbreaker for no chip adhesion on a mirror finish

■ AW Chipbreaker

- 35° Diamond

VCGT220520N-AW (H1)

- Dogbone Insert

MDE4R-AW (H1)

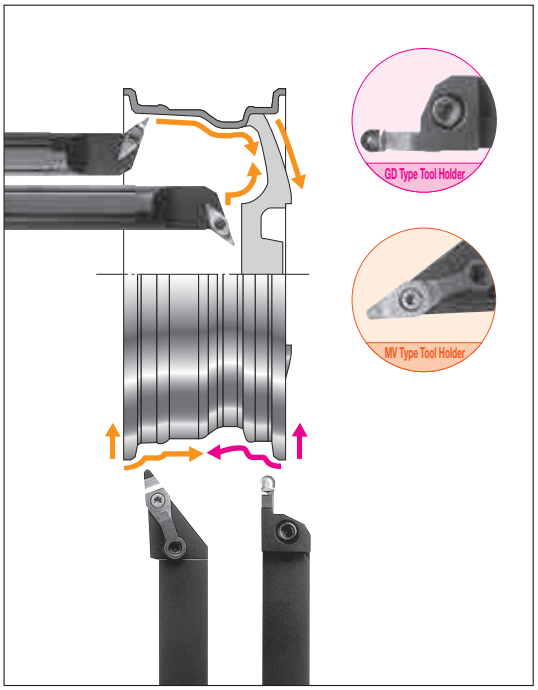
MDE4R-AW (DA2200)

■ AG Chipbreaker

- 35° Diamond

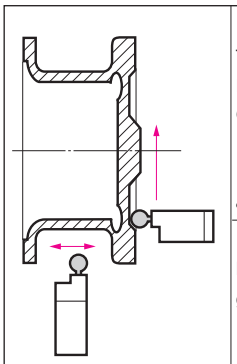
VCGT332NAG (H1)

■ Series Tool



Product Name	Type
GD Toolholders	GDE R/L2525-600W/S
	GDE R/L2525-800W/S
	GDE R/L2525-615W/S
	GDE R/L2525-815W/S
	GDE R/L2525-645W/S
	GDE R/L2525-845W/S
SV Toolholders	SVJC R/L2525M16
	SVVC N2525M16
	SVPC R/L2525M16
MV Toolholders	MVXC R/L2525Q22-20
	MVXC R/L2525Q22-30
	MVPC R/L2525Q22-20
	MVPC R/L2525Q22-30
D Toolholders	DVJN R/L2525 M16
	DVVN N2525 M16
	DVQN R/L2525 M16

■ Application Examples

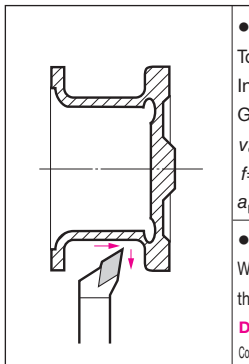


- Cutting Conditions

Tool Holder Cat. No.: GDEL2525-800W
Insert Cat. No.: MDE4R-AW
Grade: H1
n=6560 RPM
f=0.016 to 0.024 IPR
a_p=0.078" Wet

- Usage Results

Excellent chip control of AW breaker guarantees an increase in productivity.

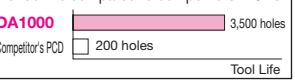


- Cutting Conditions

Tool Holder Cat. No.: SVJCL2525M16
Insert Cat. No.: VCMT160412
Grade: DA1000
v_c=8280 RPM
f=0.014 IPR
a_p=0.008" Wet

- Usage Results

Will not fracture and provides over 17 times the tool life compared to competitors' PCDs.



35° Diamond Style - General Turning, Profiling and Undercutting
Screw-on + Clamp-on

MVXC

External / Profiling / Necking

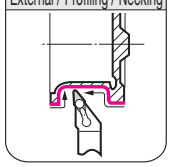


Fig 1

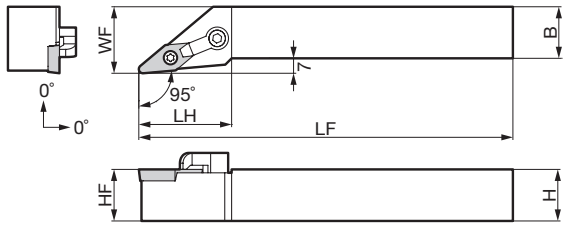


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

	Cat. No.	Previous Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Fig	Clamp	Double Screw	Flat Screw	Wrench (For Torx Holes)	Clamp Wrench (For Hex Socket)
★	**MVXC R/L 2525Q22-20**	MVXC R/L2525-2220	★	★	*25*	*25*	*180*	*32*	*25*	*45*	1	CCM8-LONG	WB8-24	BFTX0515N	TRX20	LH040
☆	**MVXC R/L 2525Q22-30**	MVXC R/L2525-2230	★	★	*25*	*25*	*180*	*32*	*25*	*45*	1					

★ : Nose Radius 2.0mm Insert, ☆ : Nose Radius 3.0mm Insert

35° Diamond Style Internal, Profiling and Undercutting
Screw-on + Clamp-on

MVPC

Internal / Profiling / Necking

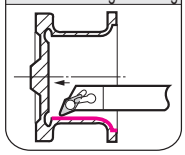


Fig 1

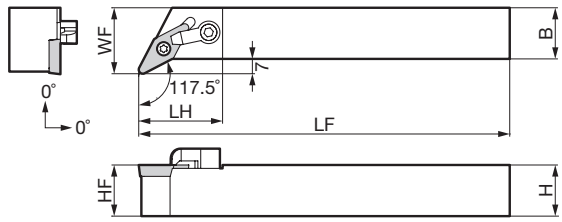


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (mm)

	Cat. No.	Previous Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Fig	Clamp	Double Screw	Flat Screw	Wrench (For Torx Holes)	Clamp Wrench (For Hex Socket)
★	**MVPC R/L 2525Q22-20**	MVPC R/L2525-2220	★	★	*25*	*25*	*180*	*32*	*25*	*41*	1	CCM8-LONG	WB8-24	BFTX0515N	TRX20	LH040
☆	**MVPC R/L 2525Q22-30**	MVPC R/L2525-2230	★	★	*25*	*25*	*180*	*32*	*25*	*41*	1					

★ : Nose Radius 2.0mm Insert, ☆ : Nose Radius 3.0mm Insert

Insert (● 35° Diamond)

(Carbide / PCD) Dimensions (*mm*)

Shape	Cat. No.	G10E	H1	DA1000	DA2200	Inscribed Circle IC	Thickness S	Nose Radius RE	Applicable Holders	
AW	**VCGT220520N-AW**	—	●	—	—	*12.70*	*5.56*	*2.0*	★	MVXC (holder pictured above) MVPC (holder pictured above)
	VCGT220530N-AW	—	●	—	—			*3.0*	★	
AG	**VCGT220530N-AG**	—	●	—	—	*12.70*	*5.56*	*3.0*	★	
	VCMT220520	—	—	●	▲	*12.70*	*5.56*	*2.0*	★	
	VCMT220530	—	—	●	▲			*3.0*	★	
AW	**VCGT160408N-AW**	—	●	—	—	*9.525*	*4.76*	*0.8*	SVJC C42 SVVC C42 SVPC C42	
	VCGT160412N-AW	—	●	—	—			*1.2*		
AG	**VCGT160408N-AG**	—	●	—	—	*9.525*	*4.76*	*0.8*		
	VCGT160412N-AG	—	●	—	—			*1.2*		
	NF-VCMT160404	—	—	●	▲	*9.525*	*4.76*	*0.4*		
	NF-VCMT160408	—	—	●	▲			*0.8*		
	NF-VCMT160412	—	—	●	▲			*1.2*		
	VCMT160408	—	—	●	▲	*9.525*	*4.76*	*0.8*		
	VCMT160412	—	—	●	▲			*1.2*		
WF	**VCMT160412-WF**	—	—	●	▲	*9.525*	*4.76*	*1.2*		
UP	**VNMG160404N-UP**	●	—	—	—	*9.525*	*4.76*	*0.4*	DVJN C29 DVVN C29 DVQN C30	
	VNMG160408N-UP	●	—	—	—			*0.8*		
	NF-VNMX160404	—	—	●	▲	*9.525*	*4.76*	*0.4*		
	NF-VNMX160408	—	—	●	▲			*0.8*		
	NF-VNMX160412	—	—	●	▲			*1.2*		
	VNMX160404	—	—	●	▲	*9.525*	*4.76*	*0.4*		
	VNMX160408	—	—	●	▲			*0.8*		
	VNMX160412	—	—	●	▲			*1.2*		

VNMG33○-EUP (EUP Chipbreaker) is available in AC8025P, AC8035P, AC820P, AC830P, AC6030M, AC6040M, AC5015S, AC5025S, AC510U, & AC520U grades.

●= USA Stocked item ★= World Wide Warehouse Item ▲: Limited Availability Item.

Dogbone Insert for External / Profiling
Clamp-on

GDE 600S(W) 800S(W)

External / Profiling

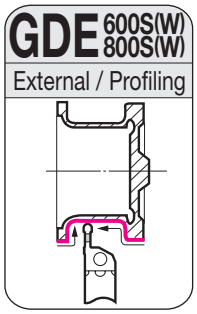


Fig 1

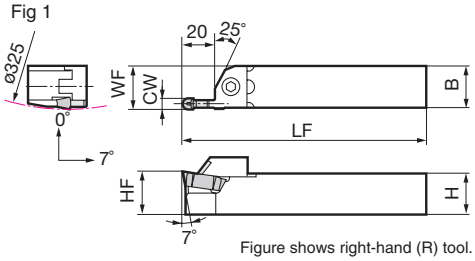


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Width of Cut CW	Group No.	Fig	Carbide Piece Clamp	Special Steel Clamp	Cap Screw	Wrench (For Hex Socket)
GDE R/L 2525-600S	★	★	*25*	*25*	*150*	*26*	*25*	*6*	1	1	—	GDS600R/L	BX0625	LH050
GDE R/L 2525-800S	★	★	*25*	*25*	*150*	*26*	*25*	*8*	2	1		GDS800R/L		
GDE R/L 2525-600W	★	★	*25*	*25*	*150*	*26*	*25*	*6*	1	1	GDW600R/L	—		
GDE R/L 2525-800W	★	★	*25*	*25*	*150*	*26*	*25*	*8*	2	1	GDW800R/L			

Refer to MDE insert group numbers on C61 for applicable inserts.

Dogbone Insert for Facing / Internal Profiling
Clamp-on

GDE 615S(W) 815S(W)

Facing / Internal Profiling

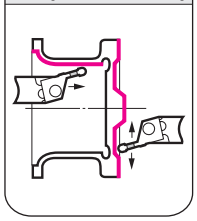


Fig 1

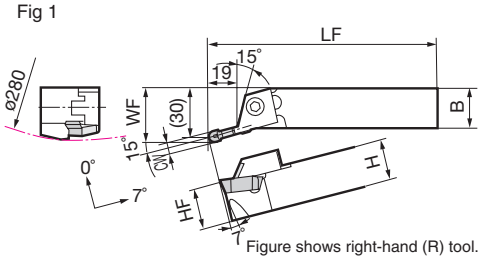


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Width of Cut CW	Group No.	Fig	Carbide Piece Clamp	Special Steel Clamp	Cap Screw	Wrench (For Hex Socket)
GDE R/L 2525-615S	★	★	*25*	*25*	*150*	*32.2*	*25*	*6*	1	1	—	GDS615R/L	BX0625	LH050
GDE R/L 2525-815S			*25*	*25*	*150*	*33.2*	*25*	*8*	2	1		GDS815R/L		
GDE R/L 2525-615W	★	★	*25*	*25*	*150*	*32.2*	*25*	*6*	1	1	GDW615R/L	—		
GDE R/L 2525-815W	★		*25*	*25*	*150*	*33.2*	*25*	*8*	2	1	GDW815R/L			

Refer to MDE insert group numbers on C61 for applicable inserts.

★= World Wide Warehouse Item

Dogbone Insert for Internal Profiling
Clamp-on

GDE 645S(W) 845S(W)

Internal Profiling

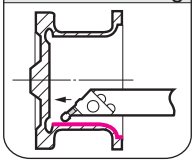


Fig 1

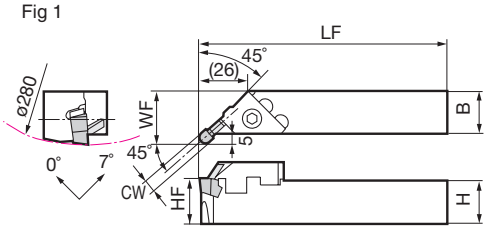


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Width of Cut CW	Group No.	Fig	Carbide Piece Clamp	Special Steel Clamp	Cap Screw	Wrench (For Hex Socket)
GDE R/L 2525-645S	★	★	*25*	*25*	*150*	*30*	*25*	*6*	1	1	–	GDS645R/L	BX0625	LH050
GDE R/L 2525-845S			*25*	*25*	*150*	*30*	*25*	*8*	2	1		GDS845R/L		
GDE R/L 2525-645W			*25*	*25*	*150*	*30*	*25*	*6*	1	1	GDW645R/L	–		
GDE R/L 2525-845W			*25*	*25*	*150*	*30*	*25*	*8*	2	1	GDW845R/L			

Refer to MDE insert group numbers below for applicable inserts.

Insert (Carbide / PCD)

● Dogbone Insert

Shape	Cat. No.	Stock H1	Stock DA2200	Overall Length L	Thickness S	Nose Radius RE	Width of Cut CW	Rake Angle	Group No.	Fig
AW	**MDE3R-AW**	★	–	*26*	*8.5*	*3.0*	*6*	0°	1	1
	MDE4R-AW	★	–	*30*	*8.5*	*4.0*	*8*	0°	2	
	MDE3R	–	★	*26*	*8.5*	*3.0*	*6*	0°	1	2
	MDE3RN7	–	●	*26*	*8.5*	*3.0*	*6*	-7°	1	
	MDE4R	–	★	*30*	*8.5*	*4.0*	*8*	0°	2	
	MDE4RN7	–	●	*30*	*8.5*	*4.0*	*8*	-7°	2	
AW	**MDE3R-AW**	–	★	*26*	*8.5*	*3.0*	*6*	0°	1	3
	MDE3RN7AW	–	●	*26*	*8.5*	*3.0*	*6*	-7°	1	
	MDE4R-AW	–	★	*30*	*8.5*	*4.0*	*8*	0°	2	

Fig 1

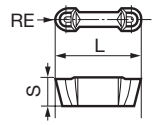


Fig 2

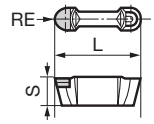
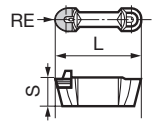


Fig 3



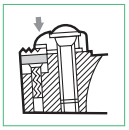
●= USA Stocked item ★= World Wide Warehouse Item

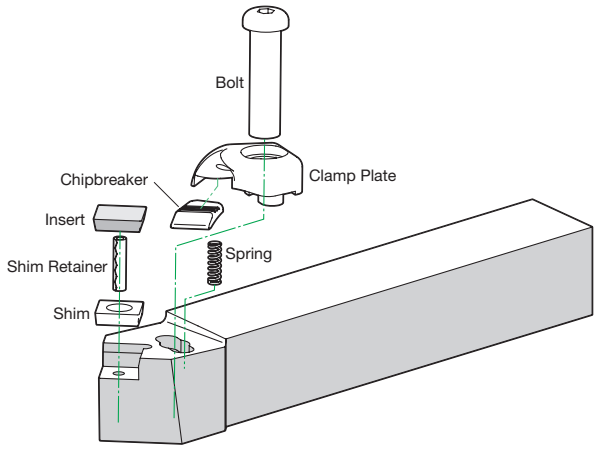
External Holder Clamp Structure

■ External Holder Clamp Structure List (Examples)

C Clamp-on

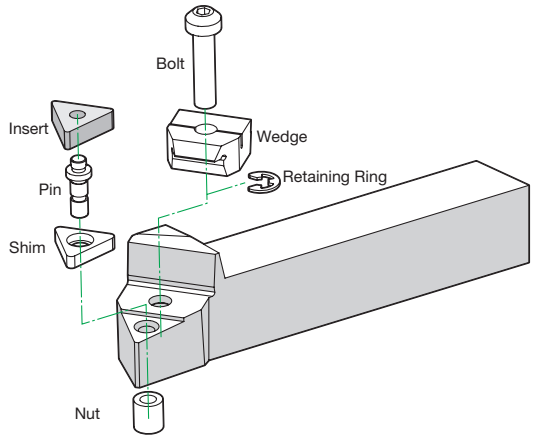
CSRP / CSDP / CSKP / CTGP / CTAP / CTFP





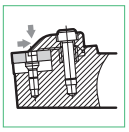
M Top Clamp + Pin Lock

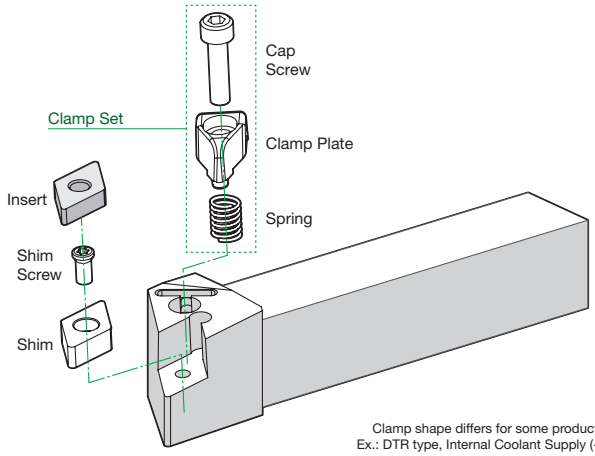
MTJN / MTXN / MWLN



D Double Clamp

DCLN(-J) / DDJN(-J) / DDHN / DDNN
DSBN / DSDN / DSSN / DTGN / DTFN
DVJN(-J) / DVVN / DVQN / DWLN(-J) / DTR (T-REX)

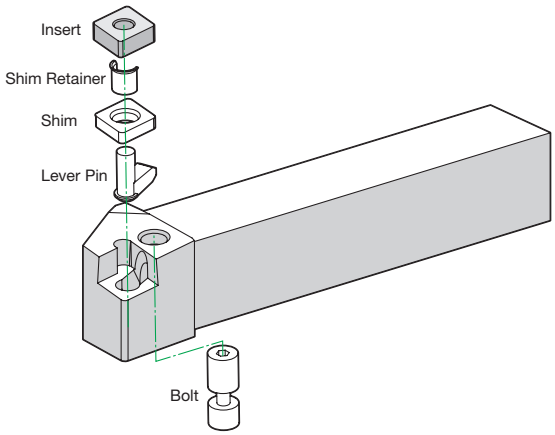




Clamp shape differs for some products.
Ex.: DTR type, Internal Coolant Supply (-J)

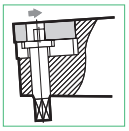
P Lever Lock

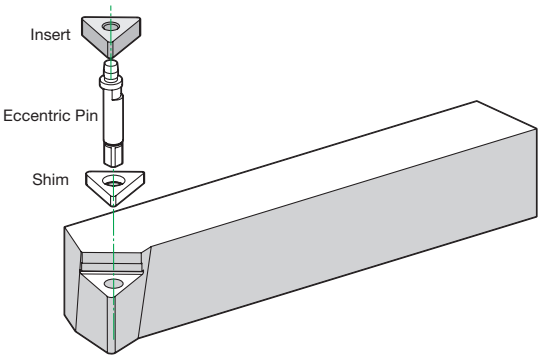
PCLN / PCBN / PCFN / PDJN
PRGC / PRDC / PSBN / PSDN / PSSN / PSKN
PTGN / PTTN / PTFN / PWLN



E Pin Lock

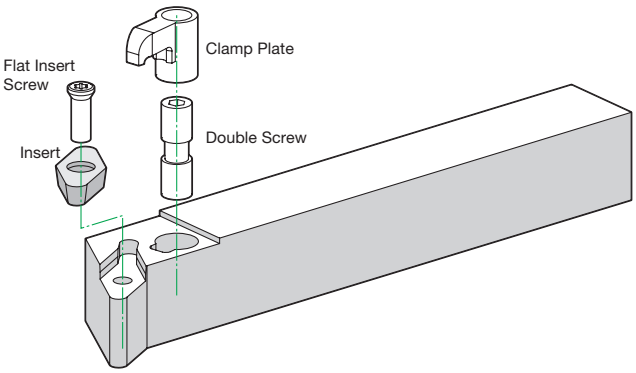
ESBN / ESDN / ESSN / ESKN
ETGN / ETAN / ETFN / ETEN / ETXN





Screw-on + Clamp-on

MVXC Profiling Tool Holders / MVPC Profiling Tool Holders



Small Lathe Tools

Small Product Machining

External Holders D1 to D34

D

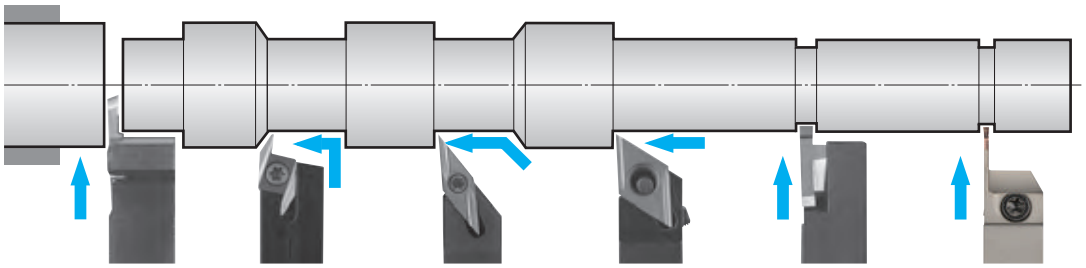
Small Lathe Tool Selection D2
General Features of Small Lathe Tools D4
Insert Grade Selection D6
Chipbreaker Selection D7

External Holders	Modular Quick-Change System	PSZ Turn	D8
	Special Tool Holders for Small Product Machining	PB Tool Holders SPB	D14
		Wide-Cut Holders SGW	D16
		MINI Tool Holders SBT / PBT	D17
		Front Turning Tool Holders SFT	D18
	Round Shank Tool Holders	RS-SCL	D19
		RS-SDU Type / RS-SDX	D20
		RS-SVX Type / RS-SVVP	D21
		RS-PTXN	D22
	MINI Tool Holders Zero Offset Holders	PCLC / SCLC-X / SCAC-X	D23
		PDJC-X / SDJC-X	D24
		SDAC / SDPC / SDPC-X	D25
		SVNB / SVJC / PTXN-X	D26
	MINI Tool Holders PC / SC	PCLC / SCLC	D27
		SCAC / SCNC	D28
	MINI Tool Holders PD / SD	PDJC / SDJC	D29
		SDAC / SDNC	D30
	MINI Tool Holders SS	SSBC / SSDC	D31
	MINI Tool Holders ST	STAC / STGC / STJC	D32
	MINI Tool Holders SV (5° & 7° Positive)	SVAB / SVLC / SVPC	D33
	MINI Tool Holders SV (11° Positive)	SVLP / SVPP	D34

Stock Markings and Symbols	
	● : Standard Stocked Item
	▲ : To be replaced by a new product, made to order, or soon to be discontinued (please confirm stock availability).
	★: Worldwide Warehouse Item
	Item listed "Blank": Made-to-order Item
	Dash "–" mark: Item Not Available

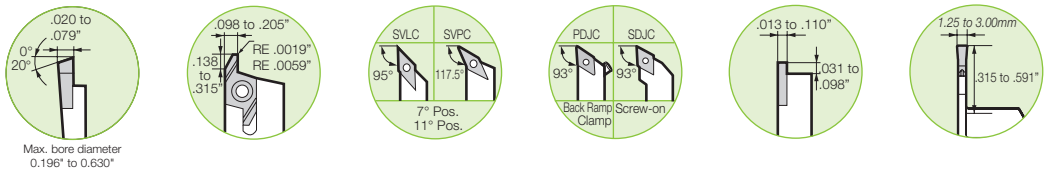
Small Lathe Tools Selection

External Turning (1)

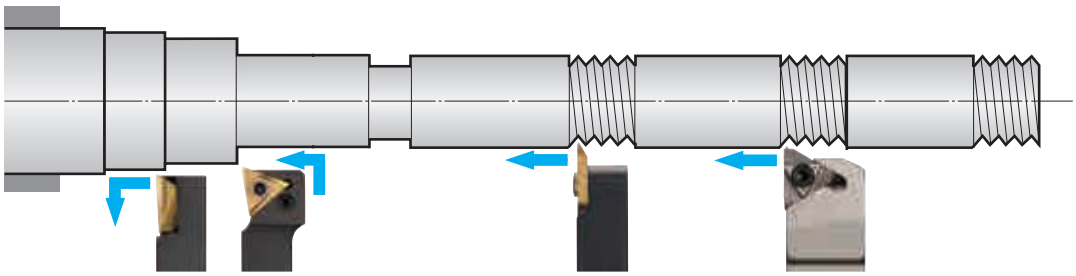


Application / Type / Page	Cut-off	Back Turning	Profiling	External Turning	Grooving	Grooving & Cut-off
	SCT	SBT/PBT	SV	PD / SD	GWC	GND
	F66	D17	D26 & D33	D29	F43	F4

Cutting Edge Shape



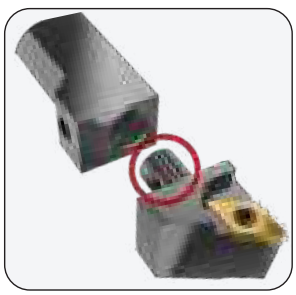
External Turning (2)



Application / Type / Page	Turning	Turning	Threading	Threading
	SFT	PTXN-X	STH	SSTE
	D18	D26	F86	F75

Cutting Edge Shape

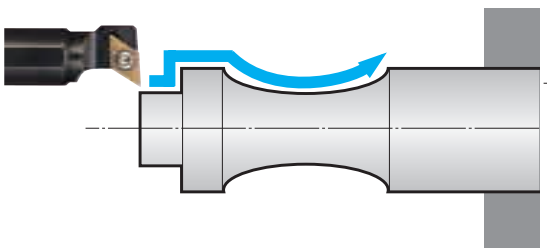
■ **PSZ Turn : Modular Quick-Change Small Lathe Tools**



D8

External Turning (3)

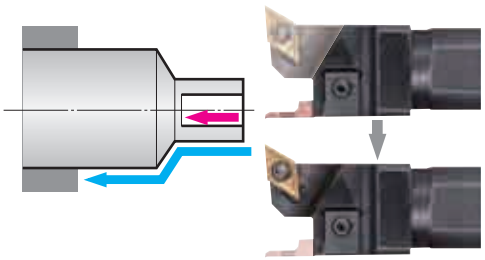
External turning made possible with holder sleeves.



Application / Type / Page	Round Shank Holder
	RS
	D19 to D22

Multi-functional Tool

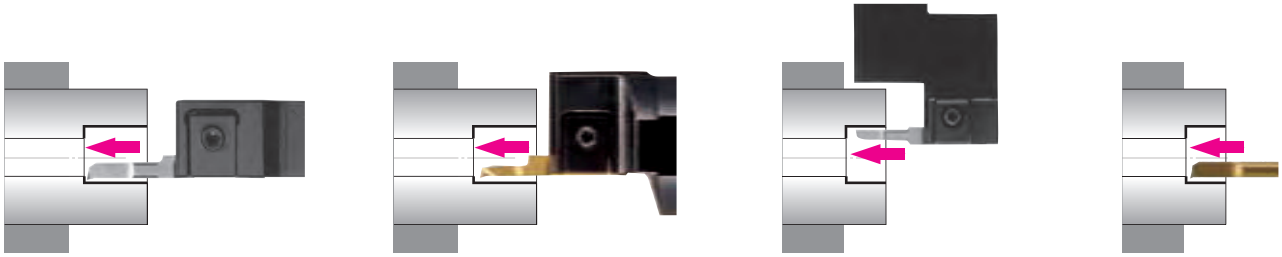
A single holder capable of performing two operations.



Application / Type / Page	Twin Head Holder	
	I.D. + O.D. CKBE	I.D. + I.D. CKBB
	E10	E11

Small Lathe Tools Selection

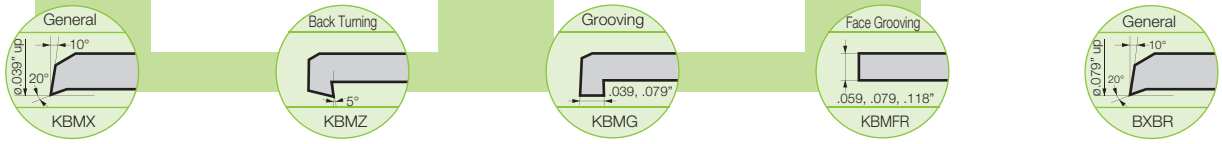
For Internal Diameter Machining (1) Machining of very small diameters 1mm and above



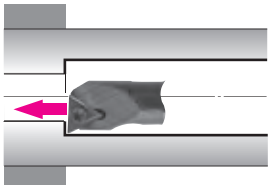
Application / Type / Page

Very Small Dia. Boring	Very Small Dia. Boring (Round Shank)	Gang-Type Toolpost Very Small Dia. Boring	Solid Carbide Bar
CKB	S-CKB / S-CKB-S	CKBS	BXBR
E64	E66	E65	E69

Cutting Edge Shape



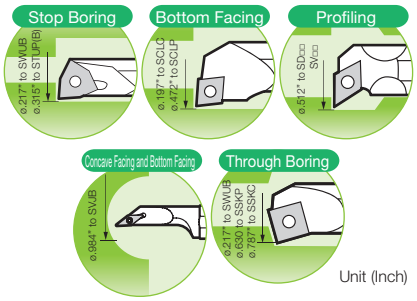
For Internal Diameter Machining (2) Machining of small diameters 5mm and above



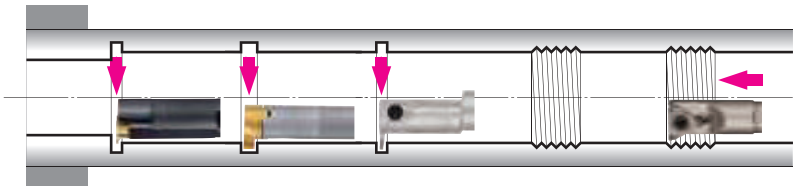
Application / Type / Page

Boring
SW / ST / SC / SD / SV / SS

Cutting Edge Shape



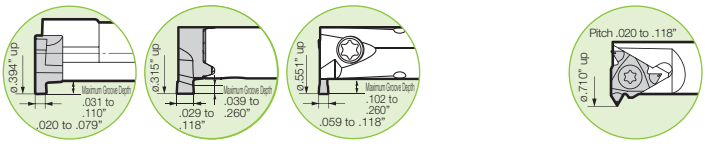
For Grooving and Threading



Application / Type / Page

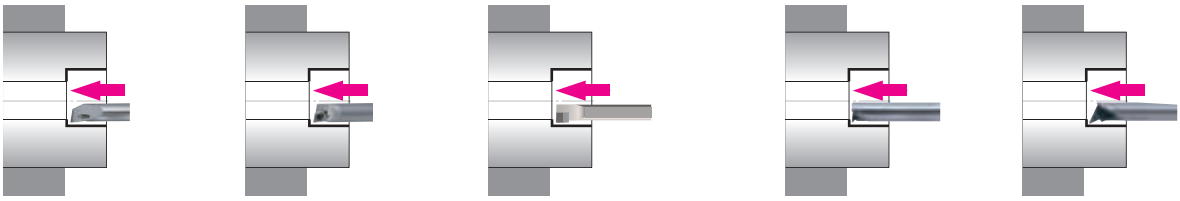
Internal Grooving	Internal Grooving	Internal Grooving	Internal Threading
SGIT	SSH New	GNDIS	SSTI
F53	F52	F38	F76

Cutting Edge Shape



SUMIBORON (CBN) Small Hole Boring Bars CBN

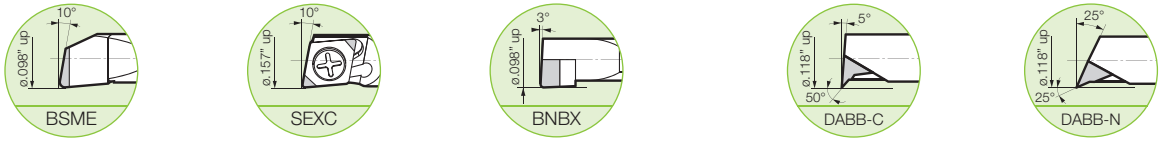
SUMIDIA (PCD) Small Hole Boring Bars PCD



Application / Type / Page

Small Hole Boring Bars	Small Hole Boring Bars	Small Hole Boring Bars	Small Hole Boring Bars	Small Hole Boring Bars
BSME	SEXC	BNBX	DABB-C	DABB-N
E70	E71	E72	E75	E75

Cutting Edge Shape



Small Product Machining

■ General Features

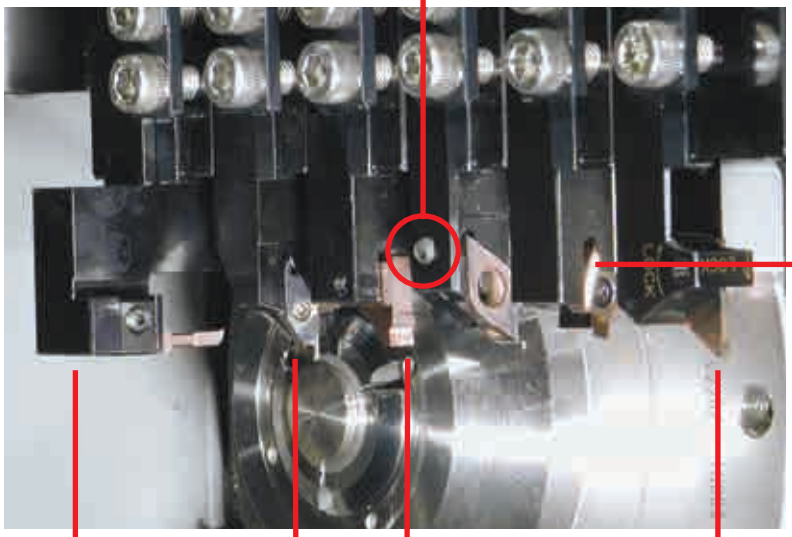
In 1984, Sumitomo Electric Hardmetal first released the MINI Tool Holder series for small product machining in small NC autolathes. Through these years of experience, new tool designs including our side lever lock tool holder were developed to meet various machining requirements such as back turning, profiling and cut-off; we continually strive to enhance the series.

■ From Carbide to PCD : Full Lineup

☞D6

■ PSZ Turn : Modular Quick-Change System

☞D8



■ Special tools for small lathes to cover various types of machining

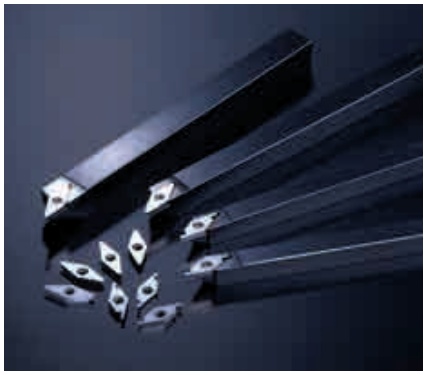
● Very Small Dia. Boring Bar CKB

Min. bore diameter ø .039 to .197" / *1 to ø5mm*

☞E64

● Very Small Diameter Part Turning Tool SPB

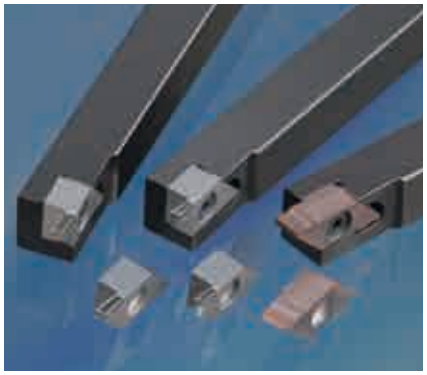
Best suited for very small parts with diameter of less than ø . 394" / *10mm*



☞D14

● Plunging Tool SGW

Ideal for high-efficiency machining of long parts, eliminating chip control issues

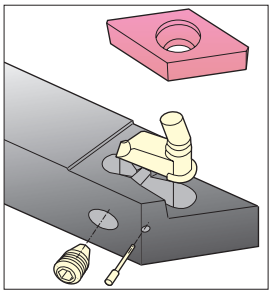


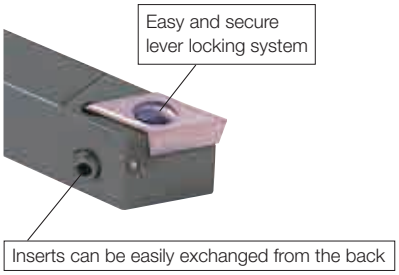
☞D16

Small Product Machining

■ A wide selection of easy-to-use holders

●Back Clamp Tool Holder PC / PD





D27, D29

● Back-Turning Tool Holder SBT / PBT

Sharp cutting with good surface finish
Maximum machining step .315", width of cut .098" / *2.5mm*

D17

● Cut-off Tool SCT

Inserts can be changed easily even from the back, simply by loosening the screw
Maximum cut-off diameters: *ø5mm, ø12mm, ø16mm*

F66

● Zero Offset Holders *Products with part number suffix "-X"

Tool compensation not required for small gang-type lathes

D23

● Twin Head Holder

Multi-functional Autolathe Tool
One holder performing 2 different operations

E10

● Round Shank Holder RS

External turning made possible with holder sleeves

D19

● Grooving Tool SSH

Internal coolant supply enables superb chip control, while the tough carbide body allows stable machining
Supports internal grooving of ø .315" / *8mm* up

F51

● Grooving Tool Holder GND

Lineup includes shanks for small lathes
Suitable for grooving seat sizes *1.25mm* up

F4

Insert Grade Selection

In 1984, Sumitomo Electric Hardmetal first released the MINI Tool Holder series for small product machining in small NC autolathes. A full range of insert grades including AC530U and AC1030U as well as Cermet T1500A, Carbide BL130, SUMIBORON BN2000, and SUMIDIA DA1000 are available to meet a variety of machining requirements.
A high-precision grade, ACZ150, has been added to support a wide range of precision application requirements, from automotive to electronic component machining.

■ Insert Grade Selection

Insert Grades	Application Range			Applicable Work Material					
				P	M	K	N	S	H
	High-precision	Finishing to Light Cutting	Medium Cutting	General Steel	Stainless Steel	Cast Iron	Non-Ferrous Metals	Heat-Resistant Alloy	Hardened Steel
Coated Carbide (PVD)	ACZ150			◎	◎		○		
	AC5015S			○	◎	○		◎	
	AC5025S			○	◎	○		◎	
	AC530U			◎	◎	○	○	○	
	AC1030U			◎	◎	○	○	○	
Uncoated Cermet Coated Cermet	T1000A			◎	○	◎			
		T1500A/T1500Z		◎	○	○			
Cemented Carbide	BL130			○	○	○	○		
		H1		○	○	○	◎		
		EH510		○	○	○	○	◎	
CBN (SUMIBORON)		BN1000/BN2000							◎
		New BN7125				◎		○	
PCD (SUMIDIA)	DA1000						◎		

◎ 1st Recommendation ○ 2nd Recommendation

■ Recommended Cutting Conditions

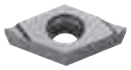
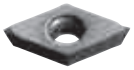
Material / Tool Grade	P Free-Cutting Steel		P Carbon Steel		M Stainless Steel		S Heat-Resistant Alloy		H Hardened Steel		N Aluminum Alloy		N Brass	
	v_c (SFM)	f (IPR)	v_c (SFM)	f (IPR)	v_c (SFM)	f (IPR)	v_c (SFM)	f (IPR)	v_c (SFM)	f (IPR)	v_c (SFM)	f (IPR)	v_c (SFM)	f (IPR)
ACZ150	165 to 650	.001 to .004	165 to 500	.0005 to .003	165 to 500	.0005 to .002					230 to 1000	.002 to .008	230 to 1000	.002 to .008
AC5015S	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 650	.001 to .004	100 to 350	.001 to .004					230 to 1000	.002 to .008
AC5025S	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 650	.001 to .004	100 to 350	.001 to .004					230 to 1000	.002 to .008
AC530U	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 650	.001 to .004							230 to 1000	.002 to .008
AC1030U	165 to 500	.001 to .006	165 to 500	.001 to .004	165 to 500	.001 to .004							230 to 1000	.002 to .008
T1000A	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 500	.001 to .004								
T1500A	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 500	.001 to .004								
T1500Z	165 to 650	.001 to .006	165 to 650	.001 to .004	165 to 500	.001 to .004								
BN1000									400 to 1000	.001 to .006				
BN2000									165 to 650	.001 to .008				
BN7000							165 to 650	.001 to .004						
DA1000											230 to 1000	.001 to .004	230 to 1000	.001 to .004

Red text: 1st recommendation, Blue text: 2nd recommendation

Chipbreaker Selection

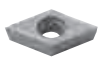
■ Insert Series

• Insert Precision Selection Guide

	M Class	G Class	E Class
Insert Class			
Thickness Tolerance	±0.005"	±0.005"	±0.001
Features	Side surfaces have a sintered finish	Side surfaces are ground	Side surfaces are ground. Thickness tolerances are smaller than G-class inserts
Applications	Roughing to Light Cutting	Finishing to Light Cutting	High-precision to Finishing
Cat. No.	CCMT32.51ELU DCMT21.52ESU	CCGT32.51RFX DCGT32.50.5MESI(*)	CCET32.50.5RFX

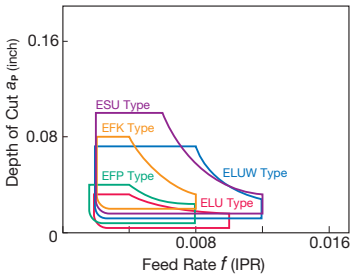
(*) A catalog number with a feed direction symbol prefixed with "M" means that the product has a nose radius with negative tolerance.

• Chipbreaker Selection

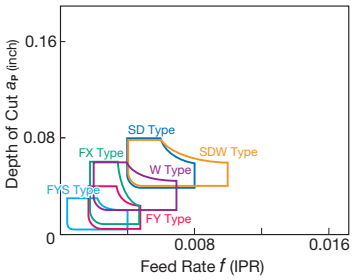
	Finishing to Light Cutting	Features
Parallel	FX 	Best suited for general-purpose O.D. finishing with larger depths of cut.
Wide	FYS FY	Burrs are less likely with undercutting. Chatter is less likely with external and face machining.
Molded	MEFC MESI	3D chipbreaker with good chip control and sharp cutting edge. MEFC is for fine finishing, and the MESI is for varying depths of cut.
	NAG	Breaker for aluminum alloy machining. Sharp edge and low adhesion.

■ Application Range of Chipbreakers for Finishing to Light Cutting

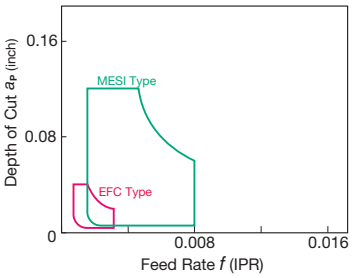
• M Class Finishing to Light Cutting



• G Class Ground Type



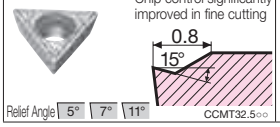
• G Class Chipbreaker

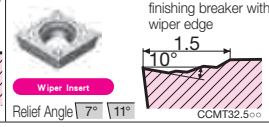


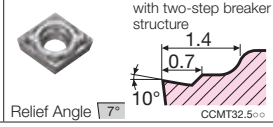
■ Chipbreakers for Finishing to Light Cutting

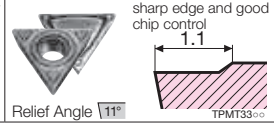
Dimensions (mm)

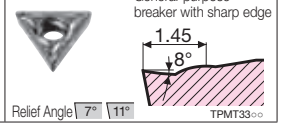
Positive Type M Class

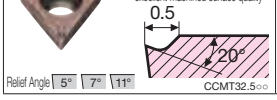
ELU P M K N S
Chip control significantly improved in fine cutting


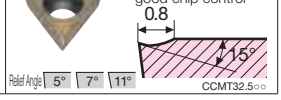
ELUW P M K N S
High-performance finishing breaker with wiper edge


EFP P M K N S
Fine cutting breaker with two-step breaker structure


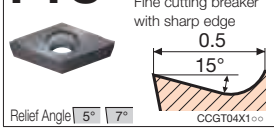
EFK P M K N S
Finishing breaker with sharp edge and good chip control


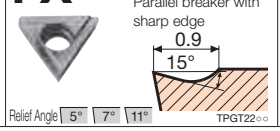
ESU P M K N S
General-purpose breaker with sharp edge


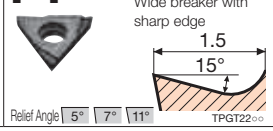
EFB P M K N S
Chipbreaker for finishing of mild steel achieves good chip control and excellent machined surface quality


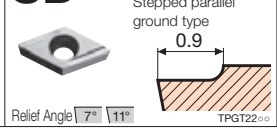
ELB P M K N S
Light-cutting breaker with sharp edge and good chip control


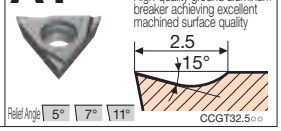
Positive G Class Ground Chipbreaker

FYS P M K N S
Fine cutting breaker with sharp edge


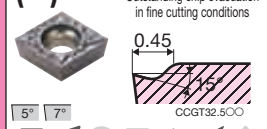
FX P M K N S
Parallel breaker with sharp edge


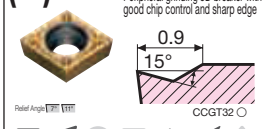
FY P M K N S
Wide breaker with sharp edge


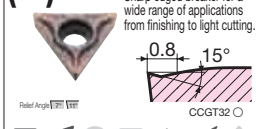
SD P M K N S
Stepped parallel ground type


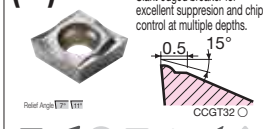
AY P M K N S
High-quality ground aluminum breaker achieving excellent machined surface quality


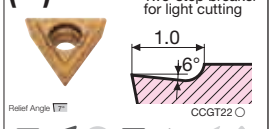
Finishing to Light Cutting

(M)EFF P M K N S H
Outstanding chip evacuation in fine cutting conditions


(M)EFC P M K N S H
Peripheral grinding 3D breaker with good chip control and sharp edge


(M)ESI P M K N S H
Sharp edged breaker for a wide range of applications from finishing to light cutting.


(M)ESL P M K N S H
Slant edged breaker for excellent suppresion and chip control at multiple depths.


(M)EFM P M K N S H
Two-step breaker for light cutting


Applicable Part Material: P Steel M Stainless Steel K Cast Iron N Non-Ferrous Metal S Exotic Alloy

PSZ Turn

■ Features and Benefits

- Quick-change system with one clamping screw
- Available square shanks:
  Metric: *12/16/ 20 mm*, Inch: .500” / .625” / .750"
- Cutting head suitable for metric and inch shanks
- Highest level of precision in terms of center height
- Multi-purpose for all sliding head & multi-spindle lathes
- Internal coolant-through holders
- Optimal accessibility when changing inserts
- No loss of stability compare to mono-block tools

■ PSZ Turn Nomenclature

Shanks

	PSZ Turn	1	2	3	4
Metric	PSZ	1212	R	84	X
Inch	PSZ	1/2INCH	R	84	X

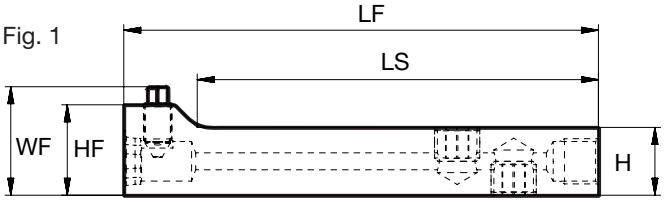
1	Shank Size	1212	*Square shank 12 x 12 mm*
		1/2INCH	*Square shank 12.7 x 12.7 mm* (.500")
2	Feed Direction	R	Right-hand
3	Shank Length	84	Length (*mm*)
4		X	Code for special products

Holders

PSZ Turn	1	2	3	4	5	6
PSZ	12	K	SCLCR	0616	09	X

1	Interface	12	Square shank *12 mm* *(suitable for all 12 mm or 12.7 mm* (.500”) shanks)
2	Version	K	Cutting head
3	Holder Type	SCLCR	Insert type, clamping; mounting position
4	Cutter head size	0616	Dimensions “WF x LH”
5	Indexable insert	09	Insert size
6		X	Code for special products

Fig. 1

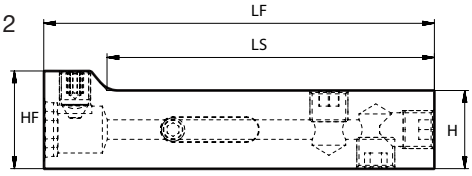


Square Shanks

Dimensions (inch / *mm*)

Shank Size	Cat No.	Stock	Fig	LF	LS	H	HF	WF	Internal Coolant (IC) Connection Thread
12	**PSZ1212R-84**	●	1	*84*	*71*	*12*	*16*	*20.2*	M8x1x6
16	**PSZ1616R-84**	●	1	*84*	*71*	*16*	*20*	*25.5*	BSPP1/8
1/2"	**PSZ12-1/2INCH-R-84**	●	1	3.3071	2.7952	.5000	.6299	.7953	5/16"-24 UNF
5/8"	**PSZ16-5/8INCH-R-84**	●	1	3.3071	2.7952	.6250	.7874	1.0039	5/16"-24 UNF

Fig. 2



Square Shanks

Dimensions (*mm*)

Shank Size	Cat No.	Stock	Fig	LF	LS	H	HF	Internal Coolant (IC) Connection Thread
20	**PSZ2020R-100**	●	2	3.9370	3.2992	.7500	.9843	BSPP1/8
3/4”	**PSZ20-3/4INCH-R-100**	●	2	*100*	*83.8*	*19.04*	*25*	5/16”-24 UNF

Torque Wrench sold separately. Torque Wrenches on page D13. ● = USA Stocked item

Spare Parts Clamping Screws

For Shanks	Hexagon Head Screw Cat. No.	AF(*mm*)	Tightening	TORX (alternative) Cat. No.	Insert	Tightening
12	M5x0.5x9.5x60-E17019	SW*3.5*	3Nm/27lb-in	M5x0.5x9.5x60-E274	T10	3Nm/27lb-in
16	M6x0.75x10.5x60-E19291	SW*4.5*	4Nm/35lb-in	M6x0.75x10.5x60-E17151	T20	4Nm/35lb-in
1/2"	M5x0.5x9.5x60-E17019	SW*3.5*	3Nm/27lb-in	M5x0.5x9.5x60-E274	T10	3Nm/27lb-in
5/8"	M6x0.75x10.5x60-E19291	SW*4.5*	4Nm/35lb-in	M6x0.75x10.5x60-E17151	T20	4Nm/35lb-in

Spare Parts Blind Plugs for Coolant Connection

For Shanks	Cat. No.	AF (*mm*)
12	M8X1X6-DIN913	SW*4*
16	HYD-S28	SW*5*
1/2"	HYD-S1886	SW5/32''
5/8"	HYD-S1886	SW5/32''

PSZ TGAR

External Grooving

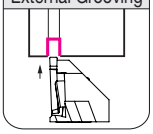
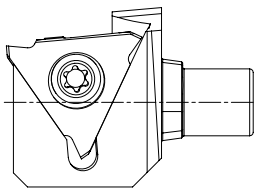
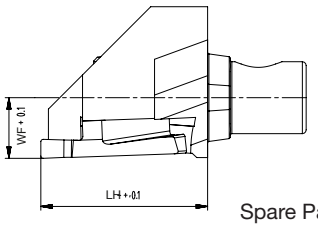
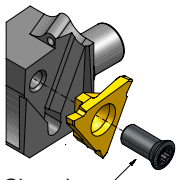


Fig. 1







Clamping Screw

TGAR

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Stock	Fig	WF	LH	Insert	Width of Cut	Clamping Screw	N·m
12	**PSZ12-K-TGAR3-0622-3**	●	1	*6*	*22*	TGAR3033-TGAR3280	*.33 to 2.80*	BFTX0409N	3.4
16	**PSZ16-K-TGAR3-0822-3**	●	1	*8*	*22*	TGAR3033-TGAR3280	*.33 to 2.80*		
16	**PSZ16-K-TGAR4-0822-4**	●	1	*8*	*22*	TGAR4250-TGAR4450	*2.50 to 4.80*	BFTX0511N	5.0

See F45 for TGA Inserts

PSZ ER

External Threading

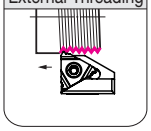
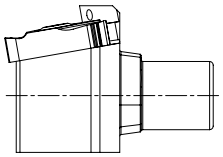
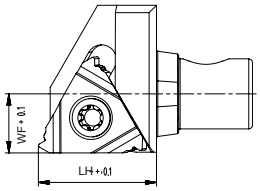
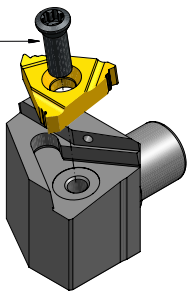


Fig. 1





Clamping Screw



ER * Gradient angle: 1.5°

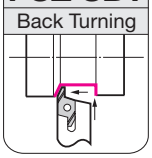
Spare Parts Dimensions (*mm*)

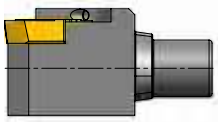
Series	Cat. No.	Stock	Fig	WF	LH	Guage Insert	Clamping Screw	N·m
12	**PSZ12-K-ER-0616-16-1.5***	●	1	*6*	*16*	16ER	123511P	3.5
16	**PSZ16-K-ER-0816-16-1.5***	●	1	*8*	*16*	16ER		

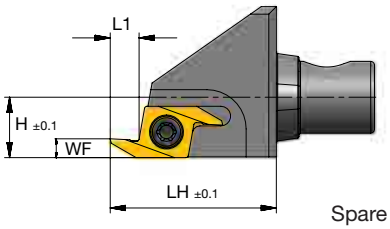
See F77 for ER Inserts

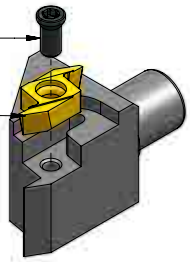
PSZ SBT

Back Turning









SBT

Spare Parts Dimensions (*mm*)

Series	Cat. No.	Stock	Fig	WF	H	LH	L1	Guage Insert	Clamping Screw	N·m
12	**PSZ12-K-SBT3R-0622-35**	●	1	*2.5*	*6*	*22*	*3.82*	BTR35	BFTX0307N	2.0
12	**PSZ12-K-SBT5R-0624-55**	●	1	*3.7*	*6*	*24*	*5.88*	BTR55		
12	**PSZ12-K-SBT8R-0630-80**	●	1	*5.2*	*6*	*30*	*8.83*	BTR80		
16	**PSZ16-K-SBT3R-0822-35**	●	1	*2.5*	*8*	*22*	*3.82*	BTR35		
16	**PSZ16-K-SBT5R-0824-55**	●	1	*3.7*	*8*	*24*	*5.88*	BTR55		
16	**PSZ16-K-SBT8R-0830-80**	●	1	*5.2*	*8*	*30*	*8.83*	BTR80		

See page D17 for BTR Guage Inserts

● = USA Stocked item

PSZ Turn

● = USA Stocked item

PSZ GNDR

Grooving

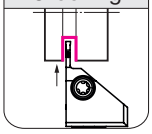
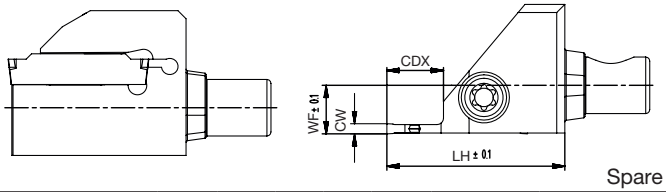
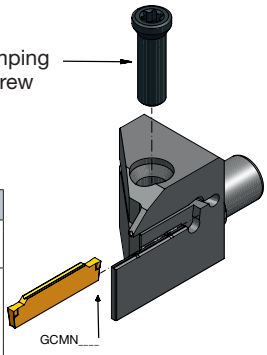


Fig. 1





GNDR

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Stock	Fig.	WF	LH	Seat Size CW	Grooving Delpth CDX	Insert	Clamping Screw	
12	**PSZ12-K-GNDR-0622-H12507**	●	1	*6*	*22*	*1.25*	*7*	GCMN125005	BFTX0414	3.0
16	**PSZ16-K-GNDR-0822-H12507**	●	1	*8*	*22*	*1.25*	*7*	GCMN125005		
12	**PSZ12-K-GNDR-0622-H15007**	●	1	*6*	*22*	*1.50*	*7*	GCMN150005		
16	**PSZ16-K-GNDR-0822-H15007**	●	1	*8*	*22*	*1.50*	*7*	GCMN150005		
12	**PSZ12-K-GNDR-0625-H212**	●	1	*6*	*25*	*2*	*12*	GC□□20○○-□□		
16	**PSZ16-K-GNDR-0825-H212**	●	1	*8*	*25*	*2*	*12*	GC□□20○○-□□		
12	**PSZ12-K-GNDR-0625-H312**	●	1	*6*	*25*	*3*	*12*	GC□□3○○○-□□		
16	**PSZ16-K-GNDR-0825-H312**	●	1	*8*	*25*	*3*	*12*	GC□□3○○○-□□		
16	**PSZ16-K-GNDR-0830-H317**	●	1	*8*	*30*	*3*	*17*	GC□□3○○○-□□		

PSZ GNDL

Grooving

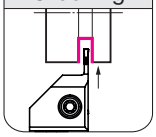
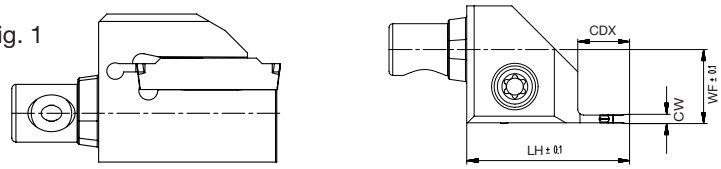
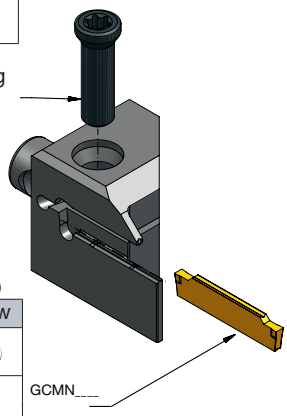


Fig. 1





GNDL

Spare Parts Dimensions (*mm*)

Series	Cat. No. Left Handed	Stock	Fig.	WF	LH	Seat Size CW	Grooving Delpth CDX	Insert	Clamping Screw	
12	**PSZ12-K-GNDL-1022-H12507**	●	1	*10*	*22*	*1.25*	*7*	GCMN125005	BFTX0414	3.0
16	**PSZ16-K-GNDL-1222-H12507**	●	1	*12*	*22*	*1.25*	*7*	GCMN125005		
12	**PSZ12-K-GNDL-1022-H15007**	●	1	*10*	*22*	*1.50*	*7*	GCMN150005		
16	**PSZ16-K-GNDL-1222-H15007**	●	1	*12*	*22*	*1.50*	*7*	GCMN150005		
12	**PSZ12-K-GNDL-1025-H212**	●	1	*10*	*25*	*2*	*12*	GC□□20○○-□□		
16	**PSZ16-K-GNDL-1225-H212**	●	1	*12*	*25*	*2*	*12*	GC□□20○○-□□		
12	**PSZ12-K-GNDL-1025-H312**	●	1	*10*	*25*	*3*	*12*	GC□□3○○○-□□		
16	**PSZ16-K-GNDL-1225-H312**	●	1	*12*	*25*	*3*	*12*	GC□□3○○○-□□		
16	**PSZ16-K-GNDL-1230-H317**	●	1	*12*	*20*	*3*	*17*	GC□□3○○○-□□		

PSZ Turn

● = USA Stocked item

PSZ SCLC

External Turning and Facing

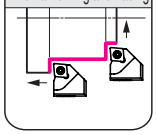
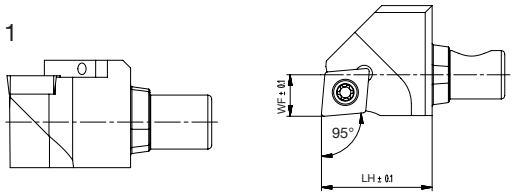
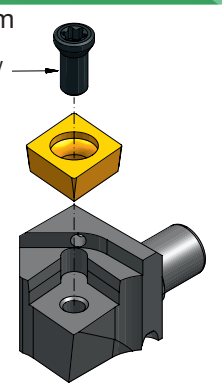


Fig. 1





SCLC

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Stock	Fig.	WF	LH	Insert	Clamping Screw	N·m
12	**PSZ12-K-SCLCR-0616-06**	●	1	*6*	*16*	CC□□21.5□	BFTX02506N	1.5
16	**PSZ16-K-SCLCR-0816-06**	●	1	*8*	*16*	CC□□21.5□		
12	**PSZ12-K-SCLCR-0616-09**	●	1	*6*	*16*	CC□□32.5□	BFTX03588	3.4
16	**PSZ16-K-SCLCR-0816-09**	●	1	*8*	*16*	CC□□32.5□		

PSZ SDHC

Profiling Multi-Purpose

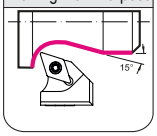
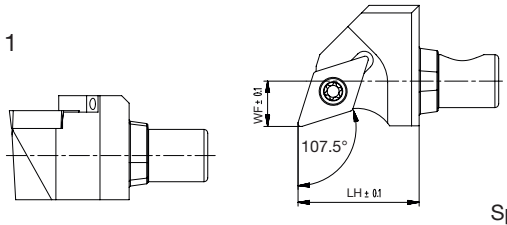
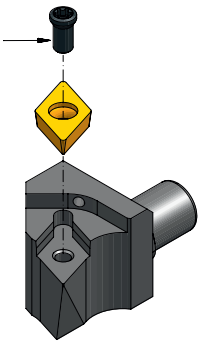


Fig. 1





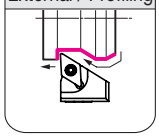
SDHC

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Stock	Fig.	WF	LH	Insert	Clamping Screw	N·m
12	**PSZ12-K-SDHCR-0616-07**	●	1	*6*	*16*	DC□□21.5□	BFTX02506N	1.5
16	**PSZ16-K-SDHCR-0816-07**	●	1	*8*	*16*	DC□□21.5□		
12	**PSZ12-K-SDHCR-0622-11**	●	1	*6*	*22*	DC□□32.5□	BFTX03588	3.4
16	**PSZ16-K-SDHCR-0822-11**	●	1	*8*	*22*	DC□□32.5□		

PSZ SDJC

External / Profiling



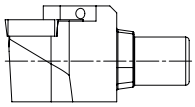


Fig. 1

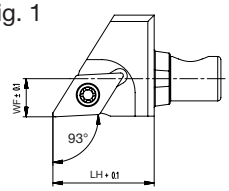
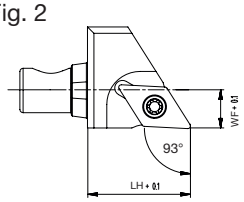
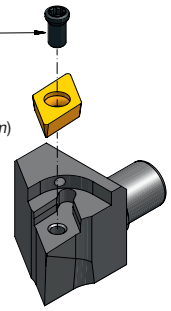


Fig. 2





SDJC

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Cat. No. Left Handed	Stock	Fig.	WF	LH	Insert	Clamping Screw	N·m
12	**PSZ12-K-SDJCR-0616-07**	—	●	1	*6*	*16*	DC□□21.5□	BFTX02506N	1.5
16	**PSZ16-K-SDJCR-0816-07**	—	●	1	*8*	*16*	DC□□21.5□		
12	**PSZ12-K-SDJCR-0622-11**	—	●	1	*6*	*22*	DC□□32.5□	BFTX03588	3.4
16	**PSZ16-K-SDJCR-0822-11**	—	●	1	*8*	*22*	DC□□32.5□		
16	—	**PSZ16-K-SDJCL-1222-11**	●	2	*12*	*22*	DC□□32.5□		

PSZ SVJB

External / Profiling

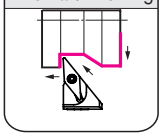
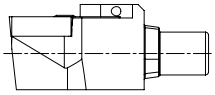
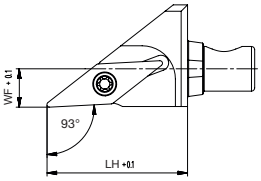
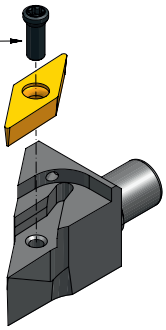


Fig. 1







SVJB

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Stock	Fig.	WF	LH	Insert	Clamping Screw	N·m
12	**PSZ12-K-SVJBR-0622-11**	●	1	*6*	*22*	VB□□22□	BFTX02508NV	1.5
16	**PSZ16-K-SVJBR-0822-11**	●	1	*8*	*22*	VB□□22□		

PSZ Turn

PSZ SVHC

Profiling Multi-Purpose

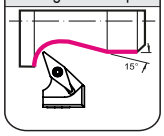
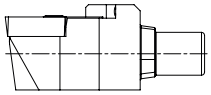
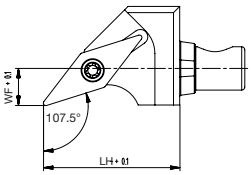
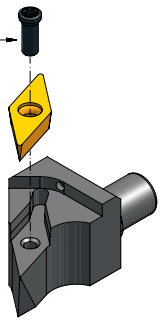


Fig. 1





Clamping Screw



SVHC

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Stock	Fig.	WF	LH	Insert	Clamping Screw	
12	**PSZ12-K-SVHCR-0622-11**	●	1	*6*	*22*	VC□□22□	BFTX02508NV	1.5
16	**PSZ16-K-SVHCR-0822-11**	●	1	*8*	*22*	VC□□22□		

PSZ SVJC

External / Profiling

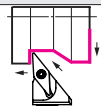
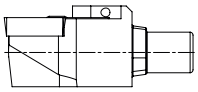
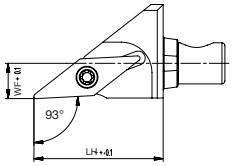
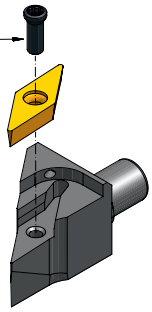


Fig. 1





Clamping Screw



SVJC

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Stock	Fig.	WF	LH	Insert	Clamping Screw	
12	**PSZ12-K-SVJCR-0622-11**	●	1	*6*	*22*	VC□□22□	BFTX02508NV	1.5
16	**PSZ16-K-SVJCR-0822-11**	●	1	*8*	*22*	VC□□22□		

PSZ PCLN

External Turning and Facing

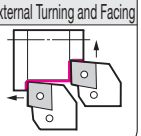
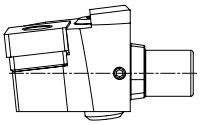
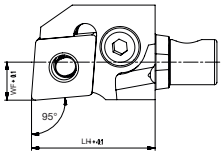
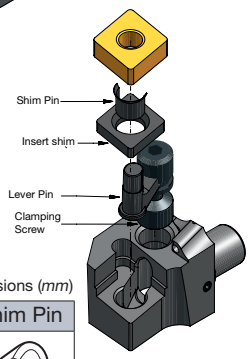


Fig. 1







PCLN

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Stock	Fig	WF	LH	Insert	Clamping Screw		Lever Pin	Insert Shim	Shim Pin
16	**PSZ16-K-PCLNR-0826-12**	●	1	*8*	*26*	CN□□43□	ST-1608	5.0	LP-8012	SH-3612	SHP-4112

PSZ PDJN

External / Profiling

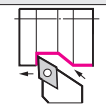
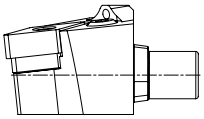
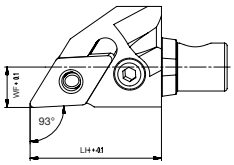
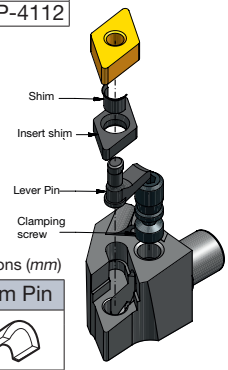


Fig. 1







PDJN

Spare Parts Dimensions (*mm*)

Series	Cat. No. Right Handed	Stock	Fig	WF	LH	Insert	Clamping Screw		Lever Pin	Insert Shim	Shim Pin
16	**PSZ16-K-PDJNR-0826-11**	●	1	*8*	*26*	DN□□33□	ST-1606	5.0	LP-8411	SH-3710	SHP-4108

● = USA Stocked item
★: Worldwide Warehouse Item
Blank: Made-to-order item

PSZ Turn - Blanks & Parts

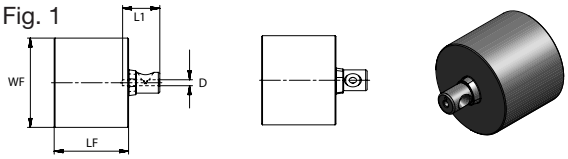
Blanks

Made-to-order items

Dimensions (*mm*)

Cat. No.	Stock	Fig	LF	L1	WF	D
PSZ12-R-D30-L25-RV		1	*25+1*	*12.5*	*30*	*2.0*
PSZ16-R-D35-L30-RV		1	*30*	*15.5*	*35*	*2.5*

Fig. 1



Torque Wrench

Dimensions (Inch / *mm*)

Cat. No.	Applicable PSZ	Stock	Series	Clamping Screw
7000019-3NM	*.375 (10), .500 (12)*	●	*SW3.5*	Hexagon Socket
7000020-4NM	*.625 (16), .750 (20)*	●	*SW4.5*	

Torque Wrenches are sold separately from holders

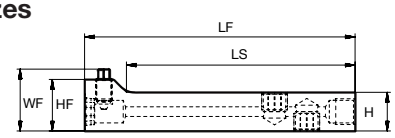
High Perfomance Lubricant

Cat. No.	Stock
E22335	●

Lubricant is sold separately from holders

Made-to-Order Items - Square Shank Sizes

Fig. 1



Square Shanks

Dimensions (*mm*)

Shank Size	Cat No.	Stock	Fig	LF	LS	H	HF	WF	Internal Coolant (IC) Connection Thread
3/8"	**PSZ10-3/8INCH-R-84**		1	*84*	*71*	*9.525*	*13.5*	*17.5*	M8x1x6
10	**PSZ1010R-84**		1	*84*	*71*	*10*	*13.5*	*17.6*	M8x1x6

These items and applicable heads are available upon request

Hoses

Fig 1

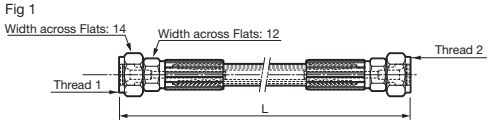


Fig 2

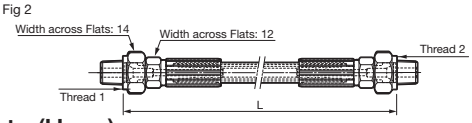


Fig 1

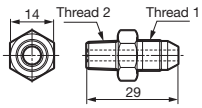


Fig 2

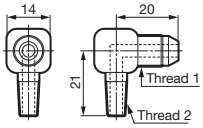
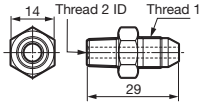


Fig 3



PSZ Parts (Hose)

Dimensions (inch / *mm*)

Cat. No.	Stock	L	End 1	End 2	Fig
J-HOSE-BSPT1/8M-BSPT1/8M-200	●	*200*	BSPT1/8M	BSPT1/8 M	2
J-HOSE-BSPT1/8M-BSPT1/8M-300	●	*300*	BSPT1/8M	BSPT1/8 M	2
J-HOSE-FJIC1/4-FJIC1/4-8.0	●	8.0	FJIC 1/4	FJIC 1/4	1
J-HOSE-FJIC1/4-FJIC1/4-10.0	●	10.0	FJIC 1/4	FJIC 1/4	1
J-HOSE-5/16-24M-5/16-24M-9.0	●	9.0	5/16-24M	5/16-24M	2
J-HOSE-M8X1M-M8X1M-9.0	●	9.0	M8X1 M	M8X1 M	2
J-HOSE-BSPP1/8M-BSPP1/8M-9.0	●	9.0	BSPP1/8 M	BSPP1/8 M	2

Hoses are sold separately.

Fig 2

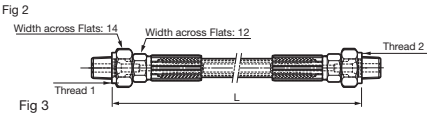
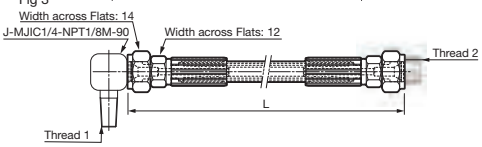


Fig 3



Parts (Connector)

Dimensions (*mm*)

Cat. No.	Stock	Angle	Thread 1	Thread 2	Fig
J-MJIC1/4-NPT1/8M	★	0°	MJIC1/4	NPT1/8 M	1
J-MJIC1/4-NPT1/8M-90	●	90°	MJIC 1/4	NPT1/8 M	2
J-FJIC1/4-BSPT1/8M	★	0°	FJIC1/4	BSPT1/8 M	1
J-MJIC1/4-5/16-24M	★	0°	MJIC1/4	5/16-24 M	1
J-MJIC1/4-M8X1M	★	0°	MJIC1/4	M8 X 1 M	1
J-MJIC1/4-BSPP1/8M	★	0°	MJIC1/4	BSPP1/8 M	1
J-MJIC1/4-BSPT1/8M	★	0°	MJIC1/4	BSPT1/8 M	1
J-MJIC1/4-5/16-24M-90	★	90°	MJIC1/4	5/16-24 M	2
J-MJIC1/4-BSPP1/8M-90	★	90°	MJIC1/4	BSPP1/8 M	2
J-MJIC1/4-NPT1/8F	★	0°	MJIC1/4	NPT1/8F	3
J-G1/8-R1/8-00	★	0°	G1/8	R1/8	1
J-G1/8-R1/8-90	★	90°	G1/8	R1/8	2
J-NPT1/8-G1/8-00	★	0°	NPT1/8	G1/8	1
J-NPT1/8-R1/8-00	★	0°	NPT1/8	R1/8	1

Parts (Hose Assembly)

Dimensions (inch/ *mm*)

Cat. No.	Stock	L	Thread 1	Thread 2	Fig
J-ASSY-NPT1/8M-NPT1/8M-90-8.0*	●	8.0	NPT1/8M	NPT1/8 M (90deg)	3
J-ASSY-NPT1/8M-NPT1/8M-90-10.0*	●	10.0	NPT1/8M	NPT1/8 M (90deg)	3
J-HOSE-G1/8-G1/8-200	●	*200*	G1/8	G1/8	2
J-HOSE-G1/8-G1/8-300	●	*300*	G1/8	G1/8	2
J-HOSE-MJIC1/4-NPT1/8-10.0	●	10.0	MJIC1/4	NPT1/8	2
J-HOSE-MJIC1/4-NPT1/8-8.0	●	8.0	MJIC1/4	NPT1/8	2
J-HOSE-R1/8-G1/8-200	●	*200*	R1/8	G1/8	2
J-HOSE-R1/8-G1/8-300	●	*300*	R1/8	G1/8	2

* Required separately sold MJIC Connectors to connect to holder or machine

SPB

■ Features

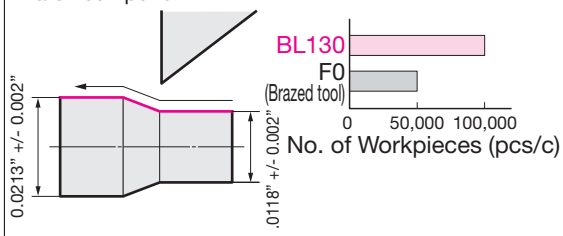
- High rigidity type tools expanded for gang-type NC lathes
- Inserts for various applications can be used on a single holder
- Can also be used on turret-type toolposts
- Uncoated blank inserts are stocked so cutting edges can be ground as required.
- BL130 has wear resistance similar to coated grades and sharpness similar to uncoated grades.
- Ultra-fine grained carbide grade F1, typically used for brazed tools, is now available for indexable inserts

■ Applicable Grades

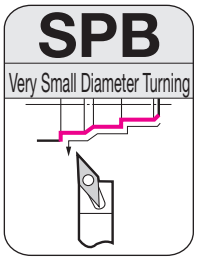
Insert Grade \ Applicable Part Material	General Steel / SK Material	Stainless Steel: Austenitic	Stainless Steel: Martensitic Ferritic	Brass, Aluminum Alloy
BL130	○	○	◎	○
F1	○	◎	○	○

■ Application Examples

Watch component



Tool: BL130
(PBVFN1102R)
Part Material: 420 Stainless Steel
Cutting Conditions:
vc = 23-36 SFM
f = 0.0002 IPR



Very Small Diameter Part Turning
Screw-on

Fig 1

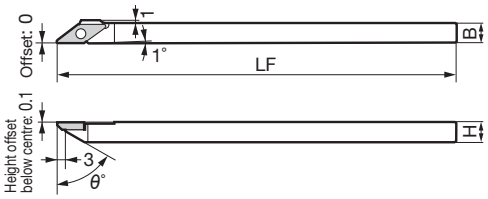


Fig 2

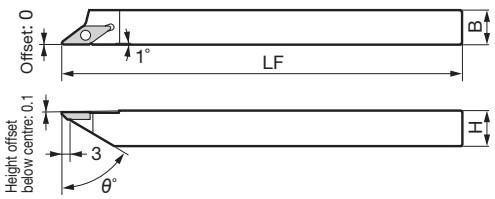


Fig 3

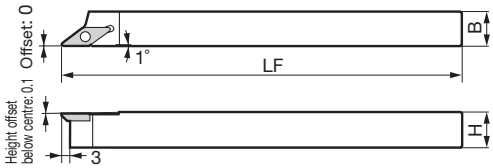


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (mm)

Toolpost	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Relief Angle θ	Fig	Flat Screw	N·m	Wrench (For Hex Socket)
Inch	**SPB R/L 063D**	●		.375	.375	6.000	-	2	BFTX02505N	1.5	LT08-06
	SPB R/L 083D	●		.500	.500	6.000	-	2			
Turret-type	**SPB R/L0707-70**		★	7	7	140	70	1	BFTX02505N	1.1	LT08-06
	SPB R/L0808-60	★		8	8	140	60	2	BFTX02506N	1.5	
	SPB R/L0808-70		★	8	8	140	70	2	BFTX02505N	1.1	
	SPB R/L0909-70		★	9.5	9.5	140	70	2	BFTX02505N	1.1	
	SPB R/L1010-60	★		10	10	140	60	2	BFTX02506N	1.5	
	SPB R/L1212-60	★		12	12	140	60	2	BFTX02506N	1.5	
Gang type	**SPB R0808**	★	-	8	8	140	-	3	BFTX02506N	1.5	LT08-06
	SPB R1010	★	-	10	10	140	-	3	BFTX02506N	1.5	
	SPB R1212	★	-	12	12	140	-	3	BFTX02506N	1.5	

N·m Recommended Tightening Torque (N·m)

● : USA stocked item
★ : Worldwide Warehouse item

Insert

Blank Insert

(Cemented Carbide)

Dimensions (*mm*)

Cat. No.	Stock BL130 R	Stock BL130 L	Stock F1 R	Stock F1 L	Overall length L	Applications	Fig
PBVX1102R/L-NB	★	★	★	★	*17.2*	Wide Range	1
PBVX1102R/L-SB	★	★	★	★	*(20.14)*	Sharp Edge	2
PBVX1102R/L-BB	★	★	★	★	*17.2*	Special	3

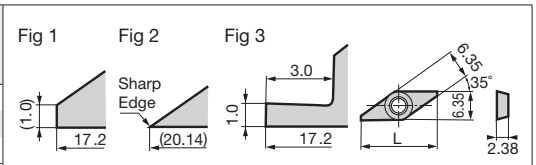


Figure shows right-hand (R) tool.

Front Turning Insert

Dimensions (*mm*)

Cat. No.	Stock BL130 R	Stock BL130	Stock F1 R	Stock F1 L	Effective Cutting Edge Length	Wiper Edge	Fig
PBVFW1102R/L	★				*1.0*	Yes	1
PBVFN1102R/L	★				*1.0*	No	2

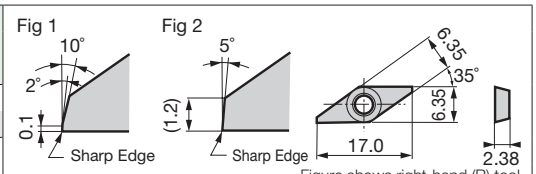


Figure shows right-hand (R) tool.

Back Turning Insert

Dimensions (*mm*)

Cat. No.	Stock BL130 R	Stock BL130	Stock F1 R	Stock F1 L	Effective Cutting Edge Length	Wiper Edge	Fig
PBVBW1102R/L	★				*1.0*	Yes (2°)	1
PBVBN1102R/L	★				*1.0*	No (5°)	2

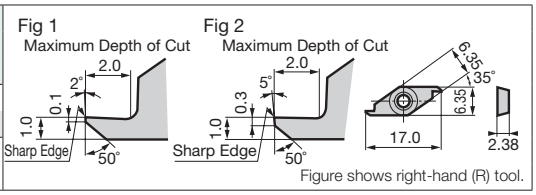


Figure shows right-hand (R) tool.

Grooving Insert

Dimensions (*mm*)

Cat. No.	Stock BL130 R	Stock BL130	Stock F1 R	Stock F1 L	Machining Groove Depth CDX	Width of Cut CW	Fig
PBVG1102R/L-030	★				*0.5*	*0.3*	1
PBVG1102R/L-050	★				*1.0*	*0.5*	1
PBVG1102R/L-100	★				*2.0*	*1.0*	1

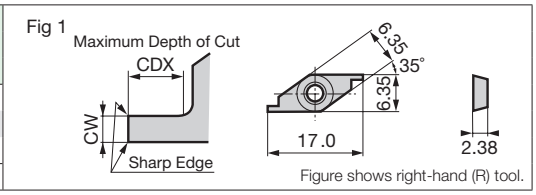
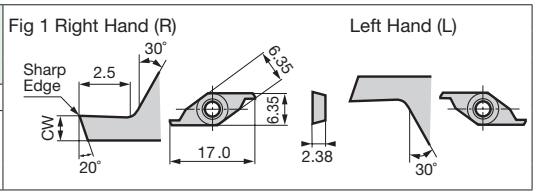


Figure shows right-hand (R) tool.

Cut-off Insert

Dimensions (*mm*)

Cat. No.	Stock BL130 R	Stock BL130 L	Stock F1 R	Stock F1 L	Max. Cut-off Dia.	Width of Cut CW	Fig
PBVC1102R/L-50	★	★			*5.0*	*1.0*	1



Threading Insert

Dimensions (*mm*)

Cat. No.	Stock BL130 R	Stock BL130	Stock F1 R	Stock F1 L	Process Pitch	Fig
PBVTF1102R/L	★				*0.2 to 0.5*	1
PBVTB1102R/L	★				*0.2 to 0.5*	2

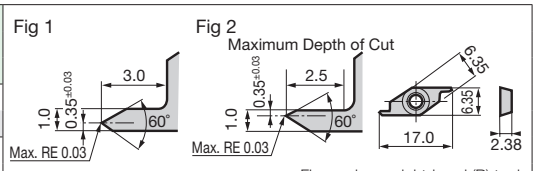


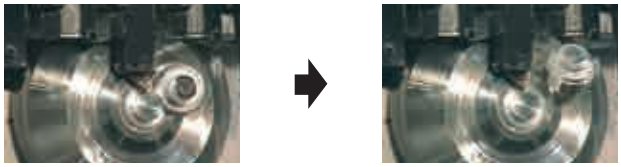
Figure shows right-hand (R) tool.

Recommended Cutting Conditions

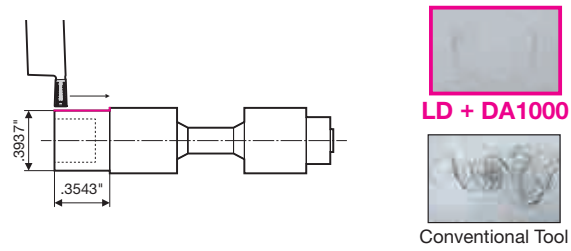
Part Material	P Free-Cutting Steel	P Carbon Steel	M Stainless Steel	N Non-ferrous Metal
Cutting Speed (v_c) (SFM)	15 to 265	15 to 265	15 to 165	15 to 330
Feed Rate f (IPR)	0.0001 to 0.002			
Coolant	Oil-based			

● : USA stocked item

★ : Worldwide Warehouse item



■ Application Examples



Part Material: Valve (A6061) Tool Cat. No.: KGV R2004-LD (DA1000)
Cutting Conditions: v_c = 820 SFM, f = 0.004 IPR, a_p = 0.0197" Wet

■ PCD - SUMIDIA Multi-Function Type with Chipbreaker SUMIDIA Break Master LD

- Provides excellent chip control in traverse cutting and grooving of aluminum alloy.
- Solves chip control problems and dramatically improves work efficiency.
- Achieves long, stable tool life by employing high-toughness grade PCD - SUMIDIA DA1000.

SGW
External Turning

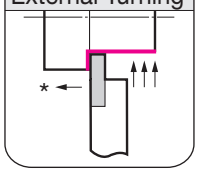
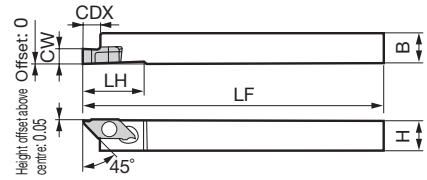
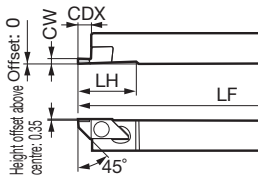


Fig 1



Dimensions with SUMIDIA insert mounted



*Use the SUMIDIA insert for traverse cutting.

External Multi-purpose Type
(Grooving / Traverse Cutting)
Screw-on

Holder

Parts

Dimensions (mm)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Maximum Groove Depth CDX	Head Length LH	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SGWR1212	★	*12*	*12*	*120*	*7.0*	*24.5*	1	BFTX0410T8R	**1.1**	TRX08
SGWR1616	★	*16*	*16*	*120*	*7.0*	*24.5*	1			

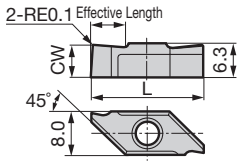
The above dimensions for LF, CDX and LH are values with a carbide insert mounted. (Refer to the table below for dimensions with PCD - SUMIDIA insert mounted)

Insert (Carbide) (Coated Carbide)

Dimensions (*mm*)

Cat. No.	AC1030U	AC530U	Width of Cut CW	Overall Length L	Overall Length LF	Maximum Groove Depth CDX	Head Length LH	Effective Cutting Edge Length	Fig
KGVR400	★	★	*4.0*	*21.0*	*120*	*7.0*	*24.5*	*6.3*	1
KGVR500	★	★	*5.0*	*21.0*	*120*	*7.0*	*24.5*	*6.3*	1
KGVR600	★	★	*6.0*	*21.0*	*120*	*7.0*	*24.5*	*6.3*	1

Fig 1

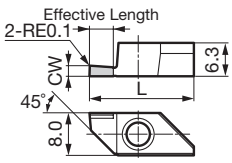


Insert (SUMIDIA) (SUMIDIA)

Dimensions (*mm*)

Cat. No.	DA1000	Width of Cut CW	Overall Length L	Overall Length LF	Maximum Groove Depth CDX	Head Length LH	Effective Cutting Edge Length	Fig
KGVR2004-LD	★	*2.0*	*19.7*	*118.7*	*5.7*	*23.2*	*4.0*	1
KGVR2504-LD	★	*2.5*	*19.7*	*118.7*	*5.7*	*23.2*	*4.0*	1
KGVR2506-LD	★	*2.5*	*21.2*	*120.2*	*7.2*	*24.7*	*5.5*	1

Fig 1



The above dimensions for LF, CDX and LH are the holder dimensions with insert mounted.

Note: Regrinding the PCD - SUMIDIA BreakMaster LD will adversely affect chip control performance.

Recommended Cutting Conditions

Work Material	P Steel M Stainless Steel N Non-Ferrous Metal	N Non-ferrous Metal	
Insert Grade	AC1030U	DA1000	
Machining Details	Grooving	Grooving	Traverse Cutting
Spindle Speed n (min-1)	4,000 to 6,000	4,500 to 8,000	4,500 to 8,000
Feed Rate f (IPR)	0.002 to 0.006	0.0025 to 0.006	0.0025 to 0.006
Coolant	Wet		

Be careful with spindle power during use. For small lathes, insufficient spindle power during machining may cause the machine to stop.
Be careful when machining carbon steel and stainless steel in particular.

N·m Recommended tightening torque (N·m)

● : USA stocked item
★ : Worldwide Warehouse item

SBT / PBT

SBT
Back Turning

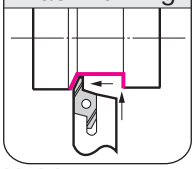


Fig 1

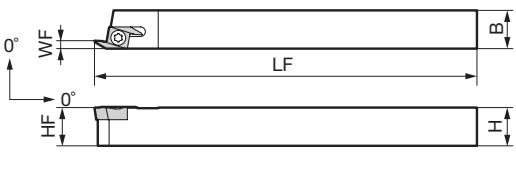
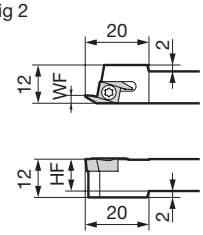


Fig 2



● : USA stocked item
★ : Worldwide Warehouse item

Holder / Parts

Dimensions (inch / mm)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts	Fig	Flat Screw		Wrench
											N·m	(For Torx Holes)
Inch	SBTR3506	●	.375	.375	6.000	.080	.375	BTR35○○	1	BFTX0307N	2.0	TRX10
Inch	SBTR3508	●	.500	.500	6.000	.106	.500		1			
Inch	SBTR3510	●	.625	.625	6.000	.133	.625		1			
Metric	SBT35R1010	★	10	10	120	2.5	10		2			
Metric	SBT35R1212	★	12	12	120	2.5	12		1			
Metric	SBT35R1616	★	16	16	120	2.5	16		1			
Metric	SBT35R2020	★	20	20	125	2.5	20		1			

PBT
Back Turning

Back Clamp

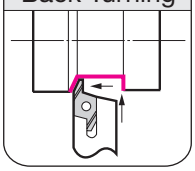


Fig 1

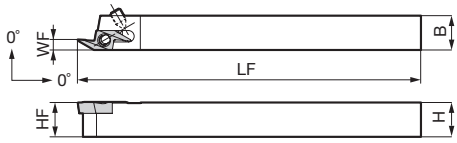
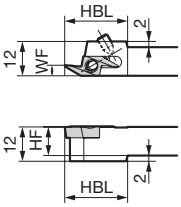


Fig 2



Back Turning
Lever Lock

Holder / Parts

Dimensions (mm)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Offset HBL	Applicable Inserts	Fig	Lever Pin	Set Screw	Pin	Wrench
													(For Hex Socket)
PBT35R1010	★	10	10	120	2.5	10	20	BTR35○○	2	LCL09	BTT0407	LP07	TH020
PBT35R1212	★	12	12	120	2.5	12	-		1				
PBT35R1616	★	16	16	120	2.5	16	-		1		BTT0411		
PBT35R2020	★	20	20	120	2.5	20	-		1				
PBT55R1010	★	10	10	120	3.7	10	22	BTR55○○	2	LCL09	BTT0407	LP07	TH020
PBT55R1212	★	12	12	120	3.7	12	-		1				
PBT55R1616	★	16	16	120	3.7	16	-		1		BTT0411		
PBT55R2020	★	20	20	120	3.7	20	-		1				
PBT80R1010	★	10	10	120	5.2	10	25	BTR80○○	2	LCL09	BTT0407	LP07	TH020
PBT80R1212	★	12	12	120	5.2	12	-		1				
PBT80R1616	★	16	16	120	5.2	16	-		1		BTT0411		
PBT80R2020	★	20	20	120	5.2	20	-		1				

Insert

(Coated Carbide / Cermet)

Dimensions (mm)

Cat. No.	AC1030U	AC530U	ACZ150	T1500A	Overall Length L	Maximum Depth of Cut CDX	Width of Cut CW	Nose Radius RE	Applicable Holders	Fig
BTR3505	●	●	▲	★	15	3.5	2.5	0.05	SBT35R○○○○	1
BTR3515	●	●	▲	★	15	3.5	2.5	0.15	PBT35R○○○○	1
BTR5505	★	★	▲	-	19	5.5	3.7	0.05	PBT55R○○○○	1
BTR5515	★	★	▲	-	19	5.5	3.7	0.15		1
BTR8005	★	★	▲	-	24	8.0	5.2	0.05	PBT80R○○○○	1
BTR8015	★	★	▲	-	24	8.0	5.2	0.15		1

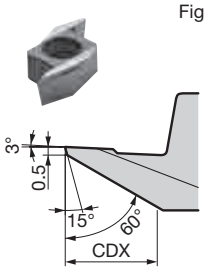
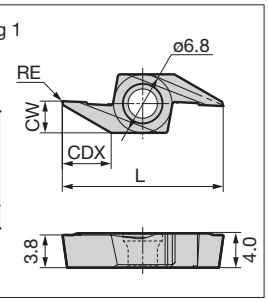


Fig 1

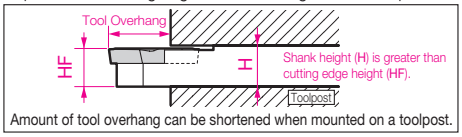


Recommended Cutting Conditions

Part Material	P Free-Cutting Steel		P Carbon Steel		M Stainless Steel	
Tooling	Plunging	Traverse Cut	Plunging	Traverse Cut	Plunging	Traverse Cut
Cutting Speed (v_c) (SFM)	165 to 500		165 to 500		165 to 500	
Feed Rate f (IPR)	.0008 - .004	.0008 - .006	.0008 - .002	.0008 - .004	.0008 - .0015	.0008 - .0025
Coolant	Oil-based					

Shank Tolerance of SBT / PBT

A positive tolerance (0.1 - 0.3) is applied to the shank height (H) to prevent the cutting edge from interfering with the toolpost.



Amount of tool overhang can be shortened when mounted on a toolpost.

General Turning
Screw-on

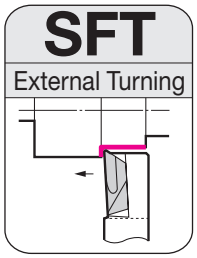
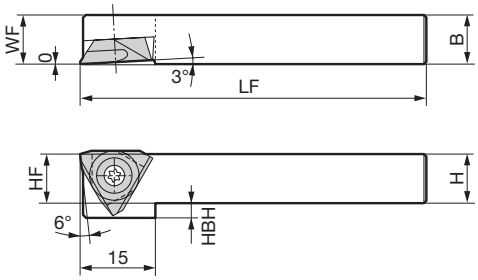


Fig 1



Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Offset HBH	Applicable Inserts	Fig	Flat Screw	Wrench (For Torx Holes)
SFTR1010	★	*10*	*10*	*120*	*10*	*10*	*3*	TFR33○○	1	BFTX0410NSW	RT08
SFTR1212	★	*12*	*12*	*120*	*12*	*12*	*1*		1		
SFTR1616	★	*16*	*16*	*120*	*16*	*16*	-		1		
SFTR2020	★	*20*	*20*	*120*	*20*	*20*	-		1		

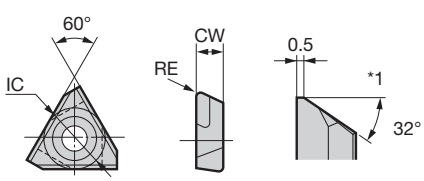
Insert

(Coated Carbide)

Dimensions (*mm*)

Cat. No.	ACZ150	Inscribed Circle IC	Width of Cut CW	Nose Radius RE	Applicable Holders	Fig
TFR3300	★	*9.525*	*4.76*	-	SFTR○○○○	1
TFR3305	★	*9.525*	*4.76*	*0.05*		1
TFR3315	★	*9.525*	*4.76*	*0.15*		1
TFR3320	★	*9.525*	*4.76*	*0.20*		1

Fig 1



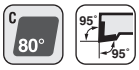
*1 Indicates angle when mounted on the holder
Maximum depth of cut 4.0mm

★: Worldwide Warehouse item

RS-SCL

■ Features of Round Shank Holders

- Shank diameters from ø5/8" to ø1.00" (*ø14 to ø25 mm)* are in stock.
  Holders can be fitted on various manufacturers' sleeve toolposts.
- Bars can be mounted from the rear of the sleeve toolpost to increase the tooling range.



General Turning
Screw-on

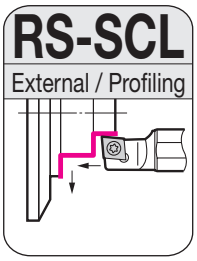
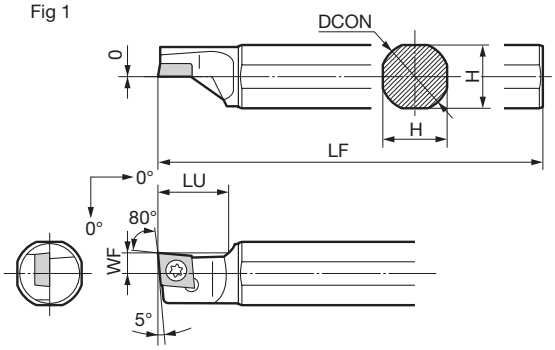


Fig 1



Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Usable Length LU	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Wrench RT08 LT25NT (For Torx Holes)
RS15H-SCLL06	★	*15.875*	*15*	*100*	*6.0*	*20*	CC□□21.5□	**B72**	1	BFTX02507NT	RT08
RS19X-SCLL06	★	*19.05*	*18*	*120*	*6.0*	*20*			1		
RS20X-SCLL06X	★	*20*	*19*	*95*	*6.0*	*20*			1		
RS20X-SCLL06	★	*20*	*19*	*120*	*6.0*	*20*			1		
RS22X-SCLL06	★	*22*	*21*	*120*	*6.0*	*20*			1		
RS25X-SCLL06	★	*25*	*24*	*120*	*6.0*	*20*			1		
RS25M-SCLL06	★	*25.4*	*24*	*150*	*6.0*	*20*			1		
RS15H-SCLL09	★	*15.875*	*15*	*100*	*6.0*	*20*	CC□□32.5□	**B75**	1	BFTX0408NT	LT25NT
RS19X-SCLL09	★	*19.05*	*18*	*120*	*6.0*	*20*			1		
RS20X-SCLL09S	★	*20*	*19*	*95*	*6.0*	*20*			1		
RS20X-SCLL09	★	*20*	*19*	*120*	*6.0*	*20*			1		
RS22X-SCLL09	★	*22*	*21*	*120*	*6.0*	*20*			1		
RS25X-SCLL09	★	*25*	*24*	*120*	*6.0*	*20*			1		
RS25M-SCLL09	★	*25.4*	*24*	*150*	*6.0*	*20*			1		

Right hand (R) or neutral (N) inserts can be used.

★: Worldwide Warehouse item

RS-SDU / RS-SDX

General Turning
Screw-on

RS-SDU

External / Profiling

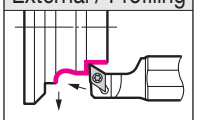
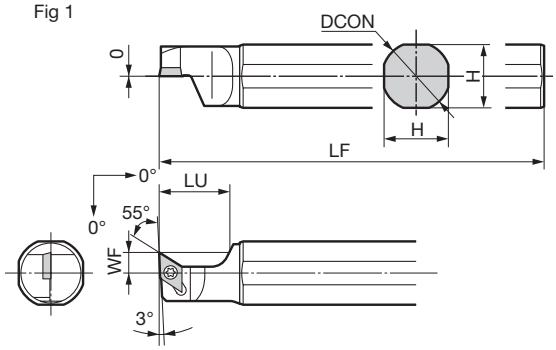


Fig 1



Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Usable Length LU	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Wrench (RT08, LT25NT)
RS14F-SDUL07	★	*14*	*13*	*80*	*6.0*	*20*	DC□□21.5□	**B82**	1	BFTX02507NT	RT08
RS15H-SDUL07	★	*15.875*	*15*	*100*	*6.0*	*20*			1		
RS16F-SDUL07	★	*16*	*15*	*80*	*6.0*	*20*			1		
RS16X-SDUL07	★	*16*	*15*	*120*	*6.0*	*20*			1		
RS19X-SDUL07	★	*19.05*	*18*	*120*	*6.0*	*20*			1		
RS20X-SDUL07S	★	*20*	*19*	*95*	*6.0*	*20*			1		
RS20X-SDUL07	★	*20*	*19*	*120*	*6.0*	*20*			1		
RS22X-SDUL07	★	*22*	*21*	*120*	*6.0*	*20*			1		
RS19X-SDUL11	★	*19.05*	*18*	*120*	*10.0*	*20*	DC□□32.5□	**B86**	1	BFTX0410NT	LT25NT
RS20X-SDUL11S	★	*20*	*19*	*95*	*10.0*	*20*			1		
RS20X-SDUL11	★	*20*	*19*	*120*	*10.0*	*20*			1		
RS22X-SDUL11	★	*22*	*21*	*120*	*10.0*	*20*			1		
RS25X-SDUL11	★	*25*	*24*	*120*	*10.0*	*20*			1		
RS25M-SDUL11	★	*25.4*	*24*	*150*	*10.0*	*20*			1		

Right hand (R) or neutral (N) inserts can be used.

General Turning
Screw-on

RS-SDX

External/Profiling

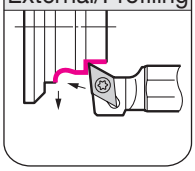
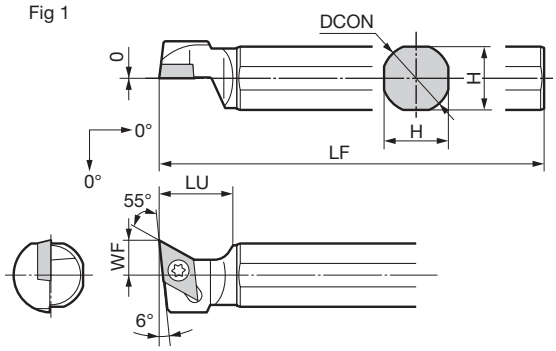


Fig 1



Holder / Parts

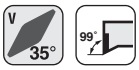
Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Usable Length LU	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Wrench
RS19X-SDXL11	★	*19.05*	*18*	*120*	*10.0*	*20*	DC□□32.5□	**B86**	1	BFTX0410NT	LT25NT
RS20X-SDXL11S	★	*20*	*19*	*95*	*10.0*	*20*			1		
RS20X-SDXL11	★	*20*	*19*	*120*	*10.0*	*20*			1		
RS25X-SDXL11	★	*25*	*24*	*120*	*10.0*	*20*			1		

Right hand (R) or neutral (N) inserts can be used.

★: Worldwide Warehouse item

RS-SVX / RS-SVVP



General Turning
Screw-on

RS-SVX

External / Profiling

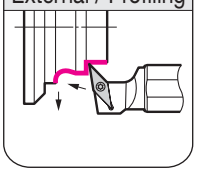
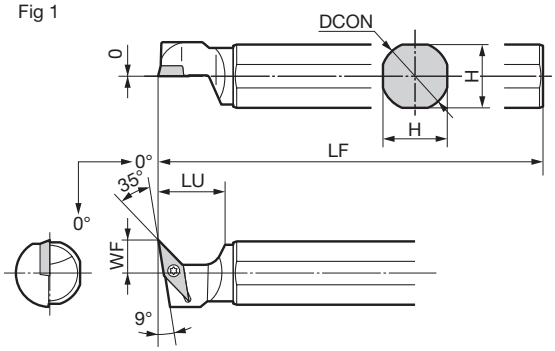


Fig 1



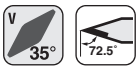
Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Usable Length LU	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Wrench (For Torx Holes)
RS15H-SVXL11	★	*15.875*	*15*	*100*	*10.0*	*20*	VC□□22□	**B122**	1	BFTX02507NT	RT08
RS19X-SVXL11	★	*19.05*	*18*	*120*	*10.0*	*20*			1		
RS20X-SVXL11S	★	*20*	*19*	*95*	*10.0*	*20*			1		
RS20X-SVXL11	★	*20*	*19*	*120*	*10.0*	*20*			1		
RS22X-SVXL11	★	*22*	*21*	*120*	*10.0*	*20*			1		
RS25X-SVXL11	★	*25.4*	*24*	*150*	*10.0*	*20*			1		

Right hand (R) or neutral (N) inserts can be used.



General Turning
Screw-on

RS-SVVP

External Turning and Facing

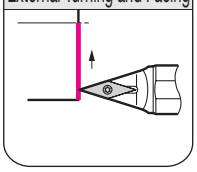
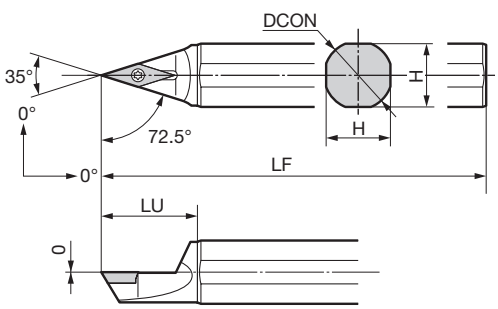


Fig 1



Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Usable Length LU	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Wrench (For Torx Holes)
RS19X-SVVPN11	★	*19.05*	*18*	*120*	*27*	VP□□22□	**B127**	1	BFTX02507NT	RT08
RS22X-SVVPN11	★	*22*	*21*	*120*	*27*			1		

★: Worldwide Warehouse item

RS-PTXN

General Turning
Lever Lock

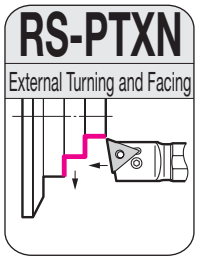
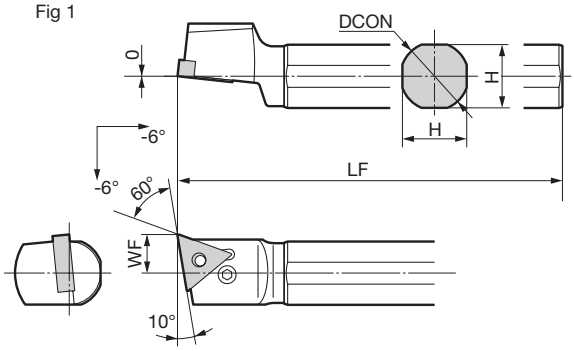


Fig 1



Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Lever Pin	Bolt	Wrench (For Hex Socket)
RS19X-PTXNL16	★	*19.05*	*18*	*120*	*11.0*	TN□□33□	**B53**	1	LCL33NT	LCS33NT	LH020NT
RS20X-PTXNL16	★	*20*	*19*	*120*	*11.0*			1			
RS25M-PTXNL16	★	*25.4*	*24*	*150*	*13.0*			1			

Right hand (R) or neutral (N) inserts can be used.

★: Worldwide Warehouse item

Zero Offset Holders

Zero Offset | Back Clamp | C 80° | 95° 95°

PCLC

External Turning and Facing

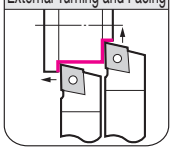
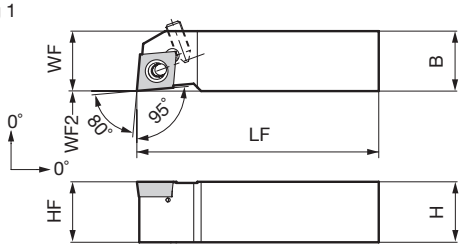


Fig 1



For PCLC R/L1212-K09X

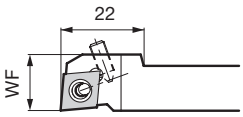


Figure shows right-hand (R) tool.
Dimensions (inch / *mm*)

Holder / Parts

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Offset WF2	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Lever Pin	Set Screw	Pin	Wrench (For Hex Socket)
Inch	**PCLC R/L 062D**	●	●	0.375	0.375	6.00	0.395	0.375	*0*	CC□□21.5	**B72**	1	LCL06	BTT0407	LP07	TH020
Inch	**PCLC R/L 083D**	●	●	0.500	0.500	6.00	0.520	0.500	*0*	CC□□32.5	**B75**	1	LCL09	BTT0407	LP06	TH020
Inch	**PCLC R/L 103D**	●	●	0.625	0.625	6.00	0.645	0.625	*0*			1		BTT0411		
Metric	**PCLC R/L 1010-K06X**	★		*10*	*10*	*125*	*10*	*10*	*0*	CC□□21.5	**B72**	1	LCL06	BTT0407	LP07	TH020
Metric	**PCLC R/L 1212-K09X**	★		*12*	*12*	*125*	*15*	*12*	*0*	CC□□32.5	**B75**	1	LCL09	BTT0411	LP06	
Metric	**PCLC R/L 1616-K09X**	★		*16*	*16*	*125*	*16*	*16*	*0*			1				

Zero Offset | C 80° | 95° 95°

SCLC-X

External Turning and Facing

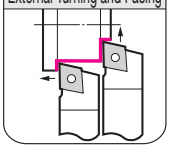


Fig 1

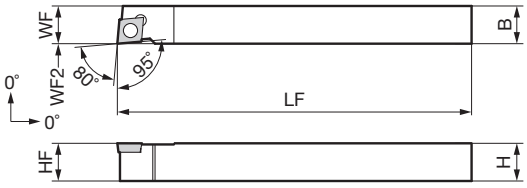


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Offset WF2	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SCLC R/L 1010-H06X	★	★	*10*	*10*	*100*	*10*	*10*	*0*	CC□□21.5	**B72**	1	BFTX02506N	1.5	TRX08
SCLC R/L 1215-K09X	★	★	*12*	*15*	*125*	*15*	*12*	*0*	CC□□32.5	**B75**	1	BFTX0409N	3.4	TRX15
SCLC R/L 1215-F09X*	★	★	*12*	*15*	*85*	*15*	*12*	*0*			1			

*85mm Shank

Zero Offset | C 80° | 91°

SCAC

External Turning

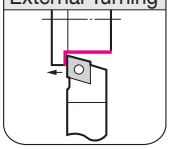


Fig 1

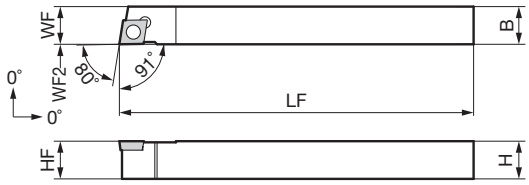


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Offset WF2	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	**SCAC R/L 4.5D**	●	●	0.281	0.281	6.000	0.281	0.281	0	CC□□21.5	**B72**	1	ST-1225	0.9	TRD07
Inch	**SCAC R/L 052D**	●	●	0.312	0.312	6.000	0.312	0.312	0			1			
Inch	**SCAC R/L 062B**	●	●	0.375	0.375	4.500	0.375	0.375	0			1			
Inch	**SCAC R/L 062D**	●	●	0.375	0.375	6.000	0.375	0.375	0			1			
Inch	**SCAC R/L 083B**	●	●	0.500	0.500	4.500	0.500	0.500	0	CC□□32.5	**B75**	1	ST-1240	3.0	TRD15
Inch	**SCAC R/L 083D**	●	●	0.500	0.500	6.000	0.500	0.500	0			1			
Inch	**SCAC R/L 103B**	●	●	0.625	0.625	4.500	0.625	0.625	0			1			
Inch	**SCAC R/L 103D**	●	●	0.625	0.625	6.000	0.625	0.625	0			1			
Metric	**SCAC R/L 1010-H06X**	★	★	*10*	*10*	*100*	*10*	*10*	*0*	CC□□21.5	**B72**	1	BFTX02506N	1.5	TRX08
Metric	**SCAC R/L 1215-F09X***	★	★	*12*	*15*	*85*	*15*	*12*	*0*	CC□□32.5	**B75**	1	BFTX0409N	3.4	TRX15
Metric	**SCAC R/L 1215-K09X**	★	★	*12*	*15*	*125*	*15*	*12*	*0*			1			

*85mm Shank

● : USA stocked item
★: Worldwide Warehouse item

N·m Recommended Tightening Torque (N·m)

Zero Offset Holders

Zero Offset | Back Clamp | D 55° | 93°

PDJC

External / Profiling

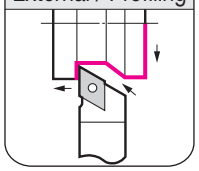
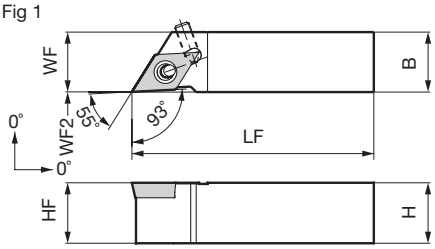


Fig 1



For PDJC R/L1212-K11X

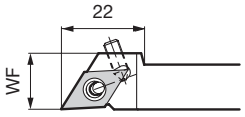


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch / *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Offset WF2	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Lever Pin	Set Screw	Pin	Wrench (For Hex Socket)
Metric	**PDJC R/L1010-K07X**	★		*10*	*10*	*125*	*10*	*10*	*0*	DC□□21.5	**B82**	1	LCL06	BTT0407	LP04	TH020
	PDJC R/L1212-K11X	★		*12*	*12*	*125*	*15*	*12*	*0*	DC□□32.5	**B86**	1	LCL09	BTT0411	LP07	
	PDJC R/L1616-K11X	★		*16*	*16*	*125*	*16*	*16*	*0*			1				

Zero Offset | D 55° | 93°

SDJC-X

External / Profiling

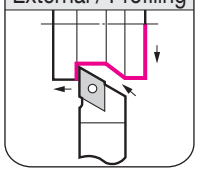


Fig 1

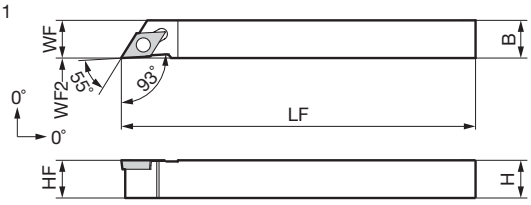


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch / *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Offset WF2	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Metric	**SDJC R/L1010-H07X**	★	★	*10*	*10*	*100*	*10*	*10*	*0*	DC□□21.5	**B82**	1	BFTX02506N	**1.5**	TRX08
	SDJC R/L1215-F11X*	★	★	*12*	*15*	*85*	*15*	*12*	*0*	DC□□32.5	**B86**	1	BFTX0409N	**3.4**	TRX15
	SDJC R/L1215-K11X	★	★	*12*	*15*	*125*	*15*	*12*	*0*			1			

*85mm Shank

N·m Recommended Tightening Torque (N·m)

● : USA stocked item

★ : Worldwide Warehouse item

Zero Offset Holders

SDAC
External / Profiling

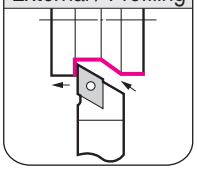
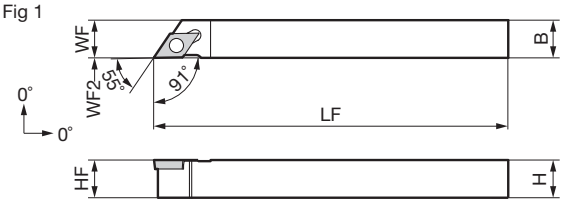


Fig 1



Zero Offset | D 55° | 91°

Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Offset WF2	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Torq Screw	N·m	Wrench (For Torx Holes)
Inch	**SDAC R/L 062B**	●	●	0.375	0.375	4.500	0.375	0.375	0	DC□□21.5	**B82**	1	TS25.456M2	**1.5**	TRX08
Inch	**SDAC R/L 062D**	●	●	0.375	0.375	6.000	0.375	0.375	0			1			
Inch	**SDAC R/L 082B**	●	●	0.500	0.500	4.500	0.500	0.500	0			1			
Inch	**SDAC R/L 082D**	●	●	0.500	0.500	6.000	0.500	0.500	0			1			
Inch	**SDAC R/L 083B**	●	●	0.500	0.500	4.500	0.500	0.500	0	DC□□32.5	**B86**	1	TS4.710M1	**3.0**	TRX15
Inch	**SDAC R/L 083D**	●	●	0.500	0.500	6.000	0.500	0.500	0			1			
Inch	**SDAC R/L 103B**	●	●	0.625	0.625	4.500	0.625	0.625	0			1			
Inch	**SDAC R/L 103D**	●	●	0.625	0.625	6.000	0.625	0.625	0			1			
Inch	**SDAC R/L 123B**	●	●	0.750	0.750	4.500	0.750	0.750	0			1			
Metric	**SDAC R/L1010-H07X**	★	★	*10*	*10*	*100*	*10*	*10*	*0*	DC□□21.5	**B82**	1	BFTX02506N	**1.5**	TRX08
Metric	**SDAC R/L1215-F11X***	★	★	*12*	*15*	*85*	*15*	*12*	*0*	DC□□32.5	**B86**	1	BFTX0409N	**3.4**	TRX15
Metric	**SDAC R/L1215-K11X**	★	★	*12*	*15*	*125*	*15*	*12*	*0*			1			

*85mm Shank

SDPC
External Machining

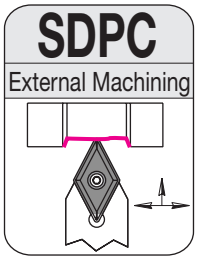
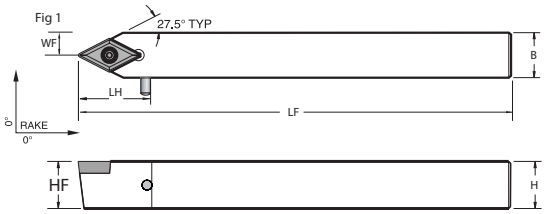


Fig 1



Neutral Hand Shown

Zero Offset | D 55° | 117.5°

Holder Dimensions (inch) / Parts

Cat. No.	Stock Neutral	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Torq Screw	N·m	Wrench (For Torx Holes)
SDPCN062B	●	.375	.375	4.500	.1875	.375	1.000	DC□□21.5	**B82**	1	TS25.456M2	**1.5**	TRX08
SDPCN062D	●	.375	.375	6.000	.1875	.375	1.000			1			
SDPCN082B	●	.500	.500	4.500	.250	.500	1.000			1			
SDPCN083B	●	.500	.500	4.500	.250	.500	1.000	DC□□32.5	**B86**	1	TS4.710M1	**3.0**	TRX15
SDPCN083D	●	.500	.500	6.000	.250	.500	1.000			1			
SDPCN103B	●	.625	.625	4.500	.3125	.625	1.000			1			
SDPCN103D	●	.625	.625	6.000	.3125	.625	1.000			1			

SDPC-X
Necking

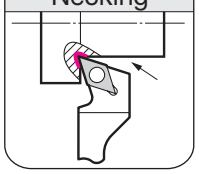
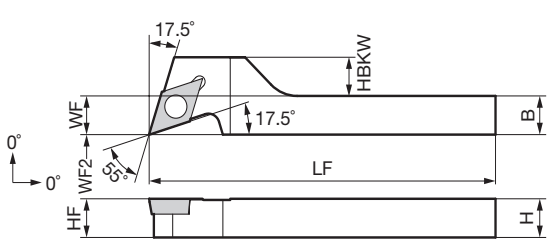


Fig 1



Zero Offset | D 55° | 107.5°

Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Step HBKW	Offset WF2	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SDPC R/L1010-H11X	★	★	*10*	*10*	*100*	*10*	*10*	*10*	*0*	DC□□21.5	**B82**	1	BFTX0409N	**3.4**	TRX15

● : USA stocked item
★ : Worldwide Warehouse item

N·m Recommended Tightening Torque (N·m)

Zero Offset Holders

Zero Offset | T 60° | 100°

PTXN-X

External Turning and Facing

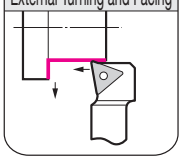
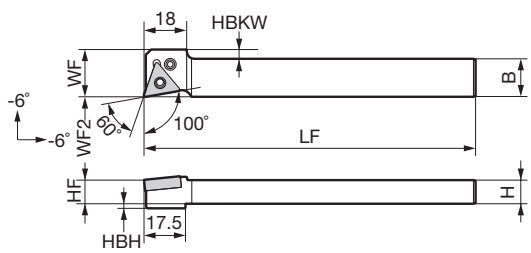


Fig 1



Holder / Parts

Dimensions (*mm*)

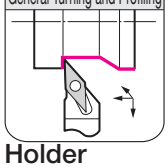
Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Step HBH	Step HBKW	Offset WF2	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Lever Pin	Bolt	Wrench (For Hex Socket)
PTXNR1016-X16X	★	*10*	*16*	*120*	*20*	*10*	*2*	*4*	*0*	TN□□33□	**B53**	1	LCL33NT	LCS33NT	LH020NT
PTXNR1216-X16X	★	*12*	*16*	*120*	*20*	*12*	*0*	*4*	*0*			1			
PTXNR1616-X16X	★	*16*	*16*	*120*	*20*	*16*	*0*	*4*	*0*			1			
PTXNR2020-X16X	★	*20*	*20*	*120*	*20*	*20*	*0*	*0*	*0*			1			

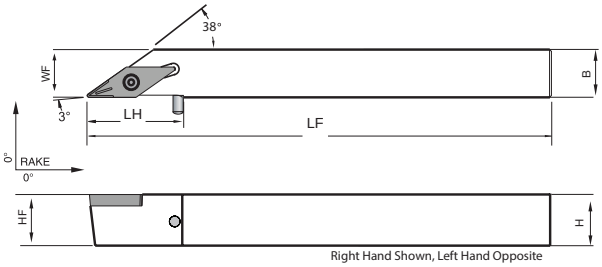
V 35° | 93°

General Turning and Profiling
Screw-on

SVNB

General Turning and Profiling





Right Hand Shown, Left Hand Opposite

Holder / Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head Length LH	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Wrench (For Torx Holes)
SVNB R/L 062B	●	●	0.375	0.375	4.500	0.375	0.375	1.000	VB□□22□	**B119**	1	TS25.456M2	TRX08
SVNB R/L 062D	●	●	0.375	0.375	6.000	0.375	0.375	1.000			1		
SVNB R/L 082B	●	●	0.500	0.500	4.500	0.500	0.500	1.000			1		
SVNB R/L 082D	●	●	0.500	0.500	6.000	0.500	0.500	1.000			1		
SVNB R/L 103B	●	●	0.625	0.625	4.500	0.625	0.625	1.000	VB□□33□	**B121**	1	TS4.710M1	TRX15
SVNB R/L 103D	●	●	0.625	0.625	6.000	0.625	0.625	1.000			1		

Zero Offset | V 35° | 93°

SVJC

General Turning and Profiling

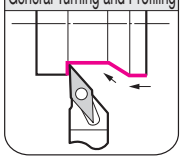


Fig 1

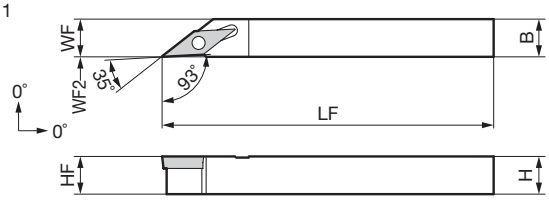


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Offset WF2	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Torq Screw	N·m	Wrench (For Torx Holes)
Inch	**SVJC R/L 062D**	●	●	.375	.375	6.000	0.375	.375	0	VC□□22□	**B122**	1	ST-1225	**1.5**	TRX15040
	SVJC R/L 082D	●	●	.500	.500	6.000	0.500	.500	0						
	SVJC R/L 083D	●	●	.500	.500	6.000	0.500	.500	0	VC□□33□	**B124**		ST-1240		
	SVJC R/L 103D	●	●	.625	.625	6.000	0.625	.625	0						
Metric	**SVJC R/L1010-H11X**	★	★	*10*	*10*	*100*	*10*	*10*	*0*	VC□□22□	**B122**		BFTX02508NV	**1.5**	TRX08
	SVJC R/L1212-F11X*	★	★	*12*	*12*	*85*	*12*	*12*	*0*			1			
	SVJC R/L1212-K11X	★	★	*12*	*12*	*125*	*12*	*12*	*0*			1			

*85mm Shank

N·m Recommended Tightening Torque (N·m)

● : USA stocked item ★: Worldwide Warehouse item

PCLC / SCLC

Back Clamp

General Turning
Lever Lock

PCLC

External Turning and Facing

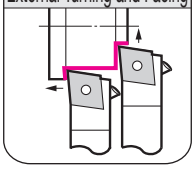
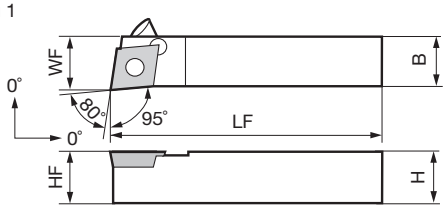


Fig 1



For PCLC R/L0810-K06

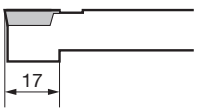


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Lever Pin	Set Screw	Pin	Wrench (For Hex Socket)
Inch	**PCLC R/L 062D**	●	●	0.375	0.375	6.000	0.395	0.375	CC□□21.5	**B72**	1	LCL06	BTT0407	LP07	TH020
Inch	**PCLC R/L 083D**	●	●	0.500	0.500	6.000	0.520	0.500	CC□□32.5	**B75**	1	LCL09	BTT0407	LP06	TH020
Inch	**PCLC R/L 103D**	●	●	0.625	0.625	6.000	0.645	0.625			1		BTT0411		
Metric	**PCLC R/L 0810-K06**	★	★	*8*	*10*	*125*	*10.5*	*8*	CC□□21.5	**B72**	1	LCL06	BTT0407	LP07	TH020
Metric	**PCLC R/L 1010-K06**	★	★	*10*	*10*	*125*	*10.5*	*10*			1				
Metric	**PCLC R/L 1212-M09**	★	★	*12*	*12*	*150*	*12.5*	*12*	CC□□32.5	**B75**	1	LCL09	BTT0411	LP06	TH020
Metric	**PCLC R/L 1616-M09**	★	★	*16*	*16*	*150*	*16.5*	*16*			1		BTT0411		TH020
Metric	**PCLC R/L 2020-M09**	★	★	*20*	*20*	*150*	*20.5*	*20*			1				

General Turning
Screw-on

SCLC

External Turning and Facing

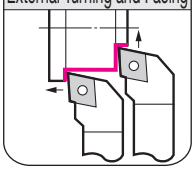


Fig 1

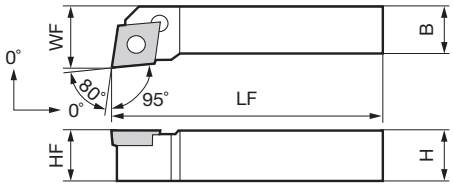


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	**SCLC R/L 4.52D**	●	●	0.281	0.281	6.000	0.281	0.281	CC□□21.5	**B72**	1	ST-1225	**0.9**	TRD07
Inch	**SCLC R/L 052D**	●	●	0.312	0.312	6.000	0.312	0.312			1			
Inch	**SCLC R/L 062D**	●	●	0.375	0.375	6.000	0.375	0.375			1			
Inch	**SCLC R/L 083D**	●	●	0.500	0.500	6.000	0.500	0.500	CC□□32.5	**B75**	1	ST-1240	**3.0**	TRD15
Inch	**SCLC R/L 103D**	●	●	0.625	0.625	6.000	0.625	0.625			1			
Metric	**SCLC R/L 0808-06**	★	★	*8*	*8*	*100*	*10*	*8*	CC□□21.5	**B72**	1	BFTX02506N	**1.5**	TRX08
Metric	**SCLC R/L 1010-06**	★	★	*10*	*10*	*100*	*12*	*10*			1			
Metric	**SCLC R/L 1212-09**	★	★	*12*	*12*	*100*	*16*	*12*	CC□□32.5	**B75**	1	BFTX0409N	**3.4**	TRX15
Metric	**SCLC R/L 1616-09**	★	★	*16*	*16*	*100*	*20*	*16*			1			
Metric	**SCLC R/L 2020-09**	★	★	*20*	*20*	*125*	*24*	*20*			1			

●: USA stocked item

★: Worldwide Warehouse item

N·m Recommended Tightening Torque (N·m)

SCAC / SCNC

80° 91°

● : USA stocked item
★ : Worldwide Warehouse item

General Turning
Screw-on

SCAC

External Turning

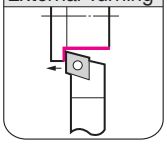


Fig 1

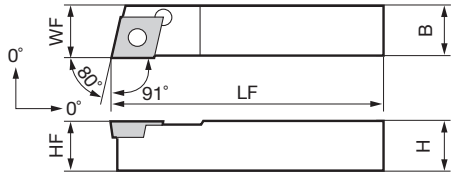


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch/ mm)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	SCAC R/L 4.5D	●	●	0.281	0.281	6.000	0.281	0.281	CC□□21.5	B72	1	ST-1225	0.9	TRD07
	SCAC R/L 052D	●	●	0.312	0.312	6.000	0.312	0.312			1			
	SCAC R/L 062B	●	●	0.375	0.375	4.500	0.375	0.375			1			
	SCAC R/L 062D	●	●	0.375	0.375	6.000	0.375	0.375			1			
	SCAC R/L 083B	●	●	0.500	0.500	4.500	0.500	0.500	CC□□32.5	B75	1	ST-1240	3.0	TRD15
	SCAC R/L 083D	●	●	0.500	0.500	6.000	0.500	0.500			1			
	SCAC R/L 103B	●	●	0.625	0.625	4.500	0.625	0.625			1			
	SCAC R/L 103D	●	●	0.625	0.625	6.000	0.625	0.625			1			
Metric	SCAC R/L 0808-06	★		8	8	100	8.5	8	CC□□21.5	B72	1	BFTX02506N	1.5	TRX08
	SCAC R/L 1010-06	★	★	10	10	100	10.5	10			1			
	SCAC R/L 1212-09	★	★	12	12	100	12.5	12	CC□□32.5	B75	1	BFTX0409N	3.4	TRX15
	SCAC R/L 1616-09	★	★	16	16	100	16.5	16			1			
	SCAC R/L 2020-09	★	★	20	20	125	20.5	20			1			

SCNC

General Turning and Profiling

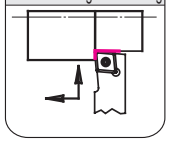
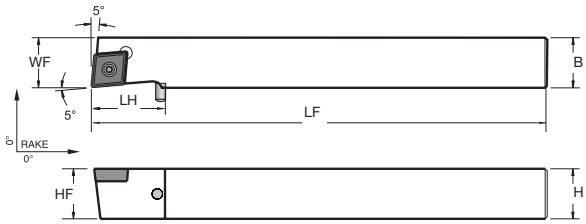


Fig 1



Right Hand Shown, Left Hand Opposite

Holder / Parts

Dimensions (inch/ mm)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head Length LH	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	SCNC R/L 062B	●	●	0.375	0.375	4.500	0.375	0.375	1.000	CC□□21.5	B72	1	TS25.456M2	0.9	TRX08
	SCNC R/L 062D	●	●	0.375	0.375	6.000	0.375	0.375	1.000			1			
	SCNC R/L 082B	●	●	0.500	0.500	4.500	0.500	0.500	1.000			1			
	SCNC R/L 083B	●	●	0.500	0.500	4.500	0.500	0.500	1.000	CC□□32.5	B75	1	TS4.710M1	3.0	TRX15
	SCNC R/L 083D	●	●	0.500	0.500	6.000	0.500	0.500	1.000			1			
	SCNC R/L 103B	●	●	0.625	0.625	4.500	0.625	0.625	1.000			1			
	SCNC R/L 103D	●	●	0.625	0.625	6.000	0.625	0.625	1.000			1			

Applicable Inserts ◀·· PCLC / SCLC / SCAC

Legend: Name of Chipbreaker/ CBN/PCD → EGU; Photo; Grade → AC8025P

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Depending on the insert size, some combinations cannot be made-to-order or manufactured.

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-ferrous) -	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material -
General Cutting	EFB T1500Z	EGU AC8025P	EMU AC8025P	ELB AC6030M	EGU AC6030M	EMU AC6040M	CBN BN7000/BNC500	EMU AC4015K	No Chipbreaker AC4015K	ESU AC5015S	PCD DA1000	CBN BNC2020	CBN BN2000	PCD DA90
High Precision	MEFF AC1030U	MESI AC1030U	EFM AC1030U	MEFF AC1030U	MESI AC1030U	EFM AC1030U	CBN BN7000/BNC500	-	-	MESI AC5015S	PCD DA1000	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
Recommended Cutting Conditions	☞ A10 on			☞ A14 on			☞ A16 on			☞ A18 on	☞ A22 on	☞ A20 on		☞ M2 on

BNC500 is for ductile cast iron.

N·m Recommended Tightening Torque (N·m)

PDJC / SDJC

Back Clamp | D 55° | 93°

● : USA stocked item
★ : Worldwide Warehouse item

General Turning and Profiling
Lever Lock

PDJC

External / Profiling

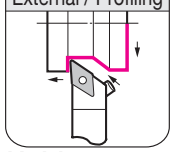
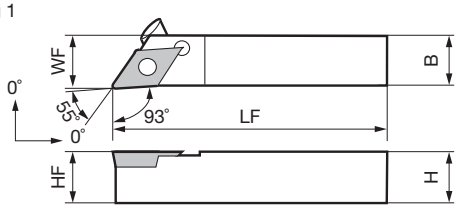


Fig 1



For PDJC R/L0810-K07

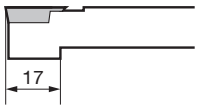


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (Inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Lever Pin	Set Screw	Pin	Wrench (For Hex Socket)
Inch	**PDJC R/L 062D**	●	●	0.375	0.375	6.000	0.395	0.375	DC□□21.5	**B82**	1	LCL06	BTT0407	LP04	TH020
Inch	**PDJC R/L 083D**	●	●	0.500	0.500	6.000	0.520	0.500	DC□□32.5	**B86**	1	LCL09	BTT0407	LP07	TH020
Inch	**PDJC R/L 103D**	●	●	0.625	0.625	6.000	0.645	0.625			1		BTT0411		
Metric	**PDJC R/L0810-K07**	★	★	*8*	*10*	*125*	*10.5*	*8*	DC□□21.5	**B82**	1	LCL06	BTT0407	LP04	TH020
Metric	**PDJC R/L1010-K07**	★	★	*10*	*10*	*125*	*10.5*	*10*			1				
Metric	**PDJC R/L1212-M11**	★	★	*12*	*12*	*150*	*12.5*	*12*	DC□□32.5	**B86**	1	LCL09	BTT0407	LP07	TH020
Metric	**PDJC R/L1616-M11**	★	★	*16*	*16*	*150*	*16.5*	*16*			1		BTT0411		
Metric	**PDJC R/L2020-M11**	★	★	*20*	*20*	*150*	*20.5*	*20*			1				

D 55° | 93°

General Turning and Profiling
Screw-on

SDJC

External / Profiling

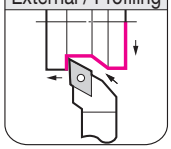


Fig 1

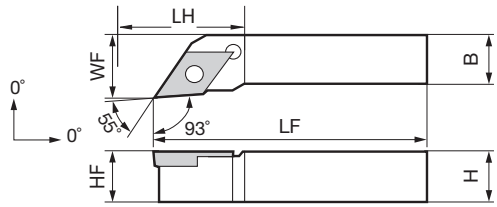


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	**SDJC R/L 062D**	★	★	0.375	0.375	6.000	0.375	0.375	0.625	DC□□21.5	**B82**	1	ST-1225	**0.9**	TRD07
Inch	**SDJC R/L 082D**	★	★	0.500	0.500	6.000	0.500	0.500	0.625			1			
Inch	**SDJC R/L 083D**	★	★	0.500	0.500	6.000	0.500	0.500	0.750	DC□□32.5	**B86**	1	ST-1240	**3.0**	TRD15
Inch	**SDJC R/L 103D**	★	★	0.625	0.625	6.000	0.625	0.625	0.750			1			
Metric	**SDJC R/L0808-07**	★		*8*	*8*	*100*	*10*	*8*	–	DC□□21.5	**B82**	1	BFTX02506N	**1.5**	TRX08
Metric	**SDJC R/L1010-07**	★	★	*10*	*10*	*100*	*12*	*10*	–			1			
Metric	**SDJC R/L1212-11**	★	★	*12*	*12*	*100*	*16*	*12*	–	DC□□32.5	**B86**	1	BFTX0409N	**3.4**	TRX15
Metric	**SDJC R/L1616H11**	★	★	*16*	*16*	*100*	*20*	*16*	–			1			
Metric	**SDJC R/L2020K11**	★	★	*20*	*20*	*125*	*24*	*20*	–			1			

Applicable Inserts ◀·· PDJC / SDJC / SDAC / SDNC

Legend: Name of Chipbreaker/ CBN/PCD → EGU; Photo; Grade → AC8025P

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Depending on the insert size, some combinations cannot be made-to-order or manufactured.

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-ferrous) –	H (Hardened Steel) Coated	H (Hardened Steel) Non-coated	Hard Brittle Material –
General Cutting	EFB T1500Z	EGU AC8025P	EMU AC8025P	ELB AC6030M	EGU AC6030M	EMU AC6030M	SUMIBORON BN7000/BNC500	EMU AC4015K	No Chipbreaker AC4015K	ESU AC5015S	SUMIDIA DA1000	SUMIBORON BNC2020	SUMIBORON BN2000	SUMIDIA DA90
High Precision	MEFF AC1030U	MESI AC1030U	EFM AC1030U	MEFF AC1030U	MESI AC1030U	EFM AC1030U	SUMIBORON BN7000/BNC500	–	–	MESI AC5015S	SUMIDIA DA1000	SUMIBORON BNC2010	SUMIBORON BN1000	SUMIDIA Binderless NPD10
Recommended Cutting Conditions	☞ A10 on			☞ A14 on			☞ A16 on			☞ A18 on	☞ A22 on	☞ A20 on		☞ M2 on

N·m Recommended Tightening Torque (N·m)

BNC500 is for ductile cast iron.

SDAC / SDNC

General Turning and Profiling
Screw-on

SDAC

External / Profiling

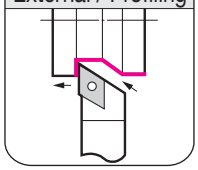


Fig 1

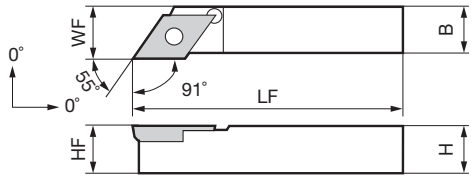


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	**SDAC R/L 062B**	●	●	0.375	0.375	4.500	0.375	0.375	0.625	DC□□21.5	**B82**	1	ST-1225	**0.9**	TRD07
	SDAC R/L 062D	●	●	0.375	0.375	6.000	0.375	0.375	0.625			1			
	SDAC R/L 082B	●	●	0.500	0.500	4.500	0.500	0.500	0.625			1			
	SDAC R/L 082D	●	●	0.500	0.500	6.000	0.500	0.500	0.625			1			
	SDAC R/L 083B	●	●	0.500	0.500	4.500	0.500	0.500	0.875	DC□□32.5	**B86**	1	ST-1240	**3.0**	TRD15
	SDAC R/L 083D	●	●	0.500	0.500	6.000	0.500	0.500	0.875			1			
	SDAC R/L 103B	●	●	0.625	0.625	4.500	0.625	0.625	0.875			1			
	SDAC R/L 103D	●	●	0.625	0.625	6.000	0.625	0.625	0.875			1			
	SDAC R/L 123D	●	●	0.750	0.750	4.500	0.750	0.750	0.875			1			
Metric	**SDAC R/L 0808-07**	★	★	*8*	*8*	*100*	*8.5*	*8*	–	DC□□21.5	**B82**	1	BFTX02506N	**1.5**	TRX08
	SDAC R/L 1010-07	★	★	*10*	*10*	*100*	*10.5*	*10*	–			1			
	SDAC R/L 1212-11	★	★	*12*	*12*	*100*	*12.5*	*12*	–	DC□□32.5	**B86**	1	BFTX0409N	**3.4**	TRX15
	SDAC R/L 1616-11	★	★	*16*	*16*	*100*	*16.5*	*16*	–			1			
	SDAC R/L 2020-11	★	★	*20*	*20*	*125*	*20.5*	*20*	–			1			

General Turning and Profiling
Screw-on

SDNC

External / Profiling

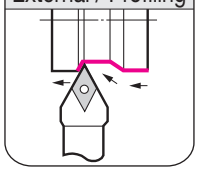
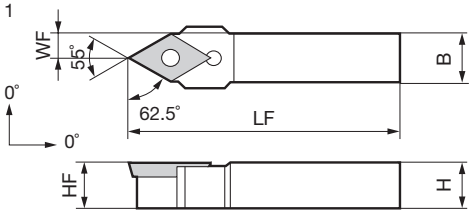
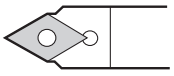


Fig 1



For SDNC N1616
SDNC N2020



Holder

Parts

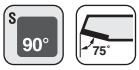
Dimensions (inch/ *mm*)

	Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	**SDNCN062B**	●	0.375	0.375	4.500	0.1875	0.375	DC□□21.5	**B82**	1	ST-1225	**0.9**	TRD07
	SDNCN062D	●	0.375	0.375	6.000	0.1875	0.375			1			
	SDNCN082B	●	0.500	0.500	4.500	0.2500	0.500			1			
	SDNCN082D	●	0.500	0.500	6.000	0.2500	0.500			1			
	SDNCN083D	●	0.500	0.500	6.000	0.2500	0.500	DC□□32.5	**B86**	1	ST-1240	**3.0**	TRD15
	SDNCN103B	●	0.625	0.625	4.500	0.3125	0.625			1			
	SDNCN103D	●	0.625	0.625	6.000	0.3125	0.625			1			
Metric	**SDNCN0808-07**		*8*	*8*	*100*	*4*	*8*	DC□□21.5	**B82**	1	BFTX02506N	**1.5**	TRX08
	SDNCN1010-07	★	*10*	*10*	*100*	*5*	*10*			1			
	SDNCN1212-11	★	*12*	*12*	*100*	*6*	*12*	DC□□32.5	**B86**	1	BFTX0409N	**3.4**	TRX15
	SDNCN1616-11	★	*16*	*16*	*100*	*8*	*16*			1			
	SDNCN2020-11	★	*20*	*20*	*125*	*10*	*20*			1			

N·m Recommended Tightening Torque (N·m)

● : USA stocked item
★ : Worldwide Warehouse item

SSBC / SSDC



General Turning
Screw-on

SSBC
External Turning

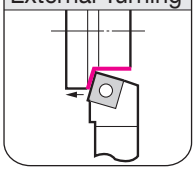


Fig 1

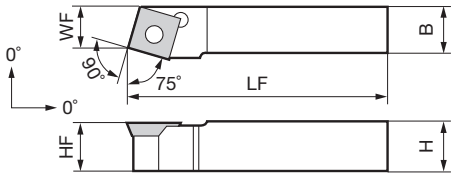


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SSBC R/L1010-07	★	★	*10*	*10*	*100*	*9*	*10*	SC□□2.51.5	**B92**	1	BFTX0307N	**2.0**	TRX10
SSBC R/L1212-09	★	★	*12*	*12*	*100*	*11*	*12*	SC□□32.5	**B93**	1	BFTX0409N	**3.4**	TRX15
SSBC R/L1616-09	★	★	*16*	*16*	*100*	*15*	*16*			1			
SSBC R/L2020-09	★	★	*20*	*20*	*125*	*19*	*20*			1			

SSDC
External Machining

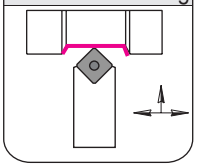
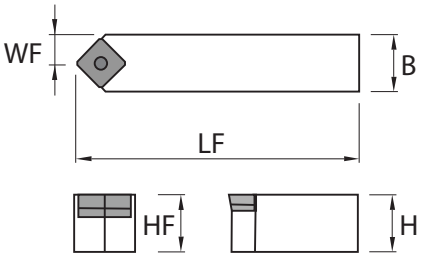


fig 1



Holder / Parts

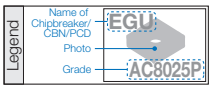
Dimensions (inch)

Cat. No.	Stock Neutral	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Shim	Insert Screw	Shim Screw	Wrench (For Torx Holes)
SSDCN083	●	0.500	0.500	3.500	0.263	0.500	SC□□32.5	**B93**	1	–	BFTX0407N	–	TRX15
SSDCN103	●	0.625	0.625	4.000	0.325	0.625			1				
SSDCN124B	●	0.750	0.750	4.500	0.263	0.750	SC□□43	**B94**	1	SH-3514	ST-1540	ST-1760	

Applicable Inserts ◀·· SSBC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Depending on the insert size, some combinations cannot be made-to-order or manufactured.



Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	N (Non-ferrous) –
General Cutting	EFB T1500Z	EGU AC8025P	EMU AC8025P	ELB AC6030M	EGU AC6030M	EMU AC6040M	EMU AC4015K	No Chipbreaker AC4015K	SUMIDIA DA1000
High Precision	FX T1500A	EFM AC1030U	EFM AC1030U	FX AC1030U	EFM AC1030U	EFM AC1030U	–	–	SUMIDIA DA1000
Recommended Cutting Conditions	☞ A10 on			☞ A14 on			☞ A16 on		☞ A22 on

● : USA stocked item

★ : Worldwide Warehouse item

N·m Recommended Tightening Torque (N·m)

STAC / STGC / STJC

● : USA stocked item
★ : Worldwide Warehouse item

General Turning
Screw-on

STAC

External Turning

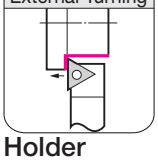


Fig 1

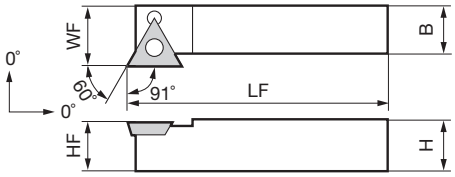


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (inch / mm)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw		Wrench (For Torx Holes)
Inch	STAC R/L 062B	●	●	0.375	0.375	4.500	0.375	0.375	TC□□21.5	B104	1	ST-21.5		TRX08
	STAC R/L 062D	●	●	0.375	0.375	6.000	0.375	0.375			1			
	STAC R/L 082B	●	●	0.500	0.500	4.500	0.500	0.500			1			
	STAC R/L 082D	●	●	0.500	0.500	6.000	0.500	0.500			1			
	STAC R/L 102D	●	●	0.625	0.625	6.000	0.625	0.625			1			
	STAC R/L 103B	●	●	0.625	0.625	4.500	0.625	0.625	TC□□32.5	B106	1	ST-32.5		TRX15
	STAC R/L 103D	●	●	0.625	0.625	6.000	0.625	0.625			1			
Metric	STAC R/L 0808-09		★	8	8	100	8.5	8	TC□□1.81.5	B103	1	BFTX02205N	0.5	TRX06
	STAC R/L 1010-09	★		10	10	100	10.5	10			1			
	STAC R/L 1010-11*			10	10	100	12	10	TC□□21.5	B104	1	BFTX02506N	1.5	TRX08
	STAC R/L 1212-11	★	★	12	12	100	12.5	12			1			
	STAC R/L 1616-11	★	★	16	16	100	16.5	16			1			
	STAC R/L 1616-16*			16	16	100	20	16	TC□□32.5	B106	1			
	STAC R/L 2020-11	★	★	20	20	125	20.5	20	TC□□21.5	B104	1			

STGC

External Turning

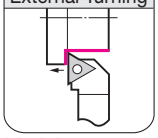


Fig 1

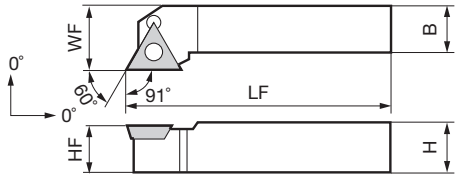


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (mm)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw		Wrench (For Torx Holes)
STGC R/L0808-09	★		8	8	100	10	8	TC□□1.81.5	B103	1	BFTX02205N	0.5	TRX06
STGC R/L1010-09	★	★	10	10	100	12	10			1			
STGC R/L1212-11	★	★	12	12	100	16	12	TC□□21.5	B104	1	BFTX02506N	1.5	TRX08
STGC R/L1616-11	★	★	16	16	100	20	16			1			
STGC R/L2020-11	★	★	20	20	125	25	20			1			

STJC

External Turning and Facing

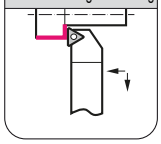


Fig 1

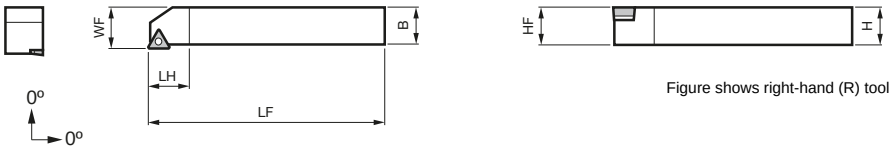


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (inch)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	Wrench (For Torx Holes)
STJC R/L 062D	●	●	0.375	0.375	6.000	0.375	0.375	0.625	TC□□21.5	B104	1	ST-1225	TRD07
STJC R/L 082D	●	●	0.500	0.500	6.000	0.500	0.500	0.625			1		
STJC R/L 102D	●	●	0.625	0.625	6.000	0.625	0.625	0.625					

Applicable Inserts ◀·· STGC / STAC

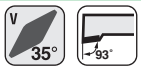
1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Depending on the insert size, some combinations cannot be made-to-order or manufactured.

Legend: Name of Chipbreaker/CBN/PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	N (Non-ferrous)
General Cutting	ELU T1500Z	ESU AC8025P	ESU AC8025P	ELB AC6030M	ESU AC6030M	ESU AC6040M	EMU AC4015K	No Chipbreaker AC4015K	SUMIDIA DA1000
High Precision	FX AC1030U	MESI AC1030U	EFM AC1030U	FX AC1030U	MESI AC1030U	EFM AC1030U	–	–	SUMIDIA DA1000
Cutting Conditions	A10 on			A14 on			A16 on		A22 on

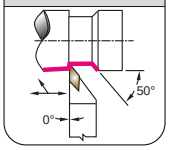
SVAB / SVLC / SVPC

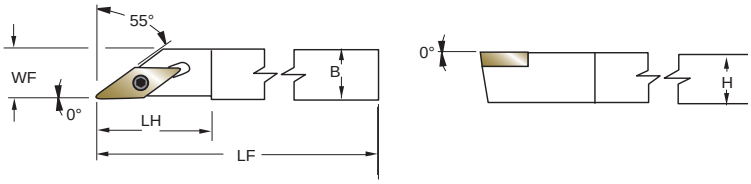


General Turning and Profiling
Screw-on

SVAB

Profiling Multipurpose





Holder / Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Insert Screw	N·m	Wrench (For Torx Holes)
SVAB R/L 062D	★	★	.375	.375	4.500	.375	.375	.875	VB□□22□	B120	1	TS-25.45-8M2	1.5	TRX08
SVAB R/L 082D	★	★	.500	.500	6.000	.500	.500	.875			1			
SVAB R/L 103B	★	★	.625	.625	6.000	.625	.625	1.375	VB□□33□	B121	1	ST-32.5		TRX15
SVAB R/L 103D	★	★	.625	.625	6.000	.625	.625	1.375			1			

General Turning and Profiling
Screw-on

SVLC

External / Profiling

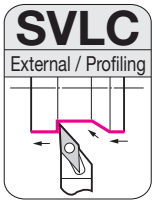


Fig 1

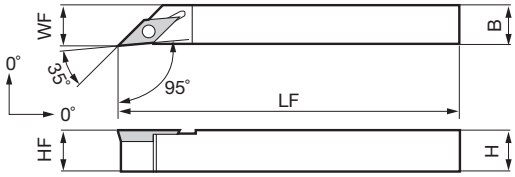


Figure shows right-hand (R) tool.

Holder / Parts

*Old Cat. No. SVLC R/L 2020-H11

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SVLC R/L 1010-H11	★	★	10	10	100	10.5	10	VC□□22□	B122	1	BFTX02508NV	1.5	TRX08
SVLC R/L 1212-H11	★	★	12	12	100	12.5	12			1			
SVLC R/L 1616-H11	★	★	16	16	100	16.5	16			1			
SVLC R/L 2020-K11*	★	★	20	20	125	20.5	20			1			

General Turning and Profiling
Screw-on

SVPC

Necking

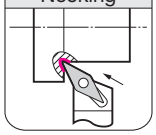


Fig 1

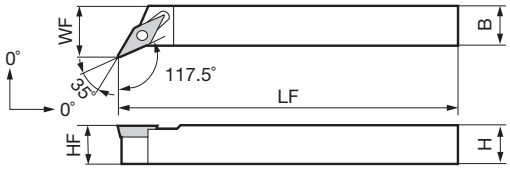


Figure shows right-hand (R) tool.

Holder / Parts

*Old Cat. No. SVPC R/L 2020-H11

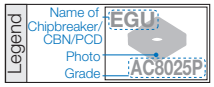
Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SVPC R/L 1010-H11	★	★	10	10	100	14.5	10	VC□□22□	B122	1	BFTX02508NV	1.5	TRX08
SVPC R/L 1212-H11	★	★	12	12	100	16.5	12			1			
SVPC R/L 1616-H11	★	★	16	16	100	20.5	16			1			
SVPC R/L 2020-K11*	★	★	20	20	125	24.5	20			1			

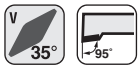
Applicable Inserts ◀·· SVAB / SVLC / SVPC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Depending on the insert size, some combinations cannot be made-to-order or manufactured.



Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	K (Cast Iron) High-speed Finishing	S (Exotic Alloy) Finishing to Medium Cutting	S (Exotic Alloy) Medium to Roughing	N (Non-ferrous) –	H (Hardened Steel) Coated	H (Hardened Steel) Non-coated	Hard Brittle Material Finishing
General Cutting	EFB T1500Z	EGU AC8025P	EFC AC1030U	EGU AC6030M	CBN BN7000	ESU AC5015S	ESU AC5025S	PCD DA1000	CBN BNC2020	CBN BN2000	PCD DA90
High Precision	MEFF T1500A	MESI AC1030U	MEFF AC1030U	MESI AC1030U	CBN BN7000	EFC AC5015S	MESI AC5015S	PCD DA1000	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
Recommended Cutting Conditions	A10 on		A14 on		A16 on	A18 on		A22 on	A20 on		M2 on



General Turning and Profiling
Screw-on

SVLP
External / Profiling

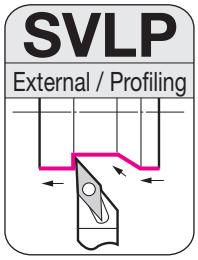


Fig 1

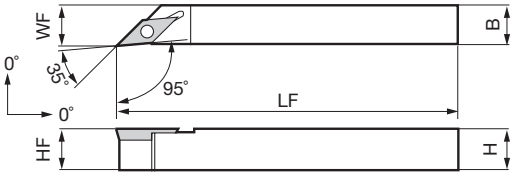


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SVLP R/L 1010-H11	★	★	*10*	*10*	*100*	*10.5*	*10*	VP□□22	**B127**	1	BFTX02508NV	**1.5**	TRX08
SVLP R/L 1212-H11	★	★	*12*	*12*	*100*	*12.5*	*12*			1			
SVLP R/L 1616-H11	★	★	*16*	*16*	*100*	*16.5*	*16*			1			

General Turning and Profiling
Screw-on

SVPP
Undercutting

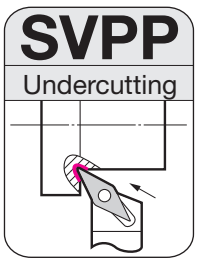


Fig 1

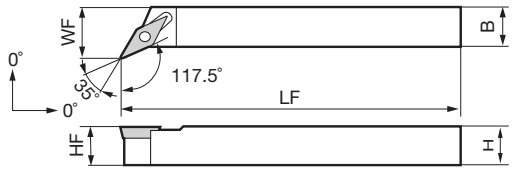


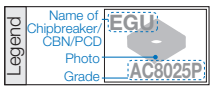
Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
SVPP R/L 1010-H11	★	★	*10*	*10*	*100*	*14.5*	*10*	VP□□22	**B127**	1	BFTX02508NV	**1.5**	TRX08
SVPP R/L 1212-H11	★	★	*12*	*12*	*100*	*16.5*	*12*			1			
SVPP R/L 1616-H11	★	★	*16*	*16*	*100*	*20.5*	*16*			1			

Applicable Inserts ◀·· SVLP / SVPP



1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Depending on the insert size, some combinations cannot be made-to-order or manufactured.

Process \ Cutting Range	P (Steel)	M (Stainless Steel)
	Finishing	Finishing
High Precision	FX **ACZ150**	FX **ACZ150**
Recommended Cutting Conditions	☞ **A24** on	☞ **A24** on

N·m Recommended Tightening Torque (N·m)

★: Worldwide Warehouse item

Boring Bars E

E1 to E82

Selection Guide for Boring Tools by Tooling E2
Boring Bars Identification Table..... E4
Selection Guide for Boring Bars E6
Boring Tools Series E8
Twin Head Holders for Multi-functional Small Lathe Tools E10

Boring Bars

A-MCLN / S-DCLN..... E12
S-PCLN / S-ECLN E13
D-DCLN / B-PCLN E14
A-MDQN / A-MDUN E15
S-DDQN / S-DDUN E16
S-PDUN / S-PDZN / S-EDUN E17
S-EDZN / D-DDQN..... E18
D-DDUN / BMDLN E19
S-DSKN..... E20
S-PSKN / S-PSYN E21
S-ESKN..... E22
A-MTFN / S-DTFN E23
S-PTFN / S-ETFN E24
D-DTFN / B-PTFN E25
A-MVUN / D-DVUN E26
TREX E27
A-MWLN / S-DWLN E28
S-PWLN / D-DWLN E29
A-SCLC E30
S-SCLC / E-SCLC E31
C-SCLC / D-SCLC E32
B-SCLC..... E33
A-SCFP / A-SCLP E34
S-SCLP / C-SCLP E35
B-SCLP / D-SCLP E36
BSCLO / CSCLO E37
A-SDQC / A-SDUC / E-SDUC E38
S-SDQC / S-SDUC..... E39
S-SDZC / C-SDUC..... E40
BSDJO / B-SDQC / B-SDUC E41
D-SDUC / A-SDUP / A-SDXP E42
S-SSKC..... E43
S-SSKP / C-SSKP E44
S-CSKP / BSSKO E45
C-STUB / C-STUP E46
A-STFC / E-STFC / D-STUC E47
A-STFP / A-STUP E48
S-CTFP E49
E-STFP / E-STUP E50
CSTJO / D-STUP E51
BSTJO / B-STUP / BCTJP E52
A-SVQB / A-SVUB / S-SVJB E53
S-SVQB / S-SVUB E54
C-SVQB / C-SVUB / C-SVZB E55
B-SVJB / B-SVQB E56
B-SVUB / B-SVZB / D-SVUB / D-SVZB E57
A-SVQC / A-SVUC E58
S-SVJC / S-SVQC E59
S-SVUC / S-SVZC E60
S-SWUB / CSWJO E61
C-SWUB / BSWJO E62
S-SWUP / A-SWLP..... E63

Very Small Diameter Turning

MINI Boring Tool Holders
CKB E64

Small Diameter Turning

Solid Carbide Bars
BXBR E69
SUMIBORON Small Hole Boring Bars
BSME E70
SEXC E71
BNBX E72
BNZ E73
BNB / BNC E74
SUMIDIA Small Diameter Boring Bars
DABB E75

Stock Markings and Symbols		
	●: Standard stocked item ▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability).	★: Worldwide Warehouse Item Blank: Made-to-order item – mark: Not available

Selection Guide by Tooling

Applications		Bottom Facing		Profiling			Back Turning	
Insert Shape / Structure/Shank Material		80° Diamond Type C		55° Diamond Type D	35° Diamond Type V		55° Diamond Type D	35° Diamond Type V
Screw-on	Steel	S-SCLP [BBPC]	S-SCLC	S-SDUC S-SDQC	S-SVUC S-SVUB	S-SVQC S-SVQB	S-SDZC	S-SVZC S-SVZB
		A-SCLP Oil Hole	A-SCLC Oil Hole	A-SDUC Oil Hole A-SDQC Oil Hole	A-SVUC Oil Hole A-SVQC Oil Hole	—	—	—
	Steel with Anti-Vibration Mechanism	B-SCLP/D-SCLP Oil Hole [XBPC/XBPC-H]	B-SCLC	B-SDUC B-SDQC	B-SVUB B-SVQB	—	—	B-SVZB
	Carbide	C-SCLP [WBPC]	C-SCLC E-SCLC Oil Hole	C-SDUC	C-SVUB C-SVQB	—	—	C-SVZB
Clamp-on/Double Clamp	Steel	S-DCLN	—	S-DDUN S-DDQN	—	—	—	—
	Steel with Anti-Vibration Mechanism	D-DCLN Oil Hole	—	D-DDUN Oil Hole	—	—	—	—
	Carbide	—	—	—	—	—	—	—
Lever Lock	Steel	S-PCLN	—	S-PDUN	—	—	S-PDZN	—
	Steel with Anti-Vibration Mechanism	B-PCLN	—	—	—	—	—	—
Pin Lock	Steel	S-ECLN [BCLN]	—	S-EDUN [BDUN]	—	—	S-EDZN [BDZN]	—
Special Double Clamp	T-REX Tool Holders	—	—	S-DTR55C T-REX	—	—	—	—
CBN	Carbide	BNZ	—	—	—	—	—	—

Symbols in [ ] indicate the previous product types Oil Hole: With oil hole

Selection Guide by Tooling

Applications		Spherical Internal Facing	Through Boring			Stop Boring		
Insert Shape / Structure/Shank Material		35° Diamond V	Trigon W / Others	Square S	Trigon W	/ Others	Triangular T	/ Others
Screw-on	Steel	S-SVJB S-SVJC	S-SWUB [BBPW] S-SWUP	S-SSKP [BBPS] S-SSKC	S-SWUB [BBPW] S-SWUP	—	S-STUP/S-STUB [BBPT]	—
		—	—	—	—	—	A-STUP Oil Hole	—
	Steel with Anti-Vibration Mechanism	B-SVJB	—	—	—	—	B-STUP/D-STUP Oil Hole [XBPT/XBPT-H]	—
	Carbide	—	C-SWUB [WBPW]	C-SSKP [WBPS]	C-SWUB [WBPW]	—	C-STUP/C-STUB [WBPT]	E-STUP Oil Hole [WBPT-H]
Clamp-on/Double Clamp	Steel	—	—	S-DSKN	CKB	S-DWLN	S-DTFN	—
	Steel with Anti-Vibration Mechanism	—	—	—	D-DWLN Oil Hole	—	D-DTFN Oil Hole	—
Lever Lock	Steel	—	—	S-PSKN S-PSYN	S-PWLN	—	S-PTFN	—
	Steel with Anti-Vibration Mechanism	—	—	—	—	—	B-PTFN	—
Pin Lock	Steel	—	—	S-ESKN [BSKN] S-ESYN [BSYN]	—	—	S-ETFN [BTFN]	—
Solid	Carbide	—	—	—	BXBR	—	—	—
CBN	Carbide	—	—	—	BSME Oil Hole	BNBX	BNB	SEXC Oil Hole

Symbols in [ ] indicate the previous product types Oil Hole: With oil hole

Boring Bars Identification Table - Inch

Example: A16MCLNR3

A — Boring Bar Type

A — Solid Steel Bar with Coolant Hole

B — Solid Steel Bar with Anti-Vibration Device

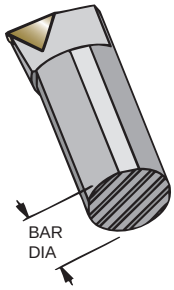
C — Solid Carbide Bar

D — Solid Steel Bar with Anti-Vibration Device and coolant hole

E — Carbide Bar with Fixed Steel Head & Coolant Hole

S — Solid Steel Bar

16 — Boring Bar Diameter



This indicates D dimensions in sixteenths (1/16).

examples:

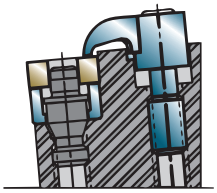
08 = 8/16 = 1/2" Diameter

16 = 16/16 = 1.0" Diameter

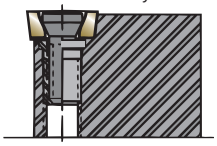
24 = 24/16 = 1-1/2" Diameter

M — Insert Holding

M — Clamp and Lock Pin



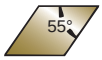
S — Screw Lock Only



C — Insert Shape

C — Diamond

D — Diamond



R — Round

S — Square

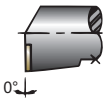
T — Triangle

V — Diamond

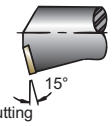
W — Trigon

L — Boring Bar Style

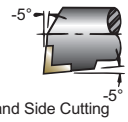
F — 0° End Cutting



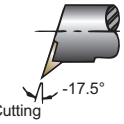
K — 15° End Cutting



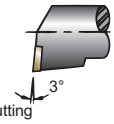
L — -5° End and Side Cutting



Q — -17.5° End Cutting



U — -3° End Cutting



X — -5° Back Facing/Boring

C — Insert Relief Angle

B

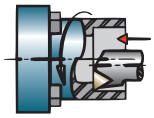
C

N

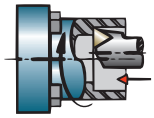
P

R — Hand

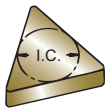
R — Right Hand



L — Left Hand



3 — Insert Size



For equal sided inserts this indicates the inscribed circle (I.C.) in eighths (1/8).

examples,

6 = 6/8 = 3/4" I.C.

4 = 4/8 = 1/2" I.C.

3 = 3/8 = 3/8" I.C.

2.5 = 2.5/8 = 5/16" I.C.

Boring Bars Identification Table - Metric

■ Catalog Classification System for Boring Bars (Round Shank) [CIS Standard]

Example: **S 16 R — S T U P R 11 03 - 18**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
S	16	R	S	T	U	P	R	11	03	18
(1) Shank Material — Refer to Table 1	(2) Shank Diameter — mm	(3) Shank Length — Refer to Table 3	(4) Clamping System — Refer to Table 4	(5) Insert Shape — Refer to Table 5	(6) Holder Style — Refer to Table 6	(7) Insert Relief Angle — Refer to Table 7	(8) Feed Direction — Refer to Table 8	(9) Insert Cutting Edge Length — mm	(10) Insert Thickness * — mm	(11) Min. Bore Diameter * — mm

* This code may only be included in some of the product codes

Table 1

(1) Shank Material	
Symbol	Shank Material
S	Steel Shank
A	Steel Shank with Oil Hole
B	Steel Shank with Anti-Vibration Mechanism
D	Steel Shank with Anti-Vibration Mechanism and Oil Hole
C	Carbide Shank
E	Carbide Shank with Oil Hole

Table 3

(3) Shank Length					
Symbol	Length (*mm*)	Symbol	Length (*mm*)	Symbol	Length (*mm*)
F	*80*	M	*150*	T	*300*
G	*90*	N	*160*	U	*350*
H	*100*	P	*170*	V	*400*
J	*110*	Q	*180*	W	*450*
K	*125*	R	*200*		
L	*140*	S	*250*		

Table 4

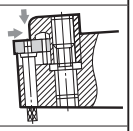
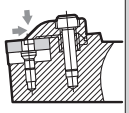
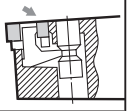
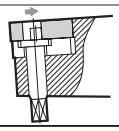
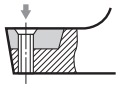
(4) Clamping System					
Symbol	Clamp	Structure	Symbol	Clamp	Structure
C	Clamp-on		M	Clamp-on + Pin Lock	
D	Double Clamp		P	Lever Lock (insert supported by 2 faces)	
E	Pin Lock (insert supported by 1 face)		S	Screw-on	

Table 8

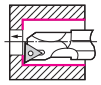
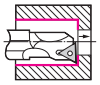
(8) Feed Direction			
Symbol	Right Hand	Symbol	Left Hand
R		L	

Table 5

(5) Insert Shape			
Symbol	Insert Shape	Symbol	Insert Shape
A	85° Angle Parallelogram	M	86° Apex Angle Diamond
B	82° Angle Parallelogram	O	Octagonal
C	80° Apex Angle Diamond	P	Pentagonal
D	55° Apex Angle Diamond	R	Round
E	75° Apex Angle Diamond	S	Square
F	50° Apex Angle Diamond	T	Triangular
H	Trigon	V	35° Apex Angle Diamond
K	55° Angle Parallelogram	W	Uneven Trigon
L	Rectangular		

Table 6

(6) Holder Style (— indicates major cutting edge)					
Symbol	Shape	Offset	Symbol	Shape	Offset
A	90°	No	N	63°	No
B	75°	No	Q	107.5°	Yes
D	45°	No	R	75°	Yes
E	60°	No	S	45°	Yes
F	90°	Yes	T	60°	Yes
G	90°	Yes	U	93°	Yes
J	93°	Yes	W	60°	Yes
K	75°	Yes	Y	85°	Yes
L	95°	Yes	Z	93°	Yes

Table 7

(7) Insert Relief Angle	
Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special Angle

■ Catalog Classification System for Boring Bars (Round Shank) [SEH Standard]

Example: **WB P T — 2 12 R (H) (14)**

BB	Steel Shank Boring Bar
WB	Carbide Shank Boring Bar
XB	Steel Shank Boring Bar with Anti-Vibration Mechanism

P	Positive Insert

Symbol	T	S	C
Insert Shape	Triangular	Square	80° Diamond

(H): W/ Oil Hole

(14): Min. Bore diameter

Symbol	R	L
Direction	Right	Left

Symbol	08	10	12	16	20	25
Shank Diameter (*mm*)	*8*	*10*	*12*	*16*	*20*	*25*

Symbol	5	6	2	0	3	4
Insert Inscribed Circle (*mm*)	*3.97*	*4.76*	*6.35*	*7.94*	*9.525*	*12.70*

Selection Guide for Boring Bars

Applications	Tool	Shank Material Depth of Cut (L/D) Steel	Carbide	Anti-vibration	Applicable Insert and Shape	Tooling
Very Small Dia. Boring	CKB E64	up to 3			Coated Carbide and Dedicated PCD Inserts	
	BXBR E69		up to 5		Coated Carbide	
	DABB E75		up to 2		Brazed PCD	
Stop Boring	BSME (Oil Hole) E70		up to 4		Brazed CBN	
	SEXC (Oil Hole) E71		up to 3		CBN Dedicated Inserts	
	BNBX E72		up to 5		Brazed CBN	
	BNB E74		up to 4		CBN Dedicated Inserts	
	A-STUP (Oil Hole) E48	up to 3				
	B-STUP [XBPT] E52			up to 6		
	D-STUP (Oil Hole) [XBPT-H] E51			up to 6		
	C-STUP(B) [WBPT] E46		up to 8			
	E-STUP (Oil Hole) [WBPT-H] E50		up to 8			
	S-CTFP E49	up to 3			Triangular 11° Pos. (Without Hole)	
	S-PTFN E24	up to 3				
	B-PTFN E25			up to 6		
	S-DTFN E23	up to 3				
	D-DTFN (Oil Hole) E25			up to 6		
	S-ETFN [BTFN] E24	up to 3			Triangular Negative (With Hole)	
Bottom Facing	BNZ E73		up to 5		CBN Dedicated Inserts	
	S-SCLC E31	up to 3				
	A-SCLC (Oil Hole) E30	up to 3				
	B-SCLC E33			up to 6	80° Diamond 7° Positive (With Hole)	

Symbols in [ ] indicate the previous product types (Oil Hole): With oil hole

Applications	Tool	Shank Material Depth of Cut (L/D) Steel	Carbide	Anti-vibration	Applicable Insert and Shape	Tooling
Bottom Facing	C-SCLC E32		up to 8		80° Diamond 7° Positive (With Hole)	
	E-SCLC (Oil Hole) E31		up to 8			
	S-SCLP E35	up to 3				
	B-SCLP E36			up to 6		
	D-SCLP (Oil Hole) E36			up to 6		
	C-SCLP E35		up to 8		80° Diamond 11° Positive (With Hole)	
	S-DCLN E12	up to 3				DCLN Type
	D-DCLN (Oil Hole) E14			up to 6		
	S-PCLN E13	up to 3				PCLN/ECLN Type
	B-PCLN E14			up to 6		
	S-ECLN E13	up to 3			80° Diamond Negative (With Hole)	
	D-DWLN (Oil Hole) E29			up to 6		
	S-DWLN E28	up to 3				
	S-PWLN E29	up to 3			Trigon Negative (With Hole)	
Profiling	S-SDUC S-SDQC E39	up to 3				SDUC Type SDQC Type
	A-SDUC (Oil Hole) A-SDQC (Oil Hole) E38	up to 3				
	B-SDUC B-SDQC E41			up to 6		
	C-SDUC E40		up to 8			
	S-SDZC E40	up to 3			55° Diamond 7° Positive (With Hole)	
	B-SVJB E56			up to 6		
	S-SVJC E59	up to 3				
	S-SVQC S-SVUC E59, E60	up to 3				SVU□/SVQ□ Type
	A-SVUC (Oil Hole) E58	up to 3				
	A-SVQC (Oil Hole) E58	up to 3			35° Diamond 5° Positive (With Hole) 7° Positive (With Hole)	

(Oil Hole): With oil hole

: Steel Shank : Carbide Shank : Steel Shank with Anti-Vibration Mechanism

Colored box: Manufacturable size (no oil hole), (H): In stock with oil hole

Selection Guide for Boring Bars

Applications	Tool	Shank Material Depth of Cut (L/D) Steel	Carbide	Anti-vibration	Applicable Insert and Shape	Tooling
Profiling	S-SVQB S-SVUB E54	up to 3			35° Diamond 5° Positive (With Hole) 7° Positive (With Hole)	SVU□/ SVQ□ Type
	B-SVQB B-SVUB E56, E57			up to 6		
	C-SVQB C-SVUB E55		up to 8			
	S-SVZC E60	up to 3				
	B-SVZB E57			up to 6		
	C-SVZB E55		up to 8			
	S-DDQN E16	up to 3			55° Diamond Negative (With Hole)	
	S-DDUN E16	up to 3				
	D-DDUN Oil Hole E19			up to 6		
	S-PDUN E17	up to 3				
	S-EDUN E17	up to 3				
	S-PDZN E17	up to 3				
	S-EDZN E18	up to 3				
	S-DTR55C E27	up to 3			Dedicated T-REX Inserts	
Through Boring	S-SWUB E61	up to 3			Trigon 5° Positive (With Hole) 11° Positive (With Hole)	
	C-SWUB E62		up to 8			
	S-SWUP E63	up to 3				
	S-SSKP E44	up to 3			Square 11° Positive (With Hole)	
	C-SSKP E44		up to 8			
	S-SSKC E43	up to 3			Square 7° Pos. (With Hole)	
	S-CSKP E45	up to 3			Square 11° Pos. (Without Hole)	
	S-DSKN E20	up to 3			Square Negative (with hole)	
	S-PSKN E21	up to 3				
	S-PSYN E21	up to 3				
	S-ESKN E22	up to 3				

Oil Hole: With oil hole

: Steel Shank : Carbide Shank : Steel Shank with Anti-Vibration Mechanism

Colored box: Manufacturable size (no oil hole), H: In stock with oil hole

■ General Features

Since its launch in 1976, our industry leading Boring Bar Series with its steel/carbide shank holders and high rigidity heads has since included the popular Small Diameter Boring Bars and now the SumiTurn X-Bars with it's anti-vibration mechanism, optimized insert grades and chipbreakers.

■ Features of Boring Bars

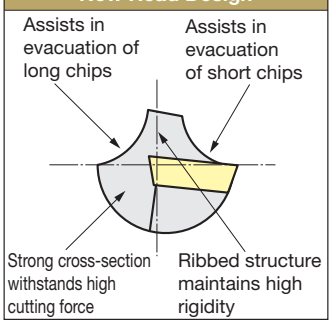
- Applicable to a wide range of applications such as Stop-Boring/Bottom Facing/Through-Boring/Profiling
- Min. machining diameter: ø1mm for CKB Type, ø5mm for C-SCLC
- Anti-vibration boring bar SumiTurn X-Bar
- Carbide short shank type usable on turret lathes without shortening (C16M-STUP, C20M-STUP)
- Wide selection of insert grades and chipbreakers available for various work materials

■ Steel Shank Type with Anti-Vibration Mechanism

SumiTurn X Bar

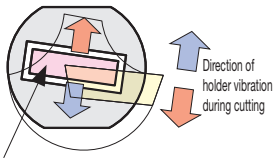
- Higher anti-chatter capability for effective rough boring of deep holes
- Achieves low-cost boring of large diameters and deep holes, with *ø32mm* shank now in stock
- Excellent chip evacuation with double chip pockets
- Bars with internal coolant hole are also in stock
- Negative insert holders (shank dia. ø25 to ø50mm) are now in stock

Excellent Chip Evacuation
New Head Design



ECKS Anti-Vibration Mechanism
Effective Chatter Killer System

X-Bar Construction



Flat impact counter-weight effectively reduces chattering and antiphase.
Stops chattering in its tracks!

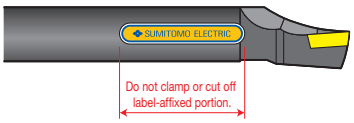
■ Shank Material Selection

SumiTurn X Bar

Application \ Shank Material		Steel	Steel with Anti-Vibration Mechanism	Carbide
General Steel	Shallow Holes (L/D < 3)	⊙		
	Deep Boring (L/D > 3)		⊙	⊙
High efficiency boring with wiper insert			●	⊙
Hardened Steel			—	⊙
High-precision Machining				⊙

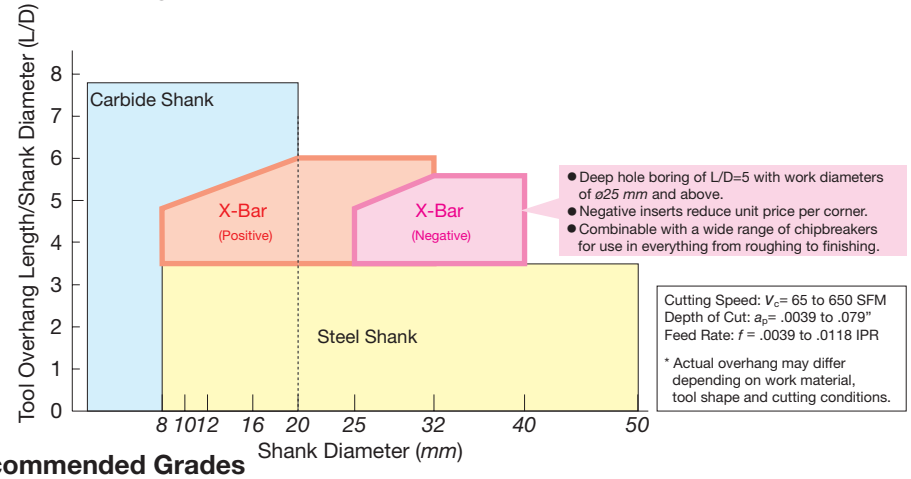
⊙1st Recommendation ● 2nd Recommendation

⚠ Precautions for Clamping Position on Steel Shank with Anti-Vibration Mechanism

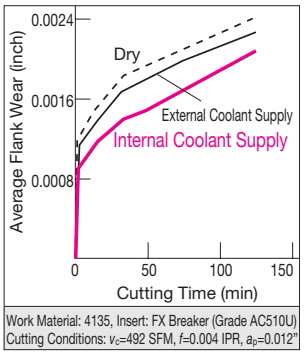


Clamping a shank on the " SUMITOMO ELECTRIC " label-affixed portion may disturb normal functioning (due to built-in Anti-Vibration mechanism).
Therefore, minimum tool overhang length is kept to 3.5D (shank diameter x 3.5). This is a dedicated turning tool. It cannot be used as a rotating tool.

■ Application Range by Shank Type



■ Wear Comparison by Coolant Supply Method



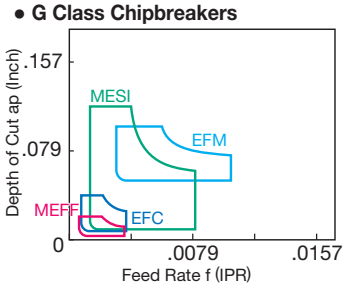
■ Recommended Grades

Insert Grade		Application Range: High Precision	Finishing to Light Cutting	Medium Cutting	P General Steel	M Stainless Steel	K Cast Iron	S Heat-Resistant Alloy	H Hardened Steel	N Non-Ferrous Metals	Sintered Alloy
Coated Carbide	CVD		AC8015P		◎						
			AC8020P		◎						
			AC8025P		◎		○				
			AC8035P		◎	○					
			AC6020M		○	◎					
			AC6030M		○	◎					
			AC4010K				◎				
			AC4015K				◎				
			AC420K				◎				
	PVD	ACZ150			◎	◎				○	
		AC5015S			○		○	◎			
		AC5025S			○	○	○	◎			
		AC530U			◎	◎	○	○		○	
		AC1030U			◎	◎	○	○		○	
				AC6040M		◎					
Uncoated Cermet Coated Cermet		T1000A			◎	○	◎				○
			T1500A/T1500Z		◎	○	○				
			T2500Z		◎	○	○				
Cemented Carbide			G10E				◎			○	
CBN (SUMIBORON)		BN1000							◎		
			BN2000						◎		
		Expansion BNC2105							◎		
			BNC2115						◎		
			BNC2125						◎		
			BNC2010						○		
			BNC2020						○		
				Expansion BN7125			◎	○			○
		BN7115									◎
PCD (SUMIDIA)			DA1000							◎	
			DA150							◎	

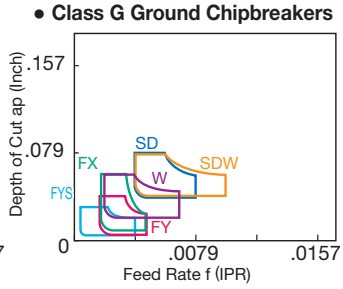
◎ 1st Recommendation ○ 2nd Recommendation

■ Recommended Chipbreakers

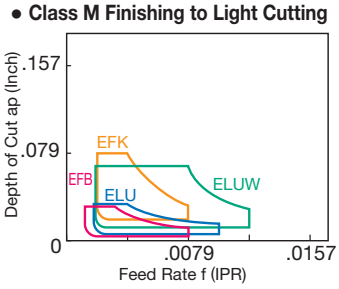
● G Class Chipbreakers



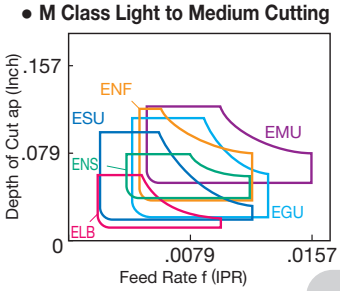
● Class G Ground Chipbreakers



● Class M Finishing to Light Cutting



● M Class Light to Medium Cutting



Twin Head Holder

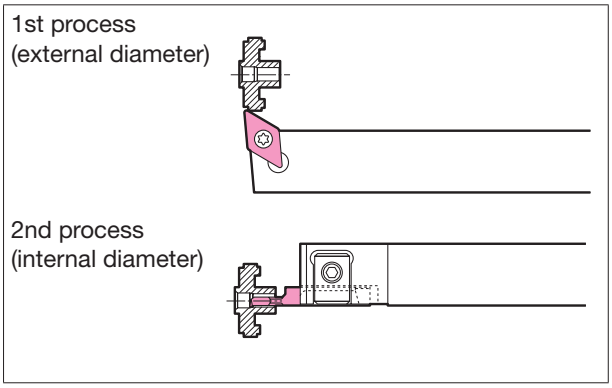
TWIN HEAD

■ Features

- Having one holder that performs two operations is equivalent to mounting an additional tool on the drill sleeve toolpost.
- External turning possible with the aid of a drill sleeve.
- 2 holder configurations, internal + external and internal + internal, are standard stocked items.
- Center height difference of the 2 cutting edges is below 40μm, which is good for high precision machining.

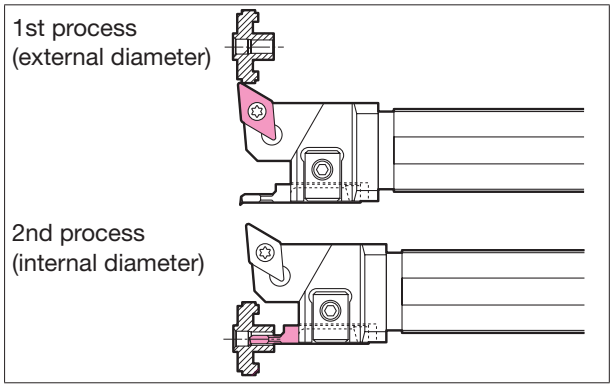
■ Advantages of the Twin Head Holder

• Conventional Tool



· 2 different operations requiring 2 separate tools.

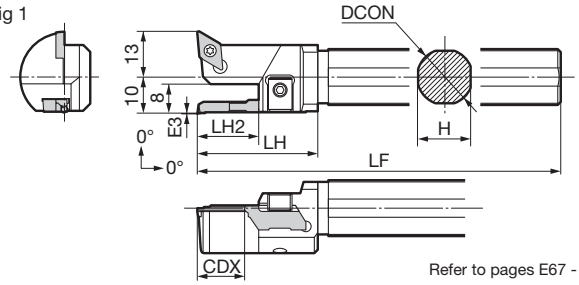
• Twin Head Holder



· A single tool performing 2 different operations.

· Toolpost moving time can also be reduced.

Fig 1



Internal + External Diameter Machining Screw-on + Clamp-on

Refer to pages E67 - E68.

Holder (Internal Machining, Depth of Cut *6.0mm*)

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Head LH	Depth of Cut CDX	Head LH2	*Max. Work Material	For Internal Diameter Machining Insert	For External Turning Insert	Fig
S1588X-CKBE-06	★	*15.875*	*15*	*130*	*27*	*6*	*10*	*12.0*	KBMX R○○06-○○ KBMX R○○06-○○T	DC□□21.5	1
S16X-CKBE-06	★	*16*	*15*	*130*	*27*	*6*	*10*	*12.0*			1
S1905X-CKBE-06	★	*19.05*	*17*	*130*	*27*	*6*	*10*	*12.0*			1
S20X-CKBE-06	★	*20*	*18*	*130*	*27*	*6*	*10*	*12.0*			1
S22X-CKBE-06	★	*22*	*20*	*130*	*27*	*6*	*10*	*12.0*			1

* When machining internal diameter

Holder (Internal Machining, Depth of Cut *11.0mm*)

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Head LH	Depth of Cut CDX	Head LH2	*Max. Work Material	For Internal Diameter Machining Insert	For External Turning Insert	Fig
S1588X-CKBE-11	★	*15.875*	*15*	*130*	*32*	*11*	*15*	*12.0*	KBMX R○○11-○○ KBMX R○○11-○○T	DC□□21.5	1
S16X-CKBE-11	★	*16*	*15*	*130*	*32*	*11*	*15*	*12.0*			1
S1905X-CKBE-11	★	*19.05*	*17*	*130*	*32*	*11*	*15*	*12.0*			1
S20X-CKBE-11	★	*20*	*18*	*130*	*32*	*11*	*15*	*12.0*			1
S22X-CKBE-11	★	*22*	*20*	*130*	*32*	*11*	*15*	*12.0*			1

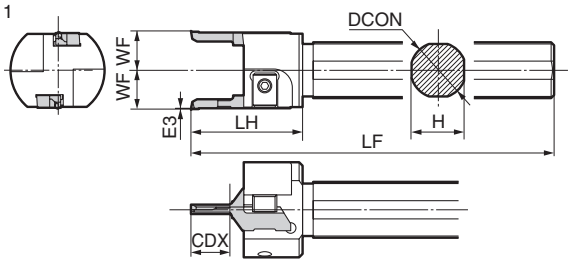
* When machining internal diameter

Internal Diameter Inserts ☞ E67 to E68 External Diameter Inserts ☞ B82 to B85

Twin Head Holder

Internal Diameter Machining, Face Grooving
Clamp-on

Fig 1



Holder

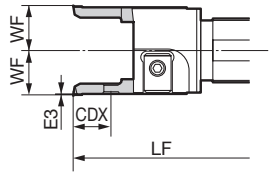
Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Head LH	Cutting Edge Distance WF	Depth of Cut CDX	For Internal Diameter Machining Insert	For Face Grooving Insert	Fig
S1588X-CKBB-F	★	*15.875*	*15*	*130*	*32*	*11.0*	*11*	KBMX R○○○○-○○ KBMX R○○○○-○○T	KBMF R○○○○-05	1
S16X-CKBB-F	★	*16*	*15*	*130*	*32*	*11.0*	*11*			1
S1905X-CKBB-F	★	*19.05*	*17*	*130*	*32*	*11.0*	*11*			1
S20X-CKBB-F	★	*20*	*18*	*130*	*32*	*11.0*	*11*			1
S22X-CKBB-F	★	*22*	*20*	*130*	*32*	*11.0*	*11*			1

* Reference values for LF, WF and CDX dimensions are with KBMXR0311-○○(T) mounted. (Refer to the table below for dimensions with other inserts mounted.)

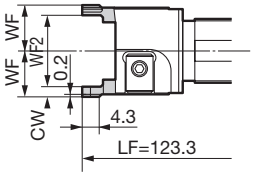
Ref. Page for Inserts ☞ E67 to E68

Insert: KBMX (ID+ID) assembled



Insert	Offset E3	Depth of Cut CDX	Cutting Edge Distance WF	Overall Length LF
KBMXR0103-○○(T)	*0.2*	*3*	*10.9*	*122*
KBMXR01506-○○(T)	*0.25*	*6*	*10.95*	*125*
KBMXR0206-○○(T)	*0.25*	*6*	*10.95*	*125*
KBMXR0311-○○(T)*	*0.3*	*11*	*11.0*	*130*
KBMXR0411-○○(T)	*0.5*	*11*	*11.2*	*130*
KBMXR0511-○○(T)	*0.7*	*11*	*11.4*	*130*
KBMXR0420-○○(T)	*0.5*	*20*	*11.2*	*139*
KBMXR0520-○○(T)	*0.7*	*20*	*11.4*	*139*

Insert: KBMF (Face+Face) assembled



Insert	Cutting Edge Distance WF	Cutting Edge Distance WF2	Width of Cut CW
KBMFR0615-05	*10.9*	*18.8*	*1.5*
KBMFR0620-05	*10.9*	*17.8*	*2.0*
KBMFR0630-05	*10.9*	*15.8*	*3.0*

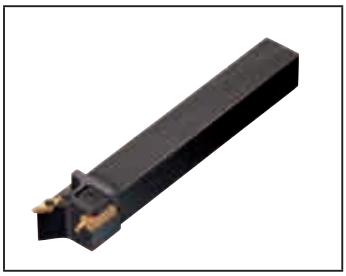
Parts (KBM□R insert mounting part)

Clamp	Double Screw	Wrench
		(For Hex Socket)
CKBW16	WB4-8	LH020

Parts (DC□□ insert mounting part)

Flat Screw		Wrench
	N·m	(For Torx Holes)
BFTX02506N	1.5	TRX08

Special Holder Configurations



Internal diameter + external diameter (angled holder)

Internal diameter + Center drill

Internal diameter + Internal diameter (parallel design)

Holder configurations for different work materials or various machining details, such as center holes, chamfering and external undercutting, can be made to order.

N·m Recommended Tightening Torque (N·m)

A-MCLN / S-DCLN (Inch & Metric)

C 80° | 95° | Steel (Coolant Hole)

Medium Diameter General-purpose Double Clamp

A-MCLN

Boring bar / Multipurpose

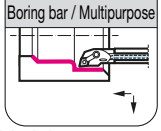
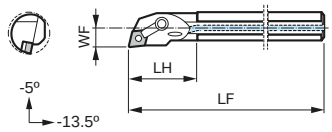


Fig 1



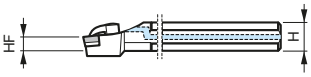


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Shim Screw	Lock Pin	Wrench (For Hex Socket)	Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**A16TMCLN R/L 4**	•	•	**1.280**	1.000	0.900	0.450	12.00	0.640	2.500	-13.5°	CN□□43□	**B22**	1	**3.0**	—	S46	NL44	LH1/8	LF 3/32	CL20	XNS47
	A20UMCLN R/L 4	•	•	**1.530**	1.250	1.180	0.590	14.00	0.765	3.000	-13.5°			1		ICSN433		NL46	LH030			XNS48
	A24UMCLN R/L 4	•	•	**1.780**	1.500	1.370	0.685	14.00	0.890	3.000	-13.5°			1								
	A28UMCLN R/L 4	•	•	**2.030**	1.750	1.630	0.815	14.00	1.015	4.000	-13.5°			1					LH1/8			
	A32VMCLN R/L 5	★	★	**2.562**	2.000	1.870	0.935	16.00	1.281	4.000	-13.5°	CN□□54□	**B26**	1	**3.5**	ICSN533	S58	NL58	LH040	LH1/8	CL12	XNS510
	A32VMCLN R/L 6	★	★	**2.562**	2.000	1.870	0.935	16.00	1.281	4.000	-13.5°	CN□□64□	**B28**	1	**3.5**	ICSN633	—	NL68		LH9/64		

Wrench for shim is sold separately from the main body.

Coolant Through

C 80° | 95° | Steel

Medium Diameter General-purpose Double Clamp

S-DCLN

Bottom Facing

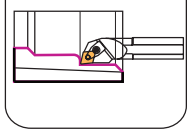
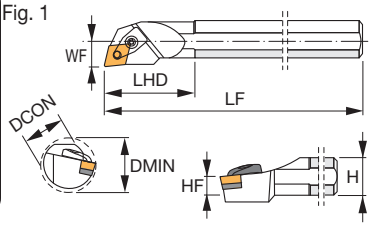


Fig. 1



Alternative Clamping Systems Parts

		Clamp	Clamp Screw	Wrench	Shim	Pin	Wrench	N·m	N·m
MCLNR/LN	CNMG43□	CL-2613	ST-1086	LH040	ICSN-422	PN-1657	–	3.0	2.0

		Clamp	Clamp Screw	Chipbreaker	Optional Chipbreaker	Wrench	Shim	Shim Screw	N·m
CCLNR/LN	CNG43□	CL-2713	ST-1086	CB-9414	CB-9419	LH040	ICSN-422	ST-1766	3.5

		Clamp	Clamp Screw	Wrench	Shim	Shim Screw	N·m
CCLNR/LN	CNGX43□	CL-2435	ST-1086	LH040	ICSN-422	ST-1766	3.5

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp	N·m	Clamp Bolt	Spring	Shim	Shim Screw	Wrench (For Hex Socket)
Inch	**S16T-DCLNR/L4N**	★	★	**1.280**	1.000	0.900	12.0	0.640	1.575	-13.5°	CN□□43□	**B22**	1	CL-2712	**3.5**	CLB-1696	SP-4295	ICSN-422	ST-1766	LH040
	S20U-DCLNR/L4N	★	★	**1.530**	1.250	1.180	14.0	0.765	1.771	-13.5°			1					ICSN-442		
	S24U-DCLNR/L4N	★	★	**1.780**	1.500	1.370	14.0	0.890	1.968	-13.5°			1							

C 80° | 95° | Steel

Medium Diameter General-purpose Double Clamp

S-DCLN

Bottom Facing

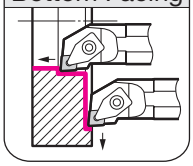


Fig 1

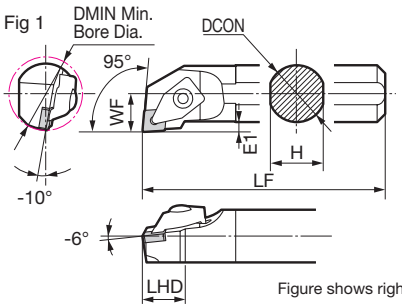


Fig 2

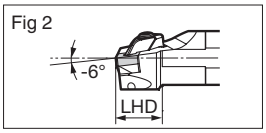


Fig 3

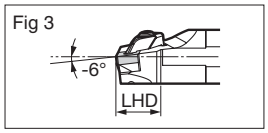


Figure shows right-hand (R) tool.

Holder / Parts

Clamp Set Parts ☞ C3

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)
Steel	**S25R-DCLN R/L0903-32**	★	★	***32***	*25*	*23*	*200*	*17.0*	*18*	*4.5*	CN□□32□	**B20**	1	SCP-1	**5.0**	-	-	LH040	LH025
	S25T-DCLN R/L0903-32	★	★	***32***	*25*	*23*	*300*	*17.0*	*18*	*4.5*			1						
	S32S-DCLN R/L1204-40	★	★	***40***	*32*	*30*	*250*	*22.0*	*26*	*7.0*	CN□□43□	**B22**	2	SCP-2	**5.0**	CNS1204B	BFTX0409N	LH040	LH025
	S40T-DCLN R/L1204-50	★	★	***50***	*40*	*37*	*300*	*27.0*	*26*	*8.5*			2						
	S50U-DCLN R/L1204-63	★	★	***63***	*50*	*47*	*350*	*31.5*	*36*	*8.0*			3						

Feed direction of applicable inserts differs according to machining details. (Refer to * note below)

• USA Stocked Item
★ Worldwide Warehouse Item

S-PCLN / S-ECLN

Steel

Medium Diameter General-purpose
Lever Lock

S-PCLN
Bottom Facing

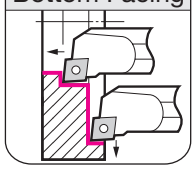


Fig 1

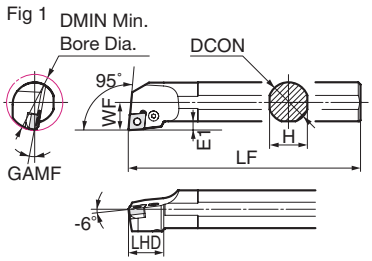


Fig 2

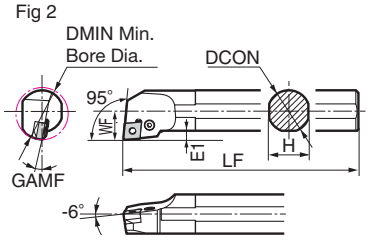


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Offset E1	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench
Steel	**S25R-PCLN R/L0903-32**	★	★	***32***	*25*	*23*	*200*	*17.0*	*30*	*4.5*	-15°	CN□□32□	B20	1	LCL3	LCS3	LSC32	LSP3	LH025
	S32S-PCLN R/L1204-40	★	★	***40***	*32*	*30*	*250*	*22.0*	*29*	*7.0*	-10°	CN□□43□	B22	1	LCL4	LCS4	LSC42B	LSP4	LH030
	S32S-PCLN R/L1204-44			***44***	*32*	*30*	*250*	*22.0*	*29*	*7.0*	-10°			1					
	S40T-PCLN R/L1204-50	★	★	***50***	*40*	*37*	*300*	*25.0*	*29*	*6.5*	-10°			1					
	S40T-PCLN R/L1204-54			***54***	*40*	*37*	*300*	*27.0*	*29*	*8.5*	-10°			1			LSC42		
	S50U-PCLN R/L1204-63	★	★	***63***	*50*	*47*	*350*	*31.5*	-	*8.0*	-10°			2			LSC42B		
	S50U-PCLN R/L1906-70			***70***	*50*	*47*	*350*	*35.0*	*39*	*11.5*	-10°	CN□□64□	B28	1	LCL6	LCS6	LSC63	LSP6	LH040

Feed direction of applicable inserts differs according to machining details. (Refer to * note below)

Steel

Medium Diameter General-purpose
Lever Lock

S-ECLN
Bottom Facing

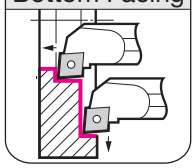


Fig 1

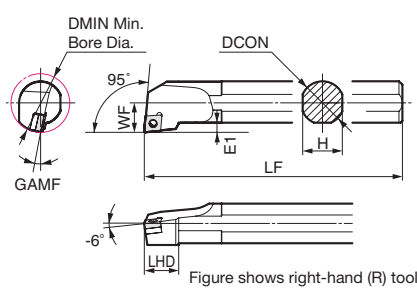


Figure shows right-hand (R) tool.

***Applicable Inserts for ECLN**

For internal diameter machining: Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts. Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
For facing: Right-handed (R) tool holders are compatible with right-handed (R) or neutral (N) inserts. Left-handed (L) tool holders are compatible with left-handed (L) or neutral (N) inserts.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Offset E1	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Shim	Eccentric Pin	Wrench
Steel	**S20Q-ECLN R/L0903-26**	★	★	***26***	*20*	*18*	*180*	*13*	*20*	*4.0*	-12°	CN□□32□	B20	1	-	CPU304C	LH030
	S25R-ECLN R/L0903-34	★	★	***34***	*25*	*23*	*200*	*17*	*20*	*5.5*	-12°			1	SCW323	CPB32C	LH025
	S25R-ECLN R/L1204-34	★	★	***34***	*25*	*23*	*200*	*17*	*20*	*5.5*	-12°	CN□□43□	B22	1	SCW423	CPB42	LH030
	S32S-ECLN R/L1204-44	★	★	***44***	*32*	*30*	*250*	*22*	*25*	*7.0*	-10°			1		CPB43S	
	S40T-ECLN R/L1204-54	★		***54***	*40*	*37*	*300*	*27*	*25*	*8.5*	-10°			1		CPB43	
	S50U-ECLN R/L1906-70			***70***	*50*	*47*	*350*	*35*	*32*	*11.5*	-10°	CN□□64□	B28	1	SCW635	CPB64	LH040

Feed direction of applicable inserts differs according to machining details. (Refer to * note below)

★ Worldwide Warehouse Item

SumiTurn X Bar

Medium Diameter General-purpose Double Clamp

D-DCLN

Bottom Facing

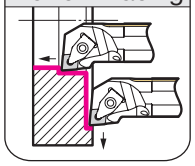


Fig 1

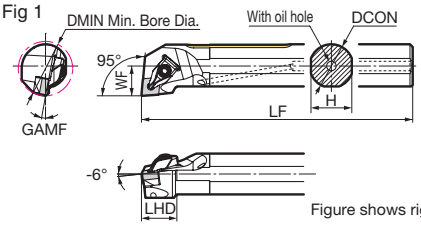


Figure shows right-hand (R) tool.

***Applicable Inserts for DCLN**
For internal diameter machining: Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts. Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
For facing: Right-handed (R) tool holders are compatible with right-handed (R) or neutral (N) inserts. Left-handed (L) toolholders are compatible with left-handed (L) or neutral (N) inserts.

Holder / Parts

Dimensions (inch/ *mm*)

	Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set		Shim	Shim Screw	Upper Surface Wrench	Lower Surface Wrench
																N·m			(For Hex Socket)	(For Hex Socket)
Inch	Steel with Anti-Vibration Mechanism with Oil Hole	**D16TDCLN R/L 4**	●	●	**1.250**	1.000	1.000	12.00	0.640	-	-14°	CN□□43□	B22	1	SCP-2		CNS1203B	BFTX0309N	LH040	LH025
		D20TDCLN R/L 4	●	●	**1.470**	1.250	1.250	12.00	0.765	-	-14°			1			CNS1204B	BFTX0409N		
		D24UDCLN R/L 4	●	●	**1.760**	1.500	1.500	14.00	0.890	-	-14°			1						
Metric	Steel with Anti-Vibration Mechanism with Oil Hole	**D25T-DCLN R/L1204-32**	●	●	***32***	*25*	*23*	*300*	*17*	*26*	-12°			1	SCP-2	5.0	CNS1203B	BFTX0307N	LH040	LH025
		D32T-DCLN R/L1204-40	●	●	***40***	*32*	*30*	*300*	*22*	*26*	-10°			1			CNS1204B	BFTX0409N		
		D40U-DCLN R/L1204-50	●	●	***50***	*40*	*37*	*350*	*27*	*26*	-10°			1						

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts. Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
Feed direction of applicable inserts differs according to machining details. (Refer to * note below)

Clamp Set Parts C3

SumiTurn X Bar

Medium Diameter General-purpose Lever Lock

B-PCLN

Bottom Facing

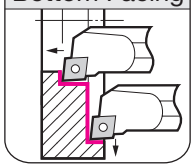


Fig 1

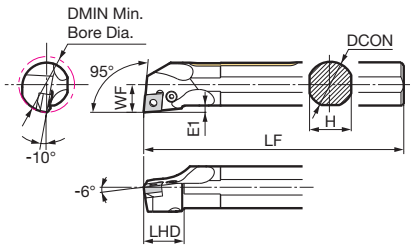


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench
																		(For Hex Socket)
Steel with Anti-Vibration Mechanism	**B32U-PCLN R/L1204-40**	★		***40***	*32*	*30*	*350*	*20*	*29*	*5.0*	CN□□43□	B22	1	LCL4	LCS4CA	LSC42B	LSP4	LH030
	B40W-PCLN R/L1204-50	★		***50***	*40*	*37*	*450*	*25*	*29*	*6.5*			1		LCS4			

Feed direction of applicable inserts differs according to machining details. (Refer to * note below)

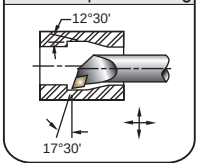
- USA Stocked Item
- ★ Worldwide Warehouse Item

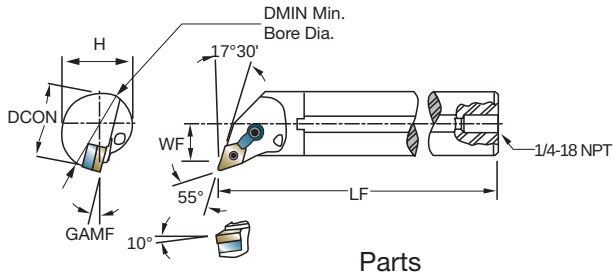
A-MDQN / A-MDUN

Medium Diameter General-purpose Double Clamp

A-MDQN

Multi-Purpose Boring





Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Shim Screw	Lock Pin	Wrench (For Hex Socket)	Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**A24U-MDQN R/L 4**	●	●	**2.250**	1.500	1.500	—	14.000	1.125	—	-10°	DN□□43	**B32**	1		IDSN432	–	NL46	LH3/32	LH030	CL20	XNS48

Wrench for shim is sold separately from the main body.
Coolant Through

Medium Diameter General-purpose Double Clamp

A-MDUN

Boring bar / Profiling

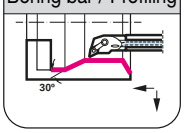


Fig 1

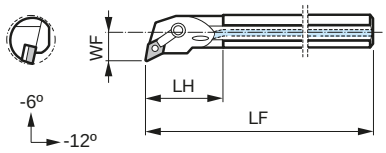
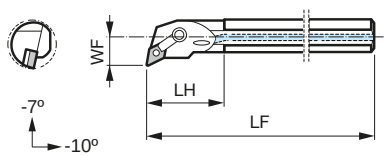


Fig 2



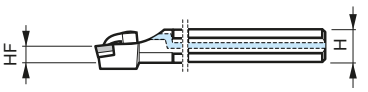


Figure shows right-hand (R) tool.

Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Wrench (For Hex Socket)	Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**A16TMDUN R/L 4**	●	●	**1.750**	1.000	0.900	0.450	12.00	0.875	2.500	-12°	DN□□43	**B32**	2	**3.0**	—	NL44	LH1/8	LH3/32	CL20	XNS47
Inch	**A20UMDUN R/L 4**	●	●	**2.000**	1.250	1.180	0.590	14.00	1.000	3.000	-12°	DN□□43	**B32**	1	**3.0**	IDSN433	NL46	LH1/8	LH3/32	CL20	
Inch	**A24UMDUN R/L 4**	●	●	**2.250**	1.500	1.370	0.685	14.00	1.125	3.000	-12°	DN□□43	**B32**	1	**3.0**	IDSN433	NL46	LH1/8	LH3/32	CL20	
Inch	**A32VMDUN R/L 4**	●	●	**3.000**	2.000	1.870	0.935	16.00	1.375	4.000	-12°	DN□□43	**B32**	2	**3.0**	IDSN433	NL46	LH1/8	LH3/32	CL20	XNS48

Wrench for shim is sold separately from the main body.
Coolant Through

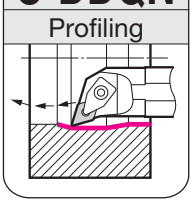
- USA Stocked Item

S-DDQN / S-DDUN

Profiling
Double Clamp

S-DDQN

Profiling



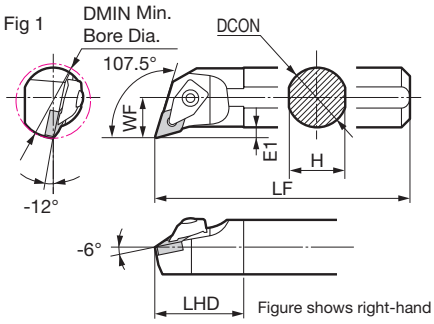


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)
Steel	**S32T-DDQN R/L1504-40**	★	★	***40***	*32*	*30*	*300*	*22*	*48*	*6*	DN□□43□	**B32**	1	SCP-2	**5.0**	LH040	LH025

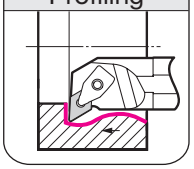
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Clamp Set Parts ☞ C3

Profiling
Double Clamp

S-DDUN

Profiling



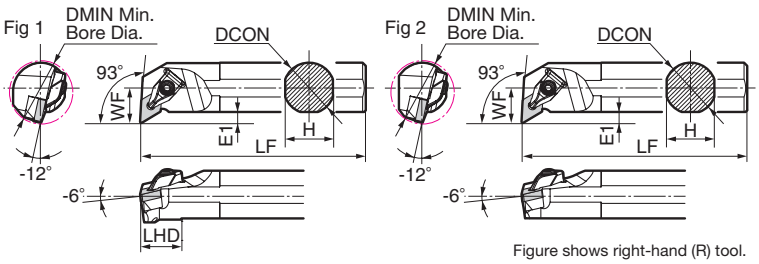


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)
Steel	**S32S-DDUN R/L1504-40**	★	★	***40***	*32*	*30*	*250*	*22.0*	*26*	*7.0*	DN□□43□	**B32**	1	SCP-2	**5.0**	DNS1504B	BFTX0409N	LH040	LH025
	S40T-DDUN R/L1504-50	★	★	***50***	*40*	*37*	*300*	*27.0*	*26*	*8.5*			1						
	S50U-DDUN R/L1504-63	★	★	***63***	*50*	*47*	*350*	*31.5*	-	*8.0*			2						

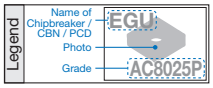
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Clamp Set Parts ☞ C3

Applicable Inserts ◀·· S-DDQN / S-DDUN / D-DDUN / S-PDUN / S-EDUN / S-PDZN / S-EDZN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	N (Non-ferrous) High-precision/Finishing	N (Non-ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	CBN BN7000/BNC500	EUZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	SUMIDIA DA1000	AX H1/DL1000	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	SUMIDIA DA1000	AX H1/DL1000	CBN BNC2020	CBN BN2000	PCD DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4125K	No Chipbreaker AC4125K	EEF AC5025S	EEG AC5025S	EEM AC5025S	SUMIDIA DA1000	–	CBN BNC300	CBN BN350	–
Recommended Cutting Conditions	☞ A10			☞ A14			☞ A16			☞ A18			☞ A22		☞ A20		☞ M2

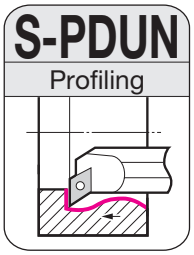
N·m Recommended Tightening Torque (N·m)

S-PDUN / S-PDZN / S-EDUN

Profiling
Lever Lock

S-PDUN

Profiling



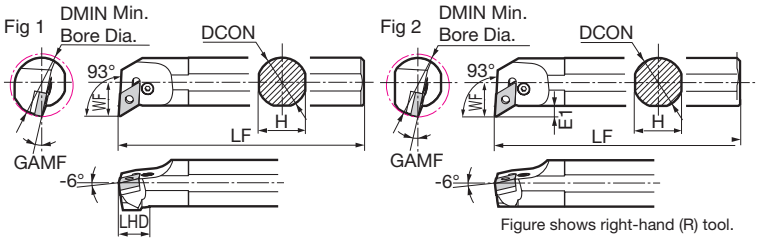


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

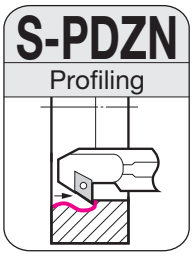
Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Offset E1	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench
Steel	**S25R-PDUN R/L1104-32**	★	★	***32***	*25*	*22*	*200*	*17.0*	*20*	*7.0*	-15°	DN□□33□	**B31**	1	LCL3	LCS3	LSD317	LSP3	LH025 (For Hex Socket)
	S32S-PDUN R/L1504-40	★	★	***40***	*32*	*30*	*250*	*22.0*	*20*	*7.0*	-12°	DN□□43□	**B32**	1	LCL4	LCS4	LSD42	LSP4	LH030
	S32S-PDUN R/L1504-44			***44***	*32*	*30*	*250*	*22.0*	*20*	*7.0*	-10°			1					
	S40T-PDUN R/L1504-50	★	★	***50***	*40*	*37*	*300*	*27.0*	*20*	*8.5*	-12°			1					
	S50U-PDUN R/L1504-63	★	★	***63***	*50*	*47*	*350*	*31.5*	-	*8.0*	-12°			2					

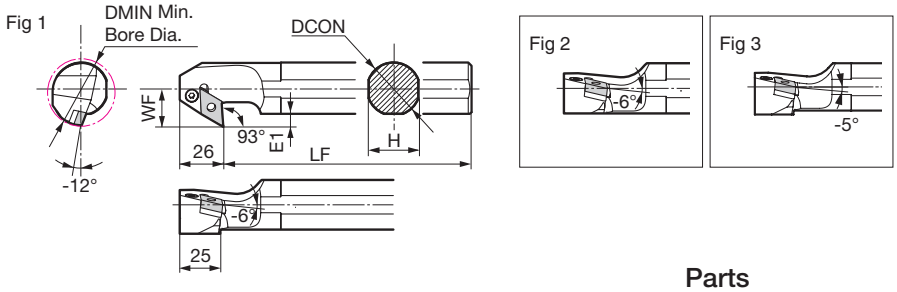
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Profiling
Lever Lock

S-PDZN

Profiling





Holder / Parts

Dimensions (*mm*)

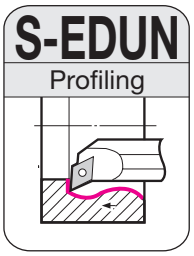
Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench
Steel	**S32S-PDZN R/L1504-40**	★	★	***40***	*32*	*30*	*250*	*22.0*	*7.0*	DN□□43□	**B32**	2	LCL4	LCS4	LSD42	LSP4	LH030 (For Hex Socket)
	S32S-PDZN R/L1504-44			***44***	*32*	*30*	*250*	*22.0*	*7.0*			1					
	S40T-PDZN R/L1504-50	★	★	***50***	*40*	*37*	*300*	*27.0*	*8.5*			2					
	S50U-PDZN R/L1504-63	★	★	***63***	*50*	*47*	*350*	*31.5*	*8.0*			3					

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Profiling
Pin Lock

S-EDUN

Profiling



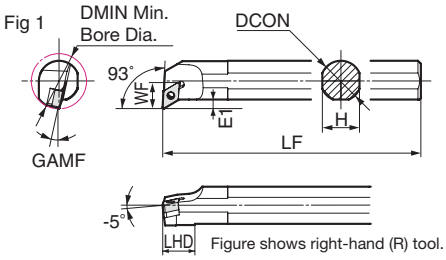


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Offset E1	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Shim	Eccentric Pin	Wrench
Steel	**S25R-EDUN R/L1104-34**	★		***34***	*25*	*23*	*200*	*17*	*20*	*5.5*	-12°	DN□□33□	**B31**	1	SDW323	CPB34	LH025 (For Hex Socket)
	S32S-EDUN R/L1504-44	★		***44***	*32*	*30*	*250*	*22*	*20*	*7.0*	-10°	DN□□43□	**B32**	1	SDW423	CPB43	LH030

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts. Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

S-EDZN / D-DDQN

Steel

Profiling
Pin Lock

S-EDZN

Profiling

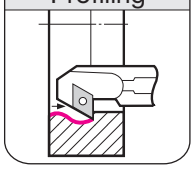


Fig 1

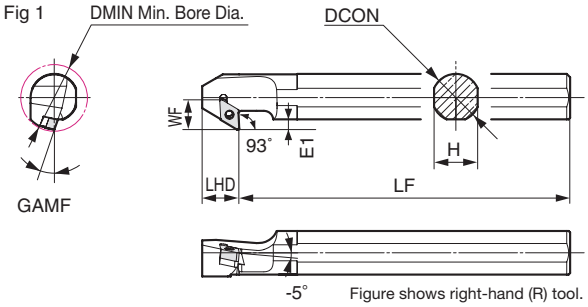


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Head LHD	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Shim	Eccentric Pin	Wrench (For Hex Socket)
Steel	**S25R-EDZN R/L1104-34**	★		***34***	*25*	*23*	*200*	*20*	*17*	*5.5*	-12°	DN□□33□	**B31**	1	SDW323	CPB34	LH025
	S32S-EDZN R/L1504-44	★		***44***	*32*	*30*	*250*	*25*	*22*	*7.0*	-10°	DN□□43□	**B32**	1	SDW423	CPB43	LH030

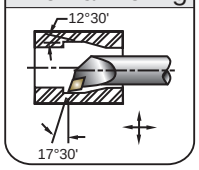
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

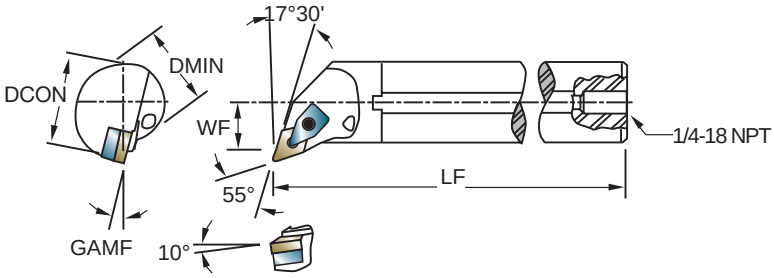
SumiTurn X Bar

Steel with Anti-Vibration Mechanism
Coolant Hole

D-DDQN

Internal Boring





Holder

Parts

Dimensions (inch)

	Cat. No.	Stock R	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Clamp Set	Wrench (For Hex Socket)	Shim	Screw
Inch	**D20TDDQNR4**	•	1.705	1.250	—	—	12.000	1.000	—	-12°	DN□□43□	**B32**	1	0.9	SCP-2	LH040	DNS1506B	BFTX0409N
	D24UDDQNR4	•	2.000	1.500	—	—	14.000	1.250	—	-8°			1			LH025		

•Wrench for shim is sold separately from the main body.

Clamp Set Parts C3

D-DDUN / BMDLN

Steel with Anti-Vibration Mechanism
Coolant Hole

Profiling
Double Clamp

SumiTurn X Bar

D-DDUN
Profiling

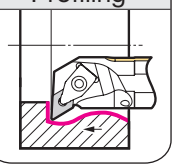


Fig 1

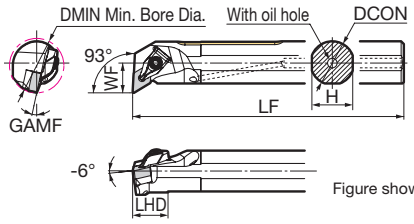


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch/ *mm*)

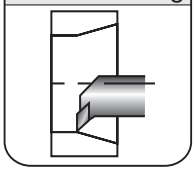
	Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Upper Surface Wrench	Lower Surface Wrench
Inch	Steel with Oil Hole with Anti-Vibration Mechanism	**D20TDDUNR4**	•		**1.705**	1.250	1.250	12.00	1.000	—	-10°	DN□□43	**B32**	1	SCP-2	5.0	DNS1506B	BFTX0409N	LH040 (For Hex Socket)	LH025 (For Hex Socket)
		D24UDDUNR4	•		**2.000**	1.500	1.500	14.00	1.250	—	-10°			1						
Metric	Steel with Oil Hole with Anti-Vibration Mechanism	**D32T-DDUN R/L1104-40**	★	★	***40***	*32*	*30*	*300*	*22*	*26*	-10°	DN□□33	**B31**	1	SCP-1	5.0	DNS1104B	BFTX0307N	LH040	LH025
		D32T-DDUN R/L1506-40	★	★	***40***	*32*	*30*	*300*	*22*	*26*	-12°	DN□□44	**B36**	1	SCP-2	5.0	DNS1506B	BFTX0409N	LH040	LH025
		D40U-DDUN R/L1506-50	★	★	***50***	*40*	*37*	*350*	*27*	*26*	-12°			1						

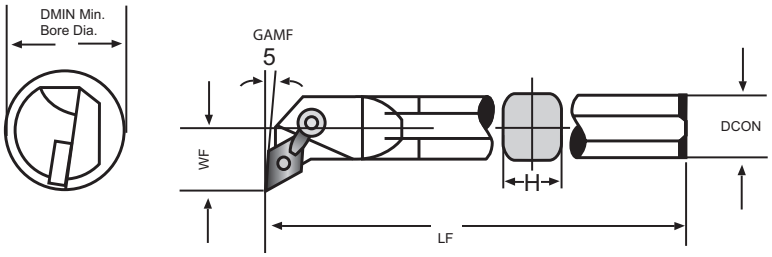
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Clamp Set Parts ☞ C3

Steel

BMDLN
Internal Boring





Holder / Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Width W	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Hex Socket)	Wrench (For Hex Socket)	Shim	Cam	Clamp	Screw
BMDLN R/L 204	•	•	2.000	1.250	—	—	14.00	1.000	1.280	-5°	DN□□43□	**B32**	1		LH030	LH040	SDW423	CPB43	CCM8FL	WB8F-20

Wrench for shim is sold separately from the main body.

Applicable Inserts ◄·· S-DDQN / S-DDUN / D-DDUN / S-PDUN / S-EDUN / S-PDZN / S-EDZN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker / CBN / PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P Medium Cutting	P Roughing	M (Stainless Steel) Finishing	M Medium Cutting	M Roughing	K (Cast Iron) High-speed Finishing	K Finishing to Medium Cutting	K Medium to Roughing	S (Exotic Alloy) Finishing	S Medium Cutting	S Roughing	N (Non-ferrous) High-precision/Finishing	N Finishing to Medium Cutting	H (Hardened Steel) Coated	H Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	CBN BN7000/BNC500	EUZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	PCD DA1000	AX H1/DL1000	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	PCD DA1000	AX H1/DL1000	CBN BNC2020	CBN BN2000	PCD DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4125K	No Chipbreaker AC4125K	EEF AC5025S	EEG AC5025S	EEM AC5025S	PCD DA1000	—	CBN BNC300	CBN BN350	—
Recommended Cutting Conditions	☞ A10			☞ A14			☞ A16			☞ A18			☞ A22		☞ A20		☞ M2

S-DSKN

Steel

Medium Diameter General
Double Clamp

Fig 1

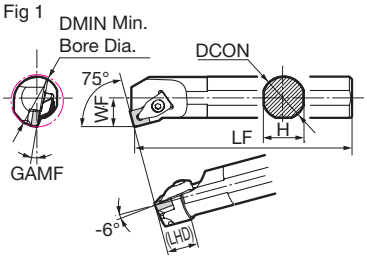


Fig 2

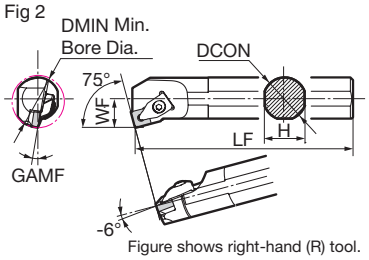


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)
Steel	**S25R-DSKN R/L1204-32**	★	★	***32***	*25*	*23*	*200*	*17.0*	*(26)*	-13°	SN□□43□	**B41**	1	SCP-2	**5.0**	SNS1203B	BFTX0307N	LH040	LH025
	S32S-DSKN R/L1204-40	★	★	***40***	*32*	*30*	*250*	*22.0*	*(21)*	-10°			1						
	S40T-DSKN R/L1204-50	★	★	***50***	*40*	*37*	*300*	*27.0*	*(21)*	-10°			1						
	S50U-DSKN R/L1204-63	★	★	***63***	*50*	*47*	*350*	*31.5*	—	-10°			2						

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
( ) is a reference value.

Clamp Set Parts C3

Applicable Inserts ◀·· S-DSKN / S-PSKN / S-ESKN / S-PSYN / S-ESYN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/ CBN/PCD — EGU; Photo; Grade — AC8025P

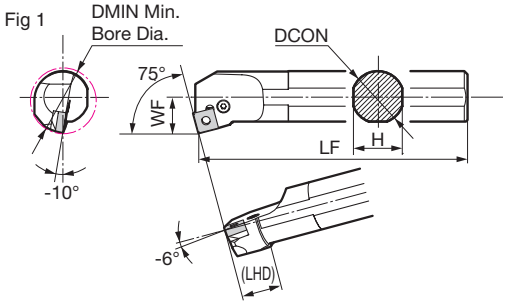
Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	CBN BN7000/BNC500	EUZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	CBN BNC2020	CBN BN2000	PCD DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4125K	No Chipbreaker AC4125K	EEF AC5025S	EEG AC5025S	EEM AC5025S	CBN BNC2020	CBN BN350	—
Recommended Cutting Conditions	A10			A14			A16			A18			A20		M2

BNC500 is for ductile cast iron.

N·m Recommended tightening torque (N·m) ▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

S-PSKN / S-PSYN

For Medium Diameter General
Lever Lock



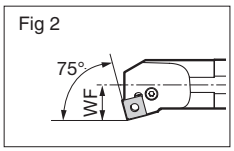


Figure shows right-hand (R) tool.

Holder

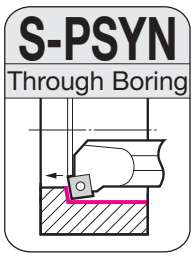
Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench
																	(For Hex Socket)
Steel	**S32S-PSKN R/L1204-40**	★	★	***40***	*32*	*30*	*250*	*22.0*	*(21)*	SN□□43□	**B41**	1	LCL4	LCS4	LSS42B	LSP4	LH030
	S32S-PSKN R/L1204-44			***44***	*32*	*30*	*250*	*22.0*	*(21)*			1					
	S40T-PSKN R/L1204-50	★	★	***50***	*40*	*37*	*300*	*27.0*	*(21)*			1					
	S40T-PSKN R/L1204-54			***54***	*40*	*37*	*300*	*27.0*	*(21)*			1			LSS42		
	S50U-PSKN R/L1204-63	★	★	***63***	*50*	*47*	*350*	*31.5*	—			2			LSS42B		
	S50U-PSKN R/L1906-70			***70***	*50*	*47*	*350*	*35.0*	*(31)*	SN□□64□	**B46**	1	LCL6	LCS6	LSS63	LSP6	LH040

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
( ) is a reference value.

For Medium Diameter General
Lever Lock



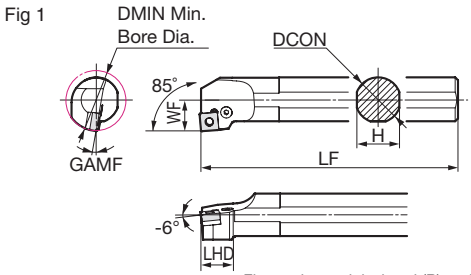


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench
																	(For Hex Socket)
Steel	**S32S-PSYN R/L1204-44**	★	★	***44***	*32*	*30*	*250*	*22*	*(22)*	SN□□43	**B41**	1	LCL4	LCS4	LSS42B	LSP4	LH030

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
The LHD ( ) is a reference value.

S-ESKN

90° 75° Steel

For Medium Diameter General
Pin Lock

Fig 1

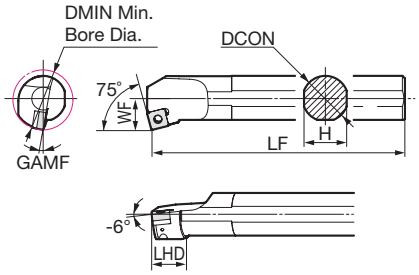


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions *(mm)*

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Shim	Eccentric Pin	Wrench
																(For Hex Socket)
Steel	**S25R-ESKN R/L1204-34**	★		*34*	*25*	*23*	*200*	*17*	*(18)*	-12°	SN□□43	**B41**	1	SSW423	CPB42	LH030
	S32S-ESKN R/L1204-44	★		*44*	*32*	*30*	*250*	*22*	*(20)*	-10°			1		CPB43S	
	S40T-ESKN R/L1204-54			*54*	*40*	*37*	*300*	*27*	*(20)*	-10°			1		CPB43	
	S50U-ESKN R/L1906-70			*70*	*50*	*47*	*350*	*35*	*(30)*	-10°	SN□□64	**B46**	1	SSW635	CPB64	LH040

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
The LHD ( ) is a reference value.

Maximum overhang = 3xD

Applicable Inserts ◄·· S-DSKN / S-PSKN / S-ESKN / S-PSYN / S-ESYN

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/ CBN/PCD — EGU; Photo; Grade — AC8025P

Process \ Cutting Range	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material Finishing
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	CBN BN7000/BNC500	EUZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	CBN BNC2020	CBN BN2000	PCD DA90
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4125K	No Chipbreaker AC4125K	EEF AC5025S	EEG AC5025S	EEM AC5025S	CBN BNC2020	CBN BN350	–
Recommended Cutting Conditions	☞ A10			☞ A14			☞ A16			☞ A18			☞ A20		☞ M2

BNC500 is for ductile cast iron.

★ Worldwide Warehouse Item

A-MTFN / S-DTFN

T 60° | 91° | Steel Coolant Hole

A-MTFN

Boring bar / Profiling

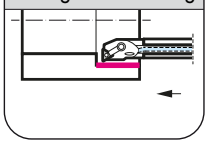
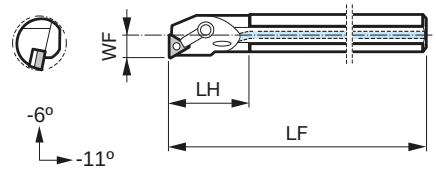


Fig 1



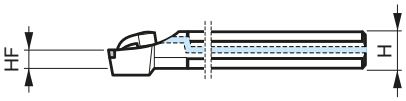


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Wrench (For Hex Socket)	Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**A16TMTFN R/L 3**	★	★	1.280	1.000	0.900	0.450	12.00	0.640	2.500	-11°	TN□□33□	**B52**	1	3.0	—	NL33L	LH1/8	LH5/64	CL20	XNS47
	A20UMTFN R/L 3	★	★	1.530	1.250	1.480	0.590	14.00	0.765	3.000	-11°			1		ITSN323	NL34L	LH1/8	LH5/64		XNS48
	A24UMTFN R/L 4	★	★	1.780	1.500	1.370	0.685	14.00	0.890	3.000	-11°	TN□□43□	**B56**	1	3.0	ITSN433	NL46	LH1/8	LH030	CL20	XNS48
	A28UMTFN R/L 4	★	★	2.030	1.750	1.630	0.815	14.00	1.015	4.000	-11°			1							
	A32VMTFN R/L 4	★	★	2.562	2.00	1.870	0.935	16.00	1.281	4.000	-11°			1				LH1/8			

Wrench for shim is sold separately from the main body.
Coolant Through

T 60° | 91° | Steel

Medium Diameter General-purpose Double Clamp

S-DTFN

Stop Boring

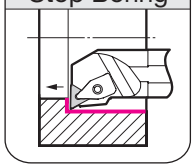


Fig 1

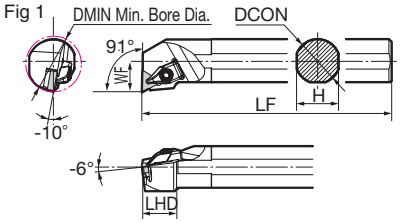


Fig 2

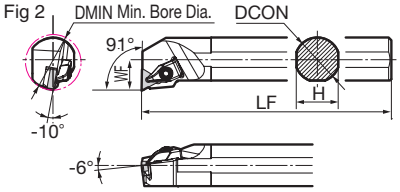


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)
Steel	**S32S-DTFN R/L 1604-40**	★	★	*40*	*32*	*30*	*250*	*22.0*	*26*	TN□□33□	**B52**	1	SCP-1	5.0	TNS1603B	BFTX0307N	LH040	LH025
	S40T-DTFN R/L 1604-50	★	★	*50*	*40*	*37*	*300*	*27.0*	*26*			1			TNS1604B			
	S50U-DTFN R/L 1604-63	★	★	*63*	*50*	*47*	*350*	*31.5*	—			2						

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

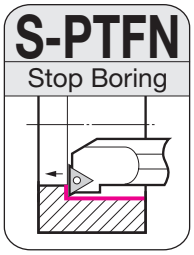
Clamp Set Parts C3

★ Worldwide Warehouse Item

S-PTFN / S-ETFN

T 60° | 91° | Steel

For Medium Diameter General-purpose
Lever Lock



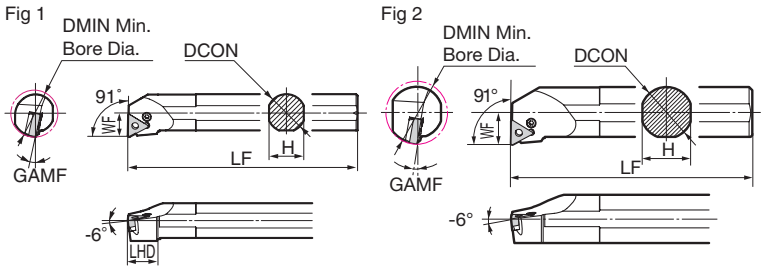


Figure shows right-hand (R) tool.

Holder

Parts

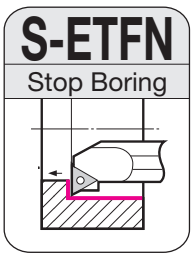
Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Work Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
Steel	**S25R-PTFN R/L1604-32**	★	★	***32***	*25*	*23*	*200*	*16.0*	*21.5*	-12°	TN□□33□	**B52**	1	LCL3	LCS3	LST317CA	LSP3	LH025
	S32S-PTFN R/L1604-40	★	★	***40***	*32*	*30*	*250*	*20.0*	*21.0*	-10°			1					
	S32S-PTFN R/L1604-44			***44***	*32*	*30*	*250*	*22.0*	*21.0*	-10°			1					
	S40T-PTFN R/L1604-50	★	★	***50***	*40*	*37*	*300*	*25.0*	*21.0*	-10°			1					
	S50U-PTFN R/L1604-63	★	★	***63***	*50*	*47*	*350*	*31.5*	—	-10°			2					
	S40T-PTFN R/L2204-54			***54***	*40*	*37*	*300*	*27.0*	*26.0*	-10°	TN□□43□	**B56**	1	LCL4	LCS4	LST42	LSP4	LH030
	S50U-PTFN R/L2204-70			***70***	*50*	*47*	*350*	*35.0*	*33.0*	-10°			1					

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

T 60° | 91° | Steel

For Medium Diameter General-purpose
Pin Lock



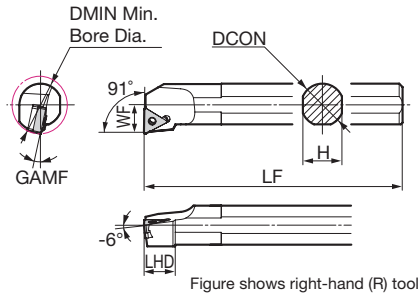


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Shim	Eccentric Pin	Wrench (For Hex Socket)
Steel	**S25R-ETFN R/L1604-34**	★		***34***	*25*	*23*	*200*	*17*	*18*	-12°	TN□□33□	**B52**	1	STW323	CPB34	LH025
	S32S-ETFN R/L1604-44	★		***44***	*32*	*30*	*250*	*22*	*20*	-10°			1		CPB35	
	S40T-ETFN R/L2204-54	★		***54***	*40*	*37*	*300*	*27*	*25*	-10°	TN□□43□	**B56**	1	STW434	CPB44T	LH030
	S50U-ETFN R/L2204-70			***70***	*50*	*47*	*350*	*35*	*32*	-10°			1		CPB45T	

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

★ Worldwide Warehouse Item

D-DTFN / B-PTFN

T 60° | 91° | Steel with Anti-Vibration Mechanism | Coolant Hole

Medium Diameter General-purpose Double Clamp

SumiTurn X Bar

D-DTFN
Stop Boring

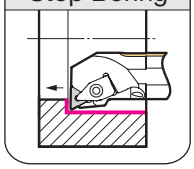


Fig 1

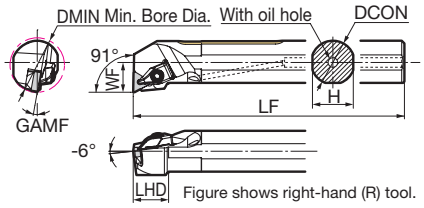


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set		Shim	Shim Screw	Upper Surface Wrench	Lower Surface Wrench
Steel with Anti-Vibration Mechanism with Oil Hole	D25T-DTFN R/L1604-32	★	★	32	25	23	300	17	21	-12°	TN□□33□	B52	1	SCP-1	5.0 N·m	TNS1603B	BFTX0307N	LH040 (For Hex Socket)	LH025 (For Hex Socket)
	D32T-DTFN R/L1604-40	★	★	40	32	30	300	22	26	-10°			1			TNS1604B			
	D40U-DTFN R/L1604-50	★	★	50	40	37	350	27	26	-10°			1						

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Clamp Set Parts ☞ C3

T 60° | 91° | Steel with Anti-Vibration Mechanism

For Medium Diameter General-purpose Lever Lock

SumiTurn X Bar

B-PTFN
Stop Boring

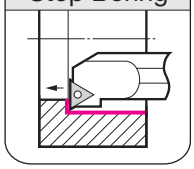


Fig 1

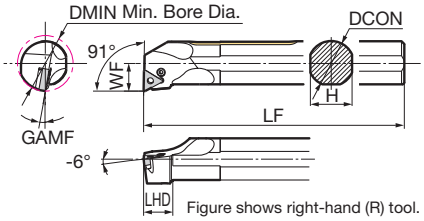


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench
Steel with Anti-Vibration Mechanism	B25T-PTFN R/L1604-32	★		32	25	23	300	16	21	-12°	TN□□33□	B52	1	LCL3	LCS3	LST317CA	LSP3	LH025 (For Hex Socket)
	B32U-PTFN R/L1604-40	★		40	32	30	350	20	21	-10°			1					
	B40W-PTFN R/L1604-50	★		50	40	37	450	25	21	-10°			1					

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Applicable Inserts ◄·· S-DTFN / D-DTFN / S-PTFN / B-PTFN / S-ETFN

1st Recommended Insert
- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/ CBN/PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	N (Non-ferrous) —	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	CBN BN7000/BNC500	EUZ AC4010K	EGZ AC4010K	EEF AC5015S	EEG AC5015S	EEM AC5015S	PCD DA1000	CBN BNC2010	CBN BN1000
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4015K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5025S	PCD DA1000	CBN BNC2020	CBN BN2000
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	CBN BN7000/BNC500	EGZ AC4125K	EGZ AC4125K	EEF AC5025S	EEG AC5025S	EEM AC5025S	PCD DA1000	CBN BNC300	CBN BN350
Recommended Cutting Conditions	☞ A10			☞ A14			☞ A16			☞ A18			☞ A22	☞ A20	

BNC500 is for ductile cast iron.

★ Worldwide Warehouse Item

A-MVUN / D-DVUN

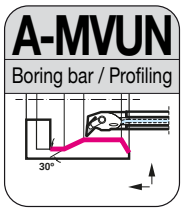
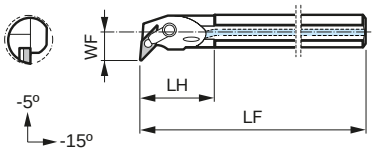


Fig 1



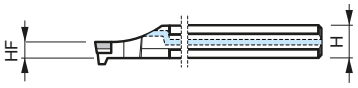


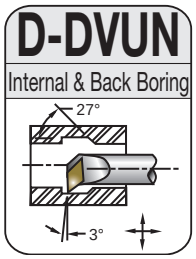
Figure shows right-hand (R) tool.

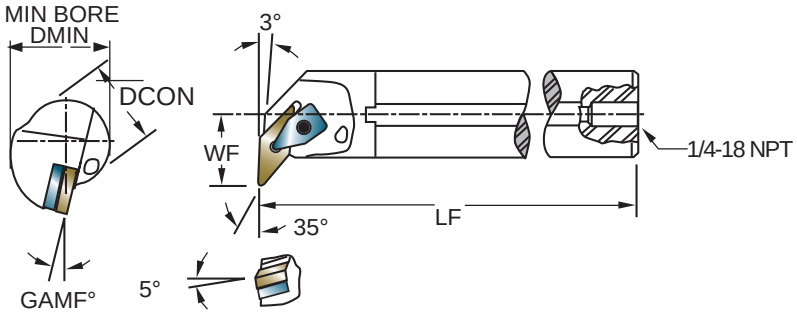
Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Lock Pin	Wrench (For Hex Socket)	Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**A16TMVUN R/L 3**	★	★	**2.000**	1.000	0.900	0.450	12.00	1.000	2.500	-15°	VN□□33	**B62**	1	**3.0**	IVSN322	NL34L	LH1/8	LH5/64	CL22	XNS47
Inch	**A20UMVUN R/L 3**	★	★	**2.250**	1.250	1.180	0.590	14.00	1.125	3.000	-15°			1				LH1/8	LH5/64		XNS48
Inch	**A24UMVUN R/L 3**	★	★	**2.500**	1.500	1.370	0.685	14.00	1.250	3.000	-15°			1				LH1/8	LH5/64		XNS48

Wrench for shim is sold separately from the main body.
Coolant Through





SumiTurn X Bar

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Clamp Set	Wrench (For Hex Socket)	Wrench (For Hex Socket)	Shim	Screw
Inch	**D20TDVUNR3**	•	**2.000**	1.250	—	—	12.00	1.125	—	-12°	VN□□33□	**B62**	1	**1.5**	SCP-4	LH040	LH025	VNS1604	BFTX0307N
Inch	**D24UDVUNR3**	•	**2.350**	1.500	—	—	12.00	1.250	—	-12°			1						

Wrench for shim is sold separately from the main body.

Clamp Set Parts ☞ C3

• USA Stocked Item
★ Worldwide Warehouse Item

S-DTR55C

TRM 55° | 93° | Steel

Internal Profiling
Double Clamp

SumiTurn T-REX

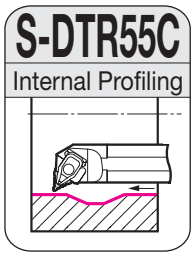
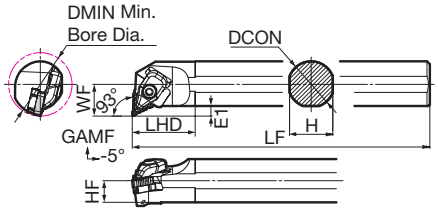


Fig 1



Holder / Parts

Dimensions (inch / *mm*)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Offset E1	Cutting Edge Height HF	Fig	Clamp	Spring	Cap Screw	N·m	Shim	Shim Screw	Wrench (For Hex Socket)	Shim Wrench (For Torx Holes)
Inch	**A20DTR55C R3 / L3**	▲	▲	**1.75**	1.25	1.25	10.0	.875	1.575	-12°	.309	—	1	TRCP3	SSP420	BX0520	3.5 to 4.5	TRW5505	BFTX0307N	TSW040	TRX10(*)
Inch	**A24DTR55C R3 / L3**			**2.00**	1.50	1.50	12.0	1.00	1.575	-10°	.309	—	1								
Metric	**S32S-DTR55CR-17**	★		***44***	*32*	*30*	*250*	*22*	*42*	*-12°*	*7.0*	*15.0*	1								
Metric	**S40T-DTR55CR-17**	★		***50***	*40*	*37*	*300*	*25*	*42*	*-10°*	*6.2*	*18.5*	1								

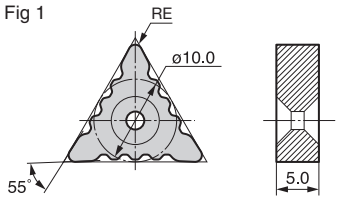
* Item is sold separately.
TR55C Type:

Insert (Coated Carbide / Cermet)

Dimensions (Inch / *mm*)

Applications	Appearance	Cat. No.	Nose Radius RE	AC810P	AC8025P	AC820P	AC830P	AC700G	AC610M	AC6020M	AC6030M	AC630M	T3000Z	Fig
Fine Cutting	FL	**TRM551704-FL**	.0157" / *0.4*		●	●							▲	1
Fine Cutting		**TRM551708-FL**	.0315" / *0.8*		●	●							▲	1
Finishing	LU	**TRM551704-LU**	.0157" / *0.4*	●	●	●	●	●					▲	1
Finishing		**TRM551708-LU**	.0315" / *0.8*	●	●	●	●	●					▲	1
Finishing		**TRM551712-LU**	*.0472" / 1.2*	●	●	●	●	●					▲	1
Finishing	SU	**TRM551704-SU**	.0157" / *0.4*	●	●	●			●	●	●	●	▲	1
Finishing		**TRM551708-SU**	.0315 / *0.8*	●	●	●			●	●	●	●	▲	1
Finishing		**TRM551712-SU**	*.0472" / 1.2*	●	●	●			●	●	●	●	▲	1
Medium Cutting	GU	**TRM551704-GU**	.0157 / *0.4*	●	●	●	●	●		●		●		1
Medium Cutting		**TRM551708-GU**	.0315 / *0.8*	●	●	●	●	●	●	●	●	●		1
Medium Cutting		**TRM551712-GU**	*.0472" / 1.2*	●	●	●	●	●		●	●	●		1

Fig 1



- ● USA Stocked Item
- ★ Worldwide Warehouse Item
- ▲ USA Limited Availability Item

N·m Recommended tightening torque (N·m)

A-MWLN / S-DWLN

W 80° | Steel (Coolant Hole)

A-MWLN

Boring bar / Multipurpose

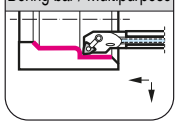
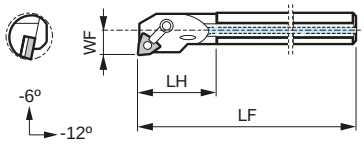


Fig 1



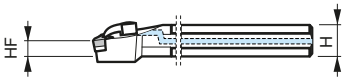


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

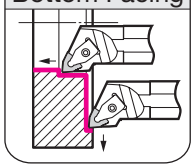
	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Shim	Shim Screw	Lock Pin	Wrench (For Hex Socket)	Wrench (For Hex Socket)	Clamp	Clamp Screw
Inch	**A12MWLN R/L 3**	•	•	1.000	0.750	0.750	—	10.000	0.500	—	-14°	WN□□33□	**B65**	1		—	—	NL46	LH3/32	LH020	CL6	XNS36
	A16MWLN R/L 3	•	•	1.200	1.000	1.000	—	12.000	0.640	—	-14°			1								
	A16TMWLN R/L 4	•	•	1.280	1.000	0.900	0.450	12.000	0.640	2.500	-12°	WN□□43□	**B67**	1	3.0	—	—	NL44	LH1/8	LH3/32	CL20	XNS47
	A20UMWLN R/L 4	•	•	1.530	1.250	1.180	0.590	14.000	0.765	3.000	-12°			1		IWSN433	—	NL46	LH1/8	LH3/32		XNS48
	A24UMWLN R/L 4	•	•	1.780	1.500	1.370	0.685	14.000	0.890	3.000	-12°			1			—		LH1/8	LH3/32		

Wrench for shim is sold separately from the main body.
Coolant Through

W 80° | 95° | Steel

S-DWLN

Bottom Facing



Medium Diameter General-purpose Double Clamp

Fig 1

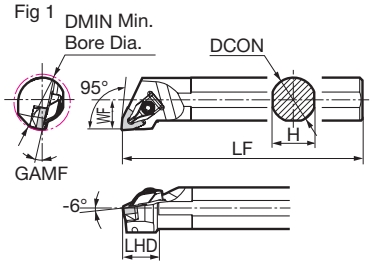


Fig 2

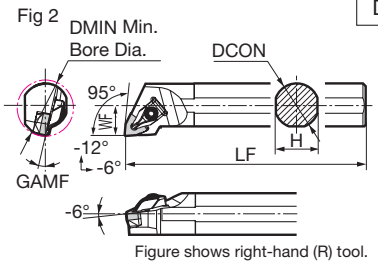


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)
Steel	**S32S-DWLN R/L0604-40**	★	★	*40*	*32*	*30*	*250*	*22.0*	*29*	-10°	WN□□33□	**B65**	1	SCP-4	5.0	WNS0603B	BFTX0307N	LH040	LH025
	S25R-DWLN R/L0804-32	★	★	*32*	*25*	*23*	*200*	*17.0*	*26*	-12°	WN□□43□	**B67**	1	SCP-2	5.0	WNS0803B	BFTX0307N	LH040	LH025
	S32S-DWLN R/L0804-40	★	★	*40*	*32*	*30*	*250*	*22.0*	*26*	-12°			1						
	S40T-DWLN R/L0804-50	★	★	*50*	*40*	*37*	*300*	*27.0*	*26*	-12°			1			WNS0804B	BFTX0409N		
	S50U-DWLN R/L0804-63	★	★	*63*	*50*	*47*	*350*	*31.5*	—	-12°			2						

Feed direction of applicable inserts differs according to machining details. (Refer to * note below)

Clamp Set Parts ☞ C3

• USA Stocked Item
★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

S-PWLN / D-DWLN

W 80° | 95° | Steel

Medium Diameter General-purpose
Lever Lock

S-PWLN
Bottom Facing

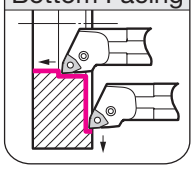


Fig 1

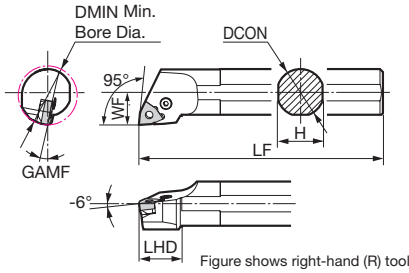


Figure shows right-hand (R) tool.

- USA Stocked Item
★ Worldwide Warehouse Item

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Lever Pin	Bolt	Shim	Shim Pin	Wrench (For Hex Socket)
Steel	**S32S-PWLN R/L0604-40**	★	★	40	32	30	250	22	29	-10°	WN□□33□	**B65**	1	LCL3	LCS3	LSW317	LSP3	LH025
	S32S-PWLN R/L0804-40	★	★	40	32	30	250	22	29	-10°	WN□□43□	**B67**	1	LCL4	LCS4	LSW42B	LSP4	LH030
	S40T-PWLN R/L0804-50	★	★	50	40	37	300	27	29	-10°			1					

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

W 80° | 95° | Steel with Anti-Vibration Mechanism Coolant Hole

Medium Diameter General-purpose
Double Clamp

SumiTurn X-Bar

D-DWLN
Bottom Facing

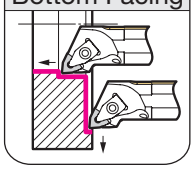


Fig 1

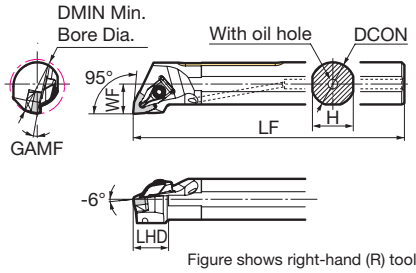


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (Inch/*mm*)

Holders Materials		Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp Set	N·m	Shim	Shim Screw	Upper Surface Wrench (For Hex Socket)	Lower Surface Wrench (For Hex Socket)
Steel with Oil Hole with Anti-Vibration Mechanism	Inch	**D16TDWLNR4**	•		1.325	1.000	1.000	12.000	.640	—	-14°	WN□□43□	**B67**	1	SCP-2	5.0	WNS0804B	BFTX0409N	LH040	LH025
		D20TDWLNR4	•		1.470	1.250	1.250	12.000	.765	—	-14°			1						
		D24UDWLNR4	•		1.760	1.500	1.500	12.000	.890	—	-14°			1						
	Metric	**D25T-DWLN R/L0804-32**	★	★	32	25	23	300	17	26	-12°			1			WNS0803B	BFTX0307N		
		D32T-DWLN R/L0804-40	★	★	40	32	30	300	22	26	-10°			1						
		D40U-DWLN R/L0804-50	★	★	50	40	37	350	27	26	-10°			1			WNS0804B	BFTX0409N		

Feed direction of applicable inserts differs according to machining details. (Refer to * note below)

Clamp Set Parts ☞ C3

***Applicable Inserts for DWLN**

For internal diameter machining: Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts. Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
For facing: Right-handed (R) tool holders are compatible with right-handed (R) or neutral (N) inserts. Left-handed (L) tool holders are compatible with left-handed (L) or neutral (N) inserts.

Applicable Inserts ◄·· S-DWLN / D-DWLN / S-PWLN

1st Recommended Insert

Refer as well to the Insert Selection Guide (page A10).
Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/CBN/PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing	S (Exotic Alloy) Medium Cutting	S (Exotic Alloy) Roughing	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
Continuous Cutting	EFE T1500Z	EGU AC8015P	EMU AC8025P	EEF AC6020M	EEG AC6020M	EEM AC6030M	EUZ AC4010K	EGZ AC4015K	EEF AC5015S	EEG AC5015S	EEM AC5015S	CBN BNC2010	CBN BN2000
General Cutting	ESU AC8015P	EGU AC8025P	EMU AC8025P	EEF AC6030M	EEG AC6030M	EEM AC6040M	EGZ AC4015K	EGZ AC420K	EEF AC5015S	EEG AC5015S	EEM AC5025S	CBN BNC2020	CBN BN2000
Interrupted Cutting	ESX AC8025P	EUX AC8035P	EMX AC8035P	EEF AC6030M	EEG AC6040M	EEM AC6040M	EGZ AC4125K	No Chipbreaker AC4125K	EEF AC5025S	EEG AC5025S	EEM AC5025S	CBN BNC2020	CBN BN2000
Recommended Cutting Conditions	☞ A10			☞ A14			☞ A16		☞ A18			☞ A20	

- USA Stocked Item
★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

A-SCLC

Internal Finishing to Medium Cutting
Screw-on

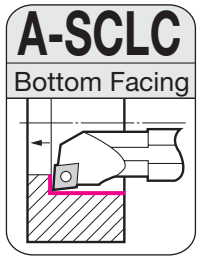


Fig 1

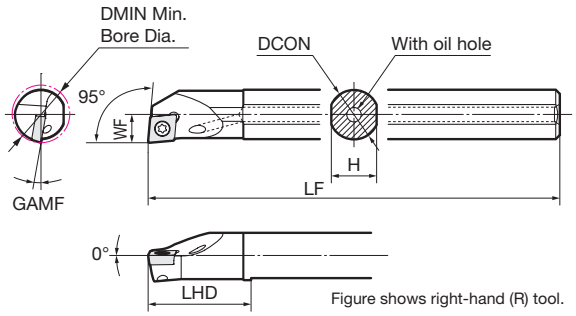


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch / *mm*)

	Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	Steel with oil hole	**A06M-SCLC R/L 2**	●	●	0.500	0.375	0.340	0.170	6.000	0.250	0.830	-9°	CC□□21.5□	B72	1	ST-1425	0.9	TRD07
		A08M-SCLC R/L 2	●	●	0.625	0.500	0.460	0.230	6.000	0.312	0.910	-9°			1	ST-1425		
		A10R-SCLC R/L 2	●	●	0.812	0.625	0.580	0.290	8.000	0.406	1.060	-9°			1	ST-1425		
		A10R-SCLC R/L 3	●	●	0.812	0.625	0.580	0.290	8.000	0.406	1.060	-9°	CC□□32.5□	B75	1	ST-1440	3.0	TRD15
		A12S-SCLC R/L 3M	●	●	1.000	0.750	0.710	0.355	10.000	0.500	1.580	-9°			1			
Metric	Steel with oil hole	**A08H-SCLC R/L 0602-10**	★	★	*10*	*8*	*7*	—	*100*	*5.5*	*19*	-13°	CC□□21.5□	B72	1	BFTX02505N	1.1	TRX08
		A10K-SCLC R/L 0602-12	★	★	*12*	*10*	*9*	—	*125*	*6.0*	*21*	-12°			1	BFTX02506N	1.5	
		A12M-SCLC R/L 0602-14	★	★	*14*	*12*	*11*	—	*150*	*7.0*	*25*	-10°			1			
		A16R-SCLC R/L 0602-18	★	★	*18*	*16*	*15*	—	*200*	*9.0*	*27*	-8°			1			
		A16R-SCLC R/L 09T3-18	★	★	*18*	*16*	*15*	—	*200*	*9.0*	*30*	-10°	CC□□32.5□	B75	1	BFTX0407N	3.0	TRX15
		A20S-SCLC R/L 09T3-22	★	★	*22*	*20*	*18*	—	*250*	*11.0*	*30*	-8°			1	BFTX0409N	3.4	
		A25T-SCLC R/L 09T3-27	★	★	*27*	*25*	*23*	—	*300*	*13.5*	*35*	-6°			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

● USA Stocked Item
★ Worldwide Warehouse Item

S-SCLC / E-SCLC

- USA Stocked Item
- ★ Worldwide Warehouse Item

Internal Finishing to Medium Cutting
Screw-on

S-SCLC

Bottom Facing

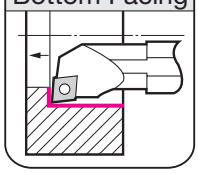


Fig 1

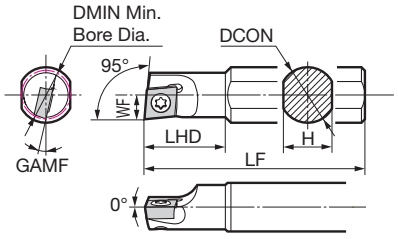
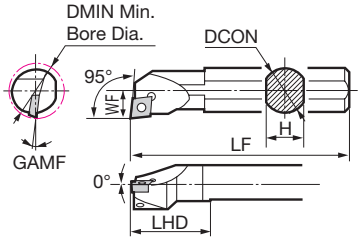


Fig 2



Holder

Figure shows right-hand (R) tool.

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S08H-SCLC R/L 03X1-05**	★	★	5	8	7	100	2.5	24	-15°	CC□□03X1	**B70**	1	BFTX016033	0.2	TRX06
	S08H-SCLC R/L 03X1-06	★	★	6	8	7	100	3.0	28	-13°			1			
	S08H-SCLC R/L 04X1-07	★	★	7	8	7	100	3.5	32	-13°	CC□□04X1	**B71**	1	BFTX0203N	0.5	TRX06
	S08H-SCLC R/L 04X1-08	★	★	8	8	7	100	4.0	37	-11°			1			
	S08H-SCLC R/L 0602-10	★	★	10	8	7	100	5.5	19	-13°	CC□□21.5□	**B72**	2	BFTX02505N	1.1	TRX08
	S10K-SCLC R/L 0602-12	★	★	12	10	9	125	6.0	21	-12°			2	BFTX02506N	1.5	
	S12M-SCLC R/L 0602-14	★	★	14	12	11	150	7.0	25	-10°			2			
	S16R-SCLC R/L 0602-18	★	★	18	16	15	200	9.0	27	-8°			2			
	S16R-SCLC R/L 09T3-18	★	★	18	16	15	200	9.0	30	-10°	CC□□32.5□	**B75**	2	BFTX0407N	3.0	TRX15
	S20S-SCLC R/L 09T3-22	★	★	22	20	18	250	11.0	30	-8°			2	BFTX0409N	3.4	
	S25T-SCLC R/L 09T3-27	★	★	27	25	23	300	13.5	35	-6°			2			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Internal Finishing to Medium Cutting
Screw-on

E-SCLC

Bottom Facing

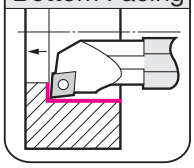
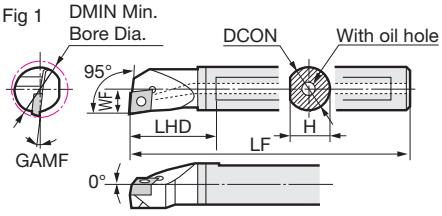


Fig 1



Holder

Parts

Dimensions (inch/ *mm*)

	Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	Carbide with oil hole	**E06MSCLC R/L 2**	★	★	0.396	0.375	0.360	6.000	0.198	—	-15°	CC□□21.5□	**B72**	1	TS-25.45-6M2	—	TRX08
		E08RSCLC R/L 2	★	★	0.550	0.500	0.485	8.000	0.275	—	-13°			1			
		E10SSCLC R/L 3	★	★	0.740	0.625	0.605	10.000	0.395	—	-10°	CC□□32.5□	**B75**	1	TS-4.7-10M1	—	TRX15
		E12SSCLC R/L 3	★	★	0.930	0.750	0.715	9.615	0.500	—	-8°			1			
		E16TSCLC R/L 3	★	★	1.200	1.000	0.965	11.685	0.625	—	-7°			1			
Metric	Carbide with oil hole	**E08H-SCLC R0602-10**	★		10	8	7.5	100	5.5	18	-13°	CC□□21.5□	**B72**	1	BFTX02505N	1.1	TRX08
		E10K-SCLC R0602-13	★		13	10	9.5	125	7.0	19	-12°			1	BFTX02506N	1.5	
		E12M-SCLC R0602-16	★		16	12	11.5	150	9.0	25	-10°			1			
		E16R-SCLC R09T3-20	★		20	16	15.5	200	11.0	30	-8°	CC□□32.5□	**B75**	1	BFTX0407N	3.4	TRX15

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.

Applicable Inserts

S-SCLC / A-SCLC / B-SCLC / C-SCLC / E-SCLC

1st Recommended Insert

Refer as well to the Insert Selection Guide (page A10).
Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/ CBN/PCD — EGU; Photo; Grade — AC8025P

Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-Ferrous) High-precision/Finishing	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Machining	EFB T1500Z	EGU AC8025P	EMU AC8025P	ELB AC6030M	EGU AC6030M	EMU AC6040M	CBN BN7125/BNC500	EMU AC4015K	No Chipbreaker AC4015K	ESU AC5015S	PCD DA1000	NAG H1	CBN BNC2125	CBN BN2000	PCD DA90
High-precision	MEFF AC1030U	MESI AC1030U	EFM AC1030U	MEFF AC1030U	MESI AC1030U	EFM AC1030U	CBN BN7125/BNC500	–	–	MESI AC5015S	PCD DA1000	–	CBN BNC2115	CBN BN1000	BINDERLESS PCD NPD10
Recommended Cutting Conditions	A10~			A14~			A16~			A18~	A22~		A20~		M2~

BNC500 is for ductile cast iron.

N·m Recommended Tightening Torque (N·m)

C-SCLC / D-SCLC

Carbide

Internal Finishing to Medium Cutting
Screw-on

C-SCLC

Bottom Facing

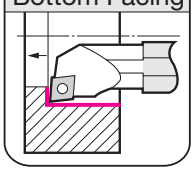


Fig 1

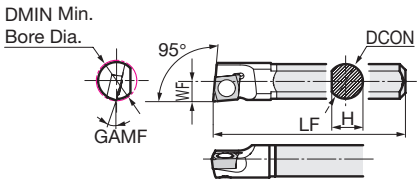
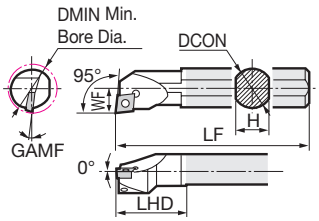


Fig 2



Holder

Parts

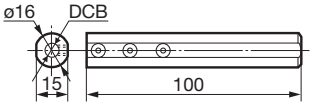
Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Carbide	C04G-SCLCR03X1-05*	★	5	4	3.8	90	2.5	—	-15°	CC□□03X1	B70	1	BFTX016033	0.2	TRX06
	C05H-SCLCR03X1-06*	★	6	5	4.4	100	3.0	—	-13°			1			
	C06J-SCLCR04X1-07*	★	7	6	5.4	110	3.5	—	-13°	CC□□04X1	B71	1	BFTX0203N	0.5	TRX06
	C07K-SCLCR04X1-08*	★	8	7	6.4	125	4.0	—	-11°			1			
	C08H-SCLCR0602-10	★	10	8	7.0	100	5.5	19	-13°	CC□□21.5	B72	2	BFTX02505N	1.1	TRX08
	C10K-SCLCR0602-12	★	12	10	9.0	125	6.0	21	-12°			2	BFTX02506N	1.5	
	C10K-SCLCR0602-13	★	13	10	9.0	125	7.0	21	-12°			2			
	C12M-SCLCR0602-14	★	14	12	11.0	150	7.0	25	-10°			2			
	C12M-SCLCR0602-16	★	16	12	11.0	150	9.0	25	-10°			2			
	C16R-SCLCR09T3-20	★	20	16	15.0	200	11.0	30	-8°	CC□□32.5	B75	2	BFTX0407N	3.4	TRX15
	C20S-SCLCR09T3-25	★	25	20	18.0	250	13.0	35	-7°			2	BFTX0409N	3.4	

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
* Separately sold sleeve is required.

Adapter Sleeve

Fig 1

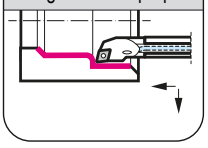


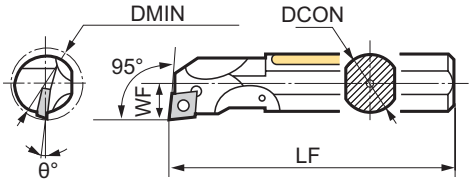
Cat. No.	Stock	Bore Dia. DCB	Applicable Holders	Fig
HBB 416	●	4.0	C04G-SCLC R03X1-05	1
HBB 516	●	5.0	C05H-SCLC R03X1-06	1
HBB 616	●	6.0	C06J-SCLC R04X1-07	1
HBB 716	●	7.0	C07K-SCLC R04X1-08	1

Steel with Anti-Vibration Mechanism
Coolant Hole

D-SCLC

Boring bar / Multipurpose





SumiTurn X Bar

Holder

Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
Inch	D08RSCLC R/L 2	●	●	0.600	0.500	—	—	8.000	0.300	—	-10°	CC□□21.5	B72	1	0.9	TRX08	BFTX02506N
	D10SSCLC R/L 3	●	●	0.700	0.625	—	—	10.000	0.385	—	-8°	CC□□32.5	B75	1	3.0	TRX15	BFTX0407N
	D12SSCLC R/L 3	●	●	0.930	0.750	—	—	10.000	0.465	—	-7°			1			BFTX0409N
	D16TSCLC R/L 3	●		1.200	1.000	—	—	12.000	0.600	—	-6°			1			

Wrench for shim is sold separately from the main body.

N·m Recommended Tightening Torque (N·m)

● USA Stocked Item
★ Worldwide Warehouse Item

B-SCLC

Steel with Anti-Vibration Mechanism

Internal Finishing to Medium Cutting
Screw-on

SumiTurn X Bar

B-SCLC
Bottom Facing

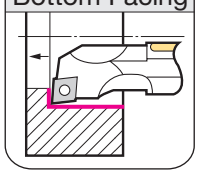


Fig 1

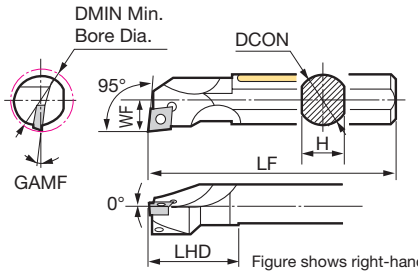


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Anti-Vibration Mechanism	**B08H-SCLC R/L 0602-10**	★	★	***10***	*8*	*7*	*100*	*5.5*	*19*	-13°	CC□□21.5	B72	1	BFTX02505N	1.1	TRX08
	B10K-SCLC R/L 0602-12	★	★	***12***	*10*	*9*	*125*	*6.0*	*21*	-12°			1	BFTX02506N	1.5	
	B12M-SCLC R/L 0602-14	★	★	***14***	*12*	*11*	*150*	*7.0*	*25*	-10°			1			
	B12M-SCLC R/L 0602-16	★	★	***16***	*12*	*11*	*150*	*9.0*	*25*	-10°			1			
	B16R-SCLC R/L 09T3-20	★	★	***20***	*16*	*15*	*200*	*11.0*	*30*	-8°	CC□□32.5	B75	1	BFTX0407N	3.0	TRX15
	B20S-SCLC R/L 09T3-25	★	★	***25***	*20*	*18*	*250*	*13.0*	*30*	-7°			1	BFTX0409N	3.4	
	B25T-SCLC R/L 1204-32	★	★	***32***	*25*	*23*	*300*	*17.0*	*38*	-6°	CC□□43□	B77	1	BFTX0511N	5.0	TRX20

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

- USA Stocked Item
★ Worldwide Warehouse Item

Applicable Inserts ◄·· S-SCLC / A-SCLC / B-SCLC / C-SCLC / E-SCLC / D-SCLC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

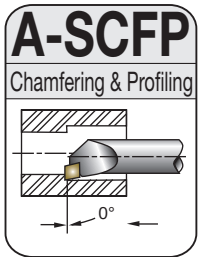
Legend: Name of Chipbreaker/ CBN/PCD — EGU; Photo; Grade — AC8025P

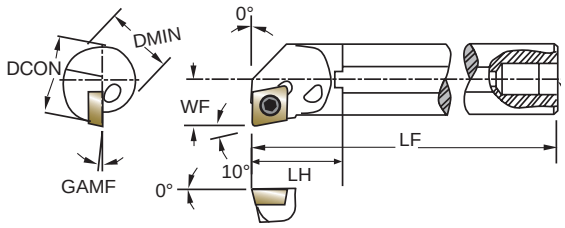
Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-Ferrous) High-precision/Finishing	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Machining	EFB T1500Z	EGU AC8025P	EMU AC8025P	ELB AC6030M	EGU AC6030M	EMU AC6040M	CBN BN7125/BNC500	EMU AC4015K	No Chipbreaker AC4015K	ESU AC5015S	PCD DA1000	NAG H1	CBN BNC2125	CBN BN2000	PCD DA90
High-precision	MEFF AC1030U	MESI AC1030U	EFM AC1030U	MEFF AC1030U	MESI AC1030U	EFM AC1030U	CBN BN7125/BNC500	–	–	MESI AC5015S	PCD DA1000	–	CBN BNC2115	CBN BN1000	BINDERLESS PCD NPD10
Recommended Cutting Conditions	☞ A10~			☞ A14~			☞ A16~			☞ A18~	☞ A22~		☞ A20~		☞ M2~

BNC500 is for ductile cast iron.

N·m Recommended Tightening Torque (N·m)

A-SCFP / A-SCLP





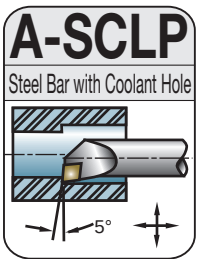
Holder

Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw	Hardware when Boring bar lot# begins with D### Wrench (For Torx Socket)	Hardware when Boring bar lot# begins with D### Screw
Inch	A06SCFP R/L 2	▲		0.480	0.375	0.375	—	6.000	0.250	0.625	-4°	CP□□21.5□	B78	1	0.9	TRX07	BFTY02205	TRX08	ST21.5
	A08SCFP R/L 2	▲	▲	0.600	0.500	0.500	—	8.000	0.312	0.750	-2°			1					
	A10SCFP R/L 2			0.770	0.625	0.625	—	10.000	0.406	1.250	0°			1					
	A12SCFP R/L 3	▲		0.930	0.750	0.750	—	10.000	0.500	1.250	0°	CP□□32.5□	B81	1	3.0	TRX15	BFTX0407N	—	ST32.5
	A16SCFP R/L 3	▲		1.200	1.000	1.000	—	12.000	0.640	1.875	0°			1					

Wrench for shim is sold separately from the main body.
Coolant Through



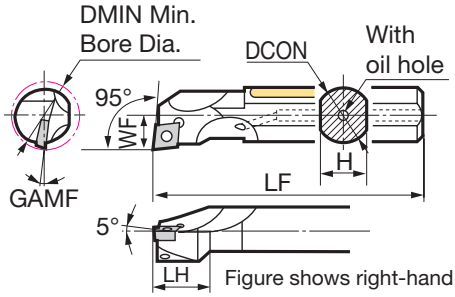


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
Inch	A06SCLP R/L 2	•	•	0.480	0.375	0.375	—	6.000	0.250	0.625	-6°	CP□□21.5□	B78	1	0.9	TRX07	BFTY02205
	A08SCLP R/L 2	•	•	0.600	0.500	0.500	—	8.000	0.312	0.750	-3°			1			
	A10SCLP R/L 2	•	•	0.770	0.625	0.625	—	10.000	0.406	1.250	-2°			1			
	A10SCLP R/L 3	•	•	0.770	0.625	0.625	—	10.000	0.406	1.250	-2°	CP□□32.5□	B81	1	3.0	TRX15	BFTX0407N
	A12SCLP R/L 3	•		0.930	0.750	0.750	—	10.000	0.500	1.250	-2°			1			
	A16SCLP R/L 3	•	•	1.200	1.000	1.000	—	12.000	0.640	1.875	0°			1			

Wrench for shim is sold separately from the main body.
Coolant Through

• USA Stocked Item
▲ USA Limited Availability Item

N·m Recommended Tightening Torque (N·m)

S-SCLP / C-SCLP

Steel

Internal Finishing to Medium Cutting
Screw-on

S-SCLP
Bottom Facing

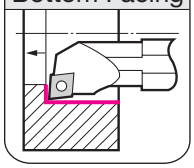


Fig 1

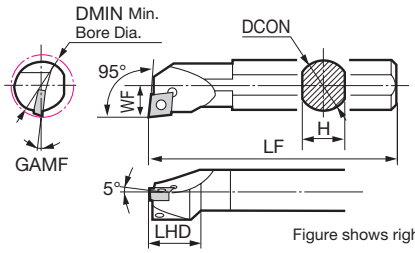


Figure shows right-hand (R) tool.

Holder

Parts Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	S10K-SCLP R/L0802-12	★	★	12	10	9	125	6.0	12.0	-5°	CP□□2.51.5□	B78	1	BFTX0305A	2.0	TRX10
	S12M-SCLP R/L0802-14	★	★	14	12	11	150	7.0	10.6	-5°			1			
	S12M-SCLP R/L0903-16	★	★	16	12	11	150	8.0	23.0	-6°	CP□□32□	B80	1	BFTX0407A	3.4	TRX15
	S16R-SCLP R/L0903-18	★	★	18	16	15	200	9.0	18.0	-4°			1			
	S20S-SCLP R/L0903-22	★	★	22	20	18	250	11.0	18.0	-2°			1			
	S25T-SCLP R/L0903-27	★	★	27	25	22	300	13.5	18.0	-2°			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Carbide

Internal Finishing to Medium Cutting
Screw-on

C-SCLP
Bottom Facing

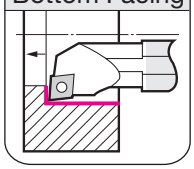


Fig 1

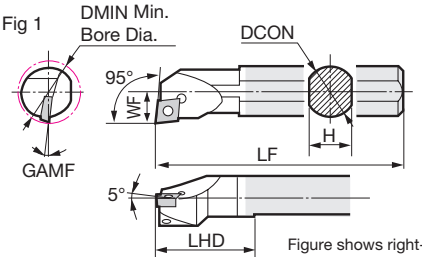


Figure shows right-hand (R) tool.

Holder

Parts Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Carbide	C10K-SCLP R/L0802-12	★	★	12	10	9	125	6	19	-5°	CP□□2.51.5□	B78	1	BFTX0305A	2.0	TRX10
	C12M-SCLP R/L0802-14	★	★	14	12	11	150	7	25	-5°			1			
	C12M-SCLP R/L0802-16	★	★	16	12	11	150	8	25	-3°			1			
	C16R-SCLP R/L0903-18	★	★	18	16	15	200	9	30	-4°	CP□□32□	B80	1	BFTX0407A	3.4	TRX15
	C16R-SCLP R/L0903-20	★	★	20	16	15	200	10	30	-3°			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Applicable Inserts ◄·· S-SCLP / A-SCLP / B-SCLP / C-SCLP / D-SCLP

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/CBN/PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-ferrous) —	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
General Cutting	EFB T1500Z	ESU AC8025P	EMU AC8025P	ELB AC6030M	ESU AC6030M	EMU AC6030M	EMU AC4015K	No Chipbreaker AC4015K	R/L AC5015S	PCD DA1000	CBN BNC2125	CBN BN2000
High Precision	SD T1500Z	–	–	SD AC5015S	–	–	–	–	R/L AC5015S	PCD DA1000	CBN BNC2115	CBN BN1000
Recommended Cutting Conditions	A10			A14			A16		A18	A22	A20	

★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

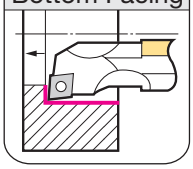
B-SCLP / D-SCLP

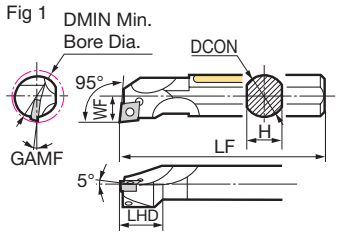
Internal Finishing to Medium Cutting
Screw-on

SumiTurn X Bar

B-SCLP

Bottom Facing





Holder

Parts

Dimensions (*mm*)

	Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Metric	Steel with Anti-Vibration Mechanism	**B12M-SCLP R/L0802-14**	★	★	***14***	*12*	*11*	*150*	*7*	*10.6*	-5°	CP□□2.51.5	**B78**	1	BFTX0305A	**2.0**	TRX10
		B16R-SCLP R/L0903-18	★	★	***18***	*16*	*15*	*200*	*9*	*18.0*	-4°	CP□□32□	**B80**	1	BFTX0407A	**3.4**	TRX15
		B20S-SCLP R/L0903-22	★	★	***22***	*20*	*18*	*250*	*11*	*18.0*	-2°			1			

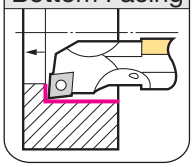
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

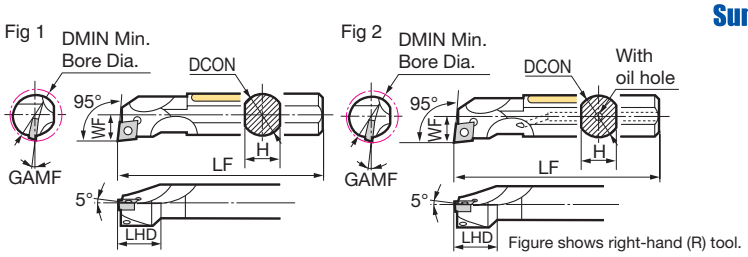
Internal Finishing to Medium Cutting
Screw-on

SumiTurn X Bar

D-SCLP

Bottom Facing





Holder

Parts

Dimensions (*mm*)

	Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	Steel with Anti-Vibration Mechanism	**D10SSCLPR2**	●		**0.770**	0.625	0.625	10.00	0.355	—	-5°	CP□□21.5□	**B78**	1	BFTX0256N	**2.0**	TRX08
		D12SSCLP R/L 3	●	●	**0.930**	0.750	0.750	10.00	0.450	—	-4°	CP□□32.5□	**B81**	1	BFTX0409N		TRX15
		D16TSCLP R/L 3	●	●	**1.200**	1.000	1.000	12.00	0.550	—	-2°			1			
	Steel with Anti-Vibration Mechanism with Oil Hole	**D12M-SCLP R/L0802-14**	★		***14***	*12*	*11*	*150*	*7*	*10.6*	-5°	CP□□2.51.5	**B78**	2	BFTX0305A	**2.0**	TRX10
		D16R-SCLP R/L0903-18	★		***18***	*16*	*15*	*200*	*9*	*18.0*	-4°	CP□□32□	**B80**	2	BFTX0407A	**3.4**	TRX15
		D20S-SCLP R/L0903-22	★		***22***	*20*	*18*	*250*	*11*	*18.0*	-2°			2			

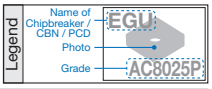
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

● USA Stocked Item
★ Worldwide Warehouse Item

Applicable Inserts ◄.. S-SCLP / A-SCLP / B-SCLP / C-SCLP / D-SCLP

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



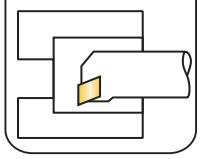
Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-ferrous) —	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
General Cutting	EFB T1500Z	ESU AC8025P	EMU AC8025P	ELB AC6030M	ESU AC6030M	EMU AC6030M	EMU AC4015K	No Chipbreaker AC4015K	SD AC5015S	PCD DA1000	CBN BNC2125	CBN BN2000
High Precision	SD T1500Z	–	–	SD AC5015S	–	–	–	–	SD AC5015S	PCD DA1000	CBN BNC2115	CBN BN1000
Recommended Cutting Conditions	☞A10			☞A14			☞A16		☞A18	☞A22	☞A20	

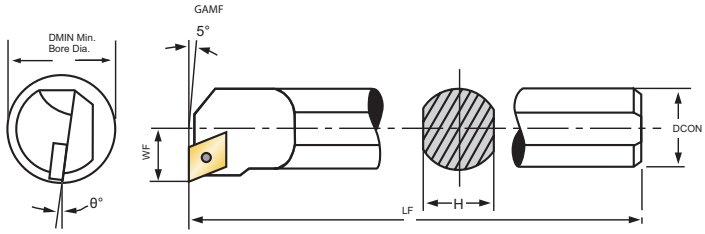
N·m Recommended Tightening Torque (N·m)

BSCLO / CSCLO

80° Steel

BSCLO
Internal Boring





Holder Parts

Dimensions (inch)

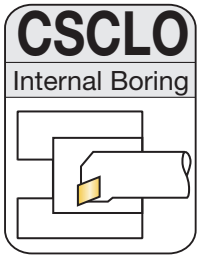
Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Width W	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
BSCLO R/L 062	▲	▲	0.500	0.375	—	—	6.000	0.250	0.336	-5°	CP□□2.51.5□	**B78**	1	3.0	TRX10	BFTX0305A
BSCLO R/L 082	▲	▲	0.625	0.500	—	—	6.000	0.313	0.462	-2°			1			
BSCLO R/L 103	▲	▲	0.750	0.625	—	—	6.500	0.375	0.586	-2°	CP□□32□	**B80**	1		TRX15	BFTX0407A
BSCLO R/L 123	▲	▲	1.000	0.750	—	—	10.000	0.500	0.672	0°			1			
BSCLO R/L 164	▲	▲	1.125	1.000	—	—	12.000	0.563	0.882	-1°	CP□□43□	**B81**	1		TRX20	BFTX0509A

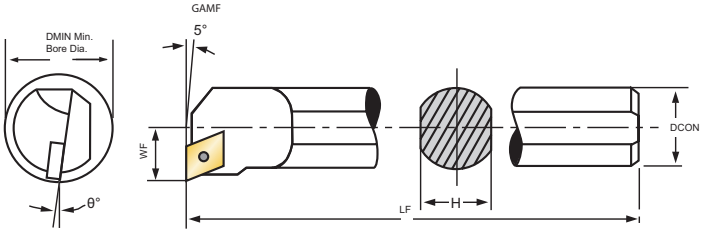
Wrench for shim is sold separately from the main body.

Maximum overhang = 3xD

80° Carbide

CSCLO
Internal Boring





Holder Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Width W	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
CSCLO R/L 062	▲	▲	0.500	0.375	—	—	6.000	0.250	0.336	-5°	CP□□2.51.5□	**B78**	1	3.0	TRX10	BFTX0305A
CSCLO R/L 082	▲	▲	0.625	0.500	—	—	6.000	0.313	0.462	-2°			1			
CSCLO R/L 103	▲	▲	.750	1.000	—	—	6.500	0.375	0.586	-2°	CP□□32□	**B80**	1		TRX15	BFTX0407A

Wrench for shim is sold separately from the main body.

▲ : USA Limited Availability Item

N·m Recommended Tightening Torque (N·m)

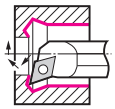
A-SDQC / A-SDUC

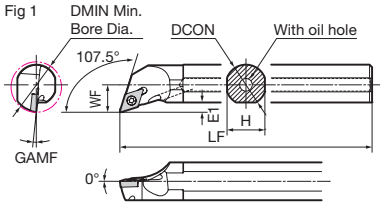
55° 107.5° Steel Coolant Hole

Internal Profiling
Screw-on

A-SDQC

Profiling





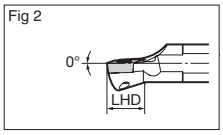


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

	Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Head LHD	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Metric	Steel with oil hole	**A10M-SDQC R/L0702-13**	★	★	***13***	*10*	*9*	*150*	*7.0*	*2.5*	-8°	—	DC□□21.5□	**B82**	1	BFTX02506N	**1.5**	TRX08
		A12M-SDQC R/L0702-16	★	★	***16***	*12*	*11*	*150*	*9.0*	*3.5*	-8°	—			1			
		A16Q-SDQC R/L0702-20	★	★	***20***	*16*	*15*	*180*	*11.0*	*4.0*	-6°	—			1			
		A16Q-SDQC R/L11T3-23	★	★	***23***	*16*	*15*	*180*	*12.5*	*5.5*	-6°	15	DC□□32.5□	**B86**	2	BFTX0409N	**3.4**	TRX15
		A20R-SDQC R/L11T3-25	★	★	***25***	*20*	*18*	*200*	*13.0*	*4.5*	-6°	—			1			
		A25S-SDQC R/L11T3-32	★	★	***32***	*25*	*22*	*250*	*17.0*	*7.0*	-6°	—			1			

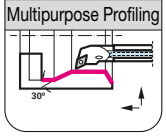
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts. Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

55° 93° Steel Coolant Hole

Internal Profiling
Screw-on

A-SDUC

Multipurpose Profiling



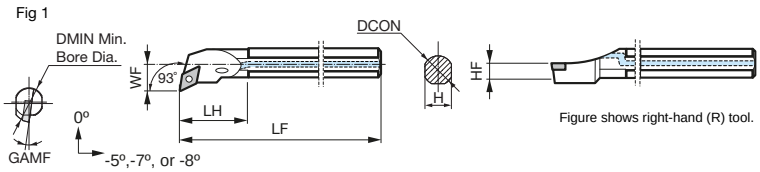


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw	Hardware when Boring bar lot# begins with D### Wrench (For Torx Socket)	Hardware when Boring bar lot# begins with D### Screw
Inch	**A06SDUC R/L 2**			**0.600**	0.375	0.375	—	6.00	0.375	0.625	-7°	DC□□21.5□	**B82**	1	**0.9**	TRD07	ST-1425	TRX08	ST21.5
	A06MSDUC R/L 2	★	★	**0.750**	0.375	0.340	0.170	6.00	0.375	0.750	-8°			1				—	—
	A08SDUC R/L 2			**0.730**	0.500	0.500	—	6.00	0.500	0.750	-7°			1				TRX08	ST21.5
	A08MSDUC R/L 2	★	★	**0.875**	0.500	0.460	0.230	6.00	0.438	0.875	-8°			1			ST-1225	—	—
	A10SDUC R/L 2			**0.850**	0.625	0.625	—	8.00	0.625	1.250	-7°			1			ST-1425	TRX08	ST21.5
	A10RSDUC R/L 2	★	★	**1.000**	0.625	0.580	0.290	8.00	0.500	1.000	-8°			1			ST-1225	—	—
	A12SDUC R/L 3			**0.980**	0.750	0.750	—	10.00	0.750	1.275	-7°	DC□□32.5□	**B86**	1	**3.0**	TRX15	BFTX0407N	—	ST32.5
	A12SSDUC R/L 3M	•	•	**1.250**	0.750	0.710	0.355	10.00	0.625	1.250	-8°			1		TRD15	ST-1240		—
	A16SDUC R/L 3			**1.300**	1.000	1.000	—	12.00	1.000	2.500	-5°			1		TRX15	BFTX0407N		ST32.5

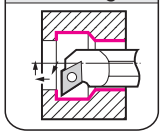
Wrench for shim is sold separately from the main body. Coolant Through

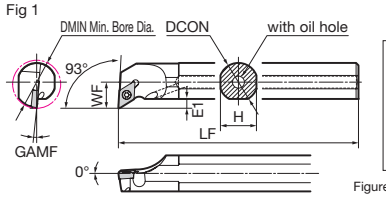
55° 93° Steel Coolant Hole

Internal Profiling
Screw-on

A-SDUC

Profiling





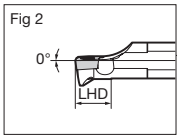


Figure shows right-handed (R) tool.

Holder / Parts

Dimensions (mm)

	Shank Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Head LHD	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Insert Screw	N·m	Wrench (For Torx hole)
Metric	Steel with Oil Hole	**A10M-SDUC R/L0702-13**	★	★	**13**	10	9	150	7.0	2.5	-8°	—	DC□□0702	**B80~**	1	BFTX02506N	**1.5**	TRX08
		A12M-SDUC R/L0702-16	★	★	**16**	12	11	150	9.0	3.5	-8°	—			1			
		A16Q-SDUC R/L0702-20	★	★	**20**	16	15	180	11.0	4.0	-6°	—			1			
		A16Q-SDUC R/L11T3-23	★	★	**23**	16	15	180	12.5	5.5	-6°	15	DC□□11T3	**B84~**	2	BFTX0409N	**3.4**	TRX15
		A20R-SDUC R/L11T3-25	★	★	**25**	20	18	200	13.0	4.5	-6°	—			1			
		A25S-SDUC R/L11T3-32	★	★	**32**	25	22	250	17.0	7.0	-6°	—			1			

• USA Stocked Item ★ Worldwide Warehouse Item

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

E-SDUC / S-SDQC / S-SDUC

55° 93° Carbide Coolant Hole

Internal Profiling
Screw-on

E-SDUC

Multipurpose Profiling

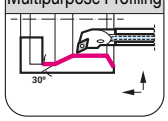


Fig 1

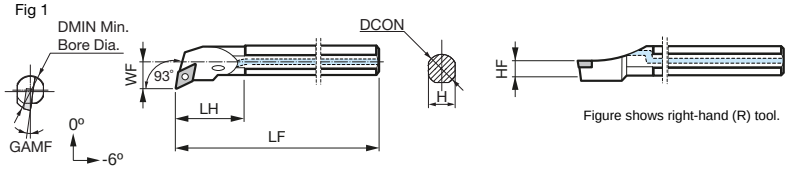


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch)

	Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Rake Angle GAMF	Head LH	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Inch	Carbide with oil hole	**E06M-SDUCR/L2**	★	★	**0.480**	0.375	0.347	6.000	0.250	-6°	0.625	DC□□21.5□	**B82**	1	ST-1425	**0.9**	TRX08
		E08R-SDUCR/L2	★	★	**0.598**	0.500	0.470	8.000	0.291	-6°	0.728			1	ST-1225	**0.9**	
		E10S-SDUCR/L2	★	★	**0.771**	0.625	0.592	10.000	0.356	-6°	0.921			1	ST-1225	**0.9**	
		E12S-SDUCR/L3	★	★	**0.929**	0.750	0.718	10.000	0.406	-6°	1.063	DC□□32.5□	**B86**	1	ST-1440	**3.0**	TRX15

Wrench for shim is sold separately from the main body. Coolant Through

55° 107.5° Steel

Internal Profiling
Screw-on

S-SDQC

Profiling

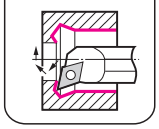


Fig 1

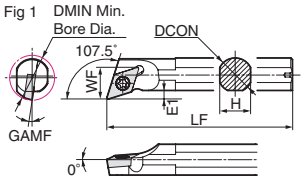


Fig 2

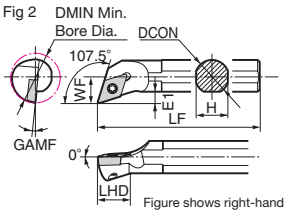


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Head LHD	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S10M-SDQC R/L0702-13**	★	★	***13***	*10*	*9*	*150*	*7.0*	*2.5*	-8°	—	DC□□21.5□	**B82**	1	BFTX02506N	**1.5**	TRX08
	S12M-SDQC R/L0702-16	★	★	***16***	*12*	*11*	*150*	*9.0*	*3.5*	-8°	—			1			
	S16Q-SDQC R/L0702-20	★	★	***20***	*16*	*15*	*180*	*11.0*	*4.0*	-6°	—			1			
	S16N-SDQC R/L0702-20	★	★	***20***	*16*	*15*	*160*	*11.0*	*4.0*	-6°	—			1			
	S16Q-SDQC R/L11T3-23	★	★	***23***	*16*	*15*	*180*	*12.5*	*5.5*	-6°	15	DC□□32.5□	**B86**	2	BFTX0409N	**3.4**	TRX15
	S20R-SDQC R/L11T3-25	★	★	***25***	*20*	*18*	*200*	*13.0*	*4.5*	-6°	—			1			
	S20N-SDQC R/L11T3-25	★	★	***25***	*20*	*18*	*160*	*13.0*	*4.5*	-6°	—			1			
	S25S-SDQC R/L11T3-32	★	★	***32***	*25*	*22*	*250*	*17.0*	*7.0*	-6°	—			1			
	S25Q-SDQC R/L11T3-32	★	★	***32***	*25*	*22*	*180*	*17.0*	*7.0*	-6°	—			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

55° 93° Steel

Internal Profiling
Screw-on

S-SDUC

Profiling

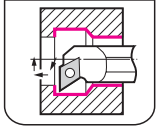


Fig 1

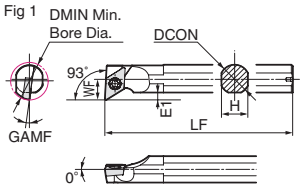


Fig 2

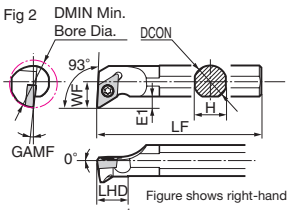


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Head LHD	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S10M-SDUC R/L 0702-13**	★	★	*13*	*10*	*9*	*150*	*7.0*	*2.5*	-8°	—	DC□□21.5□	**B82**	1	BFTX02506N	**1.5**	TRX08
	S12M-SDUC R/L 0702-16	★	★	*16*	*12*	*11*	*150*	*9.0*	*3.5*	-8°	—			1			
	S16Q-SDUC R/L 0702-20	★	★	*20*	*16*	*15*	*180*	*11.0*	*4.0*	-6°	—			1			
	S16N-SDUC R/L 0702-20	★	★	*20*	*16*	*15*	*160*	*11.0*	*4.0*	-6°	—			1			
	S16Q-SDUC R/L 11T3-23	★	★	*23*	*16*	*15*	*180*	*12.5*	*5.5*	-6°	*15*	DC□□32.5□	**B86**	2	BFTX0409N	**3.4**	TRX15
	S20R-SDUC R/L 11T3-25	★	★	*25*	*20*	*18*	*200*	*13.0*	*4.5*	-6°	—			1			
	S20N-SDUC R/L 11T3-25	★	★	*25*	*20*	*18*	*160*	*13.0*	*4.5*	-6°	—			1			
	S25S-SDUC R/L 11T3-32	★	★	*32*	*25*	*22*	*250*	*17.0*	*7.0*	-6°	—			1			
	S25Q-SDUC R/L 11T3-32	★	★	*32*	*25*	*22*	*180*	*17.0*	*7.0*	-6°	—			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

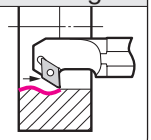
S-SDZC / C-SDUC

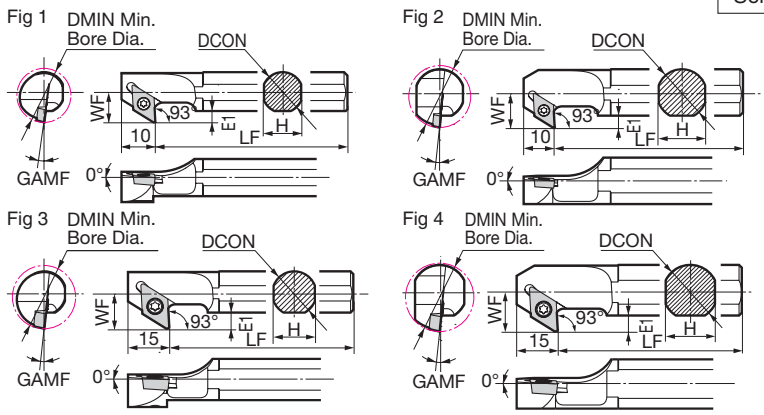
Internal Profiling
Screw-on

S-SDZC

Steel

Profiling





Holder

Figure shows right-hand (R) tool.

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S10M-SDZC R/L0702-13**	★	★	***13***	*10*	*9*	*150*	*7.5*	*3.0*	-8°	DC□□21.5□	**B82**	1	BFTX02506N	**1.5**	TRX08
	S12M-SDZC R/L0702-16	★	★	***16***	*12*	*11*	*150*	*9.0*	*3.5*	-8°			1			
	S16Q-SDZC R/L0702-20	★	★	***20***	*16*	*15*	*180*	*11.0*	*4.0*	-6°			2			
	S16Q-SDZC R/L11T3-23	★	★	***23***	*16*	*15*	*180*	*13.0*	*6.0*	-6°	DC□□32.5□	**B86**	3	BFTX0409N	**3.4**	TRX15
	S20R-SDZC R/L11T3-25	★	★	***25***	*20*	*18*	*200*	*14.5*	*6.0*	-6°			4			
	S25S-SDZC R/L11T3-32	★	★	***32***	*25*	*22*	*250*	*17.0*	*7.0*	-6°			4			

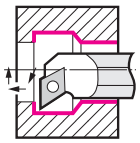
Right-handed (R) tool holders are compatible with right-handed (R) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with left-handed (L) or neutral (N) inserts.

Internal Profiling
Screw-on

C-SDUC

Carbide

Profiling



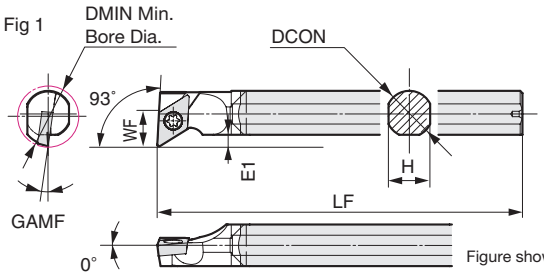


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Carbide	**C10M-SDUC R/L0702-13**	★	★	**13**	10	9	150	7	2.5	-8°	DC□□21.5□	**B82**	1	BFTX02506N	**1.5**	TRX08
	C12M-SDUC R/L0702-16	★	★	**16**	12	11	150	9	3.5	-8°			1			
	C16R-SDUC R/L0702-20	★	★	**20**	16	15	200	11	4.0	-6°			1			
	C20S-SDUC R/L11T3-25	★	★	**25**	20	18	250	13	4.5	-6°	DC□□32.5□	**B86**	1	BFTX0409N	**3.4**	TRX15

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

★ Worldwide Warehouse Item

Applicable Inserts

S-SDUC / A-SDUC / B-SDUC / C-SDUC / S-SDQC / A-SDQC / B-SDQC / S-SDZC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/CBN/PCD — GU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-ferrous) High-precision/Finishing	N (Non-ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Cutting	EFB T1500Z	ESU AC8025P	EMU AC8025P	ELB AC6030M	ESU AC6030M	EMU AC6030M	CBN BN7000/BNC500	EMU AC4015K	No Chipbreaker AC4015K	EFX AC5015S	PCD DA1000	NAG H1	CBN BNC2020	CBN BN2000	PCD DA90
High Precision	EFC T1500A	MESI AC1030U	EFM AC1030U	EFC AC1030U	MESI AC1030U	EFM AC1030U	CBN BN7000/BNC500	–	–	MESI AC5015S	PCD DA1000	–	CBN BNC2010	CBN BN1000	Binderless PCD NPD10
Recommended Cutting Conditions	A10			A14			A16			A18	A22		A20		M2

N·m Recommended Tightening Torque (N·m)

BNC500 is for ductile cast iron.

★ Worldwide Warehouse Item

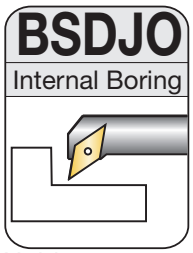
BSDJO / B-SDQC / B-SDUC

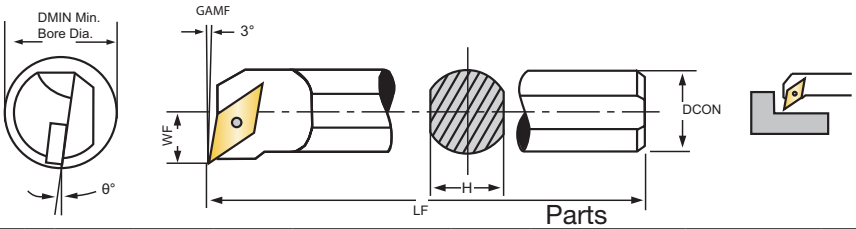
55° 93° Steel

★ Worldwide Warehouse Item
▲ USA Limited Availability Item

Internal Profiling
Screw-on

BSDJO
Internal Boring





Holder Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Width W	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
BSDJO R/L 061	▲	▲	**0.516**	0.375	—	—	5.00	0.306	0.336	-6°	DC□□21.5□□	**B82**	1	**1.5**	TRX08	BFTX02506
BSDJO R/L 081	▲		**0.687**	0.500	—	—	6.00	0.368	0.461	-6°			1			
BSDJO R/L 102	▲	▲	**0.813**	0.625	—	—	8.00	0.431	0.586	-6°			1			
BSDJO R/L 123	▲	▲	**1.000**	0.750	—	—	10.00	0.493	0.671	-6°	DC□□32.5□□	**B86**	1		TRX10	BFS0410T

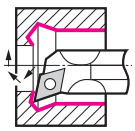
Wrench for shim is sold separately from the main body.

Maximum overhang = 3xD

55° 107.5° Steel with Anti-Vibration Mechanism

Internal Profiling
Screw-on

B-SDQC
Profiling



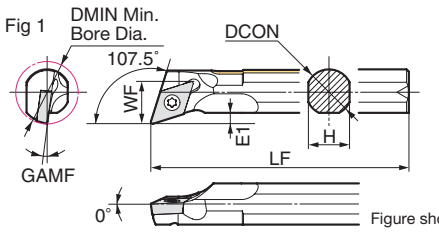


Figure shows right-hand (R) tool.

SumiTurn X Bar

Holder Parts

Dimensions (*mm*)

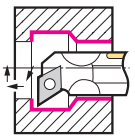
Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Anti-Vibration Mechanism	**B10M-SDQC R/L0702-13**	★	★	***13***	*10*	*9*	*150*	*7*	*2.5*	-8°	DC□□21.5□□	**B82**	1	BFTX02506N	**1.5**	TRX08
	B12M-SDQC R/L0702-16	★	★	***16***	*12*	*11*	*150*	*9*	*3.5*	-8°			1			
	B16R-SDQC R/L0702-20	★	★	***20***	*16*	*15*	*200*	*11*	*4.0*	-6°			1			
	B20S-SDQC R/L11T3-25	★	★	***25***	*20*	*18*	*250*	*13*	*4.5*	-6°	DC□□32.5□□	**B86**	1	BFTX0409N	**3.4**	TRX15
	B25S-SDQC R/L11T3-32	★	★	***32***	*25*	*22*	*250*	*17*	*7.0*	-6°			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

55° 93° Steel with Anti-Vibration Mechanism

Internal Profiling
Screw-on

B-SDUC
Profiling



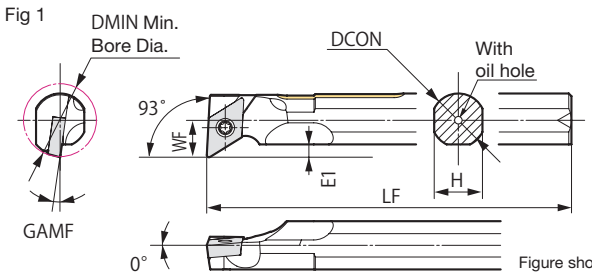


Figure shows right-hand (R) tool.

SumiTurn X Bar

Holder Parts

Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Anti-Vibration Mechanism	**B10M-SDUC R/L0702-13**	★	★	**13**	10	9	150	7	2.5	-8°	DC□□21.5□□	**B82**	1	BFTX02506N	**1.5**	TRX08
	B12M-SDUC R/L0702-16	★	★	**16**	12	11	150	9	3.5	-8°			1			
	B16R-SDUC R/L0702-20	★	★	**20**	16	15	200	11	4.0	-6°			1			
	B20S-SDUC R/L11T3-25	★	★	**25**	20	18	250	13	4.5	-6°	DC□□32.5□□	**B86**	1	BFTX0409N	**3.4**	TRX15
	B25S-SDUC R/L11T3-32	★	★	**32**	25	22	250	17	7.0	-6°			1			

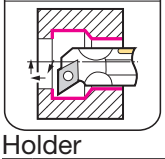
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

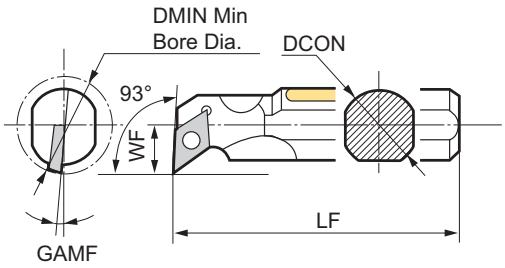
N·m Recommended Tightening Torque (N·m)

D-SDUC / A-SDUP / A-SDXP

D-SDUC

X-Bar Boring Bar





Holder Parts

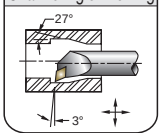
Dimensions (inch)

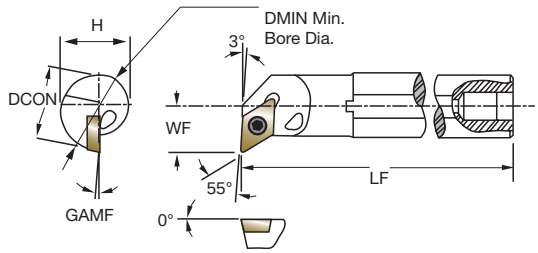
	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
Inch	D08RSDUCR2	●		**0.730**	0.500	0.500	—	8.000	0.375	0.500	-8°	DC□□21.5□	**B82**	1	**0.9**	TRD08	BFTX02506N
Inch	D10SSDUCR2	●		**0.850**	0.625	0.625	—	10.000	0.437	0.625	-6°			1			
Inch	D12SSDUC R/L 3	●	●	**0.980**	0.750	0.750	—	10.000	0.562	0.750	-6°	DC□□32.5□	**B86**	1	**3.0**	TRX15	BFTX0409N
Inch	D16TSDUC R/L 3	●	●	**1.300**	1.000	1.000	—	12.000	0.750	1.000	-6°			1			

Wrench for shim is sold separately from the main body. Coolant Through

A-SDUP

Chamfering & Profiling





Holder Parts

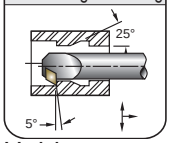
Dimensions (inch)

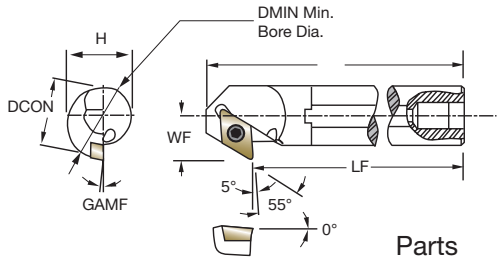
	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw	Hardware when Boring bar lot# begins with D### Wrench (For Torx Socket)	Hardware when Boring bar lot# begins with D### Screw
Inch	A06SDUP R/L 2	▲	▲	**0.600**	0.375	0.375	—	6.000	0.375	0.625	-3°	DP□□21.5□	**B89**	1	**0.9**	TRD07	ST-1425	TRX08	ST21.5
Inch	A08SDUP R/L 2	▲	▲	**0.730**	0.500	0.500	—	8.000	0.437	0.500	-2°			1					
Inch	A10SDUP R/L 2	▲		**0.850**	0.625	—	—	10.000	0.500	—	0°			1					
Inch	A12SDUP R/L 3	▲	▲	**0.980**	0.750	0.750	—	10.000	0.562	0.750	0°	DP□□32.5□		1	**3.0**	TRX15	BFTX0407N	—	ST32.5
Inch	A16SDUP R/L 3	▲	▲	**1.300**	1.000	1.000	—	12.000	0.750	1.000	0°			1					

Wrench for shim is sold separately from the main body. Coolant Through

A-SDXP

Chamfering & Profiling





Holder Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw	Hardware when Boring bar lot# begins with D### Wrench (For Torx Socket)	Hardware when Boring bar lot# begins with D### Screw
Inch	A08SDXP R/L 2	▲	▲	**0.730**	0.500	—	—	8.500	0.437	—	0°	DP□□21.5□	**B89**	1	**0.9**	TRD07	ST-1425	TRX08	ST21.5
Inch	A10SDXP R/L 2	▲	▲	**0.850**	0.625	0.625	—	10.000	0.500	1.000	0°			1					
Inch	A12SDXP R/L 3	▲	▲	**0.980**	0.750	—	—	10.750	0.562	—	-2°	DP□□32.5□		1	**3.0**	TRX15	BFTX0407N	—	ST32.5
Inch	A16SDXP R/L 3	▲	▲	**1.300**	1.000	1.000	—	12.750	0.750	1.500	0°			1					

Wrench for shim is sold separately from the main body. Coolant Through

- USA Stocked Item
- ▲ USA Limited Availability Item

S-SSKC

Steel

Internal General
Screw-on

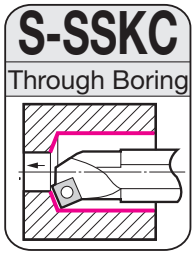
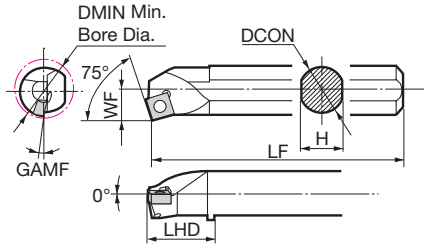


Fig 1



Holder

Figure shows right-hand (R) tool.

Parts

Dimensions (*mm*)

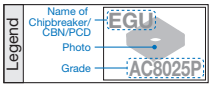
Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	Flat Screw N·m	Wrench (For Torx Holes)
Steel	**S16R-SSKC R/L09T3-20**	★	★	***20***	*16*	*15*	*200*	*11*	*23*	-10°	SC□□32.5□	B93	1	BFTX0407N	3.4	TRX15
	S20S-SSKC R/L09T3-25	★	★	***25***	*20*	*18*	*250*	*13*	*27*	-8°			1	BFTX0409N	3.4	
	S25T-SSKC R/L1204-32	★		***32***	*25*	*23*	*300*	*17*	*30*	-7°	SC□□43□	B94	1	BFTX0511N	5.0	TRX20
	S32U-SSKC R/L1204-40	★		***40***	*32*	*30*	*350*	*22*	*33*	-6°			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Applicable Inserts ◄·· S-SSKC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	N (Non-ferrous) —
General Cutting	EFB T1500Z	ESU AC8025P	EMU AC8025P	ELB AC6030M	ESU AC6030M	EMU AC6040M	EMU AC4015K	No Chipbreaker AC4015K	PCD DA1000
High Precision	FX T1500A	EFM AC1030U	EFM AC1030U	FX AC1030U	EFM AC1030U	EFM AC1030U	–	–	PCD DA1000
Recommended Cutting Conditions	☞ A10			☞ A14			☞ A16		☞ A22

★ Worldwide Warehouse Item

S-SSKP / C-SSKP

Internal General
Screw-on

S-SSKP
Through Boring

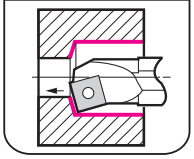


Fig 1

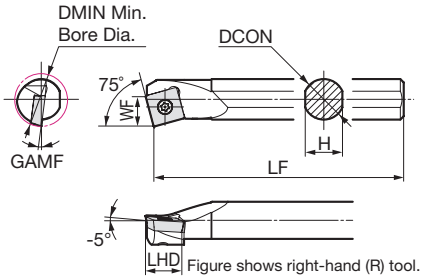


Figure shows right-hand (R) tool.

Holder — Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S12M-SSKP R/L0903-16**	★	★	***16***	*12*	*11*	*150*	*8.0*	*9.0*	-6°	SP□□32□	**B96**	1	BFTX0307A	**2.0**	TRX10
	S16R-SSKP R/L0903-20	★	★	***20***	*16*	*15*	*200*	*10.0*	*6.8*	-4°			1			
	S20S-SSKP R/L0903-25	★	★	***25***	*20*	*18*	*250*	*12.5*	*8.5*	-2°			1			
	S25T-SSKP R/L0903-28	★	★	***28***	*25*	*22*	*300*	*14.0*	*5.0*	0°			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Internal General
Screw-on

C-SSKP
Through Boring

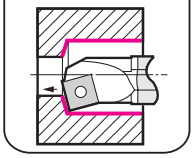
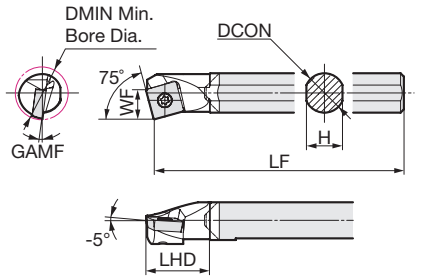


Fig 1



Holder — Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Carbide Standard	**C12M-SSKP R0903-16**	★	***16***	*12*	*11*	*150*	*8*	*25*	-6°	SP□□32□	**B96**	1	BFTX0307A	**2.0**	TRX10
Carbide Long	**C12R-SSKP R0903-16**	★	***16***	*12*	*11*	*200*	*8*	*25*	-6°			1			
	C16S-SSKP R0903-20	★	***20***	*16*	*15*	*250*	*10*	*30*	-4°			1			

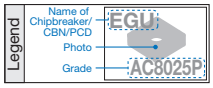
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.

★ Worldwide Warehouse Item

Applicable Inserts ◀·· S-SSKP / C-SSKP

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	N (Non-ferrous) —
General Cutting	EFB T1500Z	ELB AC8025P	ELU AC6030M	ELB AC6030M	PCD DA1000
High Precision	R/L T1500Z	—	—	—	PCD DA1000
Recommended Cutting Conditions	A10		A14		A22

N·m Recommended Tightening Torque (N·m)

S-CSKP / BSSKO

Internal General
Clamp-on

S-CSKP
Through Boring

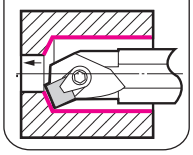


Fig 1

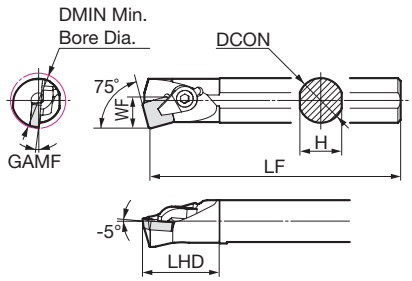


Figure shows right-hand (R) tool.

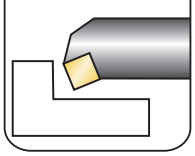
Holder — Parts

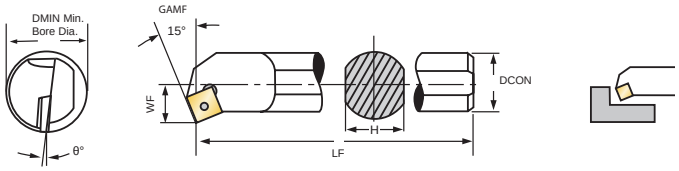
Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp	Double Screw	Wrench (For Hex Socket)
Steel	**S16Q-CSKP R/L0903-20**	★	★	***20***	*16*	*15*	*180*	*10.0*	*28*	-4°	SP□□32□	**B96**	1	CCM6B R/L	WB6-10	LH030
	S20R-CSKP R/L0903-25	★	★	***25***	*20*	*18*	*200*	*12.5*	*28*	-2°			1		WB6-13	

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

BSSKO
Internal Boring





Holder — Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Width W	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Wrench (For Torx Socket)	Screw
BSSKO R/L 083	▲		**0.625**	0.500	—	—	6.00	0.312	0.462	-4°	SP□□32□	**B96**	1	TRX10	BFTX0307A
BSSKO R/L 103	▲	▲	**0.750**	0.625	—	—	6.50	0.375	0.582	-2°			1		
BSSKO R/L 123	▲		**1.000**	0.750	—	—	10.00	0.500	0.672	0°			1		
BSSKO R/L 163	▲		**1.125**	1.000	—	—	12.00	0.563	0.882	0°			1		

Wrench for shim is sold separately from the main body.

Maximum overhang = 3xD

★ Worldwide Warehouse Item ▲ USA Limited Availability Item

Applicable Inserts ◄·· S-CSKP / BSSKO

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/ CBN/PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	K (Cast Iron) Medium to Roughing	S (Exotic Alloy) Finishing to Medium Cutting	S (Exotic Alloy) Medium to Roughing	H (Hardened Steel) Uncoated
General Cutting	EFK T1500Z	ENF AC8025P	CBN BN7000	No Chipbreaker AC4015K	No Chipbreaker AC4015K	No Chipbreaker AC5015S	No Chipbreaker AC5025S	CBN BN2000
Recommended Cutting Conditions	☞ A10		☞ A16			☞ A18		☞ A20

11° inserts with holes can also be used.

C-STUB / C-STUP

T 60° | 93° | Carbide | Carbide Short | Carbide Long

Internal Finishing to Medium Cutting
Screw-on

C-STUB C-STUP
Stop Boring

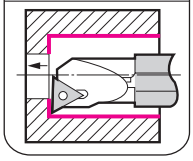


Fig 1

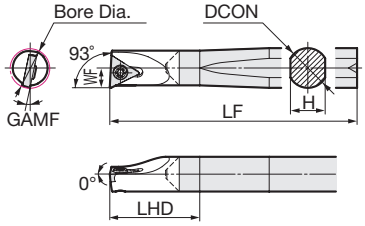


Fig 2

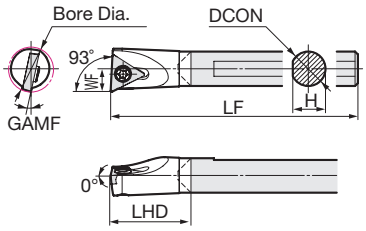
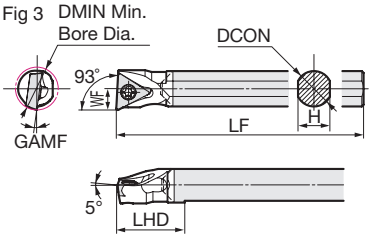


Fig 3



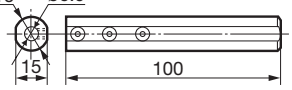
Holder / Parts

Dimensions (inch/ *mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Carbide Standard	**C06K-STUB R/L 5**	▲		**0.313**	0.375	0.375	5.000	0.156	1.800	-12°	TB□□52	**B101**	1	BFTX0204A		TRX06
	C06K-STUP R/L 6	▲	▲	**0.375**	0.375	0.375	5.000	0.188	1.800	-10°	TP□□63	**B107**	1	BFTX0204A		TRX06
Carbide Standard	**C08H-STUB R/L 0601-08**	★	★	***8***	*8*	*7.0*	*100*	*4.0*	*50*	-12°	TB□□52	**B101**	1	BFTX0204A	**0.5**	TRX06
	C08H-STUB R/L 0601-08K	★	★	***8***	*6*	*5.7*	*100*	*4.0*	—	-12°			2	BFTX0204N	**0.5**	
	C08H-STUP R/L 0802-10	★	★	***10***	*8*	*7.0*	*100*	*5.0*	*18*	-10°	TP□□63	**B107**	3	BFTX0204A	**0.5**	TRX06
	C10K-STUP R/L 1103-12	★	★	***12***	*10*	*9.0*	*125*	*6.0*	*19*	-8°	TP□□22	**B111**	3	BFTX0306A	**2.0**	TRX10
	C12M-STUP R/L 1103-14	★	★	***14***	*12*	*11.0*	*150*	*7.0*	*25*	-7°			3			
	C12M-STUP R/L 1103-16	★	★	***16***	*12*	*11.0*	*150*	*8.0*	*25*	-6°			3	BFTX0307A	**2.0**	
	C16R-STUP R/L 1103-18	★	★	***18***	*16*	*15.0*	*200*	*9.0*	*30*	-4°			3	BFTX0306A	**2.0**	
	C16R-STUP R/L 1103-20	★	★	***20***	*16*	*15.0*	*200*	*10.0*	*30*	-2°			3	BFTX0307A	**2.0**	
	C20S-STUP R/L 1103-22	★	★	***22***	*20*	*18.0*	*250*	*11.0*	*35*	-2°			3			
	C20S-STUP R/L 1604-25	★	★	***25***	*20*	*18.0*	*250*	*12.5*	*35*	-3°	TP□□33	**B114**	3	BFTX0410A	**3.4**	TRX15
Carbide Long	**C08M-STUB R/L 0601-08**	★	★	***8***	*8*	*7.0*	*150*	*4.0*	*50*	-12°	TB□□52	**B101**	1	BFTX0204A	**0.5**	TRX06
	C08M-STUP R/L 0802-10	★		***10***	*8*	*7.0*	*150*	*5.0*	*18*	-10°	TP□□63	**B107**	3	BFTX0204A	**0.5**	TRX06
Carbide Long	**C10Q-STUP R/L 1103-12**	★	★	***12***	*10*	*9.0*	*180*	*6.0*	*19*	-8°	TP□□22	**B111**	3	BFTX0306A	**2.0**	TRX10
	C12R-STUP R/L 1103-14	★		***14***	*12*	*11.0*	*200*	*7.0*	*25*	-7°			3			
	C12R-STUP R/L 1103-16	★		***16***	*12*	*11.0*	*200*	*8.0*	*25*	-6°			3	BFTX0307A	**2.0**	
	C16S-STUP R/L 1103-18	★		***18***	*16*	*15.0*	*250*	*9.0*	*30*	-4°			3	BFTX0306A	**2.0**	
	C16S-STUP R/L 1103-20	★		***20***	*16*	*15.0*	*250*	*10.0*	*30*	-2°			3	BFTX0307A	**2.0**	
Carbide Short	**C16M-STUP R/L 1103-18**	★	★	***18***	*16*	*15.0*	*150*	*9.0*	*30*	-4°			3	BFTX0306A	**2.0**	TRX10
	C16M-STUP R/L 1103-20	★	★	***20***	*16*	*15.0*	*150*	*10.0*	*30*	-2°			3	BFTX0307A	**2.0**	
	C20M-STUP R/L 1103-22	★	★	***22***	*20*	*18.0*	*150*	*11.0*	*35*	-2°			3			
	C20M-STUP R/L 1604-25	★	★	***25***	*20*	*18.0*	*150*	*12.5*	*35*	-3°	TP□□33	**B114**	3	BFTX0410A	**3.4**	TRX15

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
C08H-STUB R/L0601-08K requires the separately sold HBB616 adapter sleeve.
Actual products marked with * show an ISO type code.

Fig 1



Adapter Sleeve

Cat. No.	Stock	Fig
HBB 616	●	1

Adapter sleeve is optional.

Applicable Inserts ◀ S-STUB / C-STUB

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/ CBN/PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	N (Non-ferrous) —	H (Hardened Steel) Uncoated
High Precision	FW T1500Z	FX AC1030U	FW AC1030U	FX AC1030U	PCD DA1000	CBN BN2000
Recommended Cutting Conditions	A10		A14		A22	A20

Applicable Inserts ◀·· S-STUP / A-STUP / B-STUP / D-STUP / C-STUP / E-STUP

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-Ferrous) High-precision/ Finishing	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Machining	EFB T1500Z	EGU AC8025P	EMU AC8025P	ELB AC6030M	EGU AC6030M	EMU AC6030M	CBN BN7125	MU AC4015K	FX AC5015S	PCD DA1000	AY H1	CBN BNC2125	CBN BN2000	PCD DA90
High-precision	MEFF AC1030U	—	—	—	—	—	CBN BN7125	—	FX AC5015S	PCD DA1000	—	CBN BNC2115	CBN BN1000	BINDERLESS PCD NPD10
Recommended Cutting Conditions	A10~			A14~			A16~		A18~	A22~		A20~		M2~

N·m Recommended Tightening Torque (N·m)

★ Worldwide Warehouse Item ▲ USA Limited Availability Item

A-STFC / E-STFC / D-STUC

T 60° Steel Coolant Hole

A-STFC

Boring bar / Multipurpose

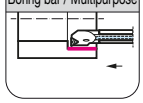
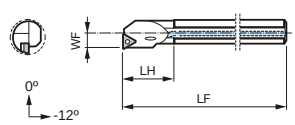


Fig 1



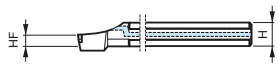


Figure shows right-hand (R) tool.

Holder / Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw	Hardware when Boring bar lot# begins with D### Wrench (For Torx Socket)	Hardware when Boring bar lot# begins with D### Screw
Inch	A06MSTFC R/L 2	•	•	0.500	0.375	0.340	0.170	6.000	0.250	0.500	-12°	TC□□21.5□	B104	1	0.9	TRD07	ST-1425	—	—
	A08STFC R/L 2	▲	▲	0.600	0.500	0.500	—	6.000	0.312	0.750	-13°			1				TRX08	ST21.5
	A08MSTFC R/L 2	•	•	0.625	0.500	0.460	0.230	6.000	0.312	0.625	-12°			1			ST-1225	—	—
	A10STFC R/L 2		▲	0.770	0.625	0.625	—	8.000	0.406	1.250	-10°			1			ST-1425	TRX08	ST21.5
	A10RSTFC R/L 2	•	•	0.812	0.625	0.580	0.290	8.000	0.406	0.812	-12°			1			ST-1225	—	—
	A12SSTFC R/L 2	•	•	1.000	0.750	0.170	0.355	10.000	0.500	1.000	-12°			1					
	A12STFC R/L 3		▲	0.930	0.750	0.750	—	10.000	0.500	1.875	-8°	TC□□32.5□	B106	1	3.0	TRX15	BFTX0407N	—	ST32.5
	A16STFC R/L 3	•	•	1.200	1.000	1.000	—	12.000	0.640	2.500	-7°			1					

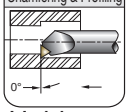
•Wrench for shim is sold separately from the main body.

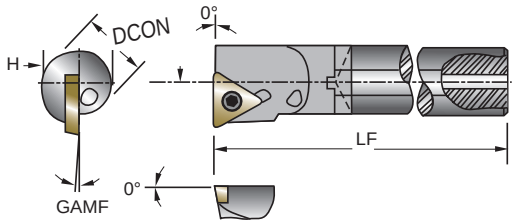
Coolant Through

T 60° Carbide Coolant Hole

E-STFC

Chamfering & Profiling





Holder / Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
Inch	E06STFC R/L 2	•	•	0.480	0.375	0.375	—	6.000	0.250	—	-15°	TC□□21.5□	B104	1	0.9	TRD07	ST21.5
	E08STFC R/L 2	•	•	0.600	0.500	0.500	—	6.000	0.312	—	-13°			1			
	E10STFC R/L 2	•	•	0.775	0.625	0.625	—	8.000	0.406	—	-10°			1			
	E12STFC R 3	•		0.930	0.750	0.750	—	10.000	0.500	—	-8°	TC□□32.5□	B106	1	3.0	TRX15	ST32.5
	E16STFC R 3	•		1.200	1.000	1.000	—	12.000	0.640	—	-7°			1			

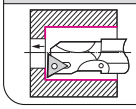
•Wrench for shim is sold separately from the main body.

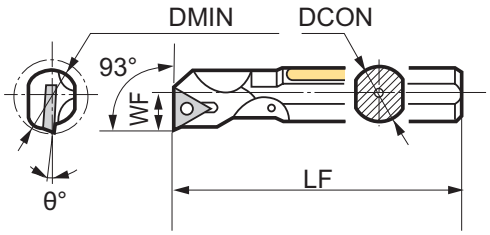
Coolant Through

T 60° Steel with Anti-Vibration Mechanism Coolant Hole

D-STUC

Multipurpose Profiling





SumiTurn X-Bar

Holder / Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
Inch	D08RSTUC R/L 2	•	•	0.600	0.500	—	—	8.000	0.300	—	-10°	TC□□21.5□	B104	1	0.9	TRX08	BFTX02506N
	D10SSTUC R/L 2	•	•	0.770	0.625	—	—	10.000	0.385	—	-8°			1			
	D12SSTUC R/L 3	•	•	0.930	0.750	—	—	10.000	0.465	—	-7°	TC□□32.5□	B106	1	3.0	TRX15	BFTX0409N
	D16TSTUC R/L 3	•	•	1.200	1.000	—	—	12.000	0.600	—	-6°			1			

•Wrench for shim is sold separately from the main body.

• USA Stocked Item
▲ USA Limited Availability Item

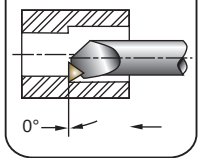
N·m Recommended Tightening Torque (N·m)

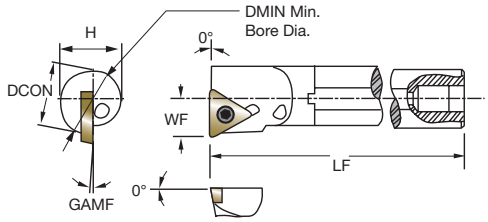
A-STFP / A-STUP

T 60° | Steel Coolant Hole

A-STFP

Chamfering & Profiling





Holder Parts

Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw	Hardware when Boring bar lot# begins with D### Wrench (For Torx Socket)	Hardware when Boring bar lot# begins with D### Screw
Inch	**A05STFP R/L 1.8**	•	•	**0.415**	0.3125	—	—	5.00	0.219	—	-8°	TP□□1.81.5□	**B109**	1	**0.9**	TRX08	ST-21.5	—	—
	A06STFP R/L 2	•	•	**0.480**	0.375	0.375	—	6.00	0.250	0.625	-4°	TP□□21.5	**B110**	1	**0.9**	TRD07	BFTY02205	TRX08	ST-21.5
	A08STFP R/L 2	•	•	**0.600**	0.500	0.500	—	8.00	0.312	0.750	-2°			1					
	A10STFP R/L 2	•	•	**0.770**	0.625	0.625	—	10.00	0.406	1.250	0°			1					
	A12STFP R/L 3	•	•	**0.930**	0.750	0.750	—	10.00	0.500	1.875	-2°	TP□□32.5	**B113**	1	**3.0**	TRX15	BFTX02507	—	ST-32.5
	A16STFP R/L 3	•	•	**1.200**	1.000	—	—	12.00	0.640	—	0°			1					

Wrench for shim is sold separately from the main body.
Coolant Through

T 60° | 93° | Steel Coolant Hole

Internal Finishing to Medium Cutting
Screw-on

A-STUP

Stop Boring

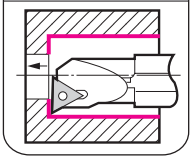


Fig 1

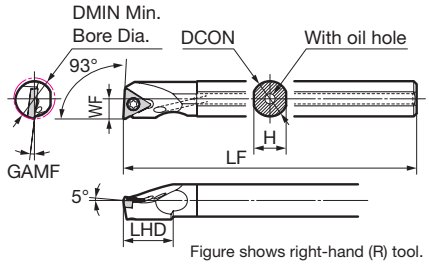


Figure shows right-hand (R) tool.

Holder Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Oil Hole	**A08H-STUP R/L0802-10**	★	★	***10***	*8*	*7*	*100*	*5*	*13*	-10°	TP□□63	**B107**	1	BFTX0204N	**0.5**	TRX06
	A08H-STUP R/L0902-10	★	★	***10***	*8*	*7*	*100*	*5*	*13*	-10°	TP□□1.81.5	**B109**	1	BFTX02505N	**1.1**	TRX08
	A10K-STUP R/L1102-12	★	★	***12***	*10*	*9*	*125*	*6*	*15*	-8°	TP□□21.5	**B110**	1	BFTX02505N	**1.1**	TRX08
	A12M-STUP R/L1102-14	★	★	***14***	*12*	*11*	*150*	*7*	*17*	-7°			1	BFTX02506N	**1.5**	
	A16R-STUP R/L1102-18	★	★	***18***	*16*	*15*	*200*	*9*	*18*	-4°			1			
	A10K-STUP R/L1103-12	★	★	***12***	*10*	*9*	*125*	*6*	*15*	-8°	TP□□22	**B111**	1	BFTX0306N	**2.0**	TRX10
	A12M-STUP R/L1103-14	★	★	***14***	*12*	*11*	*150*	*7*	*17*	-7°			1			
	A16R-STUP R/L1103-18	★	★	***18***	*16*	*15*	*200*	*9*	*18*	-4°			1			
	A20S-STUP R/L1103-22	★	★	***22***	*20*	*18*	*250*	*11*	*18*	-2°			1	BFTX0307N	**2.0**	
	A25T-STUP R/L1103-28	★	★	***28***	*25*	*22*	*300*	*14*	*18*	-2°			1			
	A20S-STUP R/L1603-22	★	★	***22***	*20*	*18*	*250*	*11*	*18*	-3°	TP□□32	**B113**	1	BFTX0407N	**2.0**	TRX15
	A25T-STUP R/L1603-28	★	★	***28***	*25*	*22*	*300*	*14*	*18*	-1°			1			
	A20S-STUP R/L1604-22	★	★	***22***	*20*	*18*	*250*	*11*	*18*	-5°	TP□33	**B114**	1	BFTX0409N	**3.4**	
	A25T-STUP R/L1604-28	★	★	***28***	*25*	*22*	*300*	*14*	*18*	-2°			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

- • USA Stocked Item
- ★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

S-CTFP

Steel

Internal General-purpose
Clamp-on

S-CTFP
Stop Boring

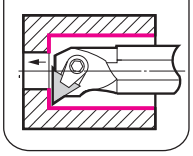


Fig 1

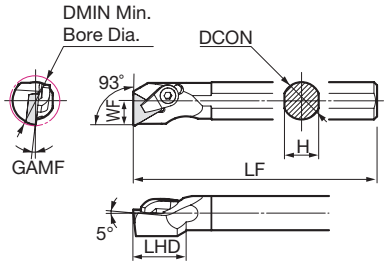


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (mm)

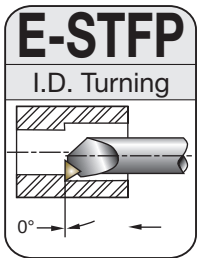
Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Clamp	Double Screw	Wrench (For Hex Socket)
Steel	**S12M-CTFP R/L1103-16**	•	•	*16*	*12*	*11*	*150*	*8.0*	*17*	-6°	TP□□22□	**B111**	1	CCM5BSL/R*	WB5-10	LH025
	S16Q-CTFP R/L1103-20	•	•	*20*	*16*	*15*	*180*	*10.0*	*18*	-4°			1			
	S20R-CTFP R/L1103-25	•	•	*25*	*20*	*18*	*200*	*12.5*	*18*	-2°			1			
	S25S-CTFP R/L1603-32	•	•	*32*	*25*	*23*	*250*	*16.0*	*38*	-2°	TP□□32□	**B113**	1	CCM8UR/L	WB8R/L-16T	LT27

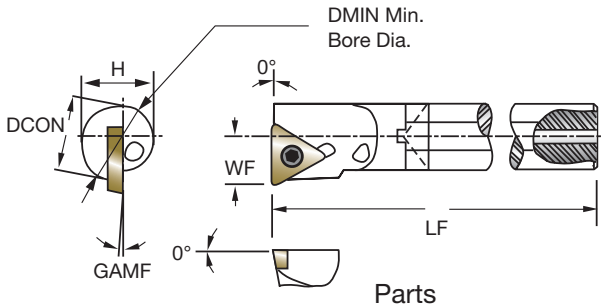
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*The CCM5BSR clamp is made to order.

- USA Stocked Item

N·m Recommended Tightening Torque (N·m)

E-STFP / E-STUP





Holder

Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
E05STFP R/L 1.8	•	•	**0.415**	0.3125	—	—	5.00	0.219	—	-8°	TP□□1.81.5	**B109**	1	**0.9**	TRX08	ST21.5

Wrench for shim is sold separately from the main body.

Internal Finishing to Medium Cutting
Screw-on

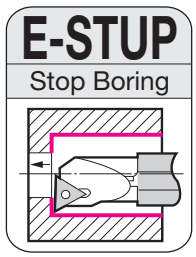
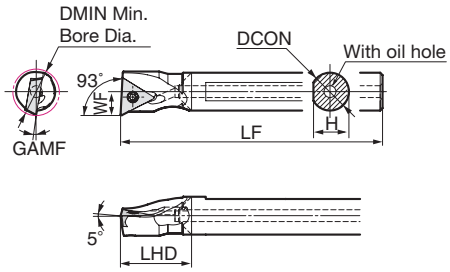


Fig 1



Holder

Parts

Dimensions (*mm*)

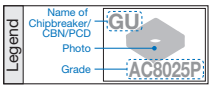
Holder Material	Cat. No.	Stock R	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Carbide with oil hole	**E08H-STUPR0802-10**	★	***10***	*8*	*7.5*	*100*	*5*	*18*	-10°	TP□□63□	**B107**	1	BFTX0204A	**0.5**	TRX06
	E10K-STUPR1103-12	★	***12***	*10*	*9.5*	*125*	*6*	*19*	-8°	TP□□22□	**B111**	1	BFTX0306A	**2.0**	TRX10
	E12M-STUPR1103-14	★	***14***	*12*	*11.5*	*150*	*7*	*25*	-7°			1			
	E12M-STUPR1103-16	★	***16***	*12*	*11.5*	*150*	*8*	*25*	-6°			1	BFTX0307A	**2.0**	
	E16R-STUPR1103-18	★	***18***	*16*	*15.5*	*200*	*9*	*30*	-4°			1	BFTX0306A	**2.0**	
	E16R-STUPR1103-20	★	***20***	*16*	*15.5*	*200*	*10*	*30*	-2°			1	BFTX0307A	**2.0**	

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.

Applicable Inserts ◀·· S-STUP / A-STUP / B-STUP / D-STUP / C-STUP / E-STUP

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



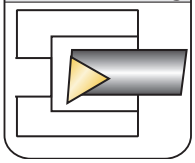
Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	P (Steel) Roughing	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-Ferrous) High-precision/ Finishing	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Machining	EFB T1500Z	EGU AC8025P	EMU AC8025P	ELB AC6030M	EGU AC6030M	EMU AC6030M	CBN BN7125	MU AC4015K	FX AC5015S	PCD DA1000	AY H1	CBN BNC2125	CBN BN2000	PCD DA90
High-precision	MEFF AC1030U	—	—	—	—	—	CBN BN7125	—	FX AC5015S	PCD DA1000	—	CBN BNC2115	CBN BN1000	BINDERLESS PCD NPD10
Recommended Cutting Conditions	☞ A10~			☞ A14~			☞ A16~		☞ A18~	☞ A22~		☞ A20~		☞ M2~

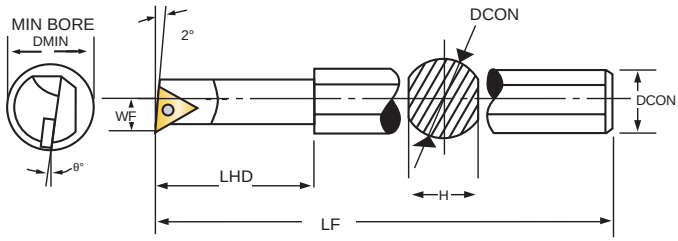
• USA Stocked Item ★ Worldwide Warehouse Item

CSTJO / D-STUP

T 60° Carbide

CSTJO
Internal Boring





Holder Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Width W	Head Length LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
CSTJO R/L 065	•	•	**0.313**	0.375	—	—	5.00	0.156	0.336	1.781	-12°	TB□□52□	**B101**	1		TRX06	BFTX0204A
CSTJO R/L 066	•	•	**0.375**	0.375	—	—	5.00	0.188	0.336	1.781	-8°	TP□□63□	**B107**	1			
CSTJO R/L 062	•	•	**0.500**	0.375	—	—	7.00	0.250	0.336	—	-5°	TP□□22□	**B111**	1			BFTX0306A
CSTJO R/L 082	•	•	**0.625**	0.500	—	—	8.00	0.312	0.462	—	-2°			1		TRX10	BFTX0307A
CSTJO R/L 102	•		**0.750**	0.625	—	—	10.00	0.375	0.586	—	-2°			1			
CSTJO R/L 123	•	•	**1.000**	0.750	—	—	10.00	0.500	0.672	—	-2°	TP□□33□	**B114**	1		TRX15	BFTX0410A

Wrench for shim is sold separately from the main body.

Maximum overhang = 3xD

T 60° 93° Steel with Anti-Vibration Mechanism Coolant Hole

Internal Finishing to Medium Cutting
Screw-on

SumiTurn X-Bar

D-STUP
Stop Boring

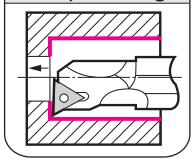


Fig 1

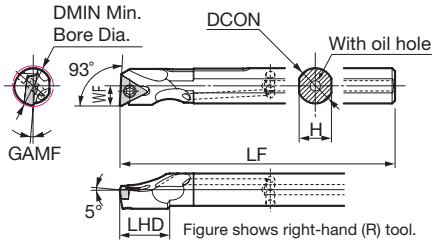


Figure shows right-hand (R) tool.

Holder Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Anti-Vibration Mechanism with Oil Hole	**D08RSTUP R/L 2**	•	•	**0.600**	0.500	0.500	8.00	0.300	—	-7°	TP□□22□	**B111**	1	BFTX0306A	**2.0**	TRX10
	D10SSTUP R/L 2	•	•	**0.770**	0.625	0.625	10.00	0.385	—	-4°			1			
	D12SSTUP R/L 2	•	•	**0.930**	0.750	0.750	10.00	0.465	—	-2°			1	BFTX0307A		
	D16TSTUP R/L 3	•	•	**1.200**	1.000	1.000	12.00	0.600	—	-2°	TP□□33□	**B114**	1	BFTX0410A	**3.4**	TRX15
Steel with Anti-Vibration Mechanism with Oil Hole	**D12M-STUP R/L1103-14**	★	★	***14***	*12*	*11*	*150*	*7*	*17*	-7°	TP□□22□	**B111**	1	BFTX0306A	**2.0**	TRX10
	D16R-STUP R/L1103-18	★	★	***18***	*16*	*15*	*200*	*9*	*18*	-4°			1			
	D20S-STUP R/L1103-22	★	★	***22***	*20*	*18*	*250*	*11*	*18*	-2°			1	BFTX0307A	**2.0**	

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

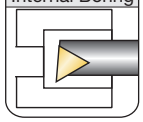
• USA Stocked Item ★ Worldwide Warehouse Item

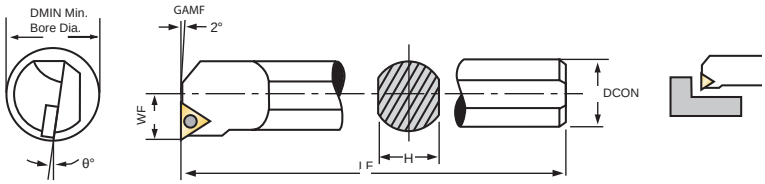
N·m Recommended Tightening Torque (N·m)

BSTJO / B-STUP / BCTJP

T 60° Steel

BSTJO
Internal Boring





Holder Parts

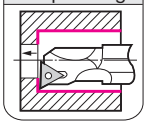
Dimensions (inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Width W	Rake Angle GAMF	Applicable Insert Cat. No.	Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
BSTJO R/L 065	●	●	0.313	0.375	—	—	5.00	0.156	0.336	-12°	TB□□52□	B101	1		TRX06	BFTX0204A
BSTJO R/L 066	●	●	0.375	0.375	—	—	5.00	0.188	0.336	-8°	TP□□63□	B107	1			
BSTJO R/L 062	●	●	0.500	0.375	—	—	6.00	0.250	0.336	-5°	TP□□22□	B111	1		TRX10	BFTX0306A
BSTJO R/L 082	●	●	0.625	0.500	—	—	6.00	0.312	0.462	-4°			1			BFTX0307A
BSTJO R/L 102	●	●	0.750	0.625	—	—	6.50	0.375	0.586	-2°			1			
BSTJO R/L 123	●	●	1.000	0.750	—	—	10.00	0.500	0.672	-2°	TP□□33□	B114	1		TRX15	BFTX0410A
BSTJO R/L 163	●	●	1.125	1.000	—	—	12.00	0.563	0.882	0°			1			

Wrench for shim is sold separately from the main body.

T 60° 93° Steel with Anti-Vibration Mechanism

B-STUP
Stop Boring



Internal Finishing to Medium Cutting
Screw-on

SumiTurn X Bar

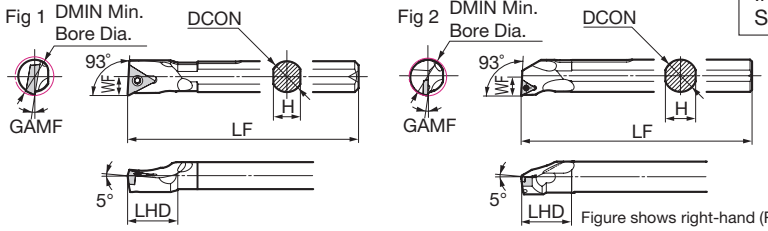


Figure shows right-hand (R) tool.

Holder Parts

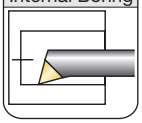
Dimensions (*mm*)

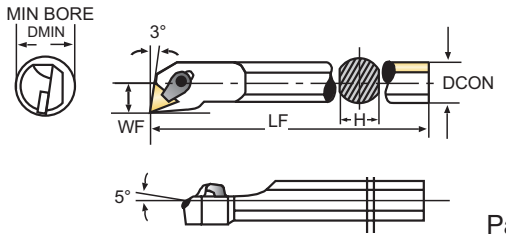
Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Anti-Vibration Mechanism	B08H-STUP R/L0802-10	★	★	*10*	*8*	*7*	*100*	*5.0*	*13*	-10°	TP□□63□	B107	1	BFTX0204A	0.5	TRX06
	B10K-STUP R/L1103-12	★	★	*12*	*10*	*9*	*125*	*6.0*	*15*	-8°	TP□□22□	B111	1	BFTX0306A	2.0	TRX10
	B12M-STUP R/L1103-14	★	★	*14*	*12*	*11*	*150*	*7.0*	*17*	-7°			1			
	B12M-STUP R/L1103-16	★	★	*16*	*12*	*11*	*150*	*8.0*	*17*	-6°			1	BFTX0307A	2.0	
	B16R-STUP R/L1103-18	★	★	*18*	*16*	*15*	*200*	*9.0*	*18*	-4°			1	BFTX0306A	2.0	
	B16R-STUP R/L1103-20	★	★	*20*	*16*	*15*	*200*	*10.0*	*18*	-2°			1	BFTX0307A	2.0	
	B20S-STUP R/L1103-22	★	★	*22*	*20*	*18*	*250*	*11.0*	*18*	-2°			1			
	B25T-STUP R/L1103-28	★	★	*28*	*25*	*22*	*300*	*14.0*	*18*	-2°			1			
	B32T-STUP R/L1103-40	★	★	*40*	*32*	*30*	*300*	*20.0*	*50*	-2°			2			
	B20S-STUP R/L1604-25	★	★	*25*	*20*	*18*	*250*	*12.5*	*18*	-3°	TP□□33□	B114	1	BFTX0410A	3.4	TRX15
	B25T-STUP R/L1604-28	★	★	*28*	*25*	*22*	*300*	*14.0*	*18*	-2°			1			
	B32T-STUP R/L1604-40	★	★	*40*	*32*	*30*	*300*	*20.0*	*53*	-2°			2			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

T 60° Steel

BCTJP
Internal Boring





Holder Parts

Maximum overhang = 3xD

Dimensions (inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Width W	Rake Angle GAMF	Applicable Insert Cat. No.	Ref. Page	Fig	N·m	Wrench (For Hex Socket)	Chip Breaker Piece	Shim	Seat Screw	Clamp	Clamp Bolt
BCTJP R/L 123	●		1.000	0.750	—	—	12.00	0.500	0.770	—	TP□□32□	B116	1	2.0	LH030	CBT23	—	—	CCM6BR/L	WB6-13
BCTJP R/L 163	●		1.156	1.000	—	—	12.00	0.578	0.980	—			1							WB616
BCTJP R/L 203	●	●	1.531	1.250	—	—	14.00	0.765	1.100	—			1	2.0		CBT43	STDP322	BF0308		
BCTJP R/L 243	●		1.781	1.500	—	—	14.00	0.890	1.315	—			1		LH040				CCM8F	WB8F-30
BCTJP R/L 283	●		2.031	1.750	—	—	14.00	1.015	1.570	—			1							
BCTJP R/L 404	●		3.063	2.500	—	—	16.00	1.531	2.315	—	TP□□43□	B117	1			CBT44	STPD422			

Wrench for shim is sold separately from the main body.

• USA Stocked Item ★ Worldwide Warehouse Item

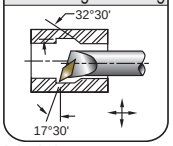
N·m Recommended Tightening Torque (N·m)

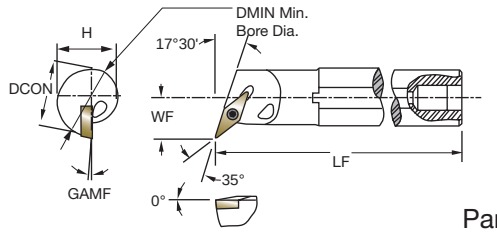
A-SVQB / A-SVUB / S-SVJB

V 35° | Steel Coolant Hole

A-SVQB

Chamfering & Profiling





Holder — Parts — Dimensions (inch)

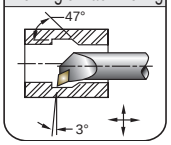
	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw	Hardware when Boring bar lot# begins with D### Wrench (For Torx Socket)	Hardware when Boring bar lot# begins with D### Screw
Inch	**A10SVQB R/L 2**	●	●	0.850	0.625	0.625	—	10.00	0.500	1.000	-6°	VB□□22□	**B119**	1	0.9	TRX08	ST-21.5	—	—
Inch	**A12SVQB R/L 2**	●	●	0.980	0.750	0.750	—	10.00	0.562	1.250	-5°			1	0.9	TRD07	ST-1425	TRX08	ST-21.5
Inch	**A16SVQB R/L 3**	●		1.300	1.000	1.000	—	12.00	0.640	1.500	-5°	VB□□33□	**B121**	1	3.0	TRX15	BFTX0407N	TRX15	ST-32.5

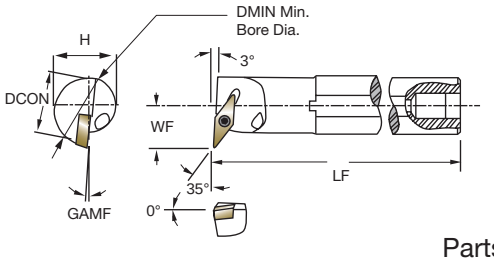
Wrench for shim is sold separately from the main body. Coolant Through

V 35° | Steel Coolant Hole

A-SVUB

Profiling & Back Boring





Holder — Parts — Dimensions (inch)

	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head LH	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw	Hardware when Boring bar lot# begins with D### Wrench (For Torx Socket)	Hardware when Boring bar lot# begins with D### Screw
Inch	**A12SVUB R/L 2**	●	●	0.980	0.750	—	—	10.00	0.562	—	-6°	VB□□22□	**B119**	1	0.9	TRD07	ST-1425	TRX08	ST-21.5
Inch	**A16SVUB R/L 3**	●	●	1.300	1.000	—	—	12.00	0.750	—	-6°	VB□□33□	**B121**	1	3.0	TRX15	BFTX0407N	TRX15	ST-32.5
Inch	**A20SVUB R/L 3**	●	●	2.000	1.250	—	—	14.00	1.000	—	-6°			1			ST-32.5	—	—
Inch	**A24SVUBL3**		●	2.250	1.500	—	—	14.00	1.250	—	-6°			1					
Inch	**A24U-SVUBR3**	●		2.250	1.500	—	—	14.00	1.250	—	-6°			1			ST-1750		

Wrench for shim is sold separately from the main body. Coolant Through

V 35° | 93° | Steel

Internal Profiling
Screw-on

S-SVJB

Concave Facing and Bottom Facing

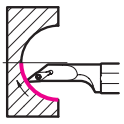


Fig 1

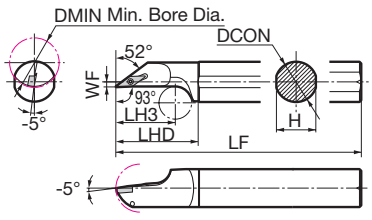


Fig 2

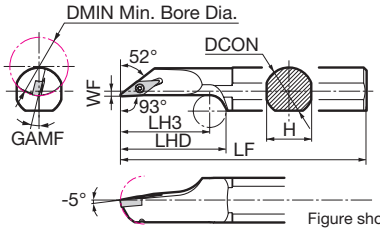


Figure shows right-handed (R) tool.

Holder — Parts — Dimensions (*mm*)

Shank Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Head LH3	Rake Angle GAMF	Applicable Inserts Cat. No.	Applicable Inserts Ref. Page	Fig	Flat Insert Screw	N·m	Wrench (For Torx hole)
Steel	**S20R-SVJB R/L1103-25**	★	★	*25*	*20*	*19*	*200*	*2.0*	*42*	*29*	—	VB□□22□	**B119**	1	BFTX02508NV	1.5	TRX08
Steel	**S25S-SVJB R/L1103-30**	★	★	*30*	*25*	*24*	*250*	*3.5*	*50*	*36*	—			1			
Steel	**S32T-SVJB R/L1604-40**	★	★	*40*	*32*	*30*	*300*	*3.5*	*75*	*60*	-8°	VB□□33□	**B121**	2	BFTX03508	2.0	TRX10
Steel	**S40T-SVJB R/L1604-50**	★	★	*50*	*40*	*37*	*300*	*4.5*	*95*	*75*	-7°			2			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

• USA Stocked Item ★ Worldwide Warehouse Item

S-SVQB / S-SVUB

Internal Profiling
Screw-on

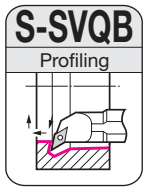


Fig 1

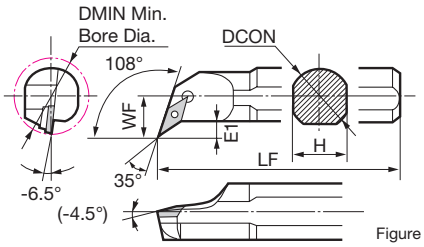


Figure shows right-hand (R) tool.

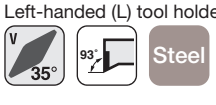
Holder

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Pin	Bolt	Shim	Flat Screw	N·m	Wrench (For Torx Holes)	Bolt Wrench (For Hex Socket)
Steel	**S20R-SVQB R/L 1103-25**	★	★	*25*	*20*	*18*	*200*	*14.5*	*5.5*	VB□□22□	**B119**	1	—	—	—	BFTX02508NV	**1.5**	TRX08	—
	S25S-SVQB R/L 1103-32	★	★	*32*	*25*	*23*	*250*	*19.0*	*7.5*			1							
	S25S-SVQB R/L 1604-34	★	★	*34*	*25*	*23*	*250*	*20.5*	*9.0*	VB□□33□	**B121**	1	—	—	—	BFTX03508	**2.0**	TRX10	—
	S32T-SVQB R/L 1604-40	★	★	*40*	*32*	*30*	*300*	*22.0*	*9.0*			1	VP32B	BH03504	SVP32				LH020
	S40T-SVQB R/L 1604-50	★	★	*50*	*40*	*37*	*300*	*27.0*	*10.0*			1	VP40B						

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.



Internal Profiling
Screw-on

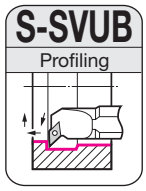


Fig 1

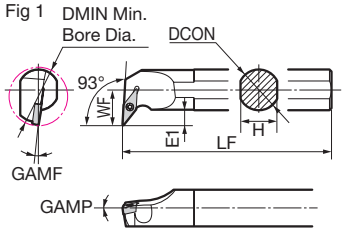


Fig 2

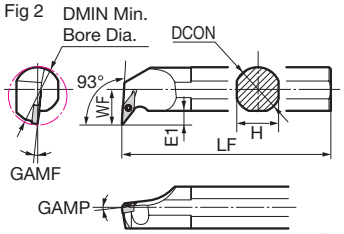
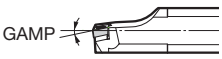


Fig 3



Holder

Parts

Figure shows right-hand (R) tool.
Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Rake Angle GAMP	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Pin	Bolt	Shim	Flat Screw	N·m	Wrench (For Torx Holes)	For Bolt Wrench (For Hex Socket)
Steel	**S20R-SVUB R/L1103-28**	★	★	***28***	*20*	*18*	*200*	*17.5*	*7.5*	*-7.5°*	*-3.0°*	VB□□22□	**B119**	1	—	—	—	BFTX02508NV	1.5	TRX08	—
	S25S-SVUB R/L1103-32	★	★	***32***	*25*	*23*	*250*	*19.0*	*7.5*	*-6.5°*	*-2.5°*			2							
	S25S-SVUB R/L1604-34	★	★	***34***	*25*	*23*	*250*	*20.5*	*9.0*	*-7.5°*	*-3.0°*	VB□□33□	**B121**	2	—	—	—	BFTX03508	2.0	TRX10	—
	S32T-SVUB R/L1604-40	★	★	***40***	*32*	*30*	*300*	*23.5*	*10.5*	*-7.5°*	*-3.0°*			3	VP32B	BH03504	SVP32				LH020
	S40T-SVUB R/L1604-50	★	★	***50***	*40*	*37*	*300*	*29.5*	*12.5*	*-7.5°*	*-3.0°*			3	VP40B						

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

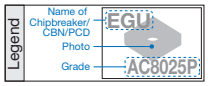
★ Worldwide Warehouse Item

Applicable Inserts

S-SVJB / B-SVJB / S-SVQB / B-SVQB / C-SVQB / S-SVUB / B-SVUB / C-SVUB / S-SVZB / B-SVZB / C-SVZB

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
General Machining	**EFB** **T1500Z**	**EGU** **AC8025P**	**ELB** **AC6030M**	**EGU** **AC6030M**	**CBN** BN7125/BNC500	**No Chipbreaker** **AC4015K**	**MESI** **AC5015S**	**AY** **H1**	**CBN** **BNC2125**	**CBN** **BN2000**
High-precision	**FYS** **AC1030U**	**MESI** **AC1030U**	**FYS** **AC1030U**	**MESI** **AC1030U**	**CBN** BN7125/BNC500	—	**MESI** **AC5015S**	—	**CBN** **BNC2115**	**CBN** **BN1000**
Recommended Cutting Conditions	A10~		A14~		A16~		A18~	A22~	A20~	

BNC500 is for ductile cast iron.

C-SVQB / C-SVUB / C-SVZB

Internal Profiling
Screw-on

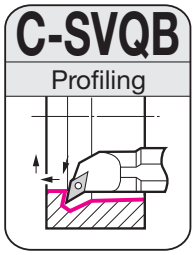


Fig 1

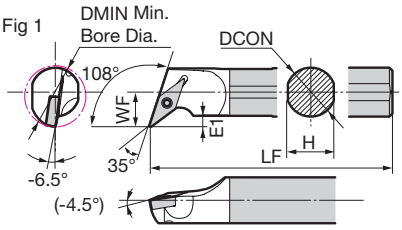


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	Flat Screw N·m	Wrench (For Torx Holes)
Carbide	**C16R-SVQB R/L1103-20**	★		***20***	*16*	*15*	*200*	*11.5*	*4*	VB□□22	**B119**	1	BFTX02508NV	1.5	TRX08
	C20R-SVQB R/L1103-25	★		***25***	*20*	*18*	*200*	*14.5*	*5*			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Internal Profiling
Screw-on

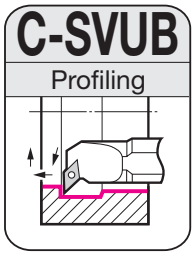


Fig 1

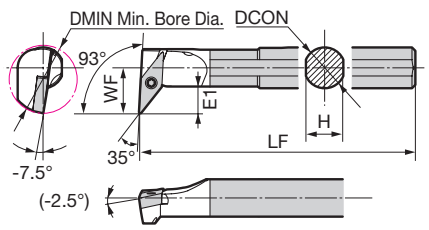


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	Flat Screw N·m	Wrench (For Torx Holes)
Carbide	**C12M-SVUB R/L1103-20**	★		***20***	*12*	*11*	*150*	*13.5*	*8*	VB□□22□	**B119**	1	BFTX02508NV	1.5	TRX08
	C16R-SVUB R/L1103-25	★		***25***	*16*	*15*	*200*	*16.5*	*9*			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Internal Profiling
Screw-on

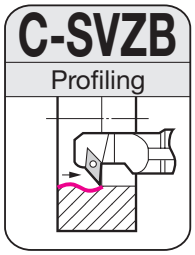


Fig 1

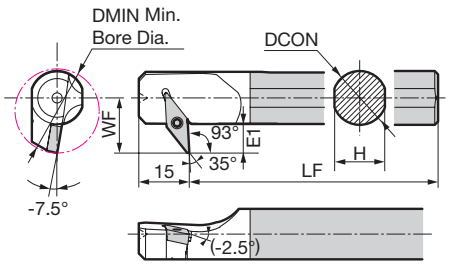


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	Flat Screw N·m	Wrench (For Torx Holes)
Carbide	**C12M-SVZB R/L1103-20**	★		***20***	*12*	*11*	*150*	*13.5*	*8*	VB□□22□	**B119**	1	BFTX02508NV	1.5	TRX08
	C16R-SVZB R/L1103-25	★		***25***	*16*	*15*	*200*	*16.5*	*9*			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

B-SVJB / B-SVQB

Internal Profiling
Screw-on

SumiTurn X Bar

B-SVJB

Concave Facing and Bottom Facing

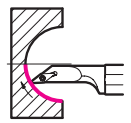


Fig 1

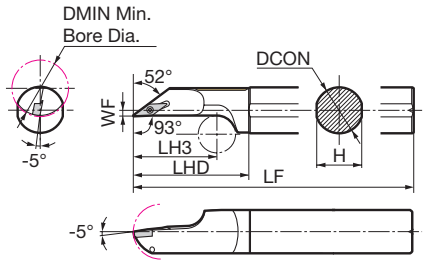


Figure shows right-hand (R) tool.

Holder — Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Head LH3	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Anti-Vibration Mechanism	**B20R-SVJB R/L1103-25**	★	★	***25***	*20*	*19*	*200*	*2.0*	*55*	*37.5*	VB□□22□	**B119**	1	BFTX02508NV	**1.5**	TRX08
	B25S-SVJB R/L1103-30	★	★	***30***	*25*	*24*	*250*	*3.5*	*62*	*45*			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Internal Profiling
Screw-on

SumiTurn X Bar

B-SVQB

Profiling

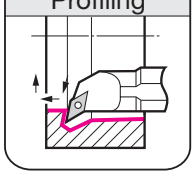


Fig 1

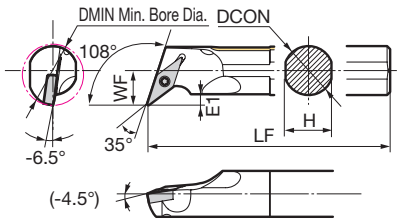


Figure shows right-hand (R) tool.

Holder — Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Anti-Vibration Mechanism	**B16R-SVQB R/L 1103-20**	★		*20*	*16*	*15*	*200*	*11.5*	*4*	VB□□22□	**B119**	1	BFTX02508NV	**1.5**	TRX08
	B20R-SVQB R/L 1103-25	★		*25*	*20*	*18*	*200*	*14.5*	*5*			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Applicable Inserts

S-SVJB / B-SVJB / S-SVQB / B-SVQB / C-SVQB / S-SVUB / B-SVUB / C-SVUB / S-SVZB / B-SVZB / C-SVZB

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/CBN/PCD — Photo — Grade (EGU / AC8025P)

Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
General Machining	EFB T1500Z	EGU AC8025P	ELB AC6030M	EGU AC6030M	CBN BN7125/BNC500	No Chipbreaker AC4015K	MESI AC5015S	AY H1	CBN BNC2125	CBN BN2000
High-precision	FYS AC1030U	MESI AC1030U	FYS AC1030U	MESI AC1030U	CBN BN7125/BNC500	—	MESI AC5015S	—	CBN BNC2115	CBN BN1000
Recommended Cutting Conditions	☞ A10~		☞ A14~		☞ A16~		☞ A18~	☞ A22~	☞ A20~	

★ Worldwide Warehouse Item

BNC500 is for ductile cast iron.

N·m Recommended Tightening Torque (N·m)

B-SVUB / B-SVZB / D-SVUB / D-SVZB

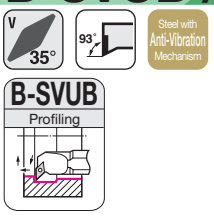


Fig 1

• USA Stocked Item ★ Worldwide Warehouse Item

Internal Profiling
Screw-on

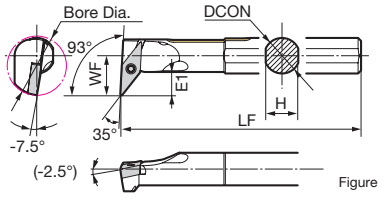


Figure shows right-hand (R) tool.

SumiTurn X Bar

Holder / Parts

Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Anti-Vibration Mechanism	B12M-SVUB R/L1103-20	★		20	12	11	150	13.5	8	VB□□22□	B119	1	BFTX02508NV	1.5	TRX08
	B16R-SVUB R/L1103-25	★		25	16	15	200	16.5	9			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

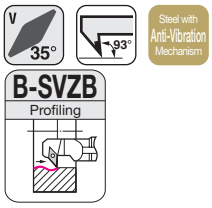


Fig 1

Internal Profiling
Screw-on

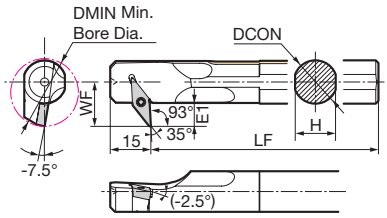


Figure shows right-hand (R) tool.

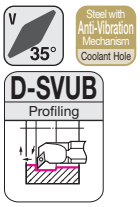
SumiTurn X Bar

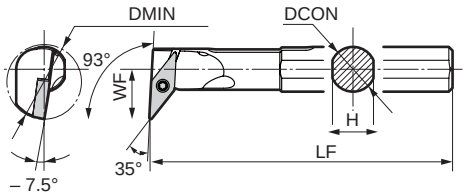
Holder / Parts

Dimensions (mm)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel with Anti-Vibration Mechanism	B12M-SVZB R/L1103-20	★		20	12	11	150	13.5	8	VB□□22□	B119	1	BFTX02508NV	1.5	TRX08
	B16R-SVZB R/L1103-25	★		25	16	15	200	16.5	9			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.



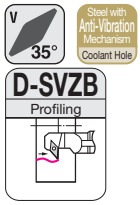


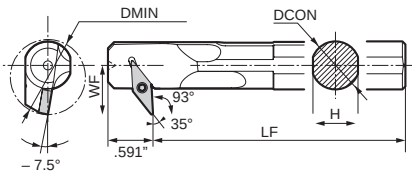
SumiTurn X Bar

Holder / Parts

Dimensions (Inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Applicable Insert Cat. No.	Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
D10SSVUB R/L 2	•	•	.850	.625	.625	10.000	.500	VB□□22□	B119	1	BFTX02506N	1.5	TRX08
D12SSVUB R/L 2	•	•	.980	.750	.750	10.000	.562			1			





SumiTurn X Bar

Holder / Parts

Dimensions (mm)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Applicable Insert Cat. No.	Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
D08RSVZBR2	•		.800	.500	.625	8.000	.532	VB□□22□	B119	1	BFTX02506N	1.5	TRX08
D10SSVZBR2	•		1.00	.625	.750	10.000	.650			1			

Applicable Inserts

S-SVJB / B-SVJB / S-SVQB / B-SVQB / C-SVQB / S-SVUB / B-SVUB / C-SVUB / S-SVZB / B-SVZB / C-SVZB

1st Recommended Insert

• Refer as well to the Insert Selection Guide (page A10).
• Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/CBN/PCD, Photo, Grade (EGU / AC8025P)

Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	K (Cast Iron) High-speed Finishing	K (Cast Iron) Finishing to Medium Cutting	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated
General Machining	EFB T1500Z	EGU AC8025P	ELB AC6030M	EGU AC6030M	CBN BN7125/BNC500	No Chipbreaker AC4015K	MESI AC5015S	AY H1	CBN BNC2125	CBN BN2000
High-precision	FYS AC1030U	MESI AC1030U	FYS AC1030U	MESI AC1030U	CBN BN7125/BNC500	–	MESI AC5015S	–	CBN BNC2115	CBN BN1000
Recommended Cutting Conditions	A10~		A14~		A16~		A18~	A22~	A20~	

A-SVQC / A-SVUC

V 35° | 108° | Steel Coolant Hole

Internal Profiling
Screw-on

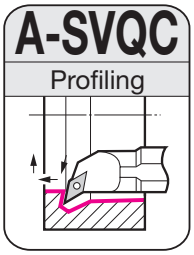


Fig 1

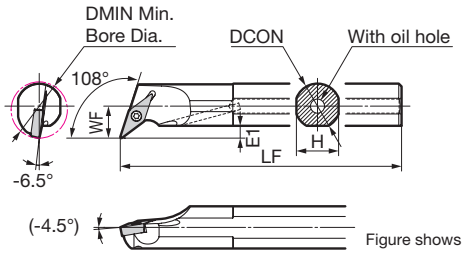


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	Flat Screw N·m	Wrench (For Torx Holes)
Steel with Oil Hole	**A16Q-SVQC R/L1103-20**	★	★	***20***	*16*	*15*	*180*	*11.5*	*4.5*	VC□□22□	**B122**	1	BFTX02508NV	**1.5**	TRX08
	A20R-SVQC R/L1103-25	★	★	***25***	*20*	*18*	*200*	*14.5*	*5.5*			1			
	A25S-SVQC R/L1103-32	★	★	***32***	*25*	*23*	*250*	*19.0*	*7.5*			1			
	A25S-SVQC R/L1604-34	★	★	***34***	*25*	*23*	*250*	*20.5*	*9.0*	VC□□33□	**B124**	1	BFTX03508	**2.0**	TRX10

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

V 35° | 93° | Steel Coolant Hole

Internal Profiling
Screw-on

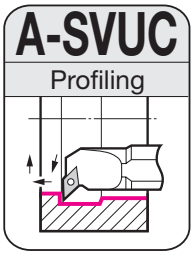


Fig 1

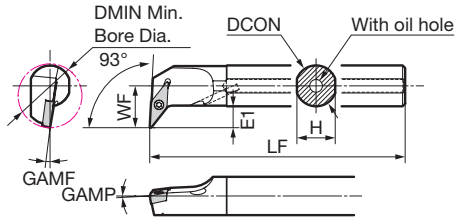


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Offset E1	Rake Angle GAMF	Rake Angle GAMP	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	Flat Screw N·m	Wrench (For Torx Holes)
Steel with Oil Hole	**A16Q-SVUC R/L1103-25**	★	★	***25***	*16*	*15*	*180*	*16.5*	*8.5*	*-7.5°*	*-3.0°*			1			
	A20R-SVUC R/L1103-28	★	★	***28***	*20*	*18*	*200*	*17.5*	*7.5*	*-7.5°*	*-3.0°*	VC□□22□	**B122**	1	BFTX02508NV	**1.5**	TRX08
	A25S-SVUC R/L1103-32	★	★	***32***	*25*	*23*	*250*	*19.0*	*7.5*	*-6.5°*	*-2.5°*			1			
	A25S-SVUC R/L1604-34	★	★	***34***	*25*	*23*	*250*	*20.5*	*9.0*	*-7.5°*	*-3.0°*	VC□□33□	**B124**	1	BFTX03508	**2.0**	TRX10

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Applicable Inserts ◀·· S-SVJC / S-SVQC / A-SVQC / S-SVUC / A-SVUC / S-SVZC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/CBN/PCD — EGU; Photo; Grade — AC8025P

Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	S (Exotic Alloy) Finishing to Medium Cutting	S (Exotic Alloy) Medium to Roughing	N (Non-Ferrous) High-precision/Finishing	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Machining	EFB T1500Z	EGU AC8025P	ELB AC6030M	EGU AC6030M	ESU AC5015S	ESU AC5025S	PCD DA1000	NAG H1	CBN BNC2125	CBN BN2000	PCD DA90
High-precision	MEFF AC1030U	MESI AC1030U	MEFF AC1030U	MESI AC1030U	MEFF AC1030U	MESI AC5015S	PCD DA1000	—	CBN BNC2115	CBN BN1000	BINDERLESS PCD NPD10
Recommended Cutting Conditions	☞ A10~		☞ A14~		☞ A18~		☞ A22~		☞ A20~		☞ M2~

N·m Recommended Tightening Torque (N·m) ★ Worldwide Warehouse Item

S-SVJC / S-SVQC

Steel

Internal Profiling
Screw-on

S-SVJC

Concave Facing and Bottom Facing

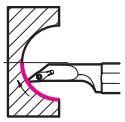


Fig 1

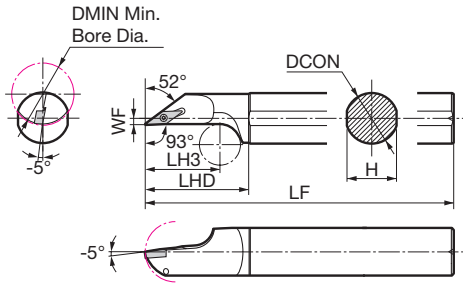


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Head LH3	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S12M-SVJC R/L 0802-16**	★	★	*16*	*12*	*11*	*150*	*2.0*	*30*	*21*	VC□□63	**B122**	1	BFTX0204N	**0.5**	TRX06
	S16Q-SVJC R/L 0802-20	★	★	*20*	*16*	*15*	*180*	*2.0*	*40*	*29*			1			

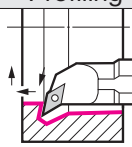
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

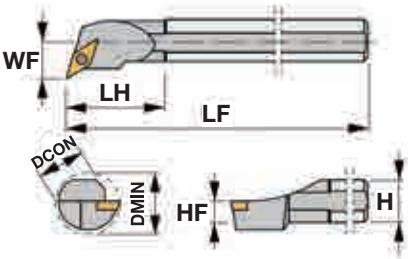
Steel

Internal Profiling
Screw-on

S-SVQC

Profiling





Holder / Parts

Dimensions (inch/*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head Length LH	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S16T-SVQC R/L 3**	★	★	**1.375**	1.000	0.900	0.450	12.00	0.750	0.910	0.250	VC□□33	**B124**	1	ST-1240	**3.0**	TRX15
	S20U-SVQC R/L 3	★	★	**1.625**	1.250	1.180	0.590	14.00	0.875	1.060	0.250			1	ST-1335		
	S24V-SVQC R/L 3	★	★	**2.000**	1.500	1.370	0.685	15.75	1.063	1.370	0.310			1			
	S10M-SVQC R/L0802-14	★	★	***14***	*10*	*9*	-	*150*	*8.5*	-	*4.5*	VC□□63	**B122**	1	BFTX0204N	**0.5**	TRX06
	S12M-SVQC R/L0802-16	★	★	***16***	*12*	*11*	-	*150*	*9.5*	-	*4.5*			1			
	S16Q-SVQC R/L1103-20	★	★	***20***	*16*	*15*	-	*180*	*11.5*	-	*4.5*	VC□□22□	**B122**	1	BFTX02508NV	**1.5**	TRX08

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Applicable Inserts ◀ S-SVJC / S-SVQC / A-SVQC / S-SVUC / A-SVUC / S-SVZC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/ CBN/PCD — EGU; Photo; Grade — AC8025P

Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	S (Exotic Alloy) Finishing to Medium Cutting	S (Exotic Alloy) Medium to Roughing	N (Non-Ferrous) High-precision/ Finishing	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Machining	EFB T1500Z	EGU AC8025P	ELB AC6030M	EGU AC6030M	ESU AC5015S	ESU AC5025S	PCD DA1000	NAG H1	CBN BNC2125	CBN BN2000	PCD DA90
High-precision	MEFF AC1030U	MESI AC1030U	MEFF AC1030U	MESI AC1030U	MEFF AC1030U	MESI AC5015S	PCD DA1000	—	CBN BNC2115	CBN BN1000	BINDERLESS PCD NPD10
Recommended Cutting Conditions	☞ A10~		☞ A14~		☞ A18~		☞ A22~		☞ A20~		☞ M2~

★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

S-SVUC / S-SVZC

Internal Profiling
Screw-on

S-SVUC

Profiling

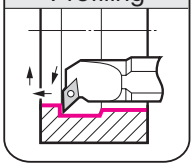


Fig 1

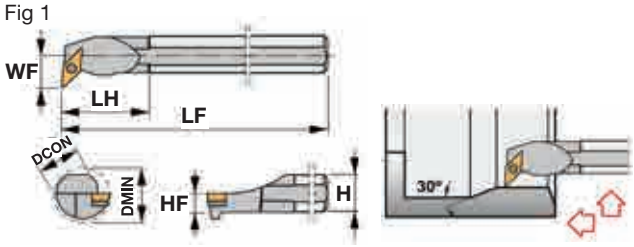


Fig 2

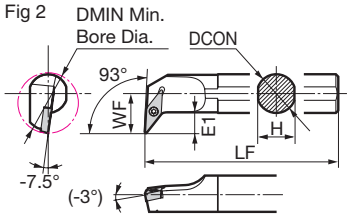


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (Inch/*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head Length LH	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S10R-SVUC R/L 2E**	★	★	**0.867**	0.625	0.58	0.290	8.00	0.500	1.06	0.190	VC□□22	**B122-B123**	1	ST-1225	**0.9**	TRD07
	S12S-SVUC R/L 2E	★	★	**1.060**	0.750	0.71	0.355	10.00	0.625	1.58	0.250			1			
	S16T-SVUC R/L 2D	★	★	**1.300**	1.000	0.90	0.450	12.00	0.750	1.81	0.250			1			
	S20U-SVUC R/L 3	★	★	**2.000**	1.250	1.18	0.590	14.00	1.000	3.00	0.370	VC□□33	**B124**	1	ST-1335	**3.0**	TRX15
	S24V-SVUC R/L 3	★	★	**2.250**	1.500	1.37	0.685	15.75	1.125	3.00	0.370			1			
	S32W-SVUC R/L 3	★	★	**2.750**	2.000	1.87	0.935	17.75	1.375	4.00	0.370			1			
	S12M-SVUC R/L0802-16	★	★	***16***	*12*	*11*	-	*150*	*9.5*	*6.5*	*3.5*	VC□□63	**B122**	1	BFTX0204N	**0.5**	TRX06
	S16Q-SVUC R/L0802-20	★	★	***20***	*16*	*15*	-	*180*	*11.5*	-	*3.5*			2			
	S16Q-SVUC R/L1103-25	★	★	***25***	*16*	*15*	-	*180*	*16.5*	-	*8.5*	VC□□22□	**B122**	2	BFTX02508NV	**1.5**	TRX08

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Internal Profiling
Screw-on

S-SVZC

Profiling

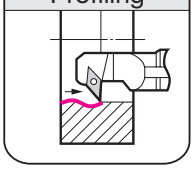


Fig 1

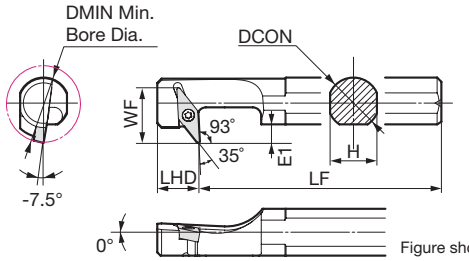


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

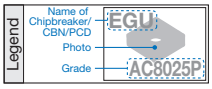
Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Head LHD	Cutting Edge Distance WF	Offset E1	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S12M-SVZC R/L0802-16**	★	★	***16***	*12*	*11*	*150*	*10*	*9.5*	*4.5*	VC□□63	**B122**	1	BFTX0204N	**0.5**	TRX06
	S16Q-SVZC R/L1103-20	★	★	***20***	*16*	*15*	*180*	*15*	*11.5*	*4.5*	VC□□22□	**B122**	1	BFTX02508NV	**1.5**	TRX08

Right-handed (R) tool holders are compatible with right-handed (R) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with left-handed (L) or neutral (N) inserts.

Applicable Inserts ◀ S-SVJC / S-SVQC / A-SVQC / S-SVUC / A-SVUC / S-SVZC

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



Application Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Medium Cutting	S (Exotic Alloy) Finishing to Medium Cutting	S (Exotic Alloy) Medium to Roughing	N (Non-Ferrous) High-precision/ Finishing	N (Non-Ferrous) Finishing to Medium Cutting	H (Hardened Steel) Coated	H (Hardened Steel) Uncoated	Hard Brittle Material
General Machining	EFB T1500Z	EGU AC8025P	ELB AC6030M	EGU AC6030M	ESU AC5015S	ESU AC5025S	PCD DA1000	NAG H1	CBN BNC2125	CBN BN2000	PCD DA90
High-precision	MEFF AC1030U	MESI AC1030U	MEFF AC1030U	MESI AC1030U	MEFF AC1030U	MESI AC5015S	PCD DA1000	—	CBN BNC2115	CBN BN1000	BINDERLESS PCD NPD10
Recommended Cutting Conditions	☞ A10~		☞ A14~		☞ A18~		☞ A22~		☞ A20~		☞ M2~

N·m Recommended Tightening Torque (N·m) ★ Worldwide Warehouse Item

S-SWUB / CSWJO

W 80° | 93° | Steel

Internal Finishing (Small Diameter)
Screw-on

S-SWUB
Through Boring

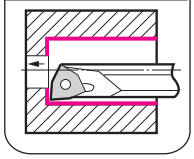


Fig 1

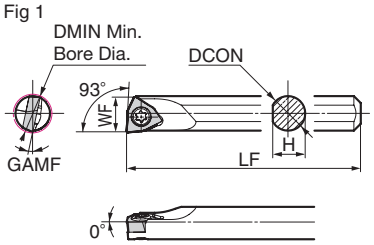


Fig 2

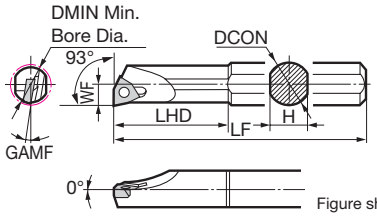


Figure shows right-hand (R) tool.

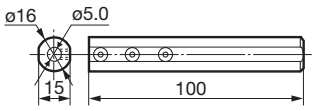
Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S05H-SWUB R/L0601-06K**	★	★	*5.5*	*5*	*4.7*	*100*	*2.75*	-	-12°	WB□□52□	**B128**	1	BFTX0203N	0.5	TRX06
	S08H-SWUB R/L0601-06	★	★	*5.5*	*8*	*7.0*	*100*	*2.75*	*18*	-12°			2			
	S08H-SWUB R/L0601-08	★	★	*8.0*	*8*	*7.0*	*100*	*4.00*	*30*	-10°			2			
	S08H-SWUB R/L0802-10	★	★	*10.0*	*8*	*7.0*	*100*	*5.00*	*18*	-13°	WB□□63□		2	BFTX02205N	0.5	TRX06
	S10K-SWUB R/L0802-12	★	★	*12.0*	*10*	*9.0*	*125*	*6.00*	*20*	-10°			2			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
S05H-SWUB R/L0601-06K requires the separately sold HBB516 adapter sleeve.
Holders marked with * show an ISO type code.

Fig 1



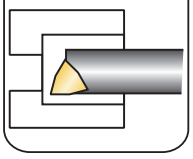
Adapter Sleeve

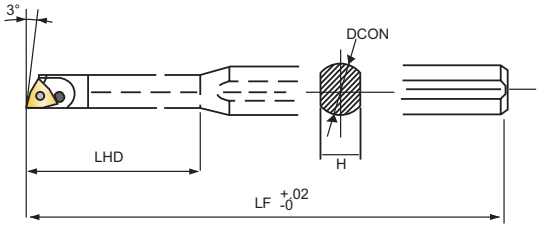
Cat. No.	Stock	Fig
HBB 516	●	1

Adapter sleeve is optional.

W 80° | Carbide

CSWJO
Internal Boring





Holder / Parts

Dimensions (inch)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Width W	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head Length LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
CSWJO R/L 055	▲	▲	0.234	0.375	—	—	5.00	0.117	1.18	-12°	WB□□52□	**B128**	1		TRX06	BFTX0203A

Wrench for shim is sold separately from the main body.
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Maximum overhang = 3xD

Applicable Inserts ◄·· S-SWUB / CSWJO

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/ CBN/PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-ferrous) —	H (Hardened Steel) Uncoated
General Cutting	FW T1500A	FX AC1030U	FX AC1030U	FX AC1030U	SUMIBORON BN7000	FX AC5015S	PCD DA1000	CBN BNX20
High Precision	FW T1500A	FX AC1030U	FX AC1030U	FX AC1030U	SUMIBORON BN7000	FX AC5015S	PCD DA1000	CBN BNX20
Recommended Cutting Conditions	A10		A14		A16	A18	A22	A20

The FY chipbreaker and CBN and PCD inserts can also be used for stop-boring.

★ Worldwide Warehouse Item ▲ USA Limited Availability Item

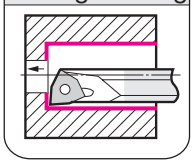
N·m Recommended Tightening Torque (N·m)

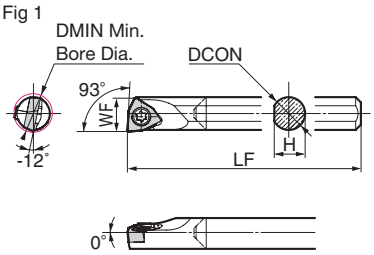
C-SWUB / BSWJO

Carbide

Internal Finishing (Small Diameter)
Screw-on

C-SWUB
Through Boring





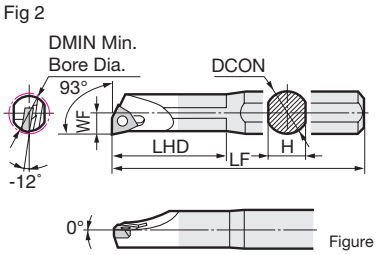


Figure shows right-hand (R) tool.

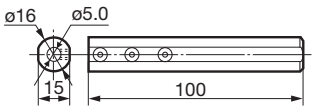
Holder / Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Carbide	**C05H-SWUB R/L0601-06K**	★	★	***5.5***	*5*	*4.7*	*100*	*2.75*	-	WB□□52□	**B128**	1	BFTX0203N	**0.5**	TRX06
	C08K-SWUB R/L0601-06	★	★	***5.5***	*8*	*7.0*	*125*	*2.75*	30			2			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
C05H-SWUB R/L0601-06K requires the separately sold HBB516 adapter sleeve.
Holders marked with * show an ISO type code.

Fig 1



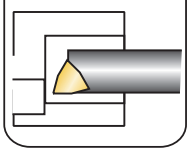
Adapter Sleeve

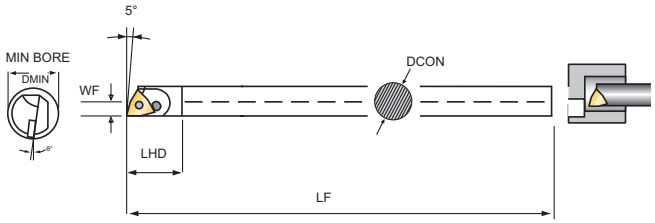
Cat. No.	Stock	Fig
HBB 516	●	1

Adapter sleeve is optional.

Steel

BSWJO
Internal Boring





Holder / Parts

Dimensions (inch)

Cat. No.	Stock R	Min. Bore Dia. DMIN	Diameter DCON	Height H	Cutting Edge Height HF	Overall Length LF	Cutting Edge Distance WF	Head Length LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Fig	N·m	Wrench (For Torx Socket)	Screw
BSWJOR035	▲	**0.228**	0.187	—	—	2.500	0.062	0.385	-12°	WB□□52□	**B128**	1	**1.0**	TRX06	BFTX0203A

Wrench for shim is sold separately from the main body.
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

Applicable Inserts ◄·· C-SWUB / BSWJO

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.

Legend: Name of Chipbreaker/CBN/PCD — EGU; Photo; Grade — AC8025P

Cutting Range / Process	P (Steel) Finishing	P (Steel) Medium Cutting	M (Stainless Steel) Finishing	M (Stainless Steel) Roughing	K (Cast Iron) High-speed Finishing	S (Exotic Alloy) Finishing to Medium Cutting	N (Non-ferrous) —	H (Hardened Steel) Uncoated
General Cutting	FW T1500A	FX AC1030U	FX AC1030U	FX AC1030U	CBN BN7000	FX AC5015S	PCD DA1000	CBN BNX20
High Precision	FW T1500A	FX AC1030U	FX AC1030U	FX AC1030U	CBN BN7000	FX AC5015S	PCD DA1000	CBN BNX20
Recommended Cutting Conditions	A10		A14		A16	A18	A22	A20

The FY chipbreaker and CBN and PCD inserts can also be used for stop-boring.

N·m Recommended Tightening Torque (N·m) ★ Worldwide Warehouse Item ▲ USA Limited Availability Item

S-SWUP/ A-SWLP

Internal Finishing (Small Diameter)
Screw-on

S-SWUP
Through Boring

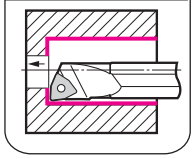


Fig 1

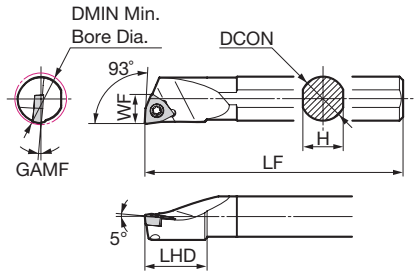


Figure shows right-hand (R) tool.

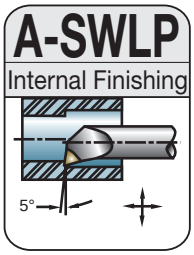
Holder — Parts

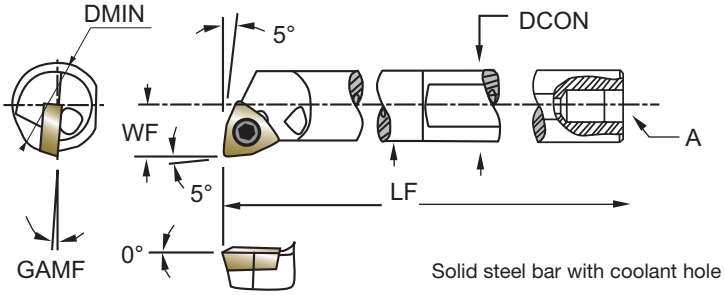
Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Rake Angle GAMF	Applicable Insert Cat. No.	Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**S12M-SWUP R/L1102-14**	★	★	***14***	*12*	*11*	*150*	*7*	*17*	-6°	WP□□21.5□	**B129**	1	BFTX02505N	**1.1**	TRX08
	S16Q-SWUP R/L1102-18	★	★	***18***	*16*	*15*	*180*	*9*	*18*	-3°			1			
	S16Q-SWUP R/L1603-18	★	★	***18***	*16*	*15*	*180*	*9*	*18*	-3°	WP□□32□		1	BFTX0407N	**3.4**	TRX15
	S20R-SWUP R/L1603-22	★	★	***22***	*20*	*18*	*200*	*11*	*18*	-2°			1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

A-SWLP
Internal Finishing





Solid steel bar with coolant hole

Holder — Parts

Dimensions (*mm*)

Holder Material	Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Thread Dimensions A	Rake Angle GAMF	Applicable Insert Cat. No.	Ref. Page	Fig	Flat Screw	N·m	Wrench (For Torx Holes)
Steel	**A06SWLP R/L 2**	★	★	**.480**	.375	—	6.000	.250	1/8"	-5°	WP□□21.5□	**B129**	1	BFTY02505	**1.1**	TRX07
	A08SWLP R/L 2	★	★	**.600**	.500	—	8.000	.312	1/16-27 NPT	-2°			1			
	A10SWLPR2	★		**.770**	.625	—	10.000	.406	1/8-27 NPT	-3°			1			

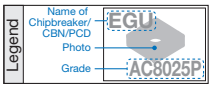
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.

★ Worldwide Warehouse Item

Applicable Inserts ◀·· S-SWUP / A-SWLP

1st Recommended Insert

- Refer as well to the Insert Selection Guide (page A10).
- Some combinations need to be made to order or cannot be manufactured.



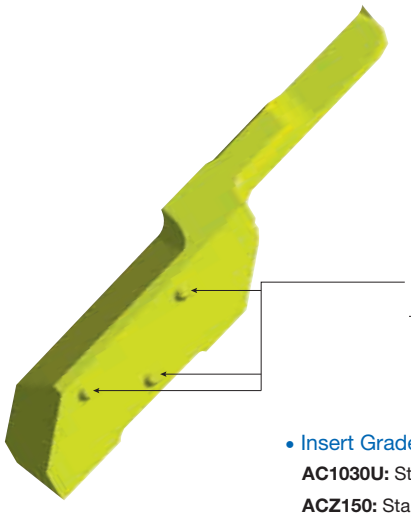
Cutting Range / Process	P (Steel) Medium Cutting	M (Stainless Steel) Medium Cutting
General Cutting	ELB AC8025P	ELB AC6030M
Recommended Cutting Conditions	☞ A10	☞ A14

N·m Recommended Tightening Torque (N·m)

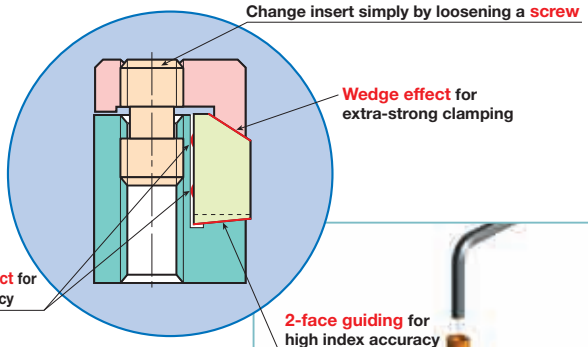
■ Features

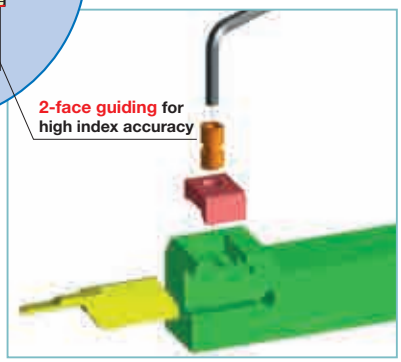
- Minimum machining diameters from ø0.04" to ø0.197" are now in stock.
- Maximum depth of cut of 0.787" (ø0.157", ø0.197").
- Can be used with various autolathe machines.
- Unique design ensures high index accuracy.
- Indexable inserts are easily handled.

• High index accuracy



• Indexable inserts are easily handled.





• Insert Grades and Applications

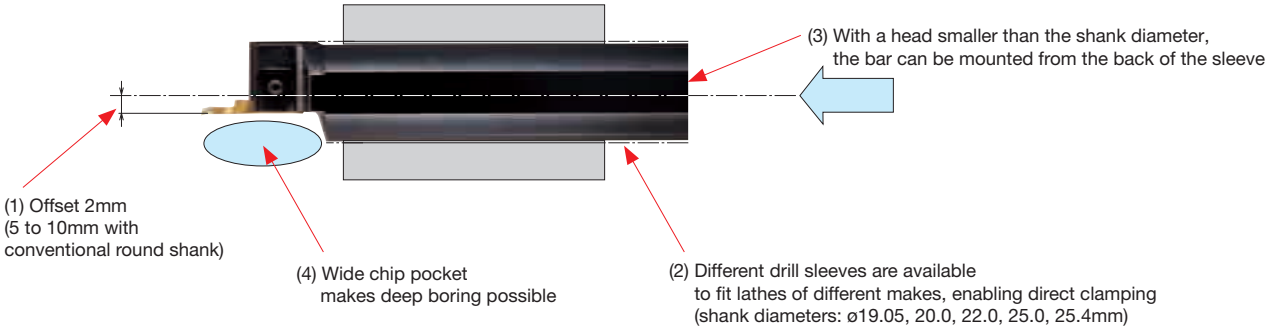
AC1030U: Stainless Steel, General Steel

ACZ150: Stainless Steel, General Steel

DA2200: Aluminum Alloy and Non-Ferrous Metals

■ Round Shank Holders (Small Offset) [S-CKB-S]

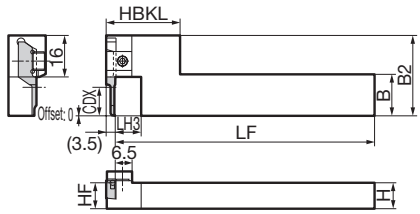
• .079" / *2mm* offset bars expand application range



• USA Stocked Item ★ Worldwide Warehouse Item

Very Small Diameter L Type
Clamp-on

Fig 1



H = HF (Cutting Edge Height)

Holder

Parts

Dimensions (*mm*)

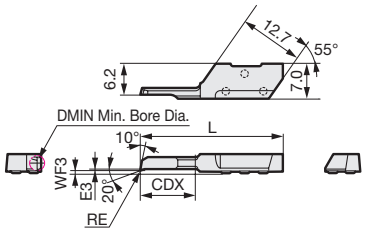
Cat. No.	Stock	Height H	Width B	Overall Length LF	Depth of Cut CDX	Width B2	Head HBKL	Head LH3	Applicable Insert	Fig	Clamp	Double Screw	Wrench
													(For Hex Socket)
CKBSR1016-16-06	★	*10*	*16*	*125*	*6*	*26*	*28.5*	*10*	KBMX L0206-○○R	1	CKBW16	WB4-8	LH020
CKBSR1016-16-11	★	*10*	*16*	*125*	*11*	*31*	*28.5*	*10*	KBMX L03,04,0511-○○R	1			
CKBSR1216-16-06	★	*12*	*16*	*150*	*6*	*26*	*28.5*	*10*	KBMX L0206-○○R	1			
CKBSR1216-16-11	★	*12*	*16*	*150*	*11*	*31*	*28.5*	*10*	KBMX L03,04,0511-○○R	1			
CKBSR1216-16-20	★	*12*	*16*	*150*	*20*	*40*	*28.5*	*10*	KBMX L04,0520-○○R	1			
CKBSR1616-16-06	★	*16*	*16*	*150*	*6*	*26*	*34.5*	*16*	KBMX L0206-○○R	1			
CKBSR1616-16-11	★	*16*	*16*	*150*	*11*	*31*	*34.5*	*16*	KBMX L03,04,0511-○○R	1			
CKBSR1616-16-20	★	*16*	*16*	*150*	*20*	*40*	*34.5*	*16*	KBMX L04,0520-○○R	1			

KBMX Type (For Very Small Diameter L Holder) (Coated Carbide)

Dimensions (Inch / *mm*)

Cat. No.	AC1030U	Min. Bore Dia. DMIN	Cutting Edge Position WF3	Offset E3	Corner Radius RE	Overall Length L	Boring Depth CDX
KBMXL0206-05R	★	.079"	.0197"	.0098"	.0019" / *0.05*	9.252"	.236"
KBMXL0206-20R	★	*2.0*	*0.5*	*0.25*	.0079" / *0.20*	*23.5*	*6*
KBMXL0311-05R	★	.118"	.0197"	.0118"	.0019" / *0.05*	1.122"	.433"
KBMXL0311-20R	★	*3.0*	*0.5*	*0.30*	.0079" / *0.20*	*28.5*	*11*
KBMXL0411-05R	★	.157"	.0197"	.0197"	.0019" / *0.05*	1.122"	.433"
KBMXL0411-20R	★	*4.0*	*0.5*	*0.50*	.0079" / *0.20*	*28.5*	*11*
KBMXL0420-05R	★	.157"	.0197"	.0197"	.0019" / *0.05*	1.476"	.787"
KBMXL0420-20R	★	*4.0*	*0.5*	*0.50*	.0079" / *0.20*	*37.5*	*20*
KBMXL0511-05R	★	.197"	.0197"	.0197"	.0019" / *0.05*	1.122"	.433"
KBMXL0511-20R	★	*5.0*	*0.5*	*0.50*	.0079" / *0.20*	*28.5*	*11*
KBMXL0520-05R	★	.197"	.0197"	.0197"	.0019" / *0.05*	1.476"	.787"
KBMXL0520-20R	★	*5.0*	*0.5*	*0.50*	.0079" / *0.20*	*37.5*	*20*

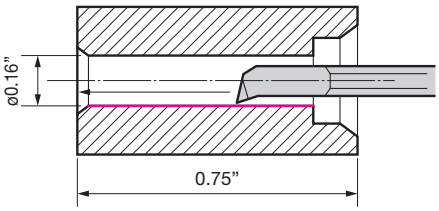
Fig 1



* Figure shows left hand insert with a right hand cutting edge

Application Example (1)

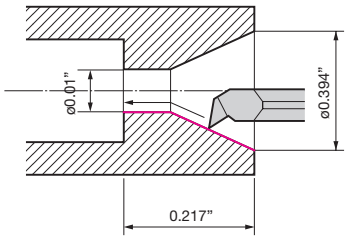
Electronic Component (Free Cutting Stainless Steel)



Holder: CKBR1212-16
Insert: **KBMXR 0420-05**
Cutting Speed: v_c=197 SFM
Feed Rate: f = 0.0004 IPR
Depth of Cut: a_p = 0.0012"
Coolant: Non water soluble coolant

Application Example (2)

Automotive Fuel Pump Component (SUS430)

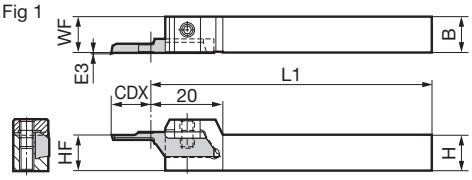


Holder: CKBR1616-16
Insert: **KBMXR 0206-05T**
Cutting Speed: v_c=262 sfm
Feed Rate: f = 0.0012 IPR
Depth of Cut: a_p = 0.002"
Coolant: Non water soluble coolant

• USA Stocked Item ★ Worldwide Warehouse Item

Square Shank
Clamp-on

Fig 1



Refer to page E67 to E68 for CDX values.

Holder

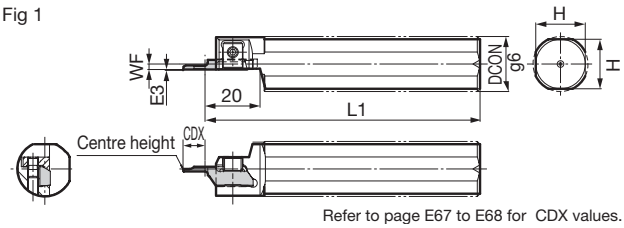
Parts

Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length L1	Cutting Edge Distance WF	Cutting Edge Height HF	Fig	Clamp	Double Screw	Wrench (For Hex Socket)
CKBR1010-16	★	*10*	*10*	*100*	*10*	*10*	1	CKBW16	WB4-8	LH020
CKBR1212-16	★	*12*	*12*	*125*	*12*	*12*	1			
CKBR1616-16	★	*16*	*16*	*125*	*16*	*16*	1			
CKBR2020-16	★	*20*	*20*	*125*	*20*	*20*	1			
CKBR2525-16		*25*	*25*	*150*	*25*	*25*	1			

Round Shank (Small Offset)
Clamp-on

Fig 1



Refer to page E67 to E68 for CDX values.

Holder

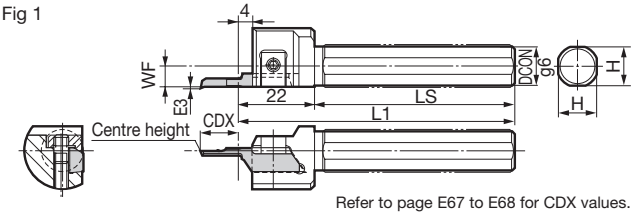
Parts

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length L1	Cutting Edge Distance WF	Fig	Clamp	Double Screw	Wrench (For Hex Socket)
S1905H-CKBRS-16	★	*19.05*	*17*	*100*	*2*	1	CKBW16	WB4-8	LH020
S20H-CKBRS-16	★	*20*	*18*	*100*	*2*	1			
S22K-CKBRS-16	★	*22*	*19*	*125*	*2*	1			
S25K-CKBRS-16	★	*25*	*23*	*125*	*2*	1			
S254K-CKBRS-16	★	*25.4*	*23*	*125*	*2*	1			

Round Shank
Clamp-on

Fig 1



Refer to page E67 to E68 for CDX values.

Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length L1	Length LS	Cutting Edge Distance WF	Fig	Clamp	Double Screw	Wrench (For Hex Socket)
S10F-CKBR-16	★	*10*	*9*	*80*	*58*	*5*	1	CKBW16	WB4-8	LH020
S12F-CKBR-16	★	*12*	*11*	*80*	*58*	*6*	1			
S16H-CKBR-16	★	*16*	*15*	*100*	*78*	*8*	1			
S19K-CKBR-16	★	*19.05*	*17*	*125*	*103*	*8*	1			
S20K-CKBR-16	★	*20*	*18*	*125*	*103*	*10*	1			

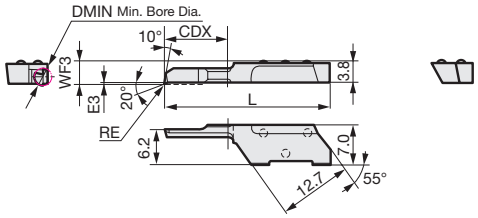
★ Worldwide Warehouse Item

(Coated Carbide)

KBMX (Internal Diameter Machining)

Dimensions (*mm*)

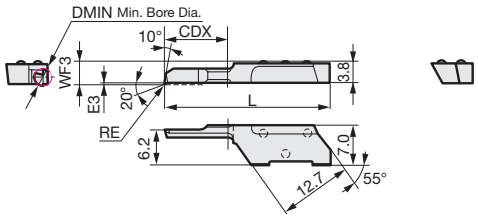
Cat. No.	AC1030U	Min. Bore Dia. DMIN	Cutting Edge position WF3	Offset E3	Corner Radius RE	Overall Length L	Boring Depth CDX
KBMXR0103-05	★	1.0	4.00	0.20	0.05	20.5	3
KBMXR0103-20	★				0.20		
KBMXR01506-05	★	1.5	4.05	0.25	0.05	23.5	6
KBMXR01506-20	★				0.20		
KBMXR0206-05	★	2.0	4.05	0.25	0.05	23.5	6
KBMXR0206-20	★				0.20		
KBMXR0311-05	★	3.0	4.10	0.30	0.05	28.5	11
KBMXR0311-20	★				0.20		
KBMXR0411-05	★	4.0	4.30	0.50	0.05	28.5	11
KBMXR0411-20	★				0.20		
KBMXR0420-05	★	4.0	4.30	0.50	0.05	37.5	20
KBMXR0420-20	★				0.20		
KBMXR0511-05	★	5.0	4.50	0.70	0.05	28.5	11
KBMXR0511-20	★				0.20		
KBMXR0520-05	★	5.0	4.50	0.70	0.05	37.5	20
KBMXR0520-20	★				0.20		



KBMX-T (Internal Diameter Machining)

Dimensions (*mm*)

Cat. No.	ACZ150	Min. Bore Dia. DMIN	Cutting Edge position WF3	Offset E3	Corner Radius RE	Overall Length L	Boring Depth CDX
KBMXR0103-05T	★	1.0	4.00	0.20	0.05	20.5	3
KBMXR0103-20T	★				0.20		
KBMXR01506-05T	★	1.5	4.05	0.25	0.05	23.5	6
KBMXR01506-20T	★				0.20		
KBMXR0206-05T	★	2.0	4.05	0.25	0.05	23.5	6
KBMXR0206-20T	★				0.20		
KBMXR0311-05T	★	3.0	4.10	0.30	0.05	28.5	11
KBMXR0311-20T	★				0.20		
KBMXR0411-05T	★	4.0	4.30	0.50	0.05	28.5	11
KBMXR0411-20T	★				0.20		
KBMXR0511-05T	★	5.0	4.50	0.70	0.05	28.5	11
KBMXR0511-20T	★				0.20		



KBMX	KBMX-T
Compacts chip curl for evacuation.	Evacuates chips towards the back and lowers cutting force to prevent chattering.

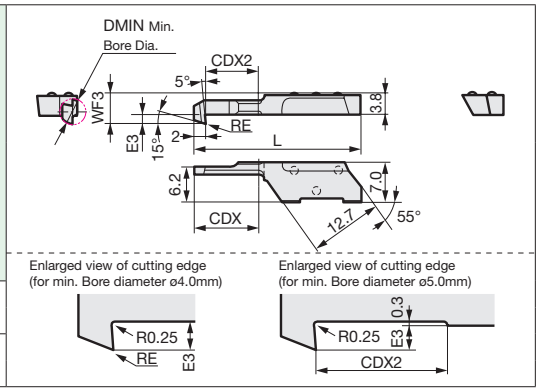
★ Worldwide Warehouse Item

(Coated Carbide / PCD-SUMIDIA)

KBMZ (Internal Back Turning)

Dimensions (*mm*)

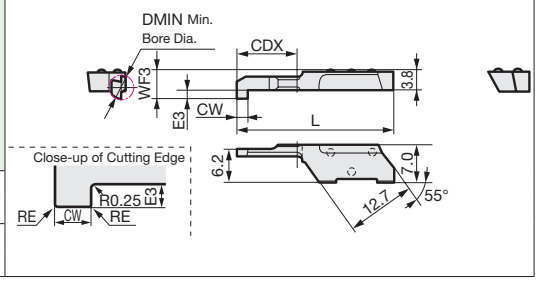
Cat. No.	AC1030U	Min. Bore Dia. DMIN	Cutting Edge position WF3	Offset E3	Corner Radius RE	Overall Length L	Max. Depth of Cut CDX	Boring Depth CDX2
KBMZR0411-05	★	***4.0***	*5.10*	*1.3*	*0.05*	*28.5*	*11*	*9*
KBMZR0411-20	★				*0.20*			
KBMZR0511-05	★	***5.0***	*5.10*	*1.3*	*0.05*	*28.5*	*11*	*9*
KBMZR0511-20	★				*0.20*			



KBMG (Internal Grooving)

Dimensions (*mm*)

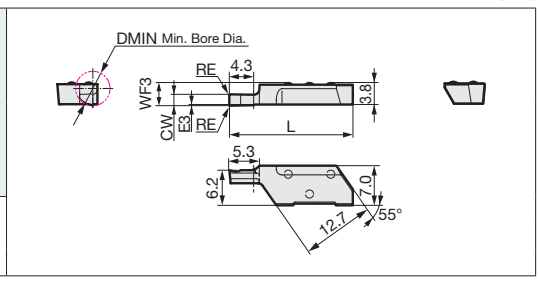
Cat. No.	AC1030U	Min. Bore Dia. DMIN	Cutting Edge position WF3	Offset E3	Width of Cut CW	Nose Radius RE	Overall Length L	Boring Depth CDX
KBMGR0411-05	★	***4.0***	*4.90*	*1.1*	*1.00*	*0.05*	*28.5*	*11*
KBMGR0411-10	★				*2.00*	*0.10*		
KBMGR0511-05	★	***5.0***	*5.10*	*1.3*	*1.00*	*0.05*	*28.5*	*11*
KBMGR0511-10	★				*2.00*	*0.10*		



KBMF (Face Grooving)

Dimensions (*mm*)

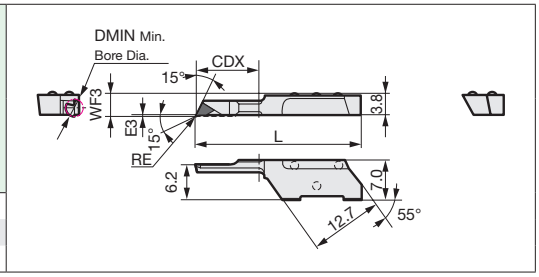
Cat. No.	ACZ150	Min. Bore Dia. DMIN	Cutting Edge position WF3	Offset E3	Width of Cut CW	Corner Radius RE	Overall Length L	Max. Groove Depth
KBMFR0615-05	★	***6.0***	*4.0*	*0.2*	*1.5*	*0.05*	*21.8*	*4.0*
KBMFR0620-05	★				*2.0*			
KBMFR0630-05	★				*3.0*			



KBMX (SUMIDIA/Internal Diameter Machining)

Dimensions (*mm*)

Cat. No.	DA2200	Min. Bore Dia. DMIN	Cutting Edge Position WF3	Offset E3	Nose Radius RE	Overall Length L	Maximum Depth of Cut CDX
KBMXR0311-10	★	***3.0***	*4.1*	*0.3*	*0.1*	*28.5*	*11*
KBMXR0411-10	★	***4.0***	*4.3*	*0.5*	*0.1*	*28.5*	*11*
KBMXR0511-10	★	***5.0***	*4.5*	*0.7*	*0.1*	*28.5*	*11*



★ Worldwide Warehouse Item

BXBR

■ Features

- Economical two-cornered insert
- Depth of cut 5D (5 times the shank diameter)
- Usable at any desired overhang
- Shank size = min. bore diameter for easy selection (Available from *ø2 mm to ø5 mm in 0.5 mm* increments)
- KBMX Type cutting edge used. Versions with no chipbreaker also available in stock

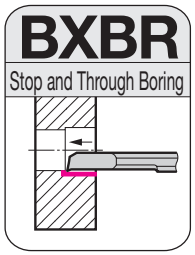
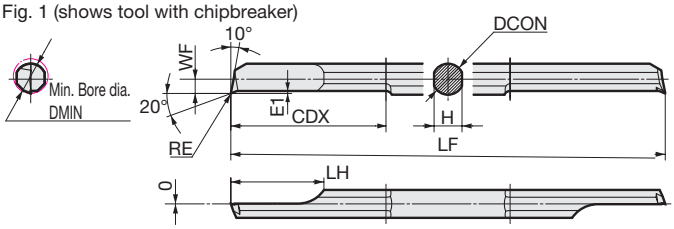


Fig. 1 (shows tool with chipbreaker)



Internal (Small Diameter) Finishing
Solid

Holder (Coated Carbide)

Dimensions (*mm*)

	Cat. No.	ACZ150	AC530U	*Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LH	Max. Boring Depth CDX	Offset E1	Nose Radius RE	Applicable Sleeve	Fig
With Chipbreaker	**BXBR02005R**	★		**2.0**	2.0	1.8	50	0.80	6.0	10.0	0.20	0.05	HBX 2016	1
	BXBR02020R	★		**2.0**	2.0	1.8	50	0.80	6.0	10.0	0.20	0.20	HBX 2016	1
	BXBR02505R	★		**2.5**	2.5	2.2	50	1.05	7.5	12.5	0.20	0.05	HBX 2516	1
	BXBR02520R	★		**2.5**	2.5	2.2	50	1.05	7.5	12.5	0.20	0.20	HBX 2516	1
	BXBR03005R	★		**3.0**	3.0	2.7	50	1.30	9.0	15.0	0.25	0.05	HBX 3016	1
	BXBR03020R	★		**3.0**	3.0	2.7	50	1.30	9.0	15.0	0.25	0.20	HBX 3016	1
	BXBR03505R	★		**3.5**	3.5	3.1	60	1.55	10.5	17.5	0.25	0.05	HBX 3516	1
	BXBR03520R	★		**3.5**	3.5	3.1	60	1.55	10.5	17.5	0.25	0.20	HBX 3516	1
	BXBR04005R	★		**4.0**	4.0	3.6	60	1.80	12.0	20.0	0.35	0.05	HBX 4016	1
	BXBR04020R	★		**4.0**	4.0	3.6	60	1.80	12.0	20.0	0.35	0.20	HBX 4016	1
	BXBR04505R	★		**4.5**	4.5	4.1	70	2.05	13.5	22.5	0.35	0.05	HBX 4516	1
	BXBR04520R	★		**4.5**	4.5	4.1	70	2.05	13.5	22.5	0.35	0.20	HBX 4516	1
	BXBR05005R	★		**5.0**	5.0	4.5	70	2.30	15.0	25.0	0.40	0.05	HBX 5016	1
	BXBR05020R	★		**5.0**	5.0	4.5	70	2.30	15.0	25.0	0.40	0.20	HBX 5016	1
No Chipbreaker	**BXBR02005R-NB**	★		**2.0**	2.0	1.8	50	0.80	6.0	10.0	0.20	0.05	HBX 2016	1
	BXBR02020R-NB	★		**2.0**	2.0	1.8	50	0.80	6.0	10.0	0.20	0.20	HBX 2016	1
	BXBR02505R-NB	★		**2.5**	2.5	2.2	50	1.05	7.5	12.5	0.20	0.05	HBX 2516	1
	BXBR02520R-NB	★		**2.5**	2.5	2.2	50	1.05	7.5	12.5	0.20	0.20	HBX 2516	1
	BXBR03005R-NB	★		**3.0**	3.0	2.7	50	1.30	9.0	15.0	0.25	0.05	HBX 3016	1
	BXBR03020R-NB	★		**3.0**	3.0	2.7	50	1.30	9.0	15.0	0.25	0.20	HBX 3016	1
	BXBR03505R-NB	★		**3.5**	3.5	3.1	60	1.55	10.5	17.5	0.25	0.05	HBX 3516	1
	BXBR03520R-NB	★		**3.5**	3.5	3.1	60	1.55	10.5	17.5	0.25	0.20	HBX 3516	1
	BXBR04005R-NB	★		**4.0**	4.0	3.6	60	1.80	12.0	20.0	0.35	0.05	HBX 4016	1
	BXBR04020R-NB	★		**4.0**	4.0	3.6	60	1.80	12.0	20.0	0.35	0.20	HBX 4016	1
	BXBR04505R-NB	★		**4.5**	4.5	4.1	70	2.05	13.5	22.5	0.35	0.05	HBX 4516	1
	BXBR04520R-NB	★		**4.5**	4.5	4.1	70	2.05	13.5	22.5	0.35	0.20	HBX 4516	1
	BXBR05005R-NB	★		**5.0**	5.0	4.5	70	2.30	15.0	25.0	0.40	0.05	HBX 5016	1
	BXBR05020R-NB	★		**5.0**	5.0	4.5	70	2.30	15.0	25.0	0.40	0.20	HBX 5016	1

* Boring depth CDX or less.

Sleeve

Dimensions (*mm*)

Cat. No.	Stock	Bore Dia. DCB	Applicable Bar
HBX2016	★	2.0	BXBR 020○○R(-NB)
HBX2516	★	2.5	BXBR 025○○R(-NB)
HBX3016	★	3.0	BXBR 030○○R(-NB)
HBX3516	★	3.5	BXBR 035○○R(-NB)
HBX4016	★	4.0	BXBR 040○○R(-NB)
HBX4516	★	4.5	BXBR 045○○R(-NB)
HBX5016	★	5.0	BXBR 050○○R(-NB)

BXBR bars can also be used with HBB sleeves.
Commercially available sleeves may also be used.
Refer to page E72 for details on HBX sleeves.

Spare Parts (for Adapter Sleeve)

Applicable Sleeve	Flat Screw		Set Screw	Wrench
		N·m		(For Torx Holes)
HBX○○○○	BFTX0409N	3.4	BT06035T	TRD15

Sleeve is optional.

• USA Stocked Item ★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

BSME

■ Features

- Achieves the minimum bore diameter of *ø2.5mm* (ø.098") in boring of hardened steel
- Achieves high-precision cutting edge positioning thanks to the newly developed clamp mechanism
- Expands the range of small hole boring to achieve more high-efficiency machining requiring no grinding
- BSME: Brazed Style
  Can be used with part diameters from *ø2.5 to 5.0mm* (ø.098 to .197")
- SEXC: Indexable Insert
  Can be used with part diameters from *ø4.0 to 6.0mm* (ø.157 to .236")

Carbide Oil Hole | CBN

SUMIBORON
Brazed

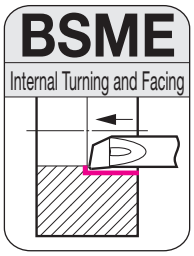


Fig 1

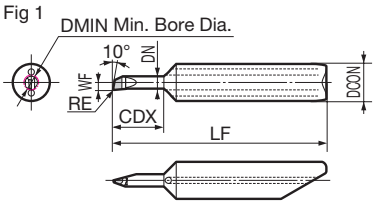
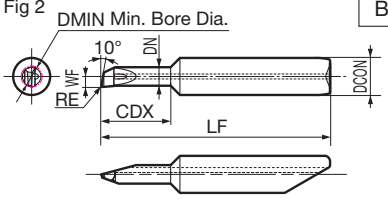


Fig 2



Holder (CBN- SUMIBORON)

Dimensions (*mm*)

Cat. No.	BN2000 R	BN2000 L	Min. Bore Dia. DMIN	Diameter DCON	Neck Diameter DN	Overall Length LF	Cutting Edge Distance WF	Max. Boring Depth CDX	Corner Radius RE	Applicable Sleeve	Fig
BSME R/L 25020D2S6	★	★	***2.5***	*6.0*	*2.0*	*32.0*	*1.20*	*5.3*	*.2*	HBSM60____	1
BSME R/L 25020D3S6	★	★	***2.5***	*6.0*	*2.0*	*34.5*	*1.20*	*7.8*	*.2*		1
BSME R/L 25020D4S6			***2.5***	*6.0*	*2.0*	*37.0*	*1.20*	*10.3*	*.2*		1
BSME R/L 30020D2S6	★	★	***3.0***	*6.0*	*2.5*	*32.8*	*1.45*	*6.3*	*.2*		2
BSME R/L 30020D3S6	★	★	***3.0***	*6.0*	*2.5*	*35.8*	*1.45*	*9.3*	*.2*		2
BSME R/L 30020D4S6			***3.0***	*6.0*	*2.5*	*38.8*	*1.45*	*12.3*	*.2*		2
BSME R/L 35020D2S6	★	★	***3.5***	*6.0*	*3.0*	*33.5*	*1.70*	*7.3*	*.2*		2
BSME R/L 35020D3S6	★	★	***3.5***	*6.0*	*3.0*	*37.0*	*1.70*	*10.8*	*.2*		2
BSME R/L 35020D4S6			***3.5***	*6.0*	*3.0*	*40.5*	*1.70*	*14.3*	*.2*		2
BSME R/L 40020D2S6	★	★	***4.0***	*6.0*	*3.5*	*33.9*	*1.95*	*8.3*	*.2*		2
BSME R/L 40020D3S6	★	★	***4.0***	*6.0*	*3.5*	*37.9*	*1.95*	*12.3*	*.2*		2
BSME R/L 40020D4S6			***4.0***	*6.0*	*3.5*	*41.9*	*1.95*	*16.3*	*.2*		2
BSME R/L 45020D2S6	★	★	***4.5***	*6.0*	*4.0*	*35.0*	*2.20*	*9.3*	*.2*		2
BSME R/L 45020D3S6	★	★	***4.5***	*6.0*	*4.0*	*39.5*	*2.20*	*13.8*	*.2*		2
BSME R/L 45020D4S6			***4.5***	*6.0*	*4.0*	*44.0*	*2.20*	*18.3*	*.2*		2
BSME R/L 50020D2S6	★	★	***5.0***	*6.0*	*4.5*	*35.8*	*2.45*	*10.3*	*.2*		2
BSME R/L 50020D3S6	★	★	***5.0***	*6.0*	*4.5*	*40.8*	*2.45*	*15.3*	*.2*		2
BSME R/L 50020D4S6			***5.0***	*6.0*	*4.5*	*45.8*	*2.45*	*20.3*	*.2*		2

The BSME Type requires HBSM6020 (A) adapter sleeve (sold separately).

Fig 1

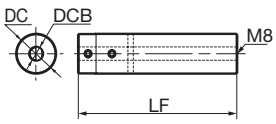
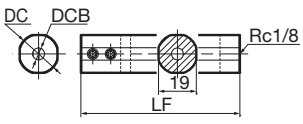
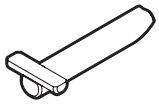


Fig 2



Alignment Jig

Cat. No.	Stock	
AFBSM60	★	

This jig is used for centring sleeves when setting them into holders.

Sleeve

Dimensions (Inch / *mm*)

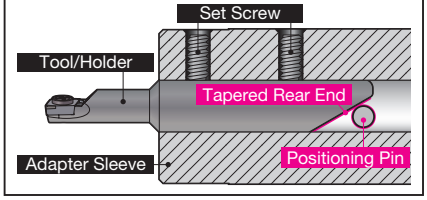
Cat. No.	Stock	OD Dia. DC	Bore Dia. DCB	Overall Length LF	Fig	Set Screw	Wrench
HBSM601905 New	●	.750	*6.0*	*80*	1	BT0506	TH025
HBSM602054 New	●	1.000	*6.0*	*80*	1		
HBSM6020	★	*20*	*6.0*	*80*	1		
HBSM6020A	★	*20*	*6.0*	*80*	2		

Adapter sleeve is optional.

• USA Stocked Item ★ Worldwide Warehouse Item

Newly Developed Clamp Mechanism

Achieves high-precision cutting edge positioning by combining a tool/holder that has a tapered rear end with a sleeve that has an internal positioning pin.
(common to BSME and SEXC)



SEXC

Carbide (Oil Hole) | CBN

SUMIBORON - CBN
Screw-on

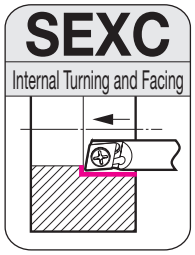
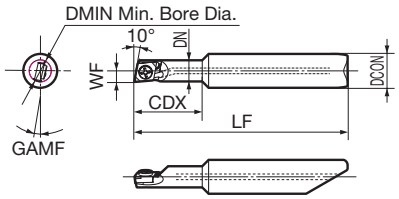


Fig 1



Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Neck Diameter DN	Overall Length LF	Cutting Edge Distance WF	Max. Boring Depth CDX	Rake Angle GAMF	Applicable Sleeve	Fig	Bolt	N·m	Wrench
E06D2-SEXC R/L03-04P	★	★	***4.0***	*6.0*	*3.75*	*33.75*	*1.95*	*8*	-13°	HBSM60____	1	MIB1.6-2	**0.2**	SDBSM
E06D3-SEXC R/L03-04P	★	★	***4.0***	*6.0*	*3.75*	*37.75*	*1.95*	*12*	-13°		1			
E06D2-SEXC R/L03-05P	★	★	***5.0***	*6.0*	*4.75*	*35.25*	*2.45*	*10*	-12°		1	MIB1.6-2.5	**0.2**	
E06D3-SEXC R/L03-05P	★	★	***5.0***	*6.0*	*4.75*	*40.25*	*2.45*	*15*	-12°		1			
E06D2-SEXC R/L03-06P	★	★	***6.0***	*6.0*	*5.75*	*36.75*	*2.95*	*12*	-11°		1	MIB1.6-3	**0.2**	
E06D3-SEXC R/L03-06P	★	★	***6.0***	*6.0*	*5.75*	*42.75*	*2.95*	*18*	-11°		1			

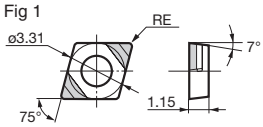
SEXC needs the HBSM6020 (A) adapter sleeve (sold separately).

Insert (CARBIDE / CBN - SUMIBORON)

Dimensions (*mm*)

Cat. No.	AC1030U	T1500A	BN2000	BN7000	Nose Radius RE	Fig
ECEM03X1005L-FYF New	●	●			*.05*	1
ECEM03X1005R-FYF New	★	★			*.05*	1
ECEM03X101L-FYF New	●	★			*.1*	1
ECEM03X101R-FYF New	★	★			*.1*	1
ECEM03X1015L-FYF New	★	●			*.15*	1
ECEM03X1015R-FYF New	●	●			*.15*	1
ECEM03X102L-FYF New	●	★			*.2*	1
ECEM03X102R-FYF New	★	●			*.2*	1
2NU-ECXA030X02LE			★		*.2*	1
2NU-ECXA030X02LF			★	★	*.2*	1

Fig 1



Part Number Suffix: LE: Honing, LF: Sharp Edge

Fig 1

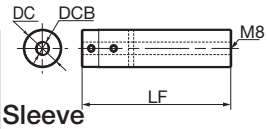
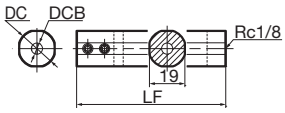


Fig 2



Sleeve

Dimensions (Inch / *mm*)

Cat. No.	Stock	OD Dia. DC	Bore Dia. DCB	Overall Length LF	Fig	Set Screw	Wrench
HBSM601905 New	●	.750	*6.0*	*80*	1	BT0506	TH025
HBSM602054 New	●	1.000	*6.0*	*80*	1		
HBSM6020	★	*20*	*6.0*	*80*	1		
HBSM6020A	★	*20*	*6.0*	*80*	2		

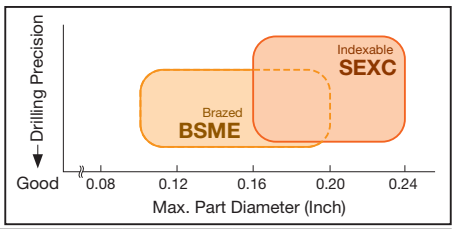
Adapter sleeve is optional.

Alignment Jig

Cat. No.	Stock
AFBSM60	★

This jig is used for centering sleeves when setting them into holders.

Application Range



Recommended Cutting Conditions

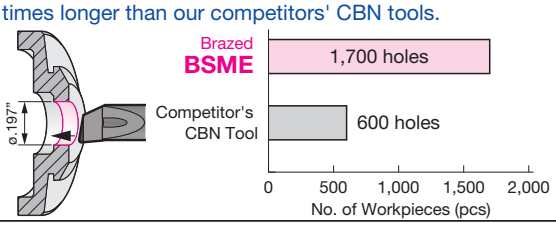
Work Material	P General Steel		M Stainless Steel		K Cast Iron		N Non-Ferrous Metal		S Exotic Alloy	H Hardened Steel	
Insert Grades	AC1030U	T1500A	AC1030U	T1500A	AC1030U	T1500A	AC1030U	T1500A	AC1030U	BN2000	BN7000
Spindle Speed n (min⁻¹)	2,000-10,000	2,000-10,000	2,000-8,000	2,000-8,000	2,000-10,000	2,000-10,000	5,000-15,000	5,000-15,000	2,000-6,000	Above 2,000	Above 2,000
Depth of Cut ap (Inch)	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	.0004 - 0.0059	.0004 - 0.0059
Feed Rate f (IPR)	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	.0004 - .0039	.0004 - .0039

May cause chattering or chipping at the cutting edge during low-speed machining. Excessive depth of cut causes deformation of the tool, which consequently leads to deterioration of dimensional tolerance.

Application Examples

Hardened Alloy Steel Valve Component — BSME

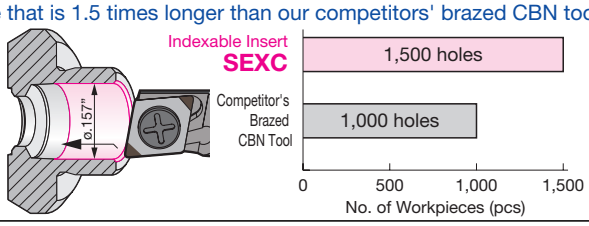
BSME provides stable machining and a tool life that is over 2 times longer than our competitors' CBN tools.



Part Material: Hardened Alloy Steel Valve Component (Automotive Component)
Tool: BSME R50020D2S6 Grade: BN2000
Cutting Conditions: v_c = 387 SFM (7,500 RPM), f = .0008 IPR, a_p = .004" Dry

Bearing Steel: Small Automotive Component — SEXC

SEXC provides drastically reduced tool costs and a tool life that is 1.5 times longer than our competitors' brazed CBN tools.



Part Material: Bearing Steel Small Automotive Component (60HRC)
Holder: E06D2-SEXC R/L03-04P Insert: 2NU-ECXA 030X02LF (BN2000)
Cutting Conditions: v_c = 164 SFM (4,000 RPM), f = .0008 IPR, a_p = .0008" Wet

• USA Stocked Item ★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

BNBX

CBN-SUMIBORON
Brazed

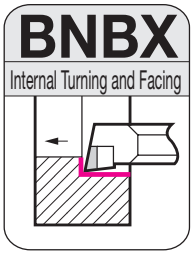
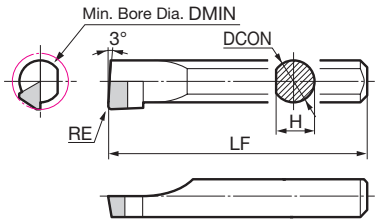


Fig 1



Holder (CBN - SUMIBORON)

Dimensions (*mm*)

Cat. No.	BN2000	BN7000	BN7125	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Nose Radius RE	Applicable Sleeve	Fig
BNBX020R	★	★	★	***2.5***	*2.0*	*1.8*	*40*	*0.2*	HBX2016	1
BNBX025R	★	★	★	***3.0***	*2.5*	*2.2*	*40*	*0.2*	HBX2516	1
BNBX030R	★	★	★	***3.5***	*3.0*	*2.7*	*40*	*0.2*	HBX3016	1
BNBX035R	★	★	★	***4.0***	*3.5*	*3.2*	*40*	*0.2*	HBX3516	1
BNBX040R	★	★	★	***4.5***	*4.0*	*3.7*	*40*	*0.2*	HBX4016	1
BNBX045R	★	★	★	***5.0***	*4.5*	*4.2*	*40*	*0.2*	HBX4516	1
BNBX050R	★	★	★	***5.5***	*5.0*	*4.7*	*60*	*0.2*	HBX5016	1
BNBX055R	★	★	★	***6.0***	*5.5*	*5.2*	*60*	*0.2*	HBX5516	1
BNBX060R	★	★	★	***6.5***	*6.0*	*5.7*	*60*	*0.2*	HBX6016	1
BNBX065R	★			***7.0***	*6.5*	*6.2*	*60*	*0.2*	HBB6516	1
BNBX070R	★			***7.5***	*7.0*	*6.7*	*80*	*0.2*	HBB716	1
BNBX075R	★			***8.0***	*7.5*	*7.2*	*80*	*0.2*	HBB7516	1
BNBX080R	★			***8.5***	*8.0*	*7.7*	*80*	*0.2*	HBB816	1

BNBX bars can be used with HBB type sleeves, but HBX type sleeves are recommended for bars below ø6mm.

Fig 1

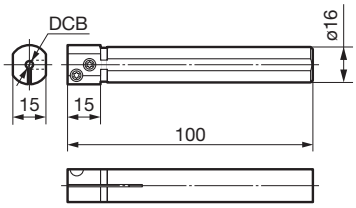
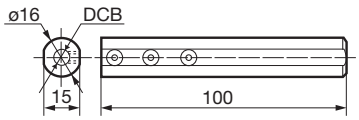


Fig 1



Sleeve (HBX)

Dimensions (*mm*)

Cat. No.	Stock	Bore Dia. DCB	Applicable Bar	Fig
HBX2016	★	*2.0*	BNBX020R	1
HBX2516	★	*2.5*	BNBX025R	1
HBX3016	★	*3.0*	BNBX030R	1
HBX3516	★	*3.5*	BNBX035R	1
HBX4016	★	*4.0*	BNBX040R	1
HBX4516	★	*4.5*	BNBX045R	1
HBX5016	★	*5.0*	BNBX050R	1
HBX5516	★	*5.5*	BNBX055R	1
HBX6016	★	*6.0*	BNBX060R	1

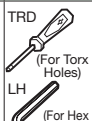
Sleeve (HBB)

Dimensions (*mm*)

Cat. No.	Stock	Bore Dia. DCB	Applicable Bar	Fig
HBB6516	★	*6.5*	BNBX065R	1
HBB716	★	*7.0*	BNBX070R	1
HBB7516	★	*7.5*	BNBX075R	1
HBB816	★	*8.0*	BNBX080R	1

HBB Type sleeve can also be used with ø2.5 to 6.0mm holders.

Spare Parts (for Adapter Sleeve)

Applicable Sleeve	Flat Screw		Set Screw	Wrench
		N·m	BT06035T BT0404	TRD  (For Torx Holes) LH (For Hex Socket)
HBX2○○○	BFTX0409N	**1.5**	BT06035T	TRD15
HBX3○○○ HBX4○○○ HBX5○○○ HBX6○○○	BFTX0409N	**3.0**	BT06035T	TRD15
HBB○○○○	-	-	BT0404	LH020

★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

BNZ

CBN-SUMIBORON
Screw-on

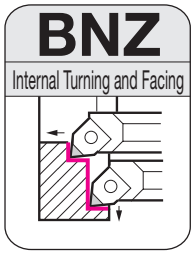
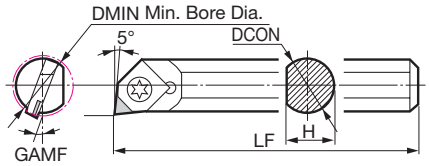


Fig 1



Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Rake Angle GAMF	Fig	Flat Screw		Wrench	Adapter Sleeve
									N·m	(For Torx Holes)	
BNZ606R	★	***7.0***	*6.0*	*5.5*	*80*	-14°	1	BFTX0204N	**0.5**	TRX06	HBB616
BNZ608R	★	***9.0***	*8.0*	*7.5*	*100*	-12°	1				HBB816
BNZ610R	★	***11.0***	*10.0*	*9.5*	*125*	-10°	1				–
BNZ612R	★	***13.0***	*12.0*	*11.0*	*130*	-8°	1				
BNZ616R	★	***17.0***	*16.0*	*15.0*	*145*	-6°	1				
BNZ620R	★	***21.0***	*20.0*	*19.0*	*160*	-5°	1				

Insert (SUMIBORON)

Dimensions (Inch)

Quantity	Sumitomo Cat. No.	ISO Cat. No.	BNC2010	BNC2020	BN1000	BN2000	BN7000	Nose Radius RE
Single pack	**NU-ZNEX620.5**	**NU-ZNEX040102**	-	-	●	●	●	.0079
	NU-ZNEX621	**NU-ZNEX040104**	-	-	●	●	●	.0157
	NC-ZNEX620.5LE	**NC-ZNEX040102LE**	●	-	-	-	-	.0079
	NC-ZNEX621LE	**NC-ZNEX040104LE**	●	-	-	-	-	.0157
	NC-ZNEX620.5LT	**NC-ZNEX040102LT**	-	●	-	-	-	.0079
	NC-ZNEX621LT	**NC-ZNEX040104LT**	-	●	-	-	-	.0157
10 pack	**T-NU-ZNEX620.5**	**T-NU-ZNEX040102**	-	-		●		.0079
	T-NU-ZNEX621	**T-NU-ZNEX040104**	-	-		●		.0157

Fig 1

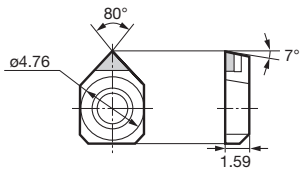
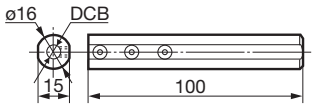


Fig 1



Sleeve

Dimensions (*mm*)

Cat. No.	Stock	Bore Dia. DCB	Applicable Holders	Fig
HBB616	★	*6.0*	BNZ606R	1
HBB816	★	*8.0*	BNZ608R	1

HBX Type sleeve (HBX6016) can also be used with BNZ606R.

• USA Stocked Item ★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

BNB / BNC

T 60° | 92° | CBN | PCD

SUMIBORON
Clamp-on

BNB

Internal Turning and Facing

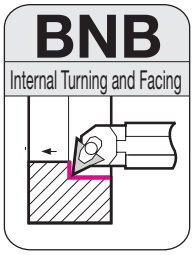


Fig 1

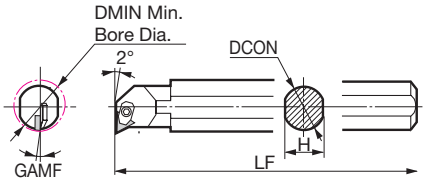


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (inch/ *mm*)

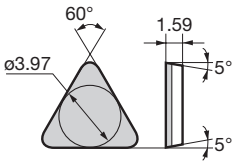
Cat. No.	Stock	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Rake Angle GAMF	Fig	Clamp	Bolt	Nut	Wrench (For Hex Socket)
BNB508R	★	**0.394" (*10.0*)**	0.315" (*8.0*)	0.276" (*7.0*)	5.512" (*140*)	-9°	1	BNBC	BH0306	BNBW-2	TH020
BNB510R	★	**0.472" (*12.0*)**	0.394" (*10.0*)	0.354" (*9.0*)	5.512" (*140*)	-8°	1		FBUP3-A0-9	BNBW-4	
BNB512R	★	**0.551" (*14.0*)**	0.472" (*12.0*)	0.433" (*11.0*)	6.299" (*160*)	-6°	1				
BNB516R	★	**0.708" (*18.0*)**	0.630" (*16.0*)	0.551" (*14.0*)	7.086" (*180*)	-5°	1				
BNB520R	★	**0.866" (*22.0*)**	0.787" (*20.0*)	0.708" (*18.0*)	7.086" (*180*)	-4°	1		BH0310	BNBW-7	

Insert (CBN, PCD)

Dimensions (Inch)

Sumitomo Cat. No.	ISO Cat. No.	CBN - SUMIBORON BNX10	BNX20	BN2000	BN350	BN500	BN7000	PCD- SUMIDIA DA150	DA1000	Nose Radius RE
TBGE520.5B	**TBGN060102B**		★	★				★	★	.0079
TBGE521B	**TBGN060104B**	★	★	★	★	★	★	★	★	.0157
TBGE522B	**TBGN060108B**		★	★	★	★	★			.0315
TBGE520.5BSN *	**TBGN060102-BSTN**[*1]	-	★	-	-	-	-	-	-	.0079
TBGE521BSN*	**TBGN060104-BSTN**[*1]	-	★	-	-	-	-	-	-	.0157
TBGE522BSN*	**TBGN060108-BSTN**[*1]	-	★	-	-	-	-	-	-	.0315
NFTBGE520.5**	**NF-TBGN060102**[*2]	-	-	-	-	-	-	-	★	.0079
NFTBGE521**	**NF-TBGN060104**[*2]	-	-	-	-	-	-	-	★	.0157

Fig 1



*1 TBGN ○○○○○○-BSTN is only available in BNX20 grade and has a smaller negative land angle.
(BSTN: -15°, B: -25°. However, the negative land angle is uniquely configured for each grade.)
*2 NF-TBGN is a single corner insert. (This is not a Full-Top insert)

BNC

Boring and Facing

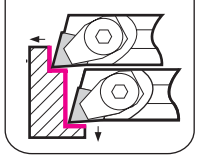


Fig 1

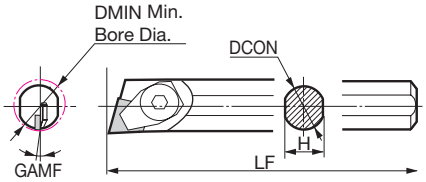


Figure shows right-hand (R) tool.

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Rake Angle GAMF	Fig	Clamp	Bolt	Nut	Wrench (For Hex Socket)
BNC508R	★	**0.394" (*10.0*)**	0.315" (*8.0*)	0.276" (*7.0*)	5.512" (*140*)	-9°	1	BNBC	BH0306	BNBW-2	TH020
BNC510R	★	**0.472" (*12.0*)**	0.394" (*10.0*)	0.354" (*9.0*)	5.512" (*140*)	-8°	1		FBUP3-A0-9	BNBW-4	
BNC512R	★	**0.591" (*15.0*)**	0.472" (*12.0*)	0.433" (*11.0*)	6.299" (*160*)	-6°	1				
BNC516R	★	**0.787" (*20.0*)**	0.630" (*16.0*)	0.551" (*14.0*)	7.086" (*180*)	-5°	1				
BNC520R	★	**0.984" (*25.0*)**	0.787" (*20.0*)	0.708" (*18.0*)	7.086" (*180*)	-4°	1		BH0310	BNBW-7	

★ Worldwide Warehouse Item

PCD

PCD-SUMIDIA
Brazed

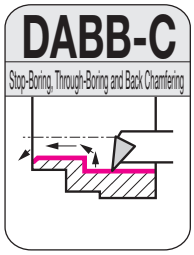
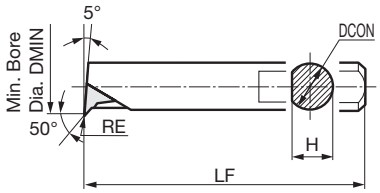


Fig 1



Holder (PCD-SUMIDIA)

Dimensions (*mm*)

Cat. No.	DA2200	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Nose Radius RE	Applicable Sleeve	Fig
DABB025CR	★	***3.0***	*2.5*	*2.2*	*60*	*0.1*	HBB2516	1
DABB035CR	★	***4.0***	*3.5*	*3.2*	*60*	*0.1*	HBB3516	1
DABB045CR	★	***5.0***	*4.5*	*4.1*	*80*	*0.1*	HBB4516	1
DABB060CR	★	***7.0***	*6.0*	*5.2*	*80*	*0.1*	HBB616	1

PCD

PCD-SUMIDIA
Brazed

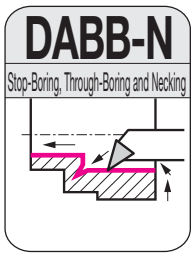
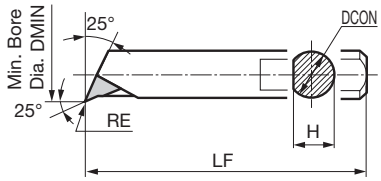


Fig 1

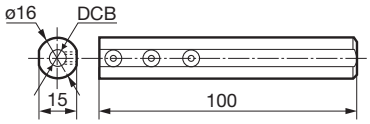


Holder (PCD-SUMIDIA)

Dimensions (*mm*)

Cat. No.	DA2200	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Nose Radius RE	Applicable Sleeve	Fig
DABB025NR	★	***3.0***	*2.5*	*2.2*	*60*	*0.1*	HBB2516	1
DABB035NR	★	***4.0***	*3.5*	*3.2*	*60*	*0.1*	HBB3516	1
DABB045NR	★	***5.0***	*4.5*	*4.1*	*80*	*0.1*	HBB4516	1
DABB060NR	★	***7.0***	*6.0*	*5.2*	*80*	*0.1*	HBB616	1

Fig 1



Sleeve

Dimensions (*mm*)

Cat. No.	Stock	Bore Dia. DCB	Fig	Set Screw	Wrench
					(For Hex Socket)
HBB2516	★	*2.5*	1	BT0404	LH020
HBB3516	★	*3.5*	1		
HBB4516	★	*4.5*	1		
HBB616	★	*6.0*	1		

HBX sleeve can also be used.

★ Worldwide Warehouse Item

Smart Dampers for Internal Boring

■ Features

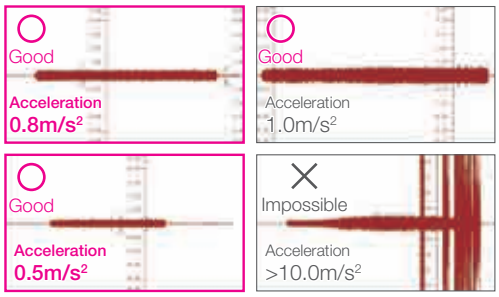
- Adopting a special damper mechanism to suppress chattering for large diameter bars with long overhang of L/D=5 to 8.
- Replaceable heads enable a wide selection of positive and negative inserts.
- Internal coolant supply improves chip evacuation and tool life.

■ Cutting Performance

Overhang Amount 6D Vibration during Machining

v_c = 100m/min

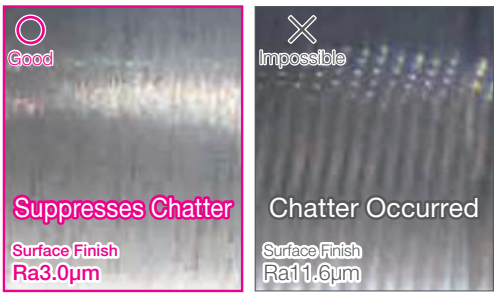
v_c = 200m/min



Smart Damper | Conventional Tool

Overhang Amount 9D* Surface Roughness during Machining

v_c = 100m/min



Smart Damper | Competitor's Product (With Anti-Vibration Mechanism)

Work Material: S45C(Work Dia. ø40 up) Holder: ø32 Shank Insert: TPMT160404N-SU Cutting Conditions: f =0.1mm/rev a_p=0.2mm Dry

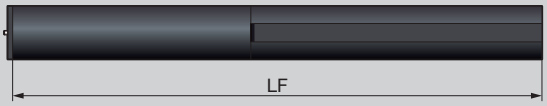
*Machining performed with 9D overhang was for anti-vibration performance evaluation only; to prevent tool deflection, use up to a maximum of 8D.

■ Smart Damper Combination Example

Indexable Head

For Positive Inserts	For Negative Inserts
SCLC Type SCLP Type	DCLN Type
SDUC Type SDQC Type	DDUN Type
STUP Type	DTFN Type
SVUB Type SVQB Type	

Smart Damper Body



S-SDB3240L320 Shank Dia.: ø32mm LF: 320mm
S-SDB4050L410 Shank Dia.: ø40mm LF: 410mm

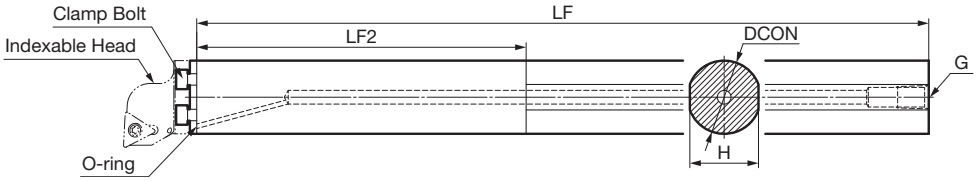
Indexable heads can be selected to suit machining applications

*Smart Damper™ is a registered trademark of BIG DAISHOWA Co., Ltd.

Smart Dampers for Internal Boring

New | Anti-Vibration | Internal Coolant

Fig 1



Smart Damper Body

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Overall Length LF	Length LF2	Height H	Shank G	Indexable Head Group No.	Weight (kg)	Fig	Parts: Clamp Bolt		Parts: Wrench (For Hex Socket)	Parts: O-ring
S-SDB3240L320	★	*32*	*320*	*144*	*30*	Rc1/4	1	2.3	1	BX0510	3.0	LH040	SS020
S-SDB4050L410	★	*40*	*410*	*170*	*37*	Rc3/8	2	4.5	1	BX0610	5.2	LH050	SS020

Refer to the user's manual for methods of mounting indexable heads. Indexable heads are not included with the Smart Damper body.
Because an anti-vibration mechanism is built in, clamping to the LF2 dimension may disturb normal functioning.
The indexable head is not included in the weight.
Three clamp bolts and two O-rings (including one spare) are included.

Indexable Heads ☞ E12 to E15

Fig 1

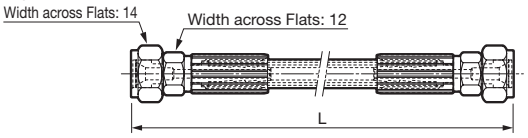


Fig 1

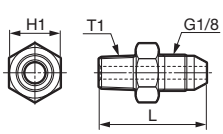
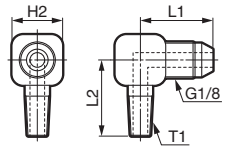


Fig 2



Parts (Hose)

Dimensions (*mm*)

Cat. No.	Stock	L	Screw Standard	Screw Standard	Fig
J-HOSE-G1/8-G1/8-200	★	*200*	G1/8	G1/8	1
J-HOSE-G1/8-G1/8-300	★	*300*	G1/8	G1/8	1

Hoses are sold separately.

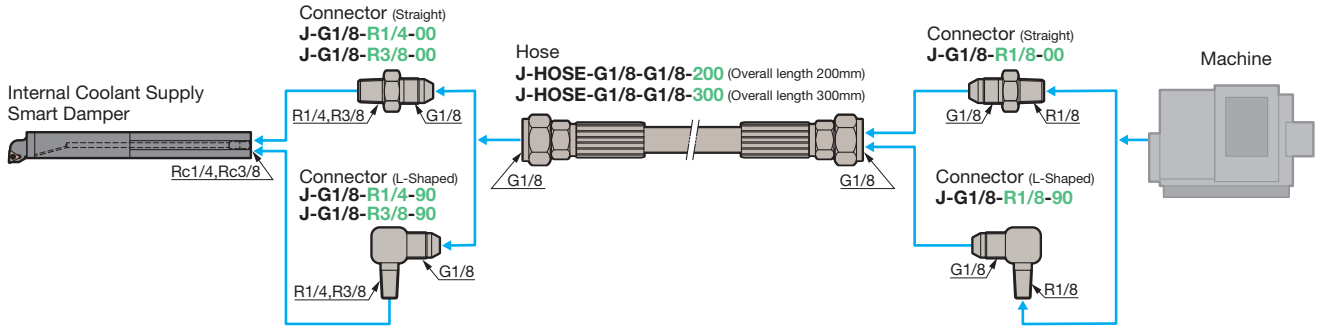
Parts (Connector)

Dimensions (*mm*)

Cat. No.	Stock	Screw Standard T1	L	L1	L2	H1	H2	Fig
J-G1/8-R1/4-00	★	R1/4	*34*	—	—	*14*	—	1
J-G1/8-R1/8-00	★	R1/8	*29*	—	—	*14*	—	1
J-G1/8-R3/8-00	★	R3/8	*36*	—	—	*19*	—	1
J-G1/8-R1/4-90	★	R1/4	—	*22*	*25*	—	*17*	2
J-G1/8-R1/8-90	★	R1/8	—	*20*	*21*	—	*14*	2
J-G1/8-R3/8-90	★	R3/8	—	*23*	*30*	—	*19*	2

Connectors are sold separately.

Piping Method for Hoses and Connectors



· Apply sealant such as commercial sealing tape to the piping connection parts.

Identification Code (Smart Damper Body)

S-SDB 32 40 L320

Connection Method | Shank Dia. | Min. Bore Dia. | Overall Length

Identification Code (Indexable Head)

SDB 32 - SCLCR09T3 - 40

Connection Method | Compatible Shank Dia. | (Conforms to boring bar ISO standard classification) See page E4 | Min. Bore Dia.

*Smart Damper™ is a registered trademark of BIG DAISHOWA Co., Ltd.

N·m Recommended Tightening Torque (N·m) ★: WWW (Worldwide Warehouse Item)

Smart Dampers for Internal Boring

New | C 80° | 95° 95° | Internal Coolant

Screw-on, Internal Coolant Supply
Internal Diameter

SCLC
Bottom Facing

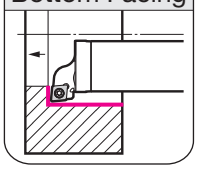
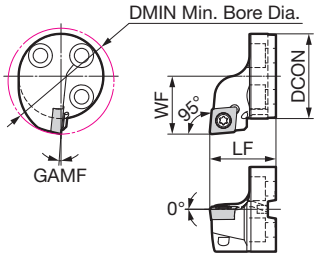


Fig 1



Indexable Heads (For Positive Inserts)

Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Flat Insert Screw	N·m	Wrench (For Torx Holes)
SDB32-SCLC R/L09T3-40	★	★	*40*	*32*	*25*	*22*	*-4°*	CC□□32.5	**B78**	1	1	BFTX0409N	3.4	TRX15
SDB40-SCLC R/L09T3-50	★	★	*50*	*40*	*25*	*27*	*-2°*			2	1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.

New | C 80° | 95° 95° | Internal Coolant

Screw-on, Internal Coolant Supply
Internal Diameter

SCLP
Bottom Facing

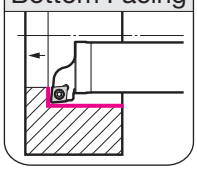
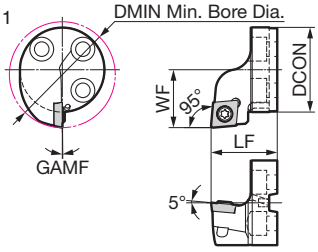


Fig 1



Indexable Heads (For Positive Inserts)

Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Flat Insert Screw	N·m	Wrench (For Torx Holes)
SDB32-SCLP R/L0903-40	★		*40*	*32*	*25*	*22*	*0°*	CP□□32.5□	**B84**	1	1	BFTX0409N	3.4	TRX15
SDB40-SCLP R/L0903-50	★		*50*	*40*	*25*	*27*	*0°*			2	1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.

*Smart Damper™ is a registered trademark of BIG DAISHOWA Co., Ltd.

N·m Recommended Tightening Torque (N·m) ★: WWW (Worldwide Warehouse Item)

Smart Dampers for Internal Boring

New | D 55° | 93° | Internal Coolant

Screw-on, Internal Coolant Supply
Internal Diameter

SDUC
Profiling

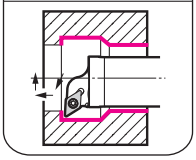
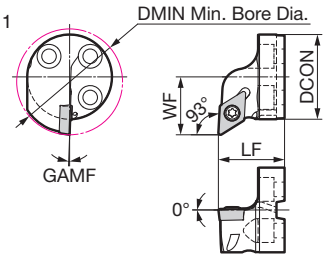


Fig 1



Indexable Heads (For Positive Inserts)

Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Flat Insert Screw	N·m	Wrench (For Torx Holes)
SDB32-SDUC R/L11T3-40	★	★	*40*	*32*	*25*	*22*	*-2°*	DC□□32.5□	**B88**	1	1	BFTX0409N	3.4	TRX15
SDB40-SDUC R/L11T3-50	★	★	*50*	*40*	*25*	*27*	*0°*			2	1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.

New | D 55° | 107.5° | Internal Coolant

Screw-on, Internal Coolant Supply
Internal Diameter

SDQC
Profiling

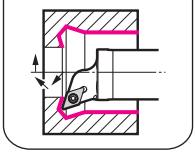
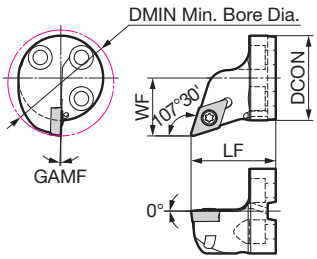


Fig 1



Indexable Heads (For Positive Inserts)

Parts — Dimensions (mm)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Flat Insert Screw	N·m	Wrench (For Torx Holes)
SDB32-SDQC R/L11T3-40	★	★	*40*	*32*	*32*	*22*	*-2°*	DC□□32.5□	**B88**	1	1	BFTX0409N	3.4	TRX15
SDB40-SDQC R/L11T3-50	★	★	*50*	*40*	*32*	*27*	*0°*			2	1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.

*Smart Damper™ is a registered trademark of BIG DAISHOWA Co., Ltd.

N·m Recommended Tightening Torque (N·m) ★: WWW (Worldwide Warehouse Item)

New | T 60° | 93° | Internal Coolant

Screw-on, Internal Coolant Supply
Internal Diameter

STUP
Stop Boring

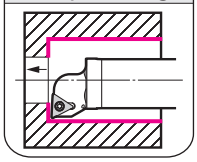
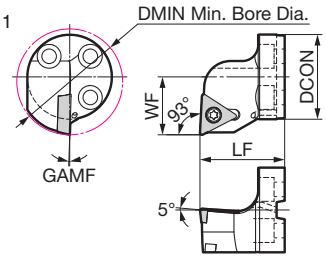


Fig 1



Indexable Heads (For Positive Inserts)

Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Flat Insert Screw	N·m	Wrench (For Torx Holes)
SDB32-STUP R/L1103-40	★	★	*40*	*32*	*25*	*22*	*-2°*	TP□□22	**B113**	1	1	BFTX0307N	2.0	TRX10
SDB40-STUP R/L1103-50	★	★	*50*	*40*	*25*	*27*	*0°*			2	1			
SDB32-STUP R/L1604-40	★	★	*40*	*32*	*32*	*22*	*-2°*	TP□□33	**B116**	1	1	BFTX0409N	3.4	TRX15
SDB40-STUP R/L1604-50	★	★	*50*	*40*	*32*	*27*	*0°*			2	1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.

New | V 35° | 93° | Internal Coolant

Screw-on, Internal Coolant Supply
Internal Diameter

SVUB
Profiling

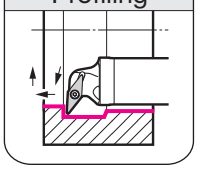
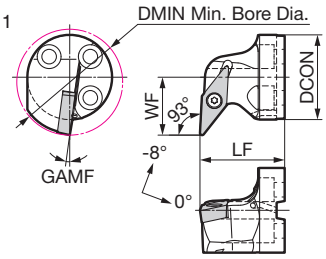


Fig 1



Indexable Heads (For Positive Inserts)

Parts — Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Flat Insert Screw	N·m	Wrench (For Torx Holes)
SDB32-SVUB R/L1604-40	★		*40*	*32*	*32*	*22*	*(-7.5°)*	VB□□33	**B123**	1	1	BFTX03508N	2.0	TRX10
SDB40-SVUB R/L1604-50	★		*50*	*40*	*32*	*27*	*(-7.5°)*			2	1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.

New | V 35° | 108° | Internal Coolant

Screw-on, Internal Coolant Supply
Internal Diameter

SVQB
Profiling

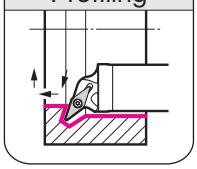
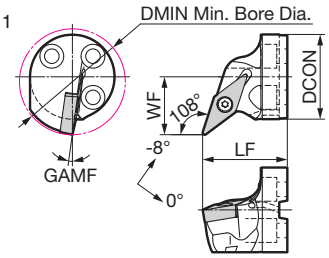


Fig 1



Indexable Heads (For Positive Inserts)

Parts — Dimensions (mm)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Rake Angle GAMF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Flat Insert Screw	N·m	Wrench (For Torx Holes)
SDB32-SVQB R/L1604-40	★		*40*	*32*	*32*	*22*	*(-6.5°)*	VB□□33	**B123**	1	1	BFTX03508N	2.0	TRX10
SDB40-SVQB R/L1604-50	★		*50*	*40*	*32*	*27*	*(-6.5°)*			2	1			

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.
*Smart Damper™ is a registered trademark of BIG DAISHOWA Co., Ltd.

N·m Recommended Tightening Torque (N·m) ★: WWW (Worldwide Warehouse Item)

Smart Dampers for Internal Boring

New | C 80° | 95° 95° | Internal Coolant

Internal Coolant Supply, Double Clamp
Internal Diameter

DCLN
Bottom Facing

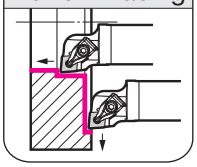
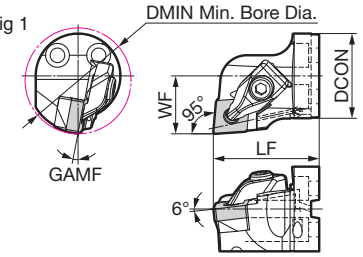


Fig 1



● Feed direction of applicable inserts differs for DCLN Type according to machining application.

Internal Boring
Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
During Facing
Right-handed (R) tool holders are compatible with right-handed (R) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with left-handed (L) or neutral (N) inserts.

Indexable Heads (For Negative Inserts) / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Clamp Set	N·m	Shim	Shim Screw	Top Hex Wrench (For Hex Socket)	Bottom Hex Wrench (For Hex Socket)
SDB32-DCLN R/L1204-40	★	★	*40*	*32*	*40*	*22*	CN□□43□	**B22**	1	1	SCP-2	5.0	CNS1204B	BFTX0409N	LH040	LH025
SDB40-DCLN R/L1204-50	★	★	*50*	*40*	*40*	*27*			2	1						

*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.

Clamp Set Parts E78

New | D 55° | 93° | Internal Coolant

Internal Coolant Supply, Double Clamp
Internal Diameter

DDUN
Profiling

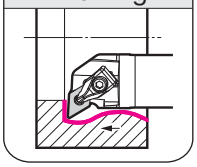
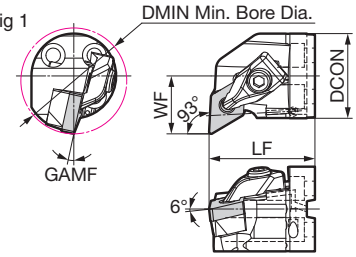


Fig 1



Indexable Heads (For Negative Inserts) / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Clamp Set	N·m	Shim	Shim Screw	Top Hex Wrench (For Hex Socket)	Bottom Hex Wrench (For Hex Socket)
SDB32-DDUN R/L1504-40	★	★	*40*	*32*	*40*	*22*	DN□□43□	**B32**	1	1	SCP-2	5.0	DNS1504B	BFTX0409N	LH040	LH025
SDB40-DDUN R/L1504-50	★	★	*50*	*40*	*40*	*27*			2	1						

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.

Clamp Set Parts E78

New | T 60° | 91° | Internal Coolant

Internal Coolant Supply, Double Clamp
Internal Diameter

DTFN
Stop Boring

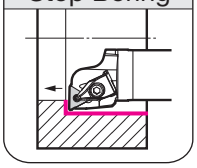
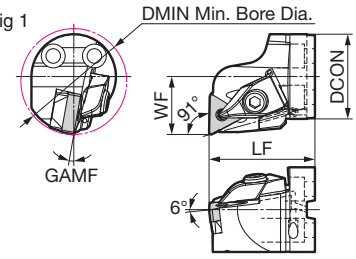


Fig 1



Indexable Heads (For Negative Inserts) / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Overall Length LF	Cutting Edge Distance WF	Applicable Insert Cat. No.	Applicable Insert Ref. Page	Smart Damper Group No.	Fig	Clamp Set	N·m	Shim	Shim Screw	Top Hex Wrench (For Hex Socket)	Bottom Hex Wrench (For Hex Socket)
SDB32-DTFN R/L1604-40	★		*40*	*32*	*40*	*22*	TN□□33□	**B56**	1	1	SCP-1	5.0	TNS1604B	BFTX0307N	LH040	LH025
SDB40-DTFN R/L1604-50	★		*50*	*40*	*40*	*27*			2	1						

Right-handed (R) tool holders are compatible with left-handed (L) or neutral (N) inserts.
Left-handed (L) tool holders are compatible with right-handed (R) or neutral (N) inserts.
*Refer to Smart Damper body Group Nos. on E11 for applicable Smart Damper bodies.

Clamp Set Parts E78

*Smart Damper™ is a registered trademark of BIG DAISHOWA Co., Ltd.

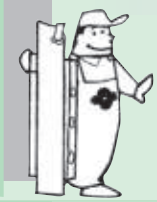
N·m Recommended Tightening Torque (N·m) ★: WWW (Worldwide Warehouse Item)

MEMO

Grooving / Cut-Off Threading Tools

F

F1 to F86



Grooving Tools

Grooving Tool Series Selection Guide F2
GND Intro Pages F4
GND Recommended Cutting Conditions F14
GND Key Points F15
GND Nomenclature F19
Inserts for GND F21
GND for Small Lathes F23
GND with Internal Coolant for Small Lathes F24
GNDM F25
GNDMS / GNDM-J F26
GNDL F27
GNDLS / GNDL-J F28
GND-J Parts / Hoses F29
GND-PSC Polygon Shank F30
GNDS / GNDN F32
GNDXL F33
GNDF F34
GNDFS (Face Groove) F36
GNDI (For General-purpose Internal Grooves) F37
GNDIS (For General-purpose Internal Grooves) F38
GND Special Grooving Insert Request Form F39
GND Application Examples F40
GWC (Shallow Grooves) F43
GWCS (Shallow Grooves) F44
GWCI (Internal Shallow Grooves) F44
TGA Grooving Insert F45
TGA Insert / TGA PSC F46
SumiTurn B-Groove Triangular Insert with Chipbreaker for Grooving F47
CKB (For Very Small Diameter Grooves) F49
SSH (For Small Diameters) F51
SGIT (For Small Diameters) F53
SumiNotch F54
CBN GWB (For Hardened Steel, Shallow Grooves) F56
CGA PSC / CBN BNGG (For Hardened Steel, Shallow Grooves) ... F57

F Cut-Off Tools ···F58 on

Cut-Off Tool Holder Series Selection Guide F59
SumiGrip Introduction F60
SumiGrip F61
Small Diameter Cut-Off Tool Holders F66

F Threading Tools ···F68 on

Threading Tool Series Selection Guide F69
Basics of Threads F72
For External / Internal Diameters F73
Threading Inserts F77

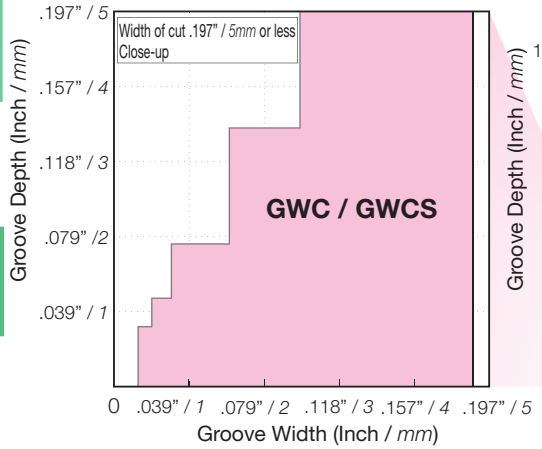
Stock Markings and Symbols

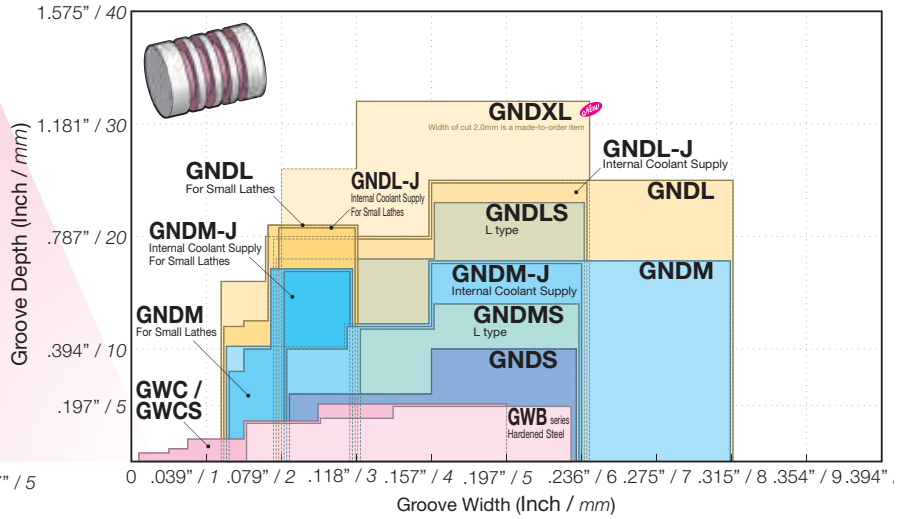
●: Standard stocked item
★: Worldwide Warehouse Item
▲: Limited Avaibility Item, made to order, or discontinued (please confirm stock availability).

Blank: Made-to-order item
— mark: Not available

Selection Guide

External Grooving





■ External Grooving Tools

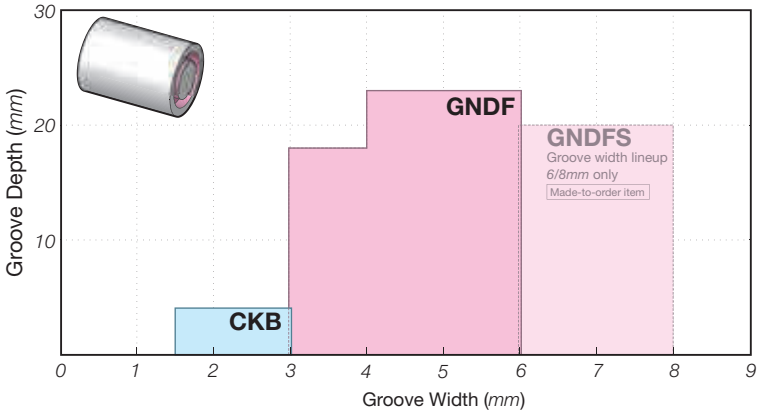
* mark: For groove depths and width combinations, refer to the above figures or the relevant page.

Applications	Series	Shape	Structure: Screw-on	Structure: Clamp-on	Structure: Double Clamp	Insert Shape (indicates no. of cutting edges)	Groove Depth* / Groove Width* (Inch / mm)	Features
For Shallow Grooves	**GWC**	→ F43	●		●	(3) (Standard, with Chipbreaker) Traverse Cutting Possible	.197" / 5.0; .189" / 4.8; .013" / .33	· High rigidity double clamping (Screw-on for Mini Holders) · Triangular type insert with 3 usable corners
For Shallow Grooves	**GWCS**	→ F44			●	(3) (Standard, with Chipbreaker) Traverse Cutting Possible	.197" / 5.0; .189" / 4.8; .013" / .33	· "L-shaped" (side cut) GWC holder
For Shallow Grooves	**GWB**[*1] Hardened Steel	→ F56			●	(1) Traverse Cutting Possible	.197" / 5.0; .236" / 6.0; .059" / 1.5	· High rigidity double clamping · Employs Coated CBN - SUMIBORON for interrupted turning of hardened steel
For Shallow Grooves to General Grooves	**GNDS**	→ F32		●		(2) (2) Traverse Cutting Possible	.394" / 10.0; .079" / 2.0; .236" / 6.0	· High-rigidity design reduces vibration · Enables high-efficiency turning and traversing thanks to its short tool overhang length
For Shallow Grooves to General Grooves	**GNDM** For Small Lathes	→ F23		●		(2) (2) Traverse Cutting Possible	.669" / 17.0; .118" / 3.0; .049" / 1.25	· High-rigidity design reduces vibration · 16x16, 20x12mm square shanks available
For Shallow Grooves to General Grooves	**GNDM-J** Internal Coolant Supply For Small Lathes	→ F24		●		(2) (2) Traverse Cutting Possible	.669" / 17.0; .118" / 3.0; .049" / 1.25	· GNDM with internal coolant supply for small lathes
For Shallow Grooves to General Grooves	**GNDM**	→ F25		●		(2) (2) Traverse Cutting Possible	.708" / 18.0; .315" / 8.0; .049" / 1.25	· High-rigidity design reduces vibration · Perfect for traverse cutting and profiling
For Shallow Grooves to General Grooves	**GNDM-J** Internal Coolant Supply	→ F26		●		(2) (2) Traverse Cutting Possible	1.708" / 8.0; .079" / 2.0; .236" / 6.0	· GNDM with internal coolant supply
For Shallow Grooves to General Grooves	**GNDMS**	→ F26		●		(2) (2) Traverse Cutting Possible	.906" / 23.0; .118" / 3.0; .236" / 6.0	· "L-shaped" (side cut) GNDM
For Deep Grooves	**GNDL** For Small Lathes	→ F23		●		(2) (2)	.827" / 21.0; .118" / 3.0; .049" / 1.25	· High-rigidity design reduces vibration · 10x10, 12x12, 16x16, 20x12mm square shanks available
For Deep Grooves	**GNDL-J** Internal Coolant Supply For Small Lathes	→ F24		●		(2) (2)	.827" / 21.0; .118" / 3.0; .049" / 1.25	· GNDL with internal coolant supply for small lathes
For Deep Grooves	**GNDL**	→ F27		●		(2) (2)	.984" / 25.0; .315" / 8.0; .049" / 1.25	· High-rigidity design reduces vibration · Perfect for grooving, deep grooving and cut-off applications
For Deep Grooves	**GNDL-J** Internal Coolant Supply	→ F28		●		(2) (2)	.984" / 25.0; .079" / 2.0; .236" / 6.0	· GNDL with internal coolant supply
For Deep Grooves	**GNDLS**	→ F28		●		(2) (2)	.984" / 25.0; .079" / 2.0; .236" / 6.0	· "L-shaped" (side cut) GNDL
For Deep Grooves	**GNDXL** NEW	→ F33		●		(1) (1)	1.260" / 32.0; .079" / 2.0[*2]; .236" / 6.0	· Supports a maximum grooving depth of *32mm*.

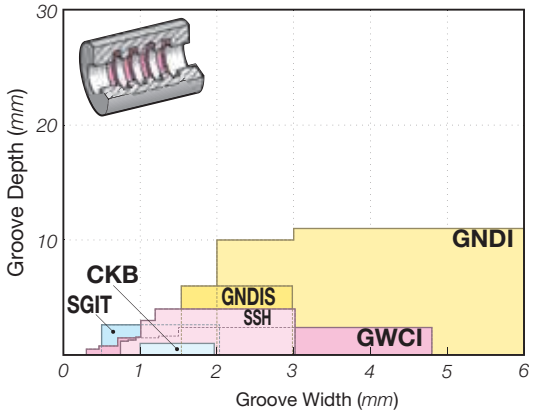
*1: For hardened steel, refer to page F57 for CBN / SUMIBORON Grooving Holder BNGG series. *2: Width of cut *2.0mm* is a made-to-order item.

Selection Guide

Face Grooving



Internal Grooving



■ Face Grooving Tools

Note: * mark: For groove depths and width combinations, refer to the above figures or the relevant page.

Applications	Series	Shape	Structure: Screw-on	Structure: Clamp-on	Structure: Double Clamp	Insert Shape (indicates no. of cutting edges)	Groove Depth* / Groove Width* (Inch/mm)	Machining diameter (Inch/mm)	Features
Very Small Diameter	**CKB**	→ F49		●		(1)	.157" / 4.0; .059" / 1.5; .118" / 3.0	ø.236" ø6 ~	· Face grooving for small lathes
For General Grooves to Deep Grooves	**GNDF**	→ F34		●		(2)	.905" / 23.0; .118" / 3.0; .236" / 6.0	ø1.378 - ø39.370" ø35 - ø1,000	· High-rigidity design reduces vibration
For General Grooves to Deep Grooves	**GNDFS** Made-to-order item	→ F36		●		(2) Traverse Cutting Possible	.787" / 20.0; .236" / 6.0; .315" / 8.0	ø2.756" ø70 ~	· L-shape (horizontal) type · For wide grooves

■ Internal Grooving Tools

* mark: For groove depths and width combinations, refer to the above figures or the relevant page.

Applications	Series	Shape	Structure: Screw-on	Structure: Clamp-on	Structure: Double Clamp	Insert Shape (indicates no. of cutting edges	Groove Depth* / Groove Width* (Inch/mm)	Min. bore diameter (Inch/mm)	Features
For Small Diameter Grooves	**CKB**	→ F50		●		(1)	.039" / 1.0; .039" / 1.0; .079" / 2.0	ø.157" ø4	· Very small diameter grooving · High clamping force · Wide variety of tool holders
For Small Diameter Grooves	**SGIT**	→ F53	●			(3)	.126" / 3.2; .0197" / .5; .079" / 2.0	ø.394" ø10	· 3-cornered type
For Small Diameter Grooves	**SSH**	→ F51	●			(1) Traverse Cutting Possible	.157" / 4.0; .029" / .74; .118" / 3.0	ø.315" ø8	· Internal coolant supply for outstanding chip evacuation · Wide range of grooving widths · Tough carbide body for stable grooving
For Shallow Grooves	**GWCI**	→ F44	●			(3) (Standard, with Chipbreaker)	.098" / 2.5; .013" / .33; .189" / 4.8	ø1.378" ø35	· Using same inserts as GWC series holders · Inserts with chipbreakers now in stock
For General Grooves to Deep Grooves	**GNDIS**	→ F38		●		(2) Traverse Cutting Possible	.260" / 6.6; .059" / 1.5; .118" / 3.0	ø.551" ø14	· Supports grooving with minimum bore diameter from ø14
For General Grooves to Deep Grooves	**GNDI**	→ F37		●		(2) (2) Traverse Cutting Possible	.433" / 11.0; .079" / 2.0; .236" / 6.0	ø1.260" ø32	· High-rigidity design reduces vibration

■ Necking Tools

* mark: For groove depths and width combinations, refer to the above figures or the relevant page.

Applications	Series	Shape	Structure: Screw-on	Structure: Clamp-on	Structure: Double Clamp	Insert Shape (indicates no. of cutting edges	Groove Depth* / Groove Width* (Inch/mm)	Machining diameter (Inch/mm)	Features
Facing Necking	**GNDN**	→ F32		●		(2)	.157" / 4.0; .079" / 2.0; .236" / 6.0	ø.787" ø20 ~	· Necking at corners possible

GND

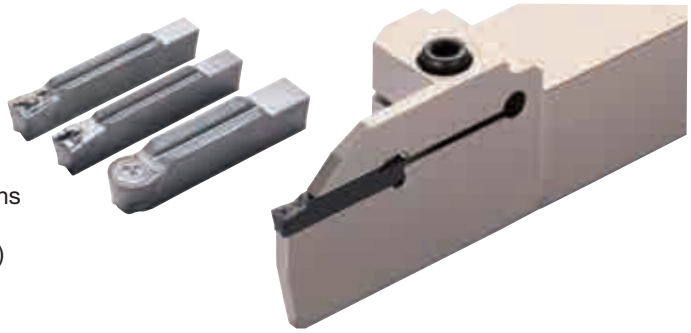
■ Features and Benefits

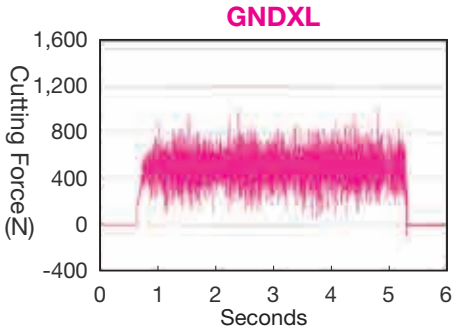
- Wide application range: applicable for grooving, traverse cutting, profiling, necking, facing and internal boring
- Expanded Grade Lineup: featuring grades: AC8025P / AC8035P / AC5015S / AC5025S
- Stable tool life and a large chipbreaker offering prevents sudden breakages due to chip clogging.
- Achieving high efficiency machining with reduced chattering
  The mono-block structure and die steel body reduce vibration during machining around 30% compared to conventional tools
- Higher edge width precision even with unground inserts. High-precision sintering technology achieves cutting edge width precision of *±0.03mm* for seat sizes *1.25mm* to *6.0mm* (front cutting edge angle of 0° or 5°)
- Internal Coolant Supply Holders for Small Lathes Available
- Expanded lineup: *20×12mm* Square Holders for Small Lathes

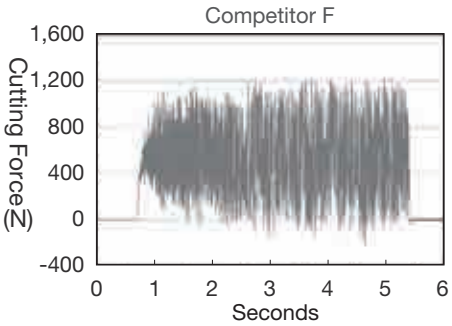
■ GNDXL Deep Grooving (page 33)

New

- GNDXL now available with a deep groove holder that can support groove depths up to 1.260" / *32 mm*
- The integrated high-rigidity body and insert provide strong clamp-on specifications for excellent vibration resistance.
- Lineup of .750" / 1.000" / *20mm* / *25mm* square shank widths
- Applied 1-corner insert for deep grooving.
  Seat Size *3.0 to 6.0mm* is in stock (*2.0mm* is made-to-order)
- Lineup of three chipbreakers: ML / GF / RN





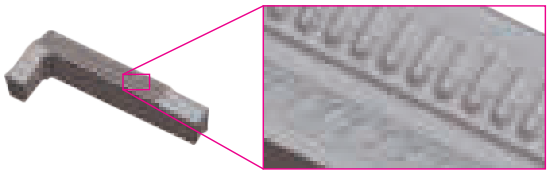


Part Material: 316 Stainless Steel Toolholder: GNDXLR2525M-332 Insert: GCMN3002-GF1-AC530U
Cutting Conditions: v_c= 330 SFM f= .004 IPR a_p= .3937" Wet (External lubrication)

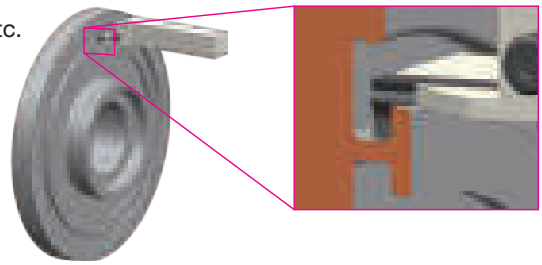
■ GND 90° Insert (Made to Order Item)

New

- Ideal for grooving narrow parts and facing, O/D, and I/D applications that require unique approaches due to interference
- Unique design of the inserts prevent pullout for specific applications
- End shape of the insert is offered in different forms based on application needs: square, full radius, with a chamfer, etc.
- Available in 5mm (.197") or less seat sizes (groove widths)



Firmly clamped with grip effect

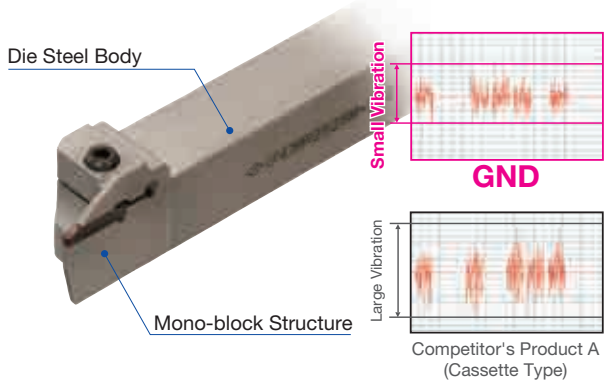


90° Insert Quotation Sheet ☞ F39

■ Grooving Toolholders GND - Cutting Performance

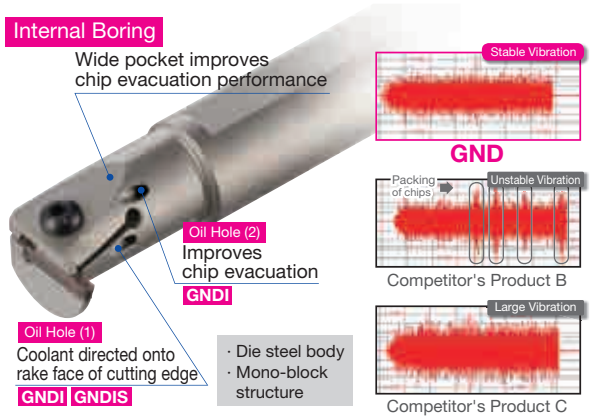
Reduced chattering

High-rigidity design reduces chattering by up to 30% as compared to conventional tools.



Part Material: Structural Steel
Holder: GNDLR2525M-220 **Insert:** GCMN2002-GG
Cutting Conditions: v_C = 330 SFM, f = .0039 IPR, a_p = .79", Wet

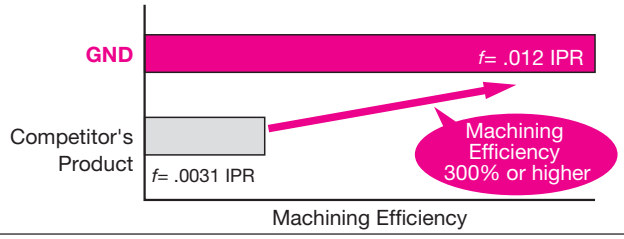
Both high rigidity and good chip evacuation performance



Part Material: Structural Steel
Holder: GNDIR2532-T306 **Insert:** GCMN3002-GG
Cutting Conditions: v_C = 330 SFM, f = .0019 IPR, a_p = .118", Wet

Substantially improved machining efficiency

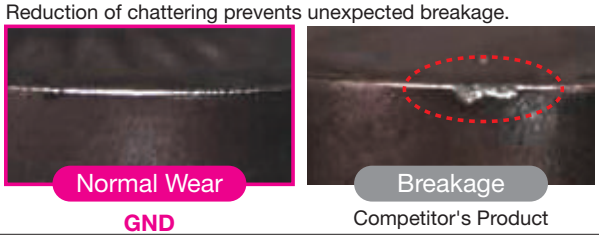
High-rigidity holder enables machining at high feed rates.



Part Material: Cr–Mo Alloy Steel
Holder: GNDLR2525M-320 **Insert:** GCMN3002-GG (AC530U)
Cutting Conditions: v_C=430 SFM, f =0.012 IPR, Wet

Long, stable tool life ensures reliable functionality even on automatic production lines!

Reduction of chattering prevents unexpected breakage.



Part Material: Medium Carbon Steel
Holder: GNDML2525M-618 **Insert:** GCMN6030-RG (AC530U)
Cutting Conditions: v_C=430 SFM, f =0.012 IPR, Wet

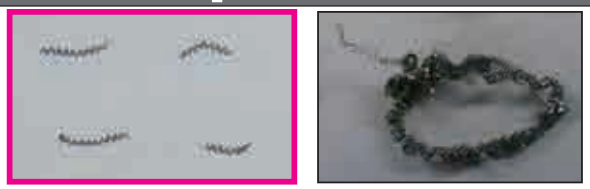
■ Improved Chip Control

Grooving

GND (GG Chipbreaker) | Conventional Tool

Part Material: Structural Steel
Holder: GNDLR2525M-320, Insert: GCMN3002-GG
Cutting Conditions: v_C = 330 SFM, f = 0.0059 IPR, a_p = 0.472", Wet

Traverse cutting



GND (ML Chipbreaker) | Conventional Tool

Part Material: Structural Steel
Holder: GNDMR2525M-312, **Insert:** GCMN3002-ML
Cutting Conditions: v_C = 330 SFM, f = 0.0039 IPR, a_p = 0.0197", Wet

Cut-off

GND (CG Chipbreaker) | Competitor's Product

Part Material: Stainless Steel (*ø30mm*)
Holder: GNDLR2525M-220, **Insert:** GCMR2002-CG-05
Cutting Conditions: v_C = 330 SFM, f = 0.0059 IPR, Wet

Profiling

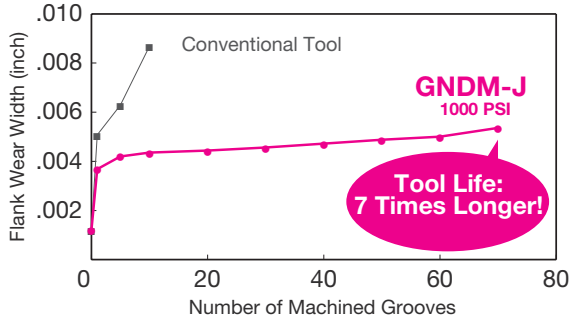
GND (RG Chipbreaker) | Conventional Tool

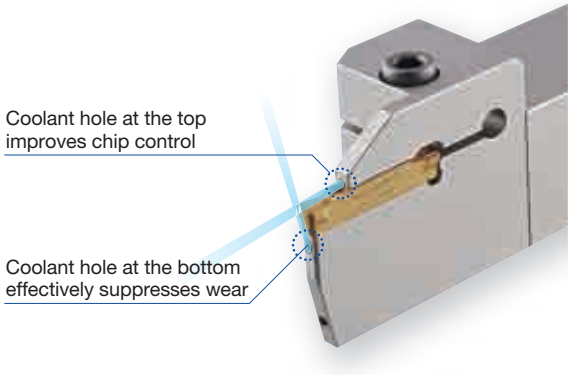
Part Material: Structural Steel
Holder: GNDMR2525M-312, **Insert:** GCMN3015-RG
Cutting Conditions: v_C = 330 SFM, f = 0.0019 IPR, a_p = 0.0039", Wet

■ Internal Coolant Holder GNDM-J / GNDL-J

- Series expansion of Grooving Series GND with internal coolant holders
- Available seat sizes / grooving widths from .079” (2.0mm) to .236” (6.0mm)
- Effective coolant supply to the cutting edge during grooving, achieving both high-efficiency high-speed machining and longer insert tool life
- Improved chip control through direct coolant supply around the cutting edge

- Wear Resistance





- Chip control

Coolant Pressure: 1000 PSI

Coolant Pressure: 145 PSI

External Coolant Supply

Part Material: Titanium Alloy Holder: GNDM R2525K-312J Insert: GCMN3002-GG (AC530U) Cutting Conditions: v_C = 200 SFM, f = 0.0039 IPR, a_p = .197” Wet

■ CF Chipbreakers for Cut-Off Machining

- Chipbreakers with front cutting edge angles 10°/15° for cut-off machining now available
- Asymmetric breaker design demonstrates outstanding chip control even on inserts with front cutting edge angles, where chip control is typically difficult

Right hand insert shown

GCMR20003-CF-10

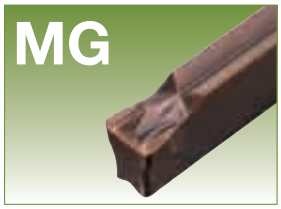
GCMR20003-CF-15

Competitor's Product

Part Material: Structural Steel Holder: GNDM R2525M-220 Insert: GCMR20003-CF-10,15 (AC1030U) Cutting Conditions: n = 2000 RPM, f = 0.0031” Wet

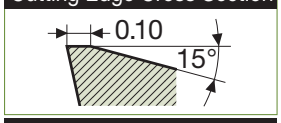
Grooving / Traverse Cutting

MG — General-Purpose



Standard chipbreaker for traverse cutting

Cutting Edge Cross Section



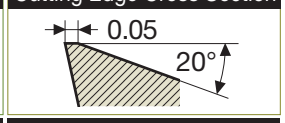
Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

ML — Low Feed

For low-feed chip control

Cutting Edge Cross Section

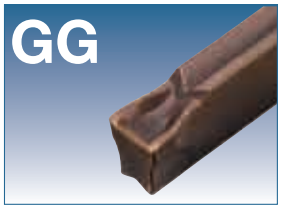


Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

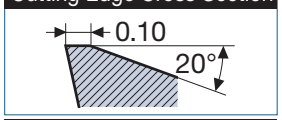
Grooving / Cut-off

GG — General-Purpose



1st recommendation for grooving

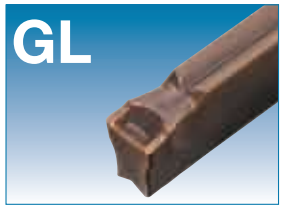
Cutting Edge Cross Section



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

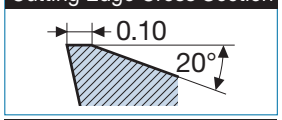
Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

GL — Low Feed



For low-feed chip control

Cutting Edge Cross Section



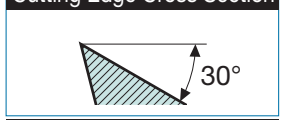
Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

GF — Low Cutting Force

For low cutting force and chip control at low-feeds

Cutting Edge Cross Section



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

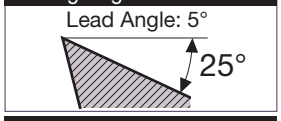
Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

Cut-off

CG — General-Purpose

1st recommendation for cut-off machining

Cutting Edge Cross Section

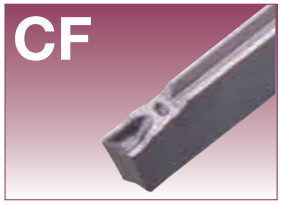


Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

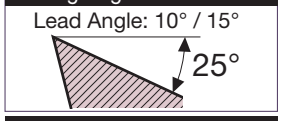
Lead Angle: 5°

CF — Low Cutting Force



For low-feed chip control

Cutting Edge Cross Section



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

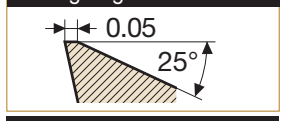
Lead Angle: 10° / 15°

Profiling

RG — General-Purpose

For external profiling and radius grooving

Cutting Edge Cross Section



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

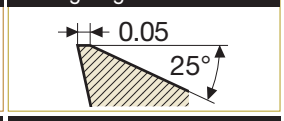
Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

Profiling Necking

RN — General-Purpose

For facing, internal profiling, radius grooving and necking

Cutting Edge Cross Section



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

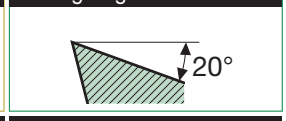
Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

For Non-Ferrous Metals

GA — General-Purpose

Ideal for aluminum alloy machining

Cutting Edge Cross Section



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

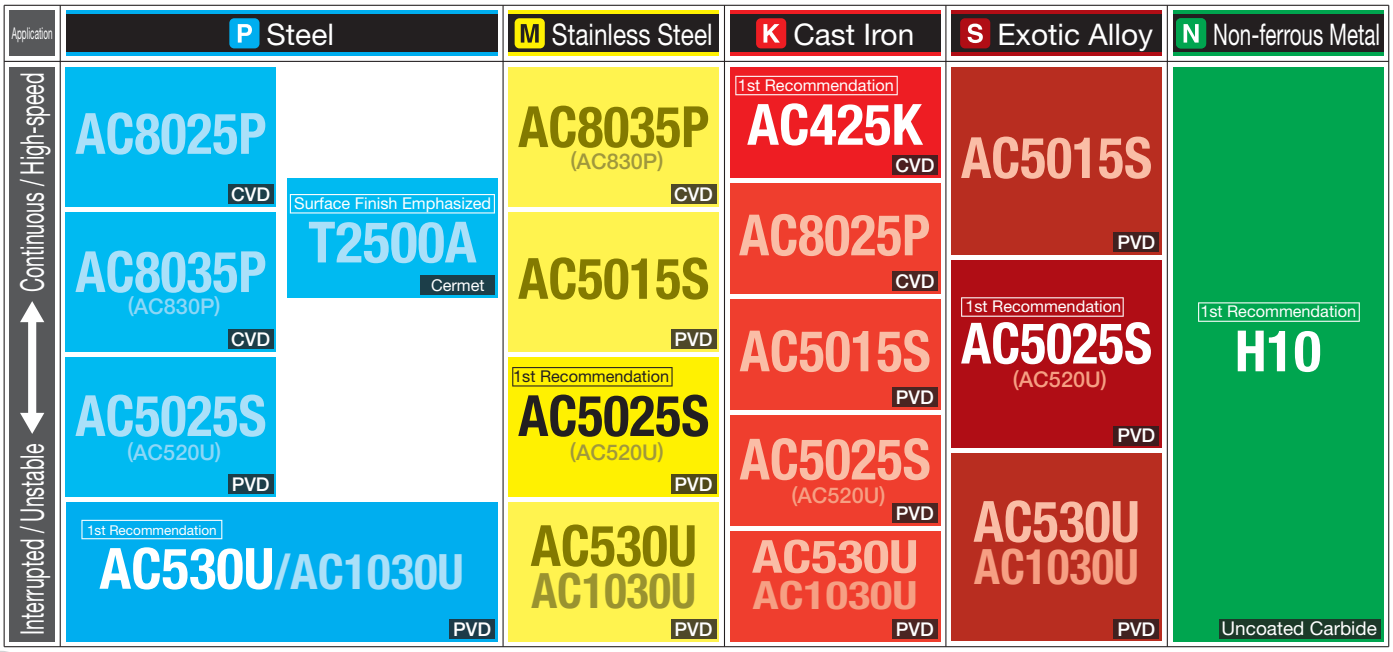
Stock	
AC8025P	AC8035P
AC830P	AC425K
AC5015S	AC5025S
AC520U	AC530U
AC1030U	T2500A
H10	

Items in grey are not available

GND - Chipbreaker Selection & Grade Selection Guide

■ Chipbreaker Selection

■ Insert Grade Selection



Only AC520U and AC1030U inserts are stocked for GNDIS holders. Also see CBN grade: BN7500 for powdered metal.

For External Turning (For Small Lathes)

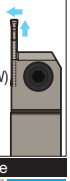
Traverse Cutting / Profiling (Cut-off)

GNDM
Straight Type
Shank Size (H x W)
.625" x .625"
16 × 16mm
20 × 12mm
F23

Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

GNDM-J Internal Coolant Supply
Straight Type
Shank Size (H x W)
.625" x .625"
16 × 16mm
20 × 12mm
F24

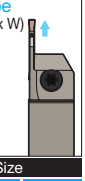


Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

Grooving / Cut-off (Traverse Cutting)

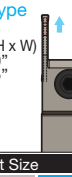
GNDL
Straight Type
Shank Size (H x W)
.375" x .375"
.500" x .500"
.625" x .625"
10 × 10mm
12 × 12mm
16 × 16mm
20 × 12mm
F23



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

GNDL-J Internal Coolant Supply
Straight Type
Shank Size (H x W)
.500" x .500"
.625" x .625"
12 × 12mm
16 × 16mm
20 × 12mm
F24



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

For External Turning For Small Lathes Series Overview

MG: Multi-functional / General-purpose ML: Multi-functional / Low-feed GG: Grooving / General-purpose GL: Grooving / Low-feed GF: Grooving / Low cutting force
CG: Cut-off / General-purpose CF: Cut-off / Low cutting force RG: Profiling / General-purpose RN: Facing / Necking / General-purpose GA: Non-ferrous Metal / General-purpose

Type	Shank Size (Inch) Height (H)	Shank Size (Inch) Width (B)	Seat Size 1.25	1.5	2	3	4	5	6	7	8	Series	Maximum Groove Depth (Inch)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
For Small Lathes	.375	.375	1.25	1.5									.375	F23					◎					
					2							GNDL	.375	F23		○	◎	◎	◎	◎	◎		◎	◎
						3							.375	F23	○	○	◎	◎	◎	◎	◎	◎	○	◎
	.500	.500	1.25	1.5								GNDL	.500	F23					◎					
					2							GNDL	.500	F23		○	◎	◎	◎	◎	◎		◎	◎
					2							GNDL-J Internal Coolant Supply	.500	F24		○	◎	◎	◎	◎	◎		◎	◎
						3						GNDL	.500	F23	○	○	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDL-J Internal Coolant Supply	.500	F24	○	○	◎	◎	◎	◎	◎	◎	○	◎
	.625	.625		1.5								GNDM	.375	F23					◎					
				1.5								GNDL	.500	F23					◎					
					2							GNDM	.472	F23		◎	◎	◎	◎	◎	◎		◎	◎
					2							GNDM-J Internal Coolant Supply	.472	F24		◎	◎	◎	◎	◎	◎		◎	◎
					2							GNDL	.625	F23		○	◎	◎	◎	◎	◎		◎	◎
					2							GNDL-J Internal Coolant Supply	.625	F24		○	◎	◎	◎	◎	◎		◎	◎
						3						GNDM	.472	F23	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDM-J Internal Coolant Supply	.472	F24	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDL	.625	F23	○	○	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDL-J Internal Coolant Supply	.625	F24	○	○	◎	◎	◎	◎	◎	◎	○	◎

Type	Shank Size (mm) Height (H)	Shank Size (mm) Width (B)	Seat Size 1.25	1.5	2	3	4	5	6	7	8	Series	Maximum Groove Depth (mm)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
For Small Lathes	10	10	1.25	1.5									10	F23					◎					
					2							GNDL	10	F23		○	◎	◎	◎	◎	◎		◎	◎
						3							10	F23	○	○	◎	◎	◎	◎	◎	◎	○	◎
	12	12	1.25	1.5								GNDL	12	F23					◎					
					2							GNDL	12.5	F23		○	◎	◎	◎	◎	◎		◎	◎
					2							GNDL-J Internal Coolant Supply	12.5	F24		○	◎	◎	◎	◎	◎		◎	◎
						3						GNDL	12.5	F23	○	○	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDL-J Internal Coolant Supply	12.5	F24	○	○	◎	◎	◎	◎	◎	◎	○	◎
	16	16	1.25									GNDM	8	F23					◎					
			1.25	1.5								GNDL	12.5	F23					◎					
				1.5								GNDM	10	F23					◎					
					2							GNDM	12	F23		◎	◎	◎	◎	◎	◎		◎	◎
					2							GNDM-J Internal Coolant Supply	12	F24		◎	◎	◎	◎	◎	◎		◎	◎
					2							GNDL	16	F23		○	◎	◎	◎	◎	◎		◎	◎
					2							GNDL-J Internal Coolant Supply	16	F24		○	◎	◎	◎	◎	◎		◎	◎
						3						GNDM	12	F23	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDM-J Internal Coolant Supply	12	F24	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDL	16	F23	○	○	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDL-J Internal Coolant Supply	16	F24	○	○	◎	◎	◎	◎	◎	◎	○	◎
	20	12			2							GNDM	17	F23		◎	◎	◎	◎	◎	◎		◎	◎
					2							GNDM-J Internal Coolant Supply	17	F24		◎	◎	◎	◎	◎	◎		◎	◎
					2							GNDL	21	F23		○	◎	◎	◎	◎	◎		◎	◎
					2							GNDL-J Internal Coolant Supply	21	F24		○	◎	◎	◎	◎	◎		◎	◎
						3						GNDM	17	F23	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDM-J Internal Coolant Supply	17	F24	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDL	21	F23	○	○	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDL-J Internal Coolant Supply	21	F24	○	○	◎	◎	◎	◎	◎	◎	○	◎

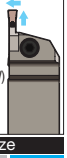
: In Stock

◎: Best ○: Suitable

For External Turning (Straight Type)

Traverse Cutting / Profiling (Cut-off)

GNDS For Shallow Grooves
Straight Type
Shank Size (H x W)
20 × 20mm
25 × 25mm
F32



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

GNDM Straight Type
Shank Size (H x W)
.750" x .750"
1.00" x 1.00"
1.25" x 1.25"
20 × 20mm
25 × 25mm
32 × 25mm
32 × 32mm
F25

Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

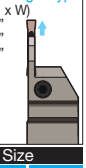
GNDM-J Internal Coolant Supply
Straight Type
Shank Size (H x W)
.750" x .750"
1.00" x 1.00"
20 × 20mm
25 × 25mm
F26

Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

Grooving / Cut-off (Traverse Cutting)

GNDL Straight Type
Shank Size (H x W)
.750" x .750"
1.00" x 1.00"
1.25" x 1.25"
20 × 20mm
25 × 25mm
32 × 25mm
32 × 32mm
F27



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

GNDL-J Internal Coolant Supply
Straight Type
Shank Size (H x W)
.750" x .750"
1.00" x 1.00"
20 × 20mm
25 × 25mm
F28

Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

Grooving/Cut-off (Horizontal Feed)

GNDXL *Single Sided Insert
Straight Type
New
Shank Size (H x W)
.750" x .750"
1.00" x 1.00"
20 × 20mm
25 × 25mm
F33

Seat Size		
2.0	3.0	4.0
5.0	6.0	

Applicable Chipbreaker: ML GF RN

GNDXL: For Outer Diameter Machining (Straight Type) Groove Depth ~1.260"/ 32mm)

For External Turning Straight Type Series Overview

MG: Multi-functional / General-purpose | ML: Multi-functional / Low-feed | GG: Grooving / General-purpose | GL: Grooving / Low-feed | GF: Grooving / Low cutting force
CG: Cut-off / General-purpose | CF: Cut-off / Low cutting force | RG: Profiling / General-purpose | RN: Facing / Necking / General-purpose | GA: Non-ferrous Metal / General-purpose

Type	Shank Size (Inch) Height (H)	Width (B)	Seat Size	Series	Maximum Groove Depth (Inch)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
Straight Type	.750	.750	2	GNDM	.500	F25		◎	◎	◎	◎					
			2	GNDM-J (Internal Coolant Supply)	.500	F26		◎	◎	◎	◎					
			2	GNDL	.750	F27		○	◎	◎	◎	◎	◎		◎	◎
			2	GNDL-J (Internal Coolant Supply)	.750	F28		○	◎	◎	◎	◎	◎		◎	◎
	1.00	1.00	3	GNDM	.500	F25	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
			3	GNDM-J (Internal Coolant Supply)	.500	F26	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
			3	GNDL	.750	F27	○	○	◎	◎	◎	◎	◎	◎	◎	◎
			3	GNDL-J (Internal Coolant Supply)	.750	F28	○	○	◎	◎	◎	◎	◎	◎	○	◎
			4	GNDM	.700	F25	◎	◎	◎	◎	◎	◎		◎	○	◎
			4	GNDM-J (Internal Coolant Supply)	.700	F26	◎	◎	◎	◎	◎	◎		◎	○	◎
			4	GNDL	1.000	F27	○	○	◎	◎	◎	◎		◎	○	◎
			4	GNDL-J (Internal Coolant Supply)	1.000	F28	○	○	◎	◎	◎	◎		◎	○	◎
			5 6	GNDM	.700	F25	◎	◎	◎	◎	◎			◎	○	◎
			5 6	GNDM-J (Internal Coolant Supply)	.700	F26	◎	◎	◎	◎	◎			◎	○	◎
			5 6	GNDL	1.000	F27	○	○	◎	◎	◎			◎	○	◎
			5 6	GNDL-J (Internal Coolant Supply)	1.000	F28	○	○	◎	◎	◎			◎	○	◎
	1.250	1.250	3	GNDM	.500	F25	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
			3	GNDL	.900	F27	○	○	◎	◎	◎	◎	◎	◎	○	◎
			4	GNDM	.700	F25	◎	◎	◎	◎	◎	◎		◎	○	◎
			4	GNDL	1.000	F27	○	○	◎	◎	◎	◎		◎	○	◎
			5 6	GNDM	.700	F25	◎	◎	◎	◎	◎			◎	○	◎
			5 6	GNDL	1.000	F27	○	○	◎	◎	◎			◎		
			7 8	GNDM	.700	F25	◎	◎	◎	◎	◎			◎		
			7 8	GNDL	1.000	F27	○	○	◎	◎	◎			◎		

Type	Shank Size (mm) Height (H)	Width (B)	Seat Size	Series	Maximum Groove Depth (mm)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
Straight Type	20	20	1.25 1.5	GNDM	10	F25					◎					
			1.25 1.5	GNDL	16	F27					◎					
			2	GNDS	6	F32		◎	◎	◎	◎	◎	◎		◎	◎
			2	GNDM	10	F25		◎	◎	◎	◎	◎	◎		◎	◎
			2	GNDM-J (Internal Coolant Supply)	10	F26		◎	◎	◎	◎	◎	◎		◎	◎
			2	GNDL	20	F27		○	◎	◎	◎	◎	◎		◎	◎
			2	GNDL-J (Internal Coolant Supply)	20	F28		○	◎	◎	◎	◎	◎		◎	◎
	25	25	3	GNDS	6	F32	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
			3	GNDM	12	F25	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
			3	GNDM-J (Internal Coolant Supply)	12	F26	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
			3	GNDL	20	F27	○	○	◎	◎	◎	◎	◎	◎	○	◎
			3	GNDL-J (Internal Coolant Supply)	20	F28	○	○	◎	◎	◎	◎	◎	◎	○	◎
			4	GNDS	10	F32	◎	◎	◎	◎	◎	◎		◎	○	◎
			4	GNDM	18	F25	◎	◎	◎	◎	◎	◎		◎	○	◎
			4	GNDM-J (Internal Coolant Supply)	18	F26	◎	◎	◎	◎	◎	◎		◎	○	◎
			4	GNDL	25	F27	○	○	◎	◎	◎	◎		◎	○	◎
			4	GNDL-J (Internal Coolant Supply)	25	F28	○	○	◎	◎	◎	◎		◎	○	◎
			5 6	GNDS	10	F32	◎	◎	◎	◎	◎			◎	○	◎
			5 6	GNDM	18	F25	◎	◎	◎	◎	◎			◎	○	◎
			5 6	GNDM-J (Internal Coolant Supply)	18	F26	◎	◎	◎	◎	◎			◎	○	◎
			5 6	GNDL	25	F27	○	○	◎	◎	◎			◎	○	◎
			5 6	GNDL-J (Internal Coolant Supply)	25	F28	○	○	◎	◎	◎			◎	○	◎
			7 8	GNDM	18	F25	◎	◎	◎	◎	◎			◎		
			7 8	GNDL	25	F27	○	○	◎	◎	◎			◎		
	32	25	3	GNDM	12	F25	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
			3	GNDL	20	F27	○	○	◎	◎	◎	◎	◎	◎	○	◎
			4	GNDM	18	F25	◎	◎	◎	◎	◎	◎		◎	○	◎
			4	GNDL	25	F27	○	○	◎	◎	◎	◎		◎	○	◎
	32	32	5 6	GNDM	18	F25	◎	◎	◎	◎	◎			◎	○	◎
			5 6	GNDL	25	F27	○	○	◎	◎	◎			◎	○	◎
			7 8	GNDM	18	F25	◎	◎	◎	◎	◎			◎		
			7 8	GNDL	25	F27	○	○	◎	◎	◎			◎		

■: In stock *: Made-to-order item (Shank size '32 x 25mm)

Straight Series for Outer Diameter Machining

(Groove Depth ~1.260" / 32mm)

ML Multi-Functional / General-Purpose | GF Grooving / Low Cutting Force | RN Facing / Necking / General-Purpose

Type	Shank Size (Inch) Height (H)	Width (B)	Seat Size	Series	Maximum Groove Depth (Inch)	Ref. Page	ML	GF	RN
Straight	.750	.750	2	GNDXL	1.023	F33	○	◎	○
	1.00	1.00	3 4 5 6	GNDXL	1.260	F33	○	◎	○

Type	Shank Size (mm) Height (H)	Width (B)	Seat Size	Series	Maximum Groove Depth (mm)	Ref. Page	ML	GF	RN
Straight	20	20	2	GNDXL	26	F33	○	◎	○
	25	25	3 4 5 6	GNDXL	32	F33	○	◎	○

Available (USA or WWW) | Made to Order Item

Note: Only the dedicated one-corner insert (insert part number ending with "1") can be used with the GNDXL. ◎: Best ○: Suitable

For External Turning (L Type)

Traverse Cutting / Profiling (Cut-off)

GNDMS
L Type

Shank Size (H x W)
.750" x .750"
1.000" x 1.000"
20 × 20mm
25 × 25mm
F26

Seat Size

1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker
MG ML GG GL GF CG CF RG RN GA

Grooving / Cut-off (Traverse Cutting)

GNDLS
L Type

Shank Size (H x W)
.750" x .750"
1.000" x 1.000"
20 × 20mm
25 × 25mm
F28

Seat Size

1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker
MG ML GG GL GF CG CF RG RN GA

For External Turning L Type Series Overview

MG : Multi-functional / General-purpose
ML : Multi-functional / Low-feed
GG : Grooving / General-purpose
CG : Cut-off / General-purpose
CF : Cut-off / Low cutting force
RG : Profiling / General-purpose
GL : Grooving / Low-feed
GF : Grooving / Low cutting force
RN : Facing / Necking / General-purpose
GA : Non-ferrous Metal / General-purpose

Type	Shank Size (Inch) Height (H)	Width (B)	Seat Size 1.25	1.5	2	3	4	5	6	7	8	Series	Maximum Groove Depth (Inch) (.197 .394 .591 .787 1.000 1.181)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
L Type	.750	.750			2							GNDLS	.600	F28		○	◎	◎	◎	◎	◎		◎	◎
						3						GNDMS	.400	F26	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDLS	.600	F28	○	○	◎	◎	◎	◎	◎	◎	○	◎
							4					GNDMS	.500	F26	◎	◎	◎	◎	◎	◎		◎	○	◎
							4					GNDLS	.700	F28	◎	◎	◎	◎	◎			◎	○	◎
								5				GNDMS	.500	F26		○	◎	◎	◎	◎	◎		◎	◎
	1.00	1.00			2							GNDLS	.700	F28	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDMS	.500	F26	○	○	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDLS	.700	F28	◎	◎	◎	◎	◎	◎		◎	○	◎
							4					GNDMS	.550	F26	○	○	◎	◎	◎	◎		◎	○	◎
							4					GNDLS	.900	F28	◎	◎	◎	◎	◎			◎	○	◎
								5	6			GNDMS	.500	F26	○	○	◎	◎	◎			◎	○	◎
								5	6			GNDLS	.900	F28	○	○	◎	◎	◎			◎	○	◎

Type	Shank Size (*mm*) Height (H)	Width (B)	Seat Size 1.25	1.5	2	3	4	5	6	7	8	Series	Maximum Groove Depth (*mm*) (5 10 15 20 25 30)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
L Type	20	20			2							GNDLS	16	F28		○	◎	◎	◎	◎	◎		◎	◎
						3						GNDMS	10	F26	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDLS	16	F28	○	○	◎	◎	◎	◎	◎	◎	○	◎
							4					GNDMS	12	F26	◎	◎	◎	◎	◎	◎		◎	○	◎
								5				GNDMS	12	F26	◎	◎	◎	◎	◎			◎	○	◎
	25	25			2							GNDLS	18	F28		○	◎	◎	◎	◎	◎		◎	◎
						3						GNDMS	12	F26	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
						3						GNDLS	18	F28	○	○	◎	◎	◎	◎	◎	◎	○	◎
							4					GNDMS	14	F26	◎	◎	◎	◎	◎	◎		◎	○	◎
							4					GNDLS	23	F28	○	○	◎	◎	◎	◎		◎	○	◎
								5	6			GNDMS	14	F26	◎	◎	◎	◎	◎			◎	○	◎
								5	6			GNDLS	23	F28	○	○	◎	◎	◎			◎	○	◎

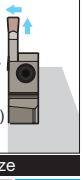
: In Stock

◎: Best ○: Suitable

For External Turning (SUMIBORON Cassette)

Grooving / Cut-off / Traverse Cutting / Profiling

GNDCM
Cassette



Applicable Holders
SumiPolygon
GND00 (Straight)
GND90 (L-Shaped)
F31

Seat Size

1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker
MG ML GG GL GF CG CF RG RN GA

SumiPolygon Cassette Series Overview

MG : Multi-functional / General-purpose
ML : Multi-functional / Low-feed
GG : Grooving / General-purpose
GL : Grooving / Low-feed
GF : Grooving / Low cutting force
CG : Cut-off / General-purpose
CF : Cut-off / Low cutting force
RG : Profiling / General-purpose
RN : Facing / Necking / General-purpose
GA : Non-ferrous Metal / General-purpose

Type	Applicable SumiPolygon Holders	Seat Size 1.25	1.5	2	3	4	5	6	7	8	Series	Maximum Groove Depth (*mm*) (5 10 15 20 25 30)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
Cassette	GND00			2							GNDCM	12	F31		◎	◎	◎	◎	◎	◎		◎	◎
					3							12	F31	◎	◎	◎	◎	◎	◎	◎	◎	○	◎
	GND90					4						18	F31	◎	◎	◎	◎	◎	◎		◎	○	◎
							5	6				18	F31	◎	◎	◎	◎	◎			◎	○	◎

: In Stock

◎: Best ○: Suitable

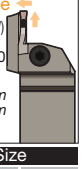
GND Grooving Toolholders

For Facing

Grooving / Traverse Cutting / Profiling

GNDF
Straight Type

Shank Size (H x W)
.750" x .750"
1.000" x 1.000
F34
20mm × 20mm
25mm × 25mm
F35

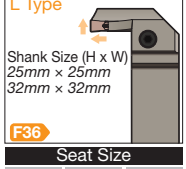


Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

GNDFS
L Type

Shank Size (H x W)
25mm × 25mm
32mm × 32mm
F36



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

For Facing Straight / L Type Series Overview

- MG : Multi-functional / General-purpose
- ML : Multi-functional / Low-feed
- GG : Grooving / General-purpose
- GL : Grooving / Low-feed
- GF : Grooving / Low cutting force
- CG : Cut-off / General-purpose
- CF : Cut-off / Low cutting force
- RG : Profiling / General-purpose
- RN : Facing / Necking / General-purpose
- GA : Non-ferrous Metal / General-purpose

Type	Shank Size (Inch) Height H	Width B	Seat Size 3	4	5	6	7	8	Series	Maximum Groove Depth (In.)	Max. Work Diameter (In.)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
Straight Type	.750	.750	3						GNDF	.500	ø1.378 ø1.772	F34	◎	◎	◎	◎	◎				◎	◎
	1.00	1.00	3							.500	ø1.575 ø2.165	F34	◎	◎	◎	◎	◎				◎	◎
			3							.700	ø1.969 ø2.756	F34	◎	◎	◎	◎	◎				◎	◎
			3							.700	ø2.559 ø3.937	F34	◎	◎	◎	◎	◎				◎	◎
			3							.700	ø3.543 ø5.906	F34	◎	◎	◎	◎	◎				◎	◎
			3							.700	ø5.512 ø7.874	F34	◎	◎	◎	◎	◎				◎	◎
			3							.700	ø7.087 ø11.811	F34	◎	◎	◎	◎	◎				◎	◎
				4					GNDF	.700	ø1.575 ø2.165	F34	◎	◎	◎	◎	◎				◎	◎
				4						.900	ø1.969 ø2.756	F34	◎	◎	◎	◎	◎				◎	◎
				4						.900	ø2.559 ø3.543	F34	◎	◎	◎	◎	◎				◎	◎
				4						.900	ø3.346 ø5.118	F34	◎	◎	◎	◎	◎				◎	◎
				4						.900	ø4.921 ø7.874	F34	◎	◎	◎	◎	◎				◎	◎
				4						.900	ø7.087 ø11.811	F34	◎	◎	◎	◎	◎				◎	◎
				4						.900	ø11.024 ø39.370	F34	◎	◎	◎	◎	◎				◎	◎
					5				GNDF	.900	ø1.969 ø2.756	F34	◎	◎	◎	◎	◎				◎	◎
					5					.900	ø2.559 ø3.543	F34	◎	◎	◎	◎	◎				◎	◎
					5					.900	ø3.346 ø5.118	F34	◎	◎	◎	◎	◎				◎	◎
					5					.900	ø4.921 ø7.874	F34	◎	◎	◎	◎	◎				◎	◎
					5					.900	ø7.087 ø11.811	F34	◎	◎	◎	◎	◎				◎	◎
					5					.900	ø11.024 ø39.370	F34	◎	◎	◎	◎	◎				◎	◎
						6			GNDF	.900	ø1.969 ø2.953	F34	◎	◎	◎	◎	◎				◎	◎
						6				.900	ø2.756 ø4.331	F34	◎	◎	◎	◎	◎				◎	◎
						6				.900	ø3.397 ø7.874	F34	◎	◎	◎	◎	◎				◎	◎
						6				.900	ø7.087 ø11.811	F34	◎	◎	◎	◎	◎				◎	◎
						6				.900	ø11.024 ø39.370	F34	◎	◎	◎	◎	◎				◎	◎

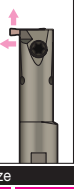
Type	Shank Size (mm) Height H	Width B	Seat Size 3	4	5	6	7	8	Series	Maximum Groove Depth (mm)	Max. Work Diameter (mm)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
Straight Type	20	20	3						GNDF	12	ø35 ø45	F35	◎	◎	◎	◎	◎				◎	◎
	25	25	3							12	ø40 ø55	F35	◎	◎	◎	◎	◎				◎	◎
			3							18	ø50 ø70	F35	◎	◎	◎	◎	◎				◎	◎
			3							18	ø65 ø100	F35	◎	◎	◎	◎	◎				◎	◎
			3							18	ø90 ø150	F35	◎	◎	◎	◎	◎				◎	◎
			3							18	ø140 ø200	F35	◎	◎	◎	◎	◎				◎	◎
			3							18	ø180 ø300	F35	◎	◎	◎	◎	◎				◎	◎
				4					GNDF	18	ø40 ø55	F35	◎	◎	◎	◎	◎				◎	◎
				4						23	ø50 ø70	F35	◎	◎	◎	◎	◎				◎	◎
				4						23	ø65 ø90	F35	◎	◎	◎	◎	◎				◎	◎
				4						23	ø85 ø130	F35	◎	◎	◎	◎	◎				◎	◎
				4						23	ø125 ø200	F35	◎	◎	◎	◎	◎				◎	◎
				4						23	ø180 ø300	F35	◎	◎	◎	◎	◎				◎	◎
				4						23	ø280 ø1,000	F35	◎	◎	◎	◎	◎				◎	◎
					5				GNDF	23	ø50 ø70	F35	◎	◎	◎	◎	◎				◎	◎
					5					23	ø65 ø90	F35	◎	◎	◎	◎	◎				◎	◎
					5					23	ø85 ø130	F35	◎	◎	◎	◎	◎				◎	◎
					5					23	ø125 ø200	F35	◎	◎	◎	◎	◎				◎	◎
					5					23	ø180 ø300	F35	◎	◎	◎	◎	◎				◎	◎
					5					23	ø280 ø1,000	F35	◎	◎	◎	◎	◎				◎	◎
						6			GNDF	23	ø50 ø75	F35	◎	◎	◎	◎	◎				◎	◎
						6				23	ø70 ø110	F35	◎	◎	◎	◎	◎				◎	◎
						6				23	ø100 ø200	F35	◎	◎	◎	◎	◎				◎	◎
						6				23	ø180 ø300	F35	◎	◎	◎	◎	◎				◎	◎
						6				23	ø280 ø1,000	F35	◎	◎	◎	◎	◎				◎	◎
L Type	20	20				6			GNDFS	20	ø70 ø100	F36	◎	◎	◎	◎	◎				◎	◎
	25	25				6				20	ø100 ø200	F36	◎	◎	◎	◎	◎				◎	◎
						6				20	ø180 ø300	F36	◎	◎	◎	◎	◎				◎	◎
						6				20	ø280 ø1,000	F36	◎	◎	◎	◎	◎				◎	◎
						6				20	ø450 up	F36	◎	◎	◎	◎	◎				◎	◎
								8	GNDFS	20	ø70 ø100	F36	◎	◎	◎	◎	◎					
								8		20	ø100 ø200	F36	◎	◎	◎	◎	◎					
								8		20	ø180 ø300	F36	◎	◎	◎	◎	◎					
								8		20	ø280 ø1,000	F36	◎	◎	◎	◎	◎					
								8		20	ø450 up	F36	◎	◎	◎	◎	◎					

: In Stock : Made-to-order item ◎: Best

For Internal Boring (Work Dia.: ø14mm up)

Grooving / Traverse Cutting / Profiling

GNDIS
Straight Type
Shank Dia.
ø12mm
ø16mm
ø20mm
F38



Seat Size		
1.5	2.0	3.0

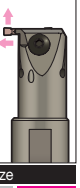
Applicable Chipbreaker: ML, GF

Inserts are dedicated products.

For Internal Boring (Work Dia.: ø32mm up)

Grooving / Traverse Cutting / Profiling

GNDI
Straight Type
Shank Dia.
1.000"
1.250"
1.500"
ø25mm
ø32mm
ø40mm
F37



Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

Internal Boring Series Overview (Work Diameter: ø14mm up)

ML: Multi-functional / Low-feed GF: Grooving / Low cutting force

Type	Shank Size DCON (mm)	Seat Size 1.5	2	3	Series	Maximum Groove Depth (mm) 5 10 15 20 25 30	Min. Bore Dia. (mm)	Ref. Page	Applicable Chipbreakers (GNDIS Type Dedicated) ML (GNDIS Type Dedicated)	GF (GNDIS Type Dedicated)
Straight Type	ø12	1.5			GNDIS	2.6	ø14	F38		◎
		1.5				3.6	ø14	F38		◎
			2	3		2.6	ø14	F38	◎	◎
			2	3		3.6	ø14	F38	◎	◎
	ø16	1.5			GNDIS	3.6	ø16	F38		◎
		1.5				4.6	ø20	F38		◎
			2	3		3.6	ø16	F38	◎	◎
			2	3		4.6	ø20	F38	◎	◎
	ø20	1.5			GNDIS	6.6	ø25	F38		◎
			2	3		6.6	ø25	F38	◎	◎

: In Stock

Note: Only dedicated GXM inserts can be used for GNDIS types.

◎: Best

Internal Boring Series Overview (Work Diameter: ø1.25" / ø32mm up)

MG: Multi-functional / General-purpose ML: Multi-functional / Low-feed GG: Grooving / General-purpose GL: Grooving / Low-feed GF: Grooving / Low cutting force
CG: Cut-off / General-purpose CF: Cut-off / Low cutting force RG: Profiling / General-purpose RN: Facing /Necking /General-purpose GA: Non-ferrous Metal / General-purpose

Type	Shank Size DCON (Inch)	Seat Size 2	3	4	5	6	Series	Maximum Groove Depth (In.) 5 10 15 20 25 30	Min. Bore Dia. (In.)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
Straight	ø1.000	2					GNDI	.250	ø1.250	F37		◎	○	◎	◎				◎	◎
			3	4	5	6		.250	ø1.250	F37	○	◎	○	◎	◎				◎	◎
	ø1.250	2	3	4	5	6	GNDI	.400	ø1.575	F37	○	◎	○	◎	◎				◎	◎
	ø1.500		3	4	5	6	GNDI	.430	ø2.000	F37	○	◎	○	◎	◎				◎	◎

Type	Shank Size DCON (mm)	Seat Size 2	3	4	5	6	Series	Maximum Groove Depth (mm) 5 10 15 20 25 30	Min. Bore Dia. (mm)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
Straight	ø25	2					GNDI	6	ø32	F37		◎	○	◎	◎				◎	◎
			3	4	5			6	ø32	F37	○	◎	○	◎	◎				◎	◎
	ø32	2					GNDI	6	ø32	F37		◎	○	◎	◎				◎	◎
			3	4	5			10	ø40	F37	○	◎	○	◎	◎				◎	◎
	ø40		3	4	5	6	GNDI	11	ø50	F37	○	◎	○	◎	◎				◎	◎

: In Stock

◎: Best ○: Suitable

For Necking

Necking

GNDN
Straight Type
Shank Size (H x W)
20 × 20mm
25 × 25mm
F32

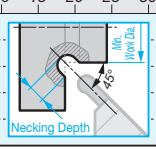
Seat Size		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Chipbreaker: MG ML GG GL GF CG CF RG RN GA

Necking Series Overview

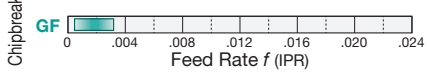
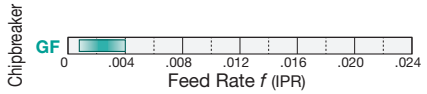
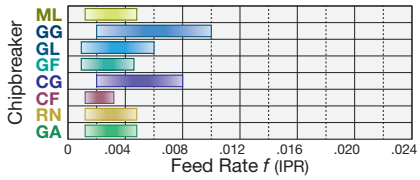
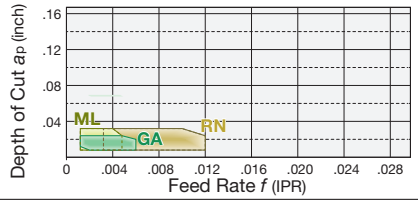
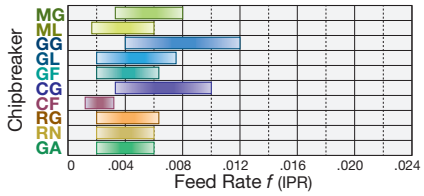
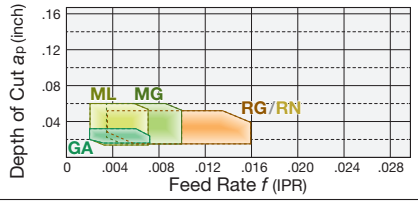
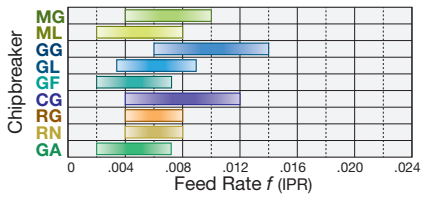
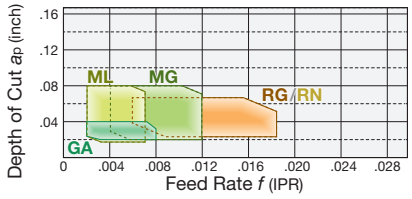
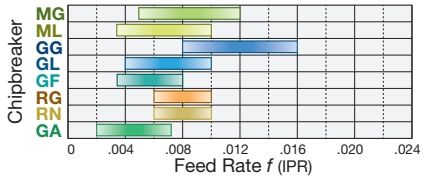
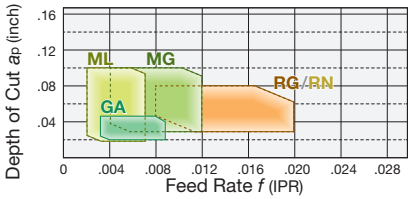
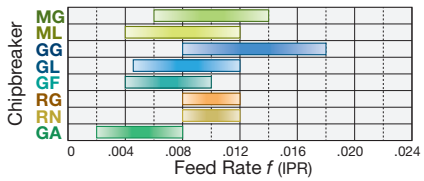
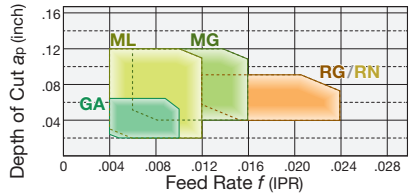
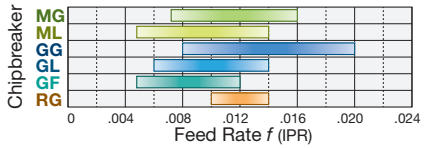
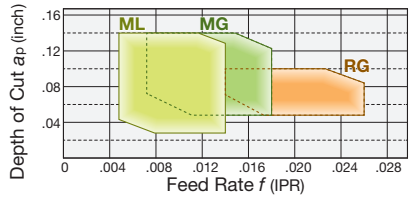
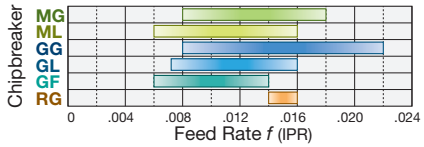
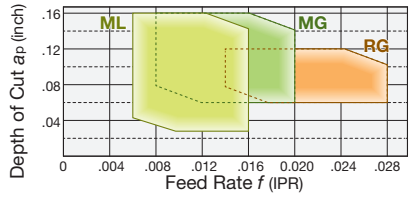
MG: Multi-functional / General-purpose ML: Multi-functional / Low-feed GG: Grooving / General-purpose GL: Grooving / Low-feed GF: Grooving / Low cutting force
CG: Cut-off / General-purpose CF: Cut-off / Low cutting force RG: Profiling / General-purpose RN: Facing /Necking /General-purpose GA: Non-ferrous Metal / General-purpose

Type	Shank Size (mm) Height H	Width B	Seat Size 2	3	4	5	6	Series	Maximum Groove Depth (mm) 5 10 15 20 25 30	Min. Bore Dia. (mm)	Ref. Page	MG	ML	GG	GL	GF	CG	CF	RG	RN	GA
Straight Type	20	20	2					GNDN	1.5	ø20	F32									◎	
				3					2.0	ø20	F32									◎	
	25	25			4				3.0	ø30	F32									◎	
						5			3.5	ø30	F32									◎	
							6		4.0	ø30	F32									◎	



: In Stock

GND - Recommended Cutting Conditions

Seat Size Grooving Width (Inch/ mm)	Recommended Cutting Conditions: Grooving / Cut-off (Necking)	Recommended Cutting Conditions: Traverse Cutting	Corner Radius (Inch)	Applicable Insert
.049 / 1.25		—	.0020	MG ML GG GL **GF** CG CF RG RN GA
.059 / 1.50		—	.0020	MG ML GG GL **GF** CG CF RG RN GA
.079 / 2.0			.0012 .0078 .0156 .0394	MG ML GG GL GF CG **CF** RG RN GA MG **ML** **GG** **GL** **GF** **CG** CF RG RN **GA** MG ML GG **GL** **GF** CG CF RG RN GA MG ML GG GL GF CG CF RG **RN** GA
.118 / 3.0			.0012 .0078 .0156 .0590	MG ML GG GL GF CG **CF** RG RN GA **MG** **ML** **GG** **GL** **GF** **CG** CF RG RN **GA** **MG** **ML** **GG** **GL** **GF** CG CF RG RN GA MG ML GG GL GF CG CF **RG** **RN** GA
.157 / 4.0			.0078 .0156 .0313 .0787	**MG** **ML** **GG** **GL** **GF** **CG** CF RG RN GA **MG** **ML** **GG** **GL** **GF** CG CF RG RN **GA** **MG** **ML** GG GL GF CG CF RG RN GA MG ML GG GL GF CG CF **RG** **RN** GA
.197 / 5.0			.0078 .0156 .0313 .0984	MG ML **GG** **GL** **GF** CG CF RG RN GA **MG** **ML** **GG** **GL** **GF** CG CF RG RN **GA** **MG** **ML** GG GL GF CG CF RG RN GA MG ML GG GL GF CG CF **RG** **RN** GA
.236 / 6.0			.0078 .0156 .0313 .1181	MG ML **GG** **GL** **GF** CG CF RG RN GA **MG** **ML** **GG** **GL** **GF** CG CF RG RN **GA** **MG** **ML** GG GL GF CG CF RG RN GA MG ML GG GL GF CG CF **RG** **RN** GA
.275 / 7.0			.0078 .0156 .0313 .1378	MG ML GG GL **GF** CG CF RG RN GA MG **ML** **GG** **GL** **GF** CG CF RG RN GA MG **ML** GG GL GF CG CF RG RN GA MG ML GG GL GF CG CF **RG** RN GA
.315 / 8.0			.0078 .0156 .0313 .1575	MG ML GG GL **GF** CG CF RG RN GA MG **ML** **GG** **GL** **GF** CG CF RG RN GA MG **ML** GG GL GF CG CF RG RN GA MG ML GG GL GF CG CF **RG** RN GA

For face grooving, use cutting conditions closer to the lower limit of the recommended cutting conditions to ensure that chips are long. *Items in grey are not available
In cut-off applications, reduce the feed rate to around 30% to 50% near the center of the workpiece.
As there is less space for chip evacuation when machining internal diameters (particularly small bore diameters), ML/GL/GF chipbreakers are recommended.
Modifications to inserts and holders are required to perform machining such as radius grooving when using the RG chipbreaker with the GNDF holder for facing.

See next page for additional Recommended Cutting Conditions

GND- Recommended Cutting Conditions and Key Points

■ Recommended Cutting Conditions

Recommended Cutting Conditions for GNDIS ☞ F36

Part Material	P Carbon Steel / Alloy Steel					M Stainless Steel			K Cast Iron				S Exotic Alloy		N Non-ferrous Metal
Insert Grades	AC8025P	AC8035P AC830P	AC5015S AC520U	AC5025S AC530U AC1030U	T2500A	AC8035P AC830P	AC5015S AC520U	AC5025S AC530U AC1030U	AC8025P	AC425K	AC5015S AC520U	AC5025S AC530U AC1030U	AC5015S AC520U	AC5025S AC530U AC1030U	H10
Cutting Speed v_c (SFM)	260 to 820	260 to 650	260 to 650	165 to 650	165 to 650	230 to 500	230 to 500	165 to 500	260 to 660	260 to 660	200 to 660	165 to 660	65 to 265	65 to 200	500 to 990

Chipbreaker			MG	ML	GG	GL	RG	CG/CF	GA
			Feed (IPR)	Feed (IPR)	Feed (IPR)	Feed (IPR)	Feed (IPR)	Feed (IPR)	Feed (IPR)
Grooving & Cutoff	Seat Size	2	—	—	.002 - .010	.001 - .006	—	.002 - .008	.002 - .010
		3	.003 - .008	.001 - .006	.004 - .012	.002 - .008	.003 - .006	.003 - .010	.004 - .012
		4	.004 - .010	.002 - .008	.006 - .014	.003 - .009	.004 - .008	.004 - .012	.006 - .014
		5	.005 - .012	.003 - .010	.008 - .016	.004 - .010	.006 - .010	—	.008 - .016
		6	.006 - .014	.004 - .012	.008 - .018	.005 - .012	.008 - .012	—	.008 - .018
		7	.007 - .016	.005 - .014	.008 - .020	.006 - .014	.010 - .014	—	—
		8	.008 - .018	.006 - .016	.008 - .022	.007 - .016	.014 - .016	—	—

Chipbreaker			MG		ML		RG	
			Feed (IPR)	Depth (In.)	Feed (IPR)	Depth (In.)	Feed (IPR)	Depth (In.)
Turning	Seat Size	3	.003 - .010	.016 - .060	.002 - .007	.012 - .060	.004 - .016	.012 - .048
		4	.004 - .012	.020 - .080	.002 - .008	.016 - .080	.006 - .018	.024 - .064
		5	.005 - .014	.030 - .100	.003 - .010	.020 - .100	.008 - .020	.030 - .080
		6	.006 - .016	.040 - .120	.004 - .012	.020 - .120	.012 - .024	.040 - .090
		7	.007 - .016	.048 - .140	.005 - .014	.028 - .140	.014 - .026	.048 - .098
		8	.008 - .018	.060 - .160	.006 - .016	.028 - .160	.014 - .028	.060 - .120

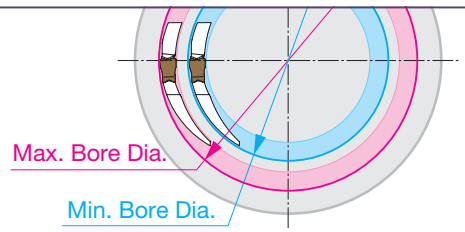
■ Recommended Cutting Conditions CBN - BN7500

Part Material	Cutting Speed v_C (SFM)	Feeds (IPM)	
		Groove	Traverse a_p ≤ .020
General Sintered Alloy	250 - 800	.001 - .006	.003 - .008
High Density Sintered Alloy	250 - 600	.001 - .003	.002 - .006
CoCr - Cobalt Chrome	250 - 600	.001 - .006	.002 - .008

■ Key Points for Applications

Key Points for Facing

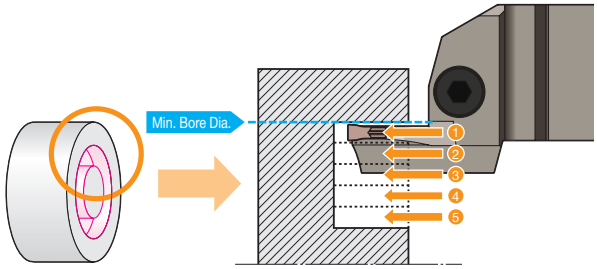
Holder Selection



- Select a holder with which the outer diameter of the first groove to be machined is between the maximum and minimum grooving diameters of the holder.
- If the machining start point is within the effective work diameter range, the work diameter will not be limited for subsequent passes.

Precautions for Groove Expansion

Recommended Chipbreakers MG ML GG GL GF GA



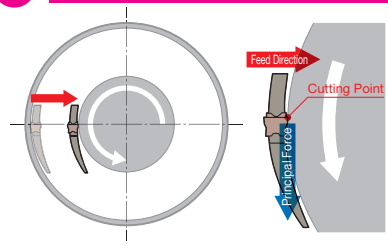
- If the first groove is within the effective work diameter range during groove expansion via plunging, the work diameter will not be limited for subsequent passes.

Precautions for Traverse Cutting

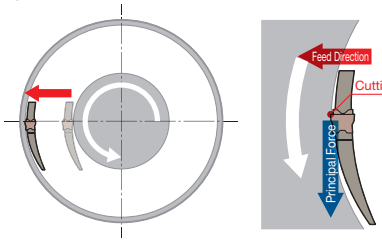
Recommended Chipbreakers MG ML RN

Considering the rigidity of the holder, we recommend machining from the outside to the inside.

○ External → Internal



✕ Internal → External



If machining is performed from the inner to the outer diameter, the wall thickness remaining on the principal force side will become thinner, reducing the rigidity of the holder.

- If the machining start point for traverse face cutting operation is within the effective work diameter range, the work diameter will not be limited for subsequent passes.
- Select the lower limit of the recommended cutting conditions for the chipbreaker and lengthen the chips before evacuation. (In face grooving, broken chips easily get stuck in grooves, which causes problems.)
- When breaking chips, step feed is required.

GND Key Points

Key Points in Internal Boring

Precautions for Internal Boring

Recommended Chipbreakers **ML** **GL** **GF**

If the prepared hole diameter is small, use an ML type or GL type low-feed chipbreaker, both of which reduce chip curl diameter, to ensure adequate chip evacuation.

GCMN3004-MG

GCMN3002-ML

GCMN3002-GG

GCMN3002-GL

Part Material: 15CrMo Steel Prepared Hole Diameter: ø1.000” Holder: GNDIR2532-T306 Insert: GCMN300○-○○
Cutting Conditions: v_C = 330 SFM, f = .0039 IPR, a_p = .118” Wet

Internal Boring

External Turning

GCMN3002-GG

⚠ Chip shapes differ between internal boring and external turning even under the same cutting conditions.

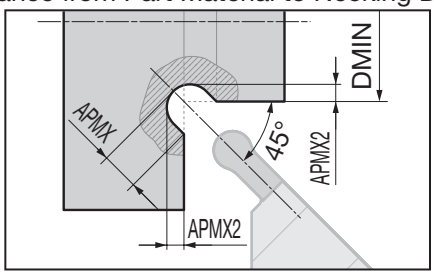
Part Material: 15CrMo Steel
Holder: GNDL R2525M-320, Insert: GCMN3002-GG
Cutting Conditions: v_C = 330 SFM, f = .0039 IPR, a_p = .197” Wet

Key Points for Necking

Precautions for Necking

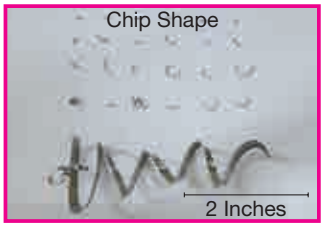
Recommended Chipbreaker **RN**

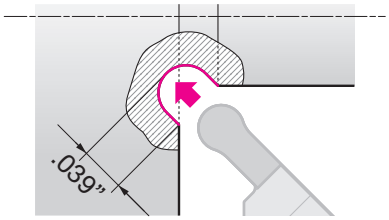
Distance from Part Material to Necking Depth



Seat Size	Necking Depth APMX (Inch)	Distance from Part Material to Necking Depth APMX2 (Inch)
2.0	.059	.025
3.0	.079	.031
4.0	.118	.051
5.0	.138	.057
6.0	.157	.063

- For necking, these conditions are recommended for each seat size when grooving with RN chipbreakers.
- To prevent interference with the part material, the work diameter for each GNDN holder should be set to the minimum machining diameter (DMIN) or less.

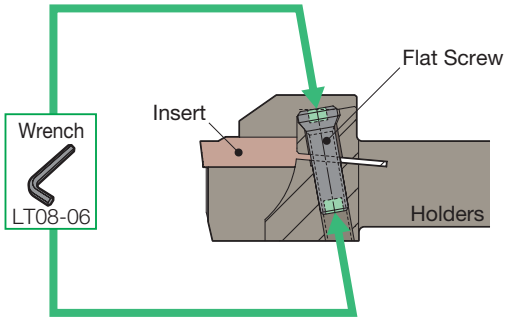




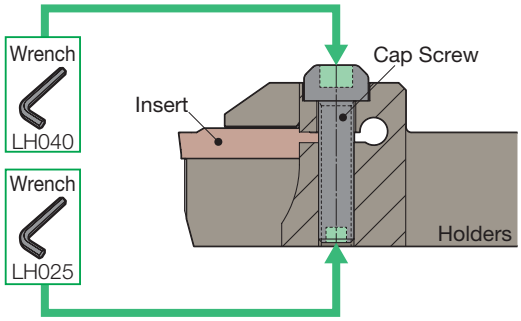
Part Material : 15CrMo Steel
Seat Size : 3.0
Holder : GNDN R2020K-320-020
Insert : GCMN3015-RN
Cutting Conditions : v_c= 330 SFM, f = .0039 IPR
Necking Depth = .039” Wet

Key Points in Internal Coolant Supply Holders For Small Lathes

- *12mm and 16mm* square Internal Coolant Supply Holders for Small Lathes enable insert exchange from both top and bottom.



12mm square holder: **GNDL R/L1212JX-○○○.○J**



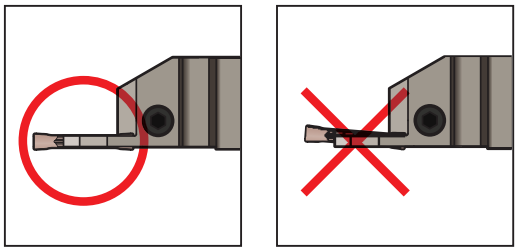
16mm square holder: **GNDM R/L1616JX-○○○J**
GNDL R/L1616JX-○○○J

Precautions for Grooving Tool Holders GND

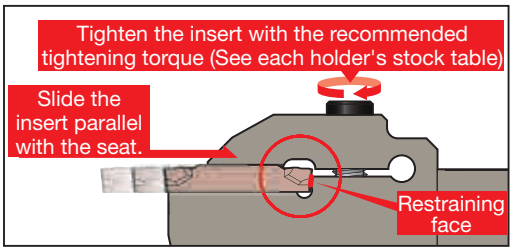
■ Insert Mounting Precautions

(1) Remove any dust, etc. from the insert seat, bolt, and bolt hole before attaching the insert.
(2) If there are scratches or burrs on the insert seat, scrape them away.
(3) Mount the insert by sliding it parallel to the seat.
(4) Clamp the insert with the opposite side (holder side) of the cutting edge secured on the constraining surface.
(5) Tighten the insert with the recommended tightening torque.
If the insert is tightened with excessive torque, it may be damaged, leading to injury.
(6) When changing the insert, adjust the cutting edge offset value.

Mount the insert parallel to the seat



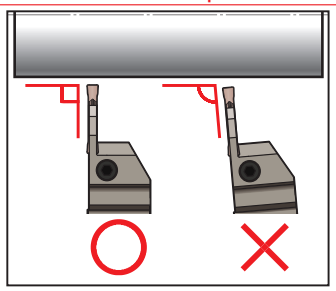
Be sure to push the insert to the end



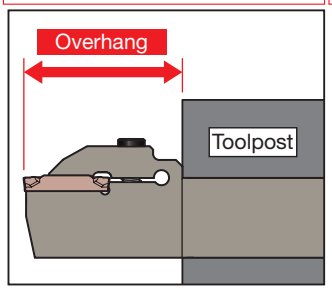
■ Precautions when Mounting Holders

(1) Remove any dust and oil from the toolpost before setting the holder.
(2) If there are scratches or burrs on the toolpost, scrape them away.
(3) Place the holder so that the insert is perpendicular to the workpiece. Failure to do so may bend the machined surface or cause chattering.
(4) The overhang of the holder should be as short as possible.
(5) When grooving or traverse cutting, adjust the center height of the cutting edge to as close to ±0mm as possible. (Within ±0.1mm is recommended.) Incorrect center height adjustment may cause chattering. In cut-off applications, adjust the center height of the cutting edge to a value from 0 to +0.2mm. A lower center height will result in a larger nib at the center.
(6) Set the oil supply nozzle so that coolant can be supplied from the top of the upper clamp unit.

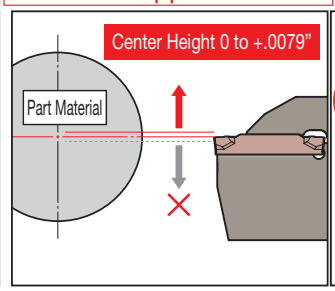
Mount the holder perpendicular to the workpiece.



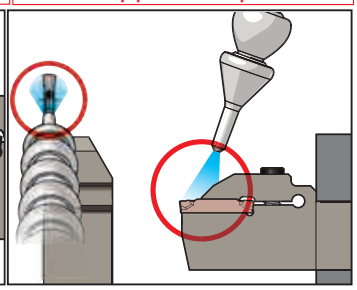
The overhang should be short.



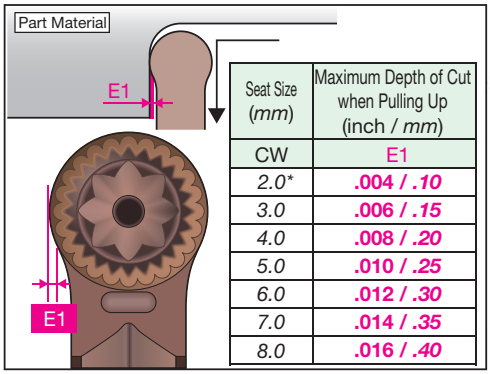
Center height adjustment in cut-off applications



Supply coolant to the top of the upper clamp unit



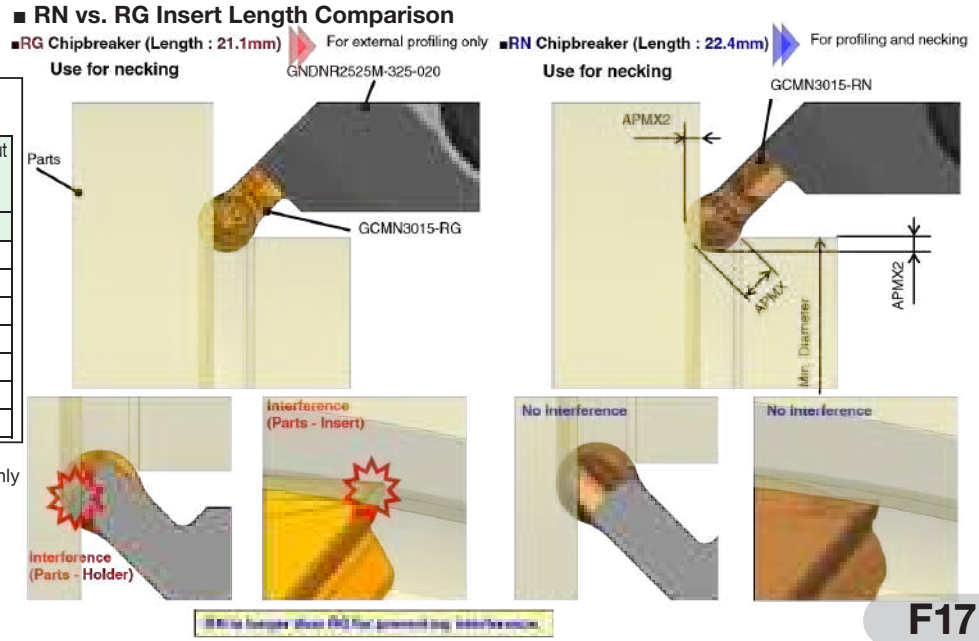
■ D.O.C. when Pulling Up with RG/RN Chipbreakers



Seat Size (mm)	Maximum Depth of Cut when Pulling Up (inch / mm)
CW	E1
2.0*	.004 / .10
3.0	.006 / .15
4.0	.008 / .20
5.0	.010 / .25
6.0	.012 / .30
7.0	.014 / .35
8.0	.016 / .40

*: CW = 2.0 is RN Chipbreakers only

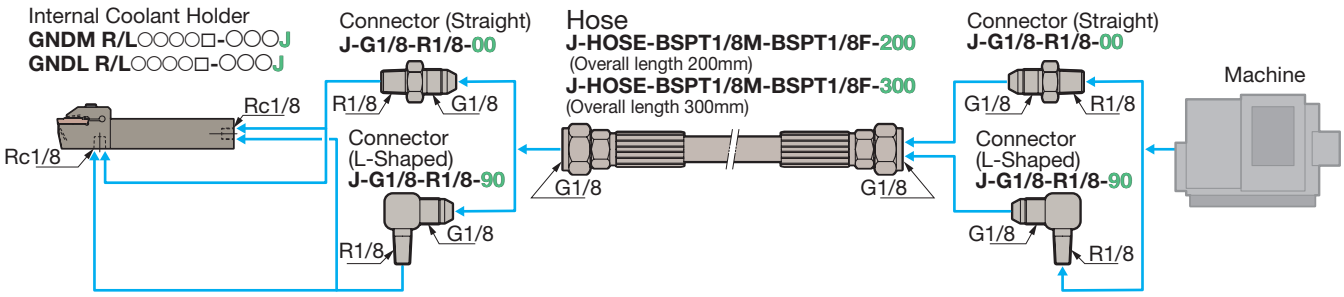
■ RN vs. RG Insert Length Comparison



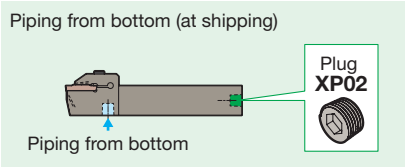
Precautions for Grooving Tool Holders GND

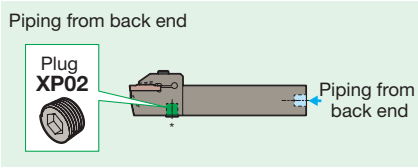
Piping Method for Hoses and Connectors

Hoses and Connectors F29



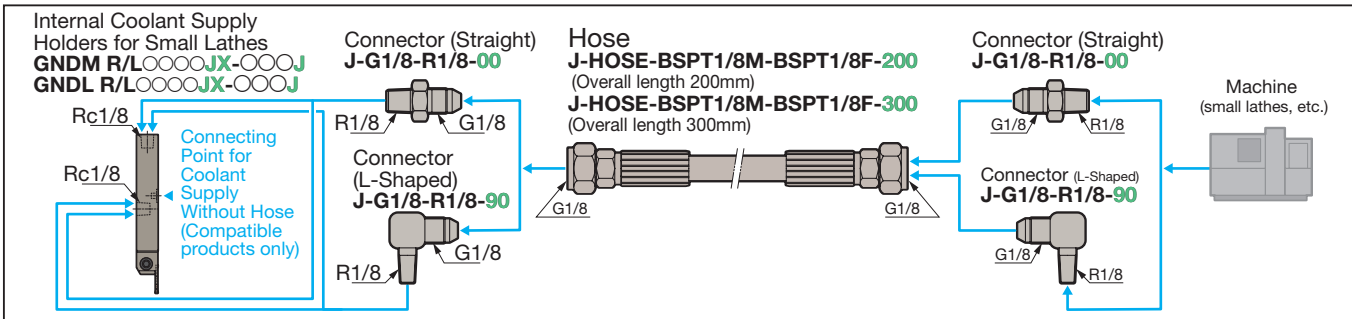
· Apply sealant such as commercial sealing tape to the piping connection parts.
· For plug mounting when piping, see the figure below.



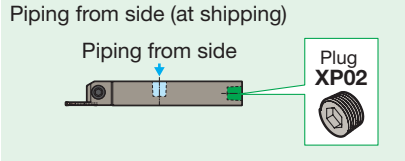


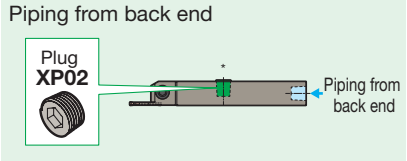
*The plug will protrude a few millimeters when mounted on the bottom.

Piping Method for Hoses and Connectors (For Small Lathes)

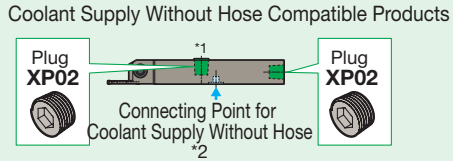


· Apply sealant such as commercial sealing tape to the piping connection parts.
· For plug mounting when piping, see the figure below.





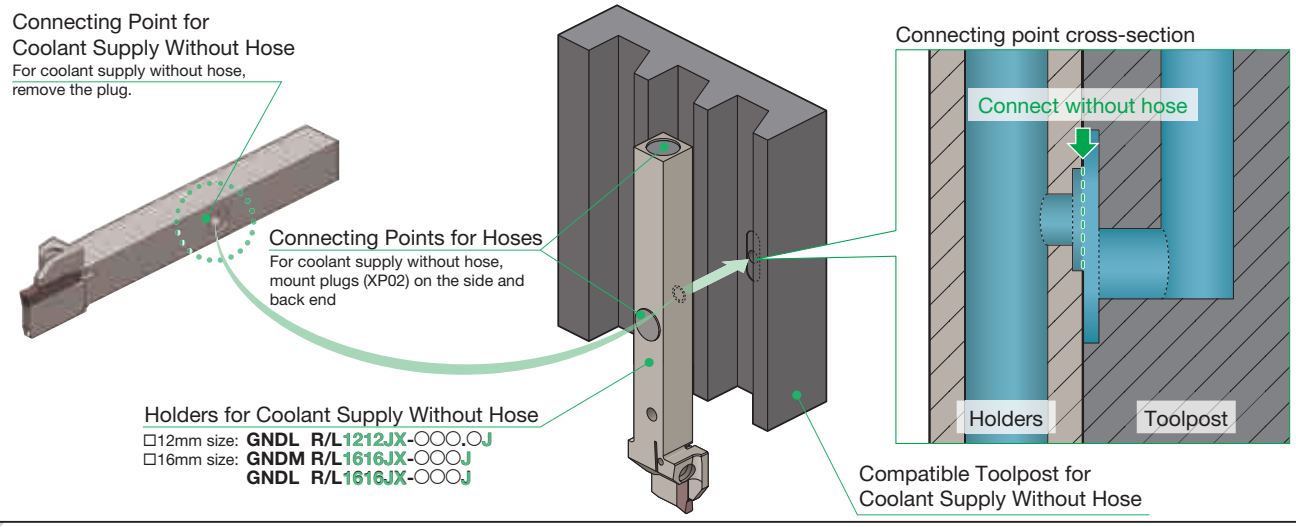
* The plug will protrude a few millimeters when mounted on the side.



*1 The plug will protrude a few millimeters when mounted on the side.
*2 The plug is mounted at shipping, so remove it for use with coolant supply without hose.

Coolant Supply to Holders Without Hose

Coolant can be supplied directly from the toolpost without a hose



GND - Inch Nomenclature

■ Nomenclature for OD Groover GND Series

GND M R/L 16 3 M -075 J

#1- 3 #4 #5 #6 #7 #8 #9 #10

Series Name
#1 Groove
#2 New
#3 Depth

#4 Application
M: Multi-function
L: Deep Groove
MS: 90° L Holder for Multi-function
LS: 90° L Holder for Deep Grooving
XL: Deep Grooving and Parting
F: Face Machining
I: for Internal (ID) Grooving

#5 Handedness
R: Right Handed
L: Left Handed

#6 Shank Size*16
12: 0.750 x 0.750"
16: 1.000 x 1.000"
20: 1.250 x 1.250"

#7 Seat Size
1.25
1.5
2
3
4
5
6
7
8

#8 Overall Length
K: 5.0"
M: 6.0"
P: 7.0"
JX: for Small lathes

#9 Max Groove Depth*100
050: 0.50"
070: 0.70"
075: 0.75"
090: 0.90"
100: 1.00"

#10 Coolant Specification
J: Coolant Through / Internal Coolant

■ Nomenclature for Face Grooving Holders

GND F R/L 16 3 M -075 -035

#1- 3 #4 #5 #6 #7 #8 #9 #10

Series Name
#1 Groove
#2 New
#3 Depth

#4 Application
F: Face Grooving
FS: 90° Face

#5 Handedness
R: Right Handed
L: Left Handed

#6 Shank Size*16
12: 0.750 x 0.750"
16: 1.000 x 1.000"
20: 1.250 x 1.250"

#7 Seat Size
2
3
4
5
6
7
8

#8 Overall Length
K: 5.0"
M: 6.0"
P: 7.0"

#9 Max Groove Depth*100
050: 0.50"
070: 0.70"
075: 0.75"
090: 0.90"

#10 Min.Part Diam. mm (Inch)
035: 35mm (1.378")
040: 40mm (1.575")
045: 45mm (1.772")
050: 50mm (1.969")
065: 65mm (2.559")
085: 85mm (3.346")
090: 90mm (3.543")
100: 100mm (3.937")
125: 125mm (4.921")
140: 140mm (5.512")
180: 180mm (7.087")
280: 280mm (11.024")

■ Insert Nomenclature

GCM N 3 125 R0.5 -GG - AC530U

#1- 3 #4 #5 #6 #7 #8 #9

#1-3 Series Name
#1 G: Grooving Insert
#2 C: 7° Relief Angle
#3 M: Molded Tolerance

#4 Handedness
R: Right Handed
L: Left Handed
N: Neutral

#5 Seat Size
1.25
1.5
2
3
4
5
6
7
8

#6 Groove Width*100
094: 0.094"
125: 0.125"
187: 0.187"
250: 0.250"

#7 Corner Radius in 64ths
R0.5: 0.5/64 = 0.0078"
R1.0: 1/64 = 0.0156"
R2.0: 2/64 = 0.0313"

#8 Chipbreaker
GG: Std. Feed Deep Groove
GL: Low Feed Deep Groove
MG: Std. Feed Traverse
ML: Low Feed Traverse
RG: Full Radius Profiling
RN: For profiling with undercut
GF: Low Cutting Force
GA: Non-ferrous grooving
CG: General Cutoff
CF: High Shear Cutoff
LF: Profiling / Radius Grooving

*Note: Items with the RG chipbreaker have a radius equal to 1/2 the width
(Ex: GCMN3125-RG = 0.0625"

#9: Grade
AC5015S: 1st Recommended for Heat Resistant Alloys & Exotic Materials
AC5025S: Heavy Interrupted for Heat Resistant Alloys & Exotic Materials
AC520U: Universal Grade for most materials
AC530U: Universal Grade for most materials
AC1030U: Grade for precision machining
AC8025P: General Purpose Cutting of Steel
AC8035P: Heavy Interrupted Cutting of Steel
AC830P: Tough CVD Grade for steels
AC425K: CVD Grade for Cast and Ductile Irons
T2500A: finishing of steels and stainless steels
H10: for non-ferrous materials
BN7500: Uncoated CBN grade for powdered metals

See next page for metric nomenclature

GND - Metric Nomenclature

Identification Code

Holders

GND M R 25 25 (M) - (T) 3 12 (J) (-) (035)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Series: GND	(2) Application: Refer to Table 2	(3) Feed Direction: Refer to Table 3	(4) Shank Height / Dia.: Refer to Table 4	(5) Shank Width / Work Dia.: Refer to Table 5	(6) Shank Length: Refer to Table 6	(7) Type: T: For Internal Boring	(8) Insert Cutting Edge Width: Refer to Table 8	(9) Maximum Groove Depth: Refer to Table 9	(10) Coolant Supply: J: Internal Coolant Supply	(11) Work Dia. / Min. Bore Dia. (mm)

Table 2

(2) Application		
Symbol	Application	
S	For External Multi-Function Machining	Traverse Cutting / Profiling (Grooving / Cut-off)
M	For External Multi-Function Machining	Traverse Cutting / Profiling (Grooving / Cut-off)
L	For External Machining	Grooving / Cut-off (Traverse Cutting / Profiling)
MS	L type Holder (Side Cut) for External Multi-Functional Machining	Grooving / Traverse Cutting / Profiling
LS	L type Holder (Side Cut) for External Machining	Grooving
N	For Necking	Necking
F	For Face Machining	Grooving / Traverse Cutting / Profiling
FS	L type Holder for Face Machining	Grooving / Traverse Cutting / Profiling
I	For Internal Boring	Grooving / Traverse Cutting / Profiling
IS	For Internal Boring	Grooving / Traverse Cutting / Profiling
CM	SumiPolygon Cassette	Grooving / Cut-off Traverse Cutting / Profiling
XL	For External Machining	External Deep Grooving and Parting

Table 3

(3) Feed Direction	
Symbol	Feed Direction
R	Right Hand
L	Left Hand

Table 4

(4) Shank Height / Dia.	
Application	Height / Dia. (mm)
External Machining / Facing (Shank Height)	10
	12
	16
	20
	25
Internal Boring (Shank Diameter)	25
	32
	40

Table 5

(5) Shank Width / Work Dia.	
Application	Width / Work Diameter (mm)
External Machining / Facing (Shank Width)	10
	12
	16
	20
	25
Internal Boring (Min. Bore Diameter)	32
	40
	50

Table 6

(6) Shank Length	
Symbol	Length (mm)
JX	120
K	125
M	150
P	170

Table 8

(8) Insert Cutting Edge Width*			
Symbol	Seat Size	Symbol	Seat Size
1.25	1.25	5	5.0
1.5	1.5	6	6.0
2	2.0	7	7.0
3	3.0	8	8.0
4	4.0		

* Excluding GNDIS.

Table 9

(9) Maximum Groove Depth*			
Symbol	Depth (mm)	Symbol	Depth (mm)
06	6.0	14	14.0
08	8.0	16	16.0
10	10.0	18	18.0
11	11.0	20	20.0
12	12.0	23	23.0
12.5	12.5	25	25.0

* Excluding GNDN / GNDIS.

Insert

G C M N 30 02 (S) - GG (-) (05)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Series: Grooving	(2) Front Relief Angle	(3) Tolerance	(4) Feed Direction	(5) Insert Cutting Edge Width	(6) Corner Radius	(7) Applicable Holder	(8) Chipbreaker	(9) Lead Angle

(3) Tolerance

Symbol	Insert Class
G	G Class
M	M Class

(2) Front Relief Angle

Symbol	Angle
C	7°
X	Others

(4) Feed Direction

Symbol	Feed Direction
R	Right Hand
L	Left Hand
N	Neutral

(5) Insert Cutting Edge Width

Symbol	Seat Size
125	1.25
150	1.5
20	2.0
30	3.0
40	4.0
50	5.0
60	6.0
70	7.0
80	8.0

(6) Corner Radius

Symbol	RE(mm)
003	0.03
005	0.05
02	0.2
04	0.4
08	0.8
10	1.0
15	1.5
20	2.0
25	2.5
30	3.0

RE = 1.0mm or larger are for profiling.

(7) Applicable Holder

Symbol	Applicable Holders
S	GNDIS Type

(8) Chipbreaker

Symbol	Application
MG	Multi-functional: General-purpose
ML	Multi-functional: Low-feed
GG	Grooving: General-purpose
GL	Grooving: Low-feed
GF	Grooving: Low Cutting Force
CG	Cut-off: General-purpose
CF	Cut-off: Low Cutting Force
RG	External Necking
RN	Profiling / Necking
GA	For Non-Ferrous Metals
LF	Profiling / Radius Grooving

(9) Lead Angle

Symbol	PSI
05	5°
10	10°
15	15°

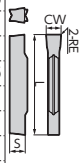
Precautionary Notes on Tool Selection

- Select the largest shank size possible.
- It is recommended to mount the holder upside down.
- Select a chipbreaker according to the cutting conditions.
- To ensure adequate chip evacuation, select the smallest corner radius possible unless restrictions apply.
- To ensure rigidity as well, use a multi-function holder so long as the maximum groove depth can be achieved.

GND - Inserts

GCMN Inserts		Sumitomo Catalog Number	Coated Carbide									Cermet	Uncoated Carbide	Dimensions (Inch / *mm*)					Fig.
			Precision Machining	S				K	P				N						
Function	Chipbreaker		AC1030U	AC5015S	AC5025S	AC520U	AC530U	AC425K	AC8025P	AC8035P	AC830P	T2500A	H10	Insert Seat Size	Grooving Width CW	Nose Radius RE	Overall Length L	Thickness S	
Low Cutting Force	GF	**GCMN125005-GF**					●							*1.25*	.049	.0020	.685	.126	1
		GCMN150005-GF					●							*1.5*	.059	.0020	.685	.146	1
		GCMN2002-GF		★	●		★					★		*2*	.078	.0078	.831	.142	1
		GCMN2002-GF1		●	●		●							*2*	.078	.0078	.831	.142	6
		GCMN2004-GF		★	★							★		*2*	.078	.0156	.831	.142	1
		GCMN3002-GF		●	●	★	★			★	★	★		*3*	.118	.0078	.831	.150	1
		GCMN3002-GF1		●	●		●							*3*	.118	.0078	.831	.150	6
		GCMN3004-GF		★	★					★		★		*3*	.118	.0156	.831	.150	1
		GCMN4002-GF		●	★	★	★			★	★	★		*4*	.157	.0078	1.039	.157	1
		GCMN4002-GF1		●	●		●							*4*	.157	.0078	1.039	.157	6
		GCMN4004-GF		★	★					★		★		*4*	.157	.0156	1.039	.157	1
		GCMN5002-GF		★	★	★	★			★	★			*5*	.197	.0078	1.039	.161	1
		GCMN5002-GF1		●	●		●							*5*	.197	.0078	1.039	.161	6
		GCMN5004-GF		★	★					★				*5*	.197	.0156	1.039	.161	1
		GCMN6002-GF		★	★	★	★			★	★			*6*	.236	.0078	1.039	.177	1
		GCMN6002-GF1		●	●		●							*6*	.236	.0078	1.039	.177	6
		GCMN6004-GF		★	★					★				*6*	.236	.0156	1.039	.177	1
		GCMN7002-GF		★	★	★	★			★	★			*7*	.276	.0078	1.132	.217	1
		GCMN7004-GF		★	★	★	★			★	★			*7*	.276	.0156	1.132	.217	1
		GCMN8002-GF		★	★	★	★			★	★			*8*	.315	.0078	1.132	.236	1
		GCMN8004-GF		★	★	★	★			★	★			*8*	.315	.0156	1.132	.236	1
Deep Grooving Cut Off	GG General Feed	**GCMN2002-GG**		●	●	●	●	●	●	★	●			*2*	.078	.0078	.831	.142	1
		GCMN2094R0.5-GG		●	●	●	●	●	●		●			*2*	.094	.0078	.831	.142	1
		GCMN3002-GG		●	●	●	●	●	●	★	●			*3*	.118	.0078	.831	.150	1
		GCMN3004-GG		●	●	●	●	●	●	★	●			*3*	.118	.0156	.831	.150	1
		GCMN3125R0.5-GG		●	●	●	●	●	●		●			*3*	.125	.0078	.831	.150	1
		GCMN4002-GG		●	●	●	●	●		★	●			*4*	.157	.0078	1.039	.157	1
		GCMN4004-GG		●	●	●	●	●	●	★	●			*4*	.157	.0156	1.039	.157	1
		GCMN5187R0.5-GG		●	●	●	●	●	●		●			*5*	.187	.0078	1.039	.161	1
		GCMN5002-GG		●	★	●	●	●		★	●			*5*	.197	.0078	1.039	.161	1
		GCMN5004-GG		●	●	●	●	●		★	●			*5*	.197	.0156	1.039	.161	1
		GCMN6002-GG		★	★	●	●	●		★	●			*6*	.236	.0078	1.039	.177	1
		GCMN6004-GG		★	●	●	●	●	●	★	●			*6*	.236	.0156	1.039	.177	1
		GCMN6250R0.5-GG		●	●	●	●	●	●		●			*6*	.250	.0078	1.039	.177	1
		GCMN6250R1.0-GG		●	●	●	●	●	●		●			*6*	.250	.0156	1.039	.177	1
		GCMN7004-GG		★	★	●	●			★	●			*7*	.276	.0156	1.132	.217	1
		GCMN8004-GG		★	★	●	●				●			*8*	.315	.0156	1.132	.236	1
	GL Low Feed	**GCMN2002-GL**		★	●	●	●	●		★	●			*2*	.078	.0078	.831	.142	1
		GCMN2004-GL		★	★					★				*2*	.078	.0156	.831	.142	1
		GCMN2094R0.5-GL			●	●	●	●	●		●			*2*	.094	.0078	.831	.142	1
		GCMN3002-GL		●	●	●	●	●		★	●			*3*	.118	.0078	.831	.150	1
		GCMN3004-GL		★	★					★				*3*	.118	.0156	.831	.150	1
		GCMN3125R0.5-GL		●	●	●	●	●	●		●			*3*	.125	.0078	.831	.150	1
		GCMN4002-GL		●	●	●	●	●		★	●			*4*	.157	.0078	1.039	.157	1
		GCMN4004-GL		★	★					★				*4*	.157	.0156	1.039	.157	1
		GCMN5187R0.5-GL		●	●	●	●	●	●		●			*5*	.187	.0078	1.039	.161	1
		GCMN5002-GL		★	★	●	●	●		★	●			*5*	.197	.0078	1.039	.161	1
		GCMN5004-GL		★	★					★				*5*	.197	.0156	1.039	.161	1
		GCMN6002-GL		●	★	●	●	●		★	●			*6*	.236	.0078	1.039	.177	1
		GCMN6004-GL		★	★					★				*6*	.236	.0156	1.039	.177	1
		GCMN6250R0.5-GL		●	●	●	●	●	●		●			*6*	.250	.0078	1.039	.177	1
		GCMN7004-GL		★	★	●	●			★	●			*7*	.276	.0156	1.132	.217	1
		GCMN8004-GL		★	●	●	●			★	●			*8*	.315	.0156	1.132	.236	1
Multi function (traversing)	MG General Feed	**GCMN3002-MG**		★	★				★	★				*3*	.118	.0078	.831	.150	1
		GCMN3004-MG		★	●	●	●	●	●	★	●			*3*	.118	.0156	.831	.150	1
		GCMN3125R1.0-MG		●	●	●	●	●	●		●			*3*	.125	.0156	.831	.150	1
		GCMN4002-MG		★	★				★	★				*4*	.157	.0078	1.039	.157	1
		GCMN4004-MG		★	★				★	★				*4*	.157	.0156	1.039	.157	1
		GCMN4008-MG		★	●	●	●	●	★	★	●			*4*	.157	.0313	1.039	.157	1
		GCMN5187R2.0-MG		●	●	●	●	●	●		●			*5*	.187	.0313	1.039	.161	1
		GCMN5004-MG		★	★				★	★				*5*	.197	.0156	1.039	.161	1
		GCMN5008-MG		★	●	●	●	●	★	★	●			*5*	.197	.0313	1.039	.161	1
		GCMN6004-MG		★	★				★	★				*6*	.236	.0156	1.039	.177	1
		GCMN6008-MG		★	●	●	●	●	●	★	●			*6*	.236	.0313	1.039	.177	1
		GCMN6250R2.0-MG		●	●	●	●	●	●		●			*6*	.250	.0313	1.039	.177	1
		GCMN7004-MG		★	★				★	★				*7*	.276	.0156	1.132	.217	1
		GCMN7008-MG		★	★	●	●	●	★	★	●			*7*	.276	.0313	1.132	.217	1
		GCMN8004-MG		★	★				★	★				*8*	.315	.0156	1.132	.236	1
		GCMN8008-MG		★	★	●	●	●	★	★	●			*8*	.315	.0313	1.132	.236	1

Fig. 6



Inserts continued on next page

●= USA Stocked item ★= World Wide Warehouse Item

Recommended Cutting Conditions ☞ F14 & F15

GND - Inserts Continued

GCMN Inserts Function	GCMN Inserts Chipbreaker	Sumitomo Catalog Number	Coated Carbide: Precision Machining AC1030U	S: AC5015S	S: AC5025S	S: AC520U	S: AC530U	K: AC425K	P: AC8025P	P: AC8035P	P: AC830P	Cermet: T2500A	Uncoated Carbide N: H10	DLC N: DL1500	Insert Seat Size	Grooving Width CW	Nose Radius RE	Overall Length L	Thickness S	Fig.
Multi function (traversing)	**ML** Low Feed	**GCMN2002-ML**		★	★										2	.078	.0078	.831	.142	1
		GCMN3002-ML		★	●	●	●	●	●	★	●	★			3	.118	.0078	.831	.150	1
		GCMN3002-ML1		●	●		●								3	.118	.0078	.831	.150	6
		GCMN3004-ML		★	★				★	★		★			3	.118	.0156	.831	.150	1
		GCMN3125R0.5-ML		●	●	●	●	●	●		●				3	.125	.0078	.831	.150	1
		GCMN4002-ML		★	★				★	★		★			4	.157	.0078	1.039	.157	1
		GCMN4004-ML		●	●	●	●	●	●	★	●	★			4	.157	.0156	1.039	.157	1
		GCMN4004-ML1		●	●		●								4	.157	.0156	1.039	.157	6
		GCMN4008-ML		★	★				★	★		★			4	.157	.0313	1.039	.157	1
		GCMN5187R1.0-ML		●	●	●	●	●	●		●				5	.187	.0156	1.039	.161	1
		GCMN5004-ML		●	●	●	●	●	★	★	●				5	.197	.0156	1.039	.161	1
		GCMN5004-ML1		●	●		●								5	.197	.0156	1.039	.161	6
		GCMN5008-ML		★	★				★	★					5	.197	.0313	1.039	.161	1
		GCMN6004-ML		●	●	●	●	●			●				6	.236	.0156	1.039	.177	1
		GCMN6004-ML1		●	●		●								6	.236	.0156	1.039	.177	6
		GCMN6008-ML		★	★				★	★					6	.236	.0313	1.039	.177	1
		GCMN6250R1.0-ML		●	●	●	●	●	●		●				6	.250	.0156	1.039	.177	1
		GCMN7004-ML		★	★	●	●	●	★	★	●				7	.276	.0156	1.132	.217	1
		GCMN7008-ML		★	★				★	★					7	.276	.0313	1.132	.217	1
		GCMN8004-ML		★	★	●	●	●	★	★	●				8	.315	.0156	1.132	.236	1
		GCMN8008-ML		★	★				★	★					8	.315	.0313	1.132	.236	1
Profiling / Radius Grooving	**RN**	**GCMN2010-RN**		●	●	●	●								2	.078	.0394	.854	.142	3
		GCMN3015-RN		●	●	●	●	●	★	★	●				3	.118	.0590	.882	.150	3
		GCMN3015-RN1		●	●		●								3	.118	.0590	.882	.150	7
		GCMN3125-RN		●	●			●	●						3	.125	.0625	.882	.150	3
		GCMN4020-RN			●	●	●	●	★	★	●				4	.157	.0787	1.102	.157	3
		GCMN5187-RN		●	●			●	●						5	.187	.0938	1.112	.161	3
		GCMN5025-RN			★	●	●	●	★	★	●				5	.197	.0984	1.106	.161	3
		GCMN6030-RN			●	●	●	●	●	★	●				6	.236	.1181	1.106	.177	3
		GCMN6030-RN1		●	●		●								6	.236	.1181	1.106	.177	7
		GCMN6250-RN		●	●			●	●						6	.250	.1250	1.112	.177	3
Profiling	**RG** General Feed	**GCMN3015-RG**		★	★	●	●	●	★	★	●	●			3	.118	.0590	.831	.150	2
		GCMN3125-RG				●	●	●			●				3	.125	.0625	.831	.150	2
		GCMN4020-RG		★	★	●	●	●	★	★	●	★			4	.157	.0787	1.039	.157	2
		GCMN5187-RG				●	●	●			●				5	.187	.0938	1.0709	.161	2
		GCMN5025-RG		★	★	●	●	●	★	★	●				5	.197	.0984	1.0709	.161	2
		GCMN6030-RG		★	★	●	●	●	★	★	●				6	.236	.1181	1.0827	.177	2
		GCMN6250-RG				●	●	●			●				6	.250	.1250	1.0827	.177	2
		GCMN7035-RG		★	★	●	●	●	★	★	●				7	.276	.1378	1.144	.217	2
		GCMN8040-RG		★	★	●	●	●	★	★	●				8	.315	.1575	1.1516	.236	2
For Non Ferrous Materials	**GA**	**GCGN2002-GA**											●	●	2	.078	.0078	.831	.142	4
		GCGN3002-GA											●	●	3	.118	.0078	.831	.150	4
		GCGN4004-GA											●	●	4	.157	.0156	1.039	.157	4
		GCGN5004-GA											●	●	5	.197	.0156	1.039	.161	4
		GCGN6004-GA											●	●	6	.236	.0156	1.039	.177	4

Type		Lead Angle	Cat. No.	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	Insert Seat Size	CW	RE	L	S	Fig.
Cut-off (Handed)	**CG**	5°	**GCM_2002-CG-05**			●	★	●	●	●	●	●	●	●	●	★	●	●						2	.078	.0078	.831	.142	5
			GCM_3002-CG-05			●	★	●	★	●	●	●	●	●	●	●	★	●	●					3	.118	.0078	.831	.150	5
			GCM_4002-CG-05			●	★	●	★	●	●	●	●	●	●	★	★	●	●					4	.157	.0078	1.039	.157	5
	CF	10°	**GCM_20003-CF-10**	●	●	●	●	●	●															2	.078	.0012	.882	.142	5
		15°	**GCM_20003-CF-15**	●	●	●	●	●	●															2	.078	.0012	.882	.142	5
		10°	**GCM_30003-CF-10**	●	●	●	●	●	●															3	.118	.0012	.882	.150	5
		15°	**GCM_30003-CF-15**	●	●	●	●	●	●															3	.118	.0012	.882	.150	5

Fig. 6

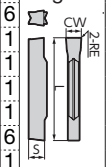


Fig. 1

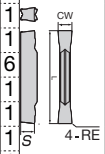


Fig. 3

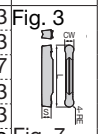


Fig. 7

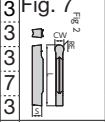


Fig. 2

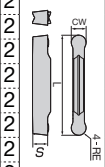


Fig. 4

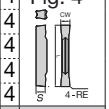
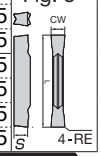


Fig. 5



See page F17 for RN / RG Description and Comparison

Recommended Cutting Conditions ☞ F14 & F15

BN7500 Recommended Cutting Conditions ☞ F15

Coated CBN

GND Insert - CBN Grade: BN7500

GCMN Inserts Function	GCMN Inserts Chipbreaker	Shape	Sumitomo Catalog Number	Stock BN7500	Insert Seat Size	Grooving Width	Width Tolerance	Nose Radius	Overall Length	Thickness	Fig.
Profiling / Radius Grooving	—		**GCMN2010P**	●	2	.078	±.0012 (.03)	.0394	.8543	.142	Fig. 8
			GCMN3015P	●	3	.118		.0590	.8819	.150	
			GCMN4020P	●	4	.157		.0787	1.1024	.157	
			GCMN5025P	●	5	.197		.0984	1.1063	.161	
			GCMN6030P	●	6	.236		.1181	1.1063	.177	
Profiling / Radius Grooving	**LF**		**GCMN2010P-LF**	●	2	.078	±.0012 (.03)	.0394	.8543	.142	Fig. 9
			GCMN3015P-LF	●	3	.118		.0590	.8819	.150	
			GCMN4020P-LF	●	4	.157		.0787	1.1024	.157	
			GCMN5025P-LF	●	5	.197		.0984	1.1063	.161	
			GCMN6030P-LF	●	6	.236		.1181	1.1063	.177	
Turning / Grooving	—		**GCMN30040-N**	●	3	.118	±.0012 (.03)	.0157	.8310	.150	Fig. 10
			GCMN40040-N	●	4	.157			1.0394	.157	
			GCMN50040-N	●	5	.197			1.0394	.161	
			GCMN60040-N	●	6	.236			1.0394	.177	

●= USA Stocked item

★ = World Wide Warehouse Item

GNDM-JX / GNDL-JX - For Small Lathes

External General-Purpose GND for Small Lathes (Grooving, Turning, Profiling)

External | Zero Offset

* For traverse cutting (groove expansion), use a multifunctional insert for profiling.

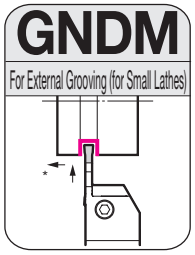


Fig 1

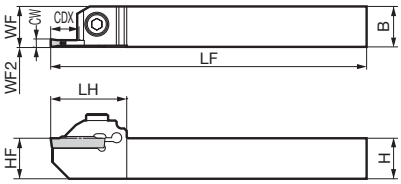


Fig 2

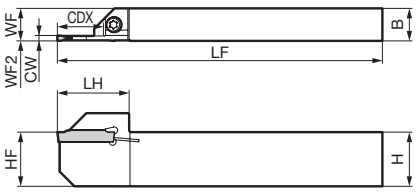


Figure shows right hand (R) tool.

Holder

Parts Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Off Set WF2	Seat Size CW	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Wrench
Inch	**GNDM R/L 101.5JX-038**	●	●	.625	.625	4.75	.625	–	1.024	0	1.5	.375	GCMN150005-GF	1	BX0515	4.0	LH040
Inch	**GNDM R/L 102JX-047**	●	●	.625	.625	4.75	.625	–	1.181	0	2	.472	GC□ □20○○-□□	1			
Inch	**GNDM R/L 103JX-047**	●	●	.625	.625	4.75	.625	–	1.181	0	3	.472	GC□ □3○○○-□□	1			
Metric	**GNDM R/L 1616JX-1.2508**	★	★	*16*	*16*	*120*	*16*	*16*	*26*	*0*	1.25	*8.0*	GCMN125005-GF	1	BX0515	4.0	LH040
Metric	**GNDM R/L 1616JX-1.510**	★	★	*16*	*16*	*120*	*16*	*16*	*26*	*0*	1.5	*10.0*	GCMN150005-GF	1			
Metric	**GNDM R/L 1616JX-212**	★	★	*16*	*16*	*120*	*16*	*16*	*30*	*0*	2	*12.0*	GC□ □20○○-□□	1			
Metric	**GNDM R/L 1616JX-312**	★	★	*16*	*16*	*120*	*16*	*16*	*30*	*0*	3	*12.0*	GC□ □3○○○-□□	1			
Metric	**GNDM R/L 2012JX-217**			*20*	*12*	*120*	*12*	*20*	*26.5*	*0*	2	*17.0*	GC□ □20○○-□□	2	BFTX0414	3.0	LT15-10
Metric	**GNDM R/L 2012JX-317**			*20*	*12*	*120*	*12*	*20*	*26.5*	*0*	3	*17.0*	GC□ □3○○○-□□	2			

Combine the insert with a holder such that the Seat Size matches. Refer to page F21 & F22 for applicable inserts

External Grooving / Cut-Off GND for Small Lathes

External | Zero Offset

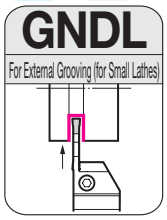


Fig 1

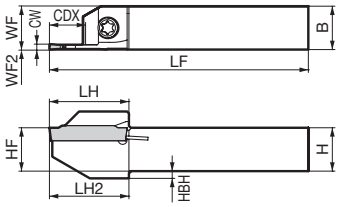


Fig 2

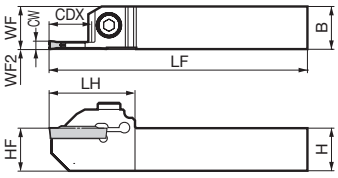


Fig 3

External Grooving & Cut-Off Clamp-on for Small Lathes (Cut-Off)

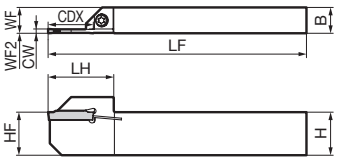


Figure shows right hand (R) tool.

Holder

Parts Dimensions (inch/ *mm*)

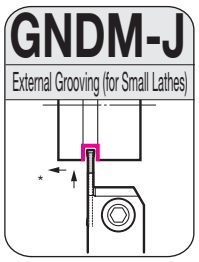
	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Step HBH	Head LH	Head LH2	Off Set WF2	Seat Size CW	Max. Groove Depth CDX	Applicable Insert	Fig	Flat Screw/ Cap Screw BFTX0412N / BX0515	N·m	Wrench LT15-10 / LH040
Inch	**GNDL R/L 061.25JX-038**	●	●	.375	.375	4.75	.375	.375	.079	.709	.720	0	1.25	.375	GCMN125005-GF	1	BFTX0412N	3.0	LT15-10
Inch	**GNDL R/L 061.5JX-038**	●	●	.375	.375	4.75	.375	.375	.079	.709	.720	0	1.5	.375	GCMN150005-GF	1			
Inch	**GNDL R/L 062JX-038**	●	●	.375	.375	4.75	.375	.375	.079	.866	.878	0	2	.375	GC□□20○○-□□	1			
Inch	**GNDL R/L 063JX-038**	●	●	.375	.375	4.75	.375	.375	.079	.866	.878	0	3	.375	GC□□3○○○-□□	1			
Inch	**GNDL R/L 081.25JX-047**	●	●	.500	.500	4.75	.500	.500	.079	.748	.760	0	1.25	.472	GCMN125005-GF	1	BFTX0412N	3.0	LT15-10
Inch	**GNDL R/L 081.5JX-047**	●	●	.500	.500	4.75	.500	.500	.079	.748	.760	0	1.5	.472	GCMN150005-GF	1			
Inch	**GNDL R/L 082JX-050**	●	●	.500	.500	4.75	.500	.500	.079	.866	.878	0	2	.500	GC□□20○○-□□	1			
Inch	**GNDL R/L 083JX-050**	●	●	.500	.500	4.75	.500	.500	.079	.866	.878	0	3	.500	GC□□3○○○-□□	1			
Inch	**GNDL R/L 101.5JX-050**	●	●	.625	.625	4.75	.625	.625	–	1.102	–	0	1.5	.500	GCMN150005-GF	2	BX0515	4.0	LH040
Inch	**GNDL R/L 102JX-063**	●	●	.625	.625	4.75	.625	.625	–	1.26	–	0	2	.625	GC□□20○○-□□	2			
Inch	**GNDL R/L 103JX-063**	●	●	.625	.625	4.75	.625	.625	–	1.26	–	0	3	.625	GC□□3○○○-□□	2			
Metric	**GNDL R/L 1010JX-1.2510**	★	★	*10*	*10*	*120*	*10*	*10*	*2.0*	*18*	*18.3*	*0*	1.25	*10.0*	GCMN125005-GF	1	BFTX0412N	3.0	LT15-10
Metric	**GNDL R/L 1010JX-1.510**	★	★	*10*	*10*	*120*	*10*	*10*	*2.0*	*18*	*18.3*	*0*	1.5	*10.0*	GCMN150005-GF	1			
Metric	**GNDL R/L 1010JX-210**	★	★	*10*	*10*	*120*	*10*	*10*	*2.0*	*22*	*22.3*	*0*	2	*10.0*	GC□□20○○-□□	1			
Metric	**GNDL R/L 1010JX-310**	★	★	*10*	*10*	*120*	*10*	*10*	*2.0*	*22*	*22.3*	*0*	3	*10.0*	GC□□3○○○-□□	1			
Metric	**GNDL R/L 1212JX-1.2512**	★	★	*12*	*12*	*120*	*12*	*12*	*2.0*	*19*	*19.3*	*0*	1.25	*12.0*	GCMN125005-GF	1	BFTX0412N	3.0	LT15-10
Metric	**GNDL R/L 1212JX-1.512**	★	★	*12*	*12*	*120*	*12*	*12*	*2.0*	*19*	*19.3*	*0*	1.5	*12.0*	GCMN150005-GF	1			
Metric	**GNDL R/L 1212JX-212.5**	★	★	*12*	*12*	*120*	*12*	*12*	*2.0*	*22*	*22.3*	*0*	2	*12.5*	GC□□20○○-□□	1			
Metric	**GNDL R/L 1212JX-312.5**	★	★	*12*	*12*	*120*	*12*	*12*	*2.0*	*22*	*22.3*	*0*	3	*12.5*	GC□□3○○○-□□	1			
Metric	**GNDL R/L 1616JX-1.2512.5**	★	★	*16*	*16*	*120*	*16*	*16*	–	*28*	–	*0*	1.25	*12.5*	GCMN125005-GF	2	BX0515	4.0	LH040
Metric	**GNDL R/L 1616JX-1.512.5**	★	★	*16*	*16*	*120*	*16*	*16*	–	*28*	–	*0*	1.5	*12.5*	GCMN150005-GF	2			
Metric	**GNDL R/L 1616JX-216**	★	★	*16*	*16*	*120*	*16*	*16*	–	*32*	–	*0*	2	*16.0*	GC□□20○○-□□	2			
Metric	**GNDL R/L 1616JX-316**	★	★	*16*	*16*	*120*	*16*	*16*	–	*32*	–	*0*	3	*16.0*	GC□□3○○○-□□	2			
Metric	**GNDL R/L 2012JX-221**	★	★	*20*	*12*	*120*	*12*	*20*	–	*30.5*	–	*0*	2	*21.0*	GC□□20○○-□□	3	BFTX0414	3.0	LT15-10
Metric	**GNDL R/L 2012JX-321**	★	★	*20*	*12*	*120*	*12*	*20*	–	*30.5*	–	*0*	3	*21.0*	GC□□3○○○-□□	3			

Combine the insert with a holder such that the Seat Size matches. Refer to page F21 & F22 for applicable inserts

GNDM-J / GNDL-J GND with Internal Coolant for Small Lathes

External Multi-Purpose GND for Small Lathes (Grooving, Turning, Profiling)

External | Zero Offset | Internal Coolant



* For traverse cutting (groove expansion), use a multifunctional insert for profiling.

Fig 1

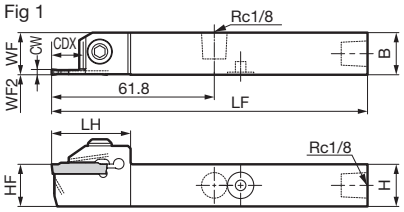


Fig 2

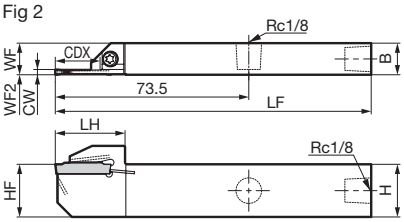


Figure shows right hand (R) tool.

Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Offset WF2	Seat Size CW	Max. Groove Depth CDX	Max. Cut-off Dia.	Applicable Insert	Fig	Flat Screw / Cap Screw (BFTX0414 / CP-M5-20-1)	N·m	Plug	Top Hex Wrench (LT15-10 / LH040)	Bottom Hex Wrench
Inch	**GNDM R/L 102JX-047J**	●	●	.625	.625	4.750	.625	.625	1.181	0	*2*	.472	—	GC□□20○○-□□	1	CP-M5-20-1	5.0	XP03	LH040	LH025
Inch	**GNDM R/L 103JX-047J**	●	●	.625	.625	4.750	.625	.625	1.181	0	*3*	.472	—	GC□□3○○○-□□	1	CP-M5-20-1	5.0	XP03	LH040	LH025
Metric	**GNDM R/L 1616JX-212J**	★	★	*16*	*16*	*120*	*16*	*16*	*30.0*	*0*	*2*	*12.0*	*24*	GC□□20○○-□□	1	CP-M5-20-1	5.0	XP02	LH040	LH025
Metric	**GNDM R/L 1616JX-312J**	★	★	*16*	*16*	*120*	*16*	*16*	*30.0*	*0*	*3*	*12.0*	*24*	GC□□3○○○-□□	1	CP-M5-20-1	5.0	XP02	LH040	LH025
Metric	**GNDM R/L 2012JX-217J**	★	★	*20*	*12*	*120*	*12*	*20*	*26.5*	*0*	*2*	*17.0*	*34*	GC□□20○○-□□	2	BFTX0414	3.0	XP02	LT15-10	—
Metric	**GNDM R/L 2012JX-317J**	★	★	*20*	*12*	*120*	*12*	*20*	*26.5*	*0*	*3*	*17.0*	*34*	GC□□3○○○-□□	2	BFTX0414	3.0	XP02	LT15-10	—

Select holders and inserts with matching width of cut (CW). Refer to F21 & F22 for applicable inserts.
The maximum groove depth CDX is the figure during grooving. For maximum depth of cut during traverse cutting and profiling, refer to page F14.

External Grooving / Cut-Off GND for Small Lathes

External | Zero Offset | Internal Coolant

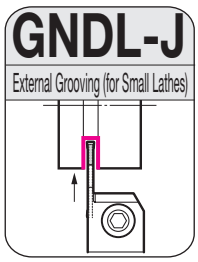


Fig 1

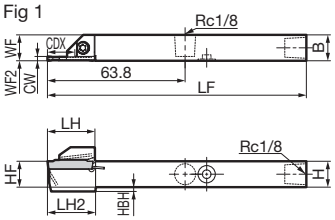


Fig 2

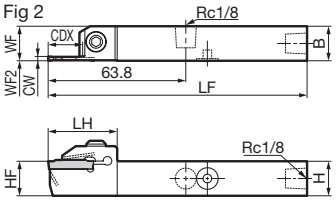


Fig 3

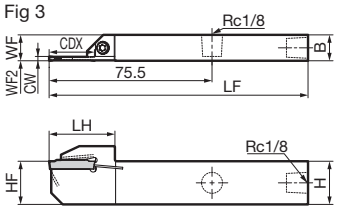


Figure shows right hand (R) tool.

Holder

Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Seat Size	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Insert Wrench	Plug	Wrench
Inch	**GNDL R/L 082JX-050J**	●	●	.500	.500	4.750	.500	.500	.866	2	.500	GC□□20○○-□□	1	BFTX0415T8R	2.0	—	XP03	LT08-06
Inch	**GNDL R/L 083JX-050J**	●	●	.500	.500	4.750	.500	.500	.866	3	.500	GC□□3○○○-□□	1	BFTX0415T8R	3.0	—	XP03	LT08-06
Inch	**GNDL R/L 102JX-063J**	●	●	.625	.625	4.750	.625	.625	1.260	2	.625	GC□□20○○-□□	1	CP-M5-20-1	2.0	LH025	XP03	LH040
Inch	**GNDL R/L 103JX-063J**	●	●	.625	.625	4.750	.625	.625	1.260	3	.625	GC□□3○○○-□□	1	CP-M5-20-1	3.0	LH025	XP03	LH040
Metric	**GNDL R/L 1212JX-212.5J**	★	★	*12*	*12*	*120*	*12*	*12*	*22.0*	2	12.5	GC□□20○○-□□	2	BFTX0415T8R	1.5	LT08-06	XP02	—
Metric	**GNDL R/L 1212JX-312.5J**	★	★	*12*	*12*	*120*	*12*	*12*	*22.0*	3	12.5	GC□□3○○○-□□	2	BFTX0415T8R	1.5	LT08-06	XP02	—
Metric	**GNDL R/L 1616JX-216J**	★	★	*16*	*16*	*120*	*16*	*16*	*32.0*	2	16.0	GC□□20○○-□□	2	CP-M5-20-1	5.0	LH040	XP02	LH025
Metric	**GNDL R/L 1616JX-316J**	★	★	*16*	*16*	*120*	*16*	*16*	*32.0*	3	16.0	GC□□3○○○-□□	2	CP-M5-20-1	5.0	LH040	XP02	LH025
Metric	**GNDL R/L 2012JX-221J**	★	★	*20*	*12*	*120*	*12*	*12*	*30.5*	2	21.0	GC□□20○○-□□	3	BFTX0414	3.0	LT15-10	XP02	—
Metric	**GNDL R/L 2012JX-321J**	★	★	*20*	*12*	*120*	*12*	*12*	*30.5*	3	21.0	GC□□3○○○-□□	3	BFTX0414	3.0	LT15-10	XP02	—

Select holders and inserts with matching width of cut (CW). Refer to F21 & F22 for applicable inserts. The maximum groove depth CDX is the figure during grooving. For maximum depth of cut during traverse cutting and profiling, refer to page F14. See page F29 for GND-J parts and connecting method

External Multi-Purpose GND (Grooving, Turning, Profiling)

External

* For traverse cutting (groove expansion), use a multifunctional insert for profiling.

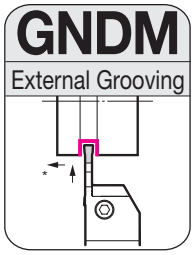


Fig 1

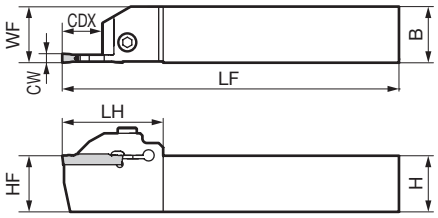


Figure shows right hand (R) tool.

Holder

Parts Dimensions (inch / mm)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Seat Size	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Wrench
Inch	GNDM R/L 122K-050	●	●	.750	.750	5.000	.750	.750	1.441	2	.500	GC□□20○○-□□	1	BX0520	5.0	LH040
	GNDM R/L 123K-050	●	●	.750	.750	5.000	.750	.750	1.441	3	.500	GC□□3○○○-□□	1			
	GNDM R/L 124K-070	●	●	.750	.750	5.000	.750	.750	1.772	4	.700	GC□□40○○-□□	1			
	GNDM R/L 125K-070	●	●	.750	.750	5.000	.750	.750	1.772	5	.700	GC□N5○○○-□□	1			
	GNDM R/L 126K-070	●	●	.750	.750	5.000	.750	.750	1.772	6	.700	GC□N6○○○-□□	1			
	GNDM R/L 162M-050	●	●	1.000	1.000	6.000	1.000	1.000	1.441	2	.500	GC□□20○○-□□	1	BX0520	5.0	LH040
	GNDM R/L 163M-050	●	●	1.000	1.000	6.000	1.000	1.000	1.441	3	.500	GC□□3○○○-□□	1			
	GNDM R/L 164M-070	●	●	1.000	1.000	6.000	1.000	1.000	1.772	4	.700	GC□□40○○-□□	1			
	GNDM R/L 165M-070	●	●	1.000	1.000	6.000	1.000	1.000	1.772	5	.700	GC□N5○○○-□□	1			
	GNDM R/L 166M-070	●	●	1.000	1.000	6.000	1.000	1.000	1.772	6	.700	GC□N6○○○-□□	1			
	GNDM R/L 168M-070	●	●	1.000	1.000	6.000	1.000	1.000	1.772	8	.700	GCMN80○○-□□	1			
	GNDM R/L 203P-050	●	●	1.250	1.250	7.000	1.250	1.250	1.441	3	.500	GC□□3○○○-□□	1	BX0620	6.0	LH050
	GNDM R/L 204P-070	●	●	1.250	1.250	7.000	1.250	1.250	1.772	4	.700	GC□□40○○-□□	1			
	GNDM R/L 205P-070	●	●	1.250	1.250	7.000	1.250	1.250	1.772	5	.700	GC□N5○○○-□□	1			
	GNDM R/L 206P-070	●	●	1.250	1.250	7.000	1.250	1.250	1.772	6	.700	GC□N6○○○-□□	1			
	GNDM R/L 207P-070	●	●	1.250	1.250	7.000	1.250	1.250	2.000	7	.700	GCMN70○○-□□	1			
	GNDM R/L 208P-070	●	●	1.250	1.250	7.000	1.250	1.250	2.000	8	.700	GCMN80○○-□□	1			
Metric	GNDM R/L 2020K-1.2510	★	★	20	20	125	20	20	34.0	1.25	10	GCMN125005-GF	1	BX0520	5.0	LH040
	GNDM R/L 2020K-1.510	★	★	20	20	125	20	20	34.0	1.5	10	GCMN150005-GF	1			
	GNDM R/L 2020K-210	★	★	20	20	125	20	20	33.6	2	10	GC□□20○○-□□	1			
	GNDM R/L 2020K-312	★	★	20	20	125	20	20	36.6	3	12	GC□□3○○○-□□	1			
	GNDM R/L 2020K-418	★	★	20	20	125	20	20	45.0	4	18	GC□□40○○-□□	1			
	GNDM R/L 2020K-518	★	★	20	20	125	20	20	45.0	5	18	GC□N5○○○-□□	1			
	GNDM R/L 2020K-618	★	★	20	20	125	20	20	45.0	6	18	GC□N6○○○-□□	1			
	GNDM R/L 2525M-1.2510	★	★	25	25	150	25	25	36.0	1.25	10	GCMN125005-GF	1	BX0520	5.0	LH040
	GNDM R/L 2525M-1.510	★	★	25	25	150	25	25	36.0	1.5	10	GCMN150005-GF	1			
	GNDM R/L 2525M-210	★	★	25	25	150	25	25	33.6	2	10	GC□□20○○-□□	1			
	GNDM R/L 2525M-312	★	★	25	25	150	25	25	36.6	3	12	GC□□3○○○-□□	1			
	GNDM R/L 2525M-418	★	★	25	25	150	25	25	45.0	4	18	GC□□40○○-□□	1			
	GNDM R/L 2525M-518	★	★	25	25	150	25	25	45.0	5	18	GC□N5○○○-□□	1			
	GNDM R/L 2525M-618	★	★	25	25	150	25	25	45.0	6	18	GC□N6○○○-□□	1			
	GNDM R/L 3225P-312			32	25	170	25	32	36.6	3	12	GC□□3○○○-□□	1	BX0520	5.0	LH040
	GNDM R/L 3225P-418			32	25	170	25	32	45.0	4	18	GC□□40○○-□□	1			
	GNDM R/L 3225P-518			32	25	170	25	32	45.0	5	18	GC□N5○○○-□□	1			
	GNDM R/L 3225P-618			32	25	170	25	32	45.0	6	18	GC□N6○○○-□□	1			
	GNDM R/L 3225P-718			32	25	170	25	32	50.0	7	18	GCMN70○○-□□	1	BX0620	6.0	LH050
	GNDM R/L 3225P-818			32	25	170	25	32	50.0	8	18	GCMN80○○-□□	1			
	GNDM R/L 3232P-312	★	★	32	32	170	32	32	36.6	3	12	GC□□3○○○-□□	1	BX0620	6.0	LH050
	GNDM R/L 3232P-418	★	★	32	32	170	32	32	45.0	4	18	GC□□40○○-□□	1			
	GNDM R/L 3232P-518	★	★	32	32	170	32	32	45.0	5	18	GC□N5○○○-□□	1			
	GNDM R/L 3232P-618	★	★	32	32	170	32	32	45.0	6	18	GC□N6○○○-□□	1			
	GNDM R/L 3232P-718	★	★	32	32	170	32	32	50.0	7	18	GCMN70○○-□□	1			
	GNDM R/L 3232P-818	★	★	32	32	170	32	32	50.0	8	18	GCMN80○○-□□	1			

Combine the insert with a holder such that the Seat Size matches. Refer to page F21 & F22 for applicable inserts
See GNDM-JX (holders for small lathes) on page F23)

N·m Recommended Tightening Torque (N·m) Recommended Cutting Conditions F14 & F15 ★: Worldwide Warehouse Item ●: USA Stocked Item

GNDMS / GNDM-J

External L-Styled (Side Cut) Multi-Purpose GND (Grooving, Turning, Profiling)

External

* For traverse cutting (groove expansion), use a multifunctional insert for profiling.

GNDMS

External Grooving

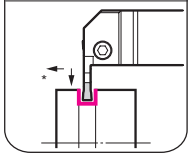


Fig 1

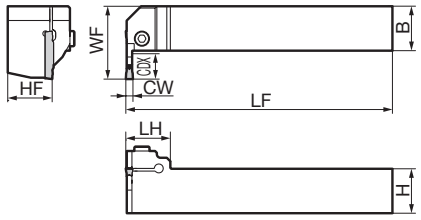


Figure shows right hand (R) tool.

Holder — Parts Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Seat Size	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Wrench
Inch	GNDMS R/L 123K-040	●	●	.750	.750	5.000	1.222	.750	1.000	3	.400	GC□□3○○○-□□	1	BX0520	5.0	LH040
	GNDMS R/L 124K-050		●	.750	.750	5.000	1.300	.750	1.000	4	.500	GC□□40○○-□□	1			
	GNDMS R/L 125K-050			.750	.750	5.000	1.300	.750	1.000	5	.500	GC□N5○○○-□□	1			
	GNDMS R/L 163M-050	●	●	1.000	1.000	6.000	1.551	1.000	1.000	3	.500	GC□□3○○○-□□	1	BX0520	5.0	LH040
	GNDMS R/L 164M-055	●	●	1.000	1.000	6.000	1.630	1.000	1.000	4	.550	GC□□40○○-□□	1			
	GNDMS R/L 165M-055	●	●	1.000	1.000	6.000	1.630	1.000	1.000	5	.550	GC□N5○○○-□□	1			
	GNDMS R/L 166M-055	●	●	1.000	1.000	6.000	1.630	1.000	1.000	6	.550	GC□N6○○○-□□	1			
Metric	GNDMS R/L 2020K-310	★	★	*20*	*20*	*125*	*32*	*20*	*25.0*	3	*10*	GC□□3○○○-□□	1	BX0520	5.0	LH040
	GNDMS R/L 2020K-412	★	★	*20*	*20*	*125*	*34*	*20*	*25.0*	4	*12*	GC□□40○○-□□	1			
	GNDMS R/L 2020K-512	★	★	*20*	*20*	*125*	*34*	*20*	*25.0*	5	*12*	GC□N5○○○-□□	1			
	GNDMS R/L 2525M-312	★	★	*25*	*25*	*150*	*39*	*25*	*25.0*	3	*12*	GC□□3○○○-□□	1	BX0520	5.0	LH040
	GNDMS R/L 2525M-414	★	★	*25*	*25*	*150*	*41*	*25*	*25.0*	4	*14*	GC□□40○○-□□	1			
	GNDMS R/L 2525M-514	★	★	*25*	*25*	*150*	*41*	*25*	*25.0*	5	*14*	GC□N5○○○-□□	1			
	GNDMS R/L 2525M-614	★	★	*25*	*25*	*150*	*41*	*25*	*25.0*	6	*14*	GC□N6○○○-□□	1			

Combine the insert with a holder such that the Seat Size matches. Refer to page F21 & F22 for applicable inserts

External Multi-Purpose GND (Grooving, Turning, Profiling) with Internal Coolant

External | Internal Coolant

* For traverse cutting (groove expansion), use a multifunctional insert for profiling.

GNDM-J

External Grooving

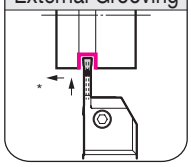


Fig 1

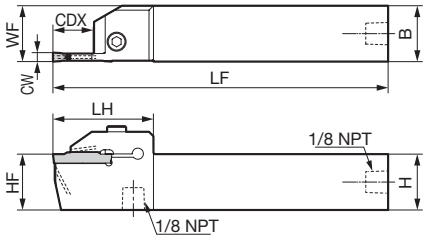


Figure shows right hand (R) tool.

Fig 2

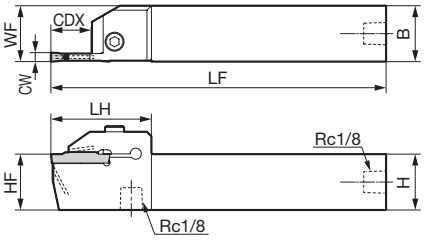


Figure shows right hand (R) tool.

Holder — Parts Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Seat Size	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Insert Wrench	Plug	Wrench
Inch	GNDM R/L 122K-050J	●	●	.750	.750	5.000	.750	.750	1.323	2	.500	GC□□20○○-□□	1	BX0520	6.0	—	XP03	LH040
	GNDM R/L 123K-050J	●	●	.750	.750	5.000	.750	.750	1.441	3	.500	GC□□3○○○-□□	1					
	GNDM R/L 124K-070J	●	●	.750	.750	5.000	.750	.750	1.772	4	.700	GC□□40○○-□□	1					
	GNDM R/L 125K-070J	●	●	.750	.750	5.000	.750	.750	1.772	5	.700	GC□N5○○○-□□	1					
	GNDM R/L 126K-070J	●	●	.750	.750	5.000	.750	.750	1.772	6	.700	GC□N6○○○-□□	1					
	GNDM R/L 162K-050J	●	●	1.000	1.000	5.000	1.000	1.000	1.323	2	.500	GC□□20○○-□□	1	BX0520	6.0	—	XP03	LH040
	GNDM R/L 163K-050J	●	●	1.000	1.000	5.000	1.000	1.000	1.441	3	.500	GC□□3○○○-□□	1					
	GNDM R/L 164K-070J	●	●	1.000	1.000	5.000	1.000	1.000	1.772	4	.700	GC□□40○○-□□	1					
	GNDM R/L 165K-070J	●	●	1.000	1.000	5.000	1.000	1.000	1.772	5	.700	GC□N5○○○-□□	1					
	GNDM R/L 166K-070J	●	●	1.000	1.000	5.000	1.000	1.000	1.772	6	.700	GC□N6○○○-□□	1					
Metric	GNDM R/L 2020K-210J	★	★	*20*	*20*	*125*	*20*	*20*	*33.6*	2	*10*	GC□□20○○-□□	2	BX0520	6.0	—	XP02	LH040
	GNDM R/L 2020K-312J	★	★	*20*	*20*	*125*	*20*	*20*	*36.6*	3	*12*	GC□□3○○○-□□	2					
	GNDM R/L 2020K-418J	★	★	*20*	*20*	*125*	*20*	*20*	*45*	4	*18*	GC□□40○○-□□	2					
	GNDM R/L 2020K-518J	★	★	*20*	*20*	*125*	*20*	*20*	*45*	5	*18*	GC□N5○○○-□□	2					
	GNDM R/L 2020K-618J	★	★	*20*	*20*	*125*	*20*	*20*	*45*	6	*18*	GC□N6○○○-□□	2					
	GNDM R/L 2525K-210J	★	★	*25*	*25*	*125*	*25*	*25*	*33.6*	2	*10*	GC□□20○○-□□	2	BX0520	6.0	—	XP02	LH040
	GNDM R/L 2525K-312J	★	★	*25*	*25*	*125*	*25*	*25*	*36.6*	3	*12*	GC□□3○○○-□□	2					
	GNDM R/L 2525K-418J	★	★	*25*	*25*	*125*	*25*	*25*	*45*	4	*18*	GC□□40○○-□□	2					
	GNDM R/L 2525K-518J	★	★	*25*	*25*	*125*	*25*	*25*	*45*	5	*18*	GC□N5○○○-□□	2					
	GNDM R/L 2525K-618J	★	★	*25*	*25*	*125*	*25*	*25*	*45*	6	*18*	GC□N6○○○-□□	2					

Combine the insert with a holder such that the Seat Size matches. Refer to page F21 & F22 for applicable inserts. See page F29 for GND-J parts and connecting method

N·m Recommended Tightening Torque (N·m) Recommended Cutting Conditions ☞F14 & F15 ★: Worldwide Warehouse Item ●: USA Stocked Item

External Deep Grooving and Cut-Off GND

External

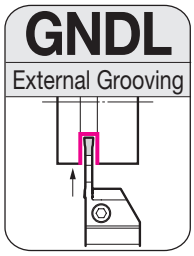


Fig 1

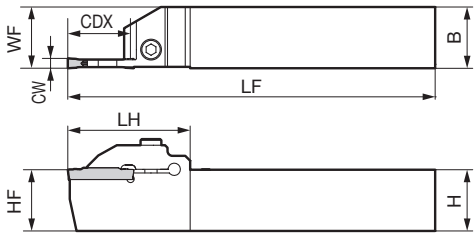


Figure shows right hand (R) tool.

Holder

Parts

Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Seat Size	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw (BX0520 / BX0620)	N·m	Wrench
Inch	**GNDL R/L 122K-075**	●	●	.750	.750	5.00	.750	.750	1.752	2	.750	GC□□20○○-□□	1	BX0520	5.0	LH040
	GNDL R/L 123K-075	●	●	.750	.750	5.00	.750	.750	1.752	3	.750	GC□□3○○○-□□	1			
	GNDL R/L 124K-100	●	●	.750	.750	5.00	.750	.750	1.969	4	1.000	GC□□40○○-□□	1			
	GNDL R/L 125K-100	●	●	.750	.750	5.00	.750	.750	1.969	5	1.000	GC□N5○○○-□□	1			
	GNDL R/L 126K-100	●	●	.750	.750	5.00	.750	.750	1.969	6	1.000	GC□N6○○○-□□	1			
	GNDL R/L 162M-075	●	●	1.00	1.00	6.00	1.00	1.00	1.752	2	.750	GC□□20○○-□□	1	BX0520	5.0	LH040
	GNDL R/L 163M-075	●	●	1.00	1.00	6.00	1.00	1.00	1.752	3	.750	GC□□3○○○-□□	1			
	GNDL R/L 164M-100	●	●	1.00	1.00	6.00	1.00	1.00	1.969	4	1.000	GC□□40○○-□□	1			
	GNDL R/L 165M-100	●	●	1.00	1.00	6.00	1.00	1.00	1.969	5	1.000	GC□N5○○○-□□	1			
	GNDL R/L 166M-100	●	●	1.00	1.00	6.00	1.00	1.00	1.969	6	1.000	GC□N6○○○-□□	1			
	GNDL R/L 168M-100	●	●	1.00	1.00	6.00	1.00	1.00	1.969	8	1.000	GCMN80○○-□□	1			
	GNDL R/L 203P-090	●	●	1.25	1.25	7.00	1.25	1.25	1.875	3	0.900	GC□□3○○○-□□	1	BX0520	5.0	LH040
	GNDL R/L 204P-100	●	●	1.25	1.25	7.00	1.25	1.25	2.000	4	1.000	GC□□40○○-□□	1			
	GNDL R/L 205P-100	●	●	1.25	1.25	7.00	1.25	1.25	2.000	5	1.000	GC□N5○○○-□□	1			
	GNDL R/L 206P-100	●	●	1.25	1.25	7.00	1.25	1.25	2.000	6	1.000	GC□N6○○○-□□	1			
	GNDL R/L 207P-100	●	●	1.25	1.25	7.00	1.25	1.25	2.000	7	1.000	GCMN70○○-□□	1	BX0620	6.0	LH050
	GNDL R/L 208P-100	●	●	1.25	1.25	7.00	1.25	1.25	2.000	8	1.000	GCMN80○○-□□	1			
Metric	**GNDL R/L 2020K-1.2516**	★	★	*20*	*20*	*125*	*20*	*20*	*38.0*	1.25	*16*	GCMN125005-GF	1	BX0520	5.0	LH040
	GNDL R/L 2020K-1.516	★	★	*20*	*20*	*125*	*20*	*20*	*38.0*	1.5	*16*	GCMN150005-GF	1			
	GNDL R/L 2020K-220	★	★	*20*	*20*	*125*	*20*	*20*	*44.5*	2	*20(18)*	GC□□20○○-□□	1			
	GNDL R/L 2020K-320	★	★	*20*	*20*	*125*	*20*	*20*	*44.5*	3	*20(18)*	GC□□3○○○-□□	1			
	GNDL R/L 2020K-425	★	★	*20*	*20*	*125*	*20*	*20*	*50.0*	4	*25(23)*	GC□□40○○-□□	1			
	GNDL R/L 2020K-525	★	★	*20*	*20*	*125*	*20*	*20*	*50.0*	5	*25(23)*	GC□N5○○○-□□	1			
	GNDL R/L 2020K-625	★	★	*20*	*20*	*125*	*20*	*20*	*50.0*	6	*25(23)*	GC□N6○○○-□□	1			
	GNDL R/L 2525M-1.2516	★	★	*25*	*25*	*150*	*25*	*25*	*40.0*	1.25	*16*	GCMN125005-GF	1	BX0520	5.0	LH040
	GNDL R/L 2525M-1.516	★	★	*25*	*25*	*150*	*25*	*25*	*40.0*	1.5	*16*	GCMN150005-GF	1			
	GNDL R/L 2525M-220	★	★	*25*	*25*	*150*	*25*	*25*	*44.5*	2	*20(18)*	GC□□20○○-□□	1			
	GNDL R/L 2525M-320	★	★	*25*	*25*	*150*	*25*	*25*	*44.5*	3	*20(18)*	GC□□3○○○-□□	1			
	GNDL R/L 2525M-425	★	★	*25*	*25*	*150*	*25*	*25*	*50.0*	4	*25(23)*	GC□□40○○-□□	1			
	GNDL R/L 2525M-525	★	★	*25*	*25*	*150*	*25*	*25*	*50.0*	5	*25(23)*	GC□N5○○○-□□	1			
	GNDL R/L 2525M-625	★	★	*25*	*25*	*150*	*25*	*25*	*50.0*	6	*25(23)*	GC□N6○○○-□□	1			
	GNDL R/L 3225P-320			*32*	*25*	*170*	*25*	*32*	*44.5*	3	*20(18)*	GC□□3○○○-□□	1	BX0520	5.0	LH040
	GNDL R/L 3225P-425			*32*	*25*	*170*	*25*	*32*	*50.0*	4	*25(23)*	GC□□40○○-□□	1			
	GNDL R/L 3225P-525			*32*	*25*	*170*	*25*	*32*	*50.0*	5	*25(23)*	GC□N5○○○-□□	1			
	GNDL R/L 3225P-625			*32*	*25*	*170*	*25*	*32*	*50.0*	6	*25(23)*	GC□N6○○○-□□	1			
	GNDL R/L 3225P-725			*32*	*25*	*170*	*25*	*32*	*50.0*	7	*25(23)*	GCMN70○○-□□	1	BX0620	6.0	LH050
	GNDL R/L 3225P-825			*32*	*25*	*170*	*25*	*32*	*50.0*	8	*25(23)*	GCMN80○○-□□	1			
	GNDL R/L 3232P-320	★	★	*32*	*32*	*170*	*32*	*32*	*44.5*	3	*20(18)*	GC□□3○○○-□□	1	BX0620	6.0	LH050
	GNDL R/L 3232P-425	★	★	*32*	*32*	*170*	*32*	*32*	*50.0*	4	*25(23)*	GC□□40○○-□□	1			
	GNDL R/L 3232P-525	★	★	*32*	*32*	*170*	*32*	*32*	*50.0*	5	*25(23)*	GC□N5○○○-□□	1			
	GNDL R/L 3232P-625	★	★	*32*	*32*	*170*	*32*	*32*	*50.0*	6	*25(23)*	GC□N6○○○-□□	1			
	GNDL R/L 3232P-725	★	★	*32*	*32*	*170*	*32*	*32*	*50.0*	7	*25(23)*	GCMN70○○-□□	1			
	GNDL R/L 3232P-825	★	★	*32*	*32*	*170*	*32*	*32*	*50.0*	8	*25(23)*	GCMN80○○-□□	1			

Dimensions in parentheses under maximum groove depth are for profiling inserts (RG type/RN chipbreakers).
Combine the insert with a holder such that the Seat Size matches. Refer to page F21-F22 for applicable inserts

See GNDL-JX (holders for small lathes) on page F23

N·m Recommended Tightening Torque (N·m) Recommended Cutting Conditions F14 & F15 ★: Worldwide Warehouse Item ●: USA Stocked Item

GNDL-J / GNDLS

External Deep Grooving and Cut-Off GND with Internal Coolant

External | Internal Coolant

GNDL-J

External Grooving

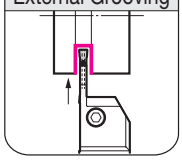


Fig 1

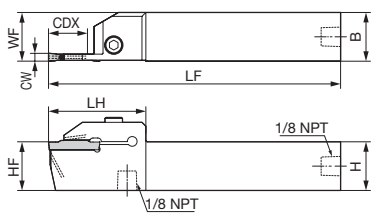


Figure shows right hand (R) tool.

Fig 2

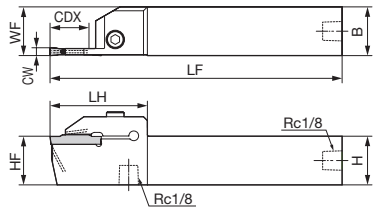


Figure shows right hand (R) tool.

Holder | Parts | Dimensions (inch/ *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Seat Size	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Insert Wrench	Plug	Wrench
Inch	**GNDL R/L 122K-075J**	●	●	.750	.750	5.000	.750	.750	1.752	2	.750	GC□□20○○-□□	1	BX0520	5.0	—	XP03	LH040
	GNDL R/L 123K-075J	●	●	.750	.750	5.000	.750	.750	1.752	3	.750	GC□□3○○○-□□	1					
	GNDL R/L 124K-100J	●	●	.750	.750	5.000	.750	.750	1.969	4	1.000	GC□□40○○-□□	1					
	GNDL R/L 125K-100J	●	●	.750	.750	5.000	.750	.750	1.969	5	1.000	GC□N5○○○-□□	1					
	GNDL R/L 126K-100J	●	●	.750	.750	5.000	.750	.750	1.969	6	1.000	GC□N6○○○-□□	1					
	GNDL R/L 162K-075J	●	●	1.000	1.000	5.000	1.000	1.000	1.752	2	.750	GC□□20○○-□□	1	BX0520	5.0	—	XP03	LH040
	GNDL R/L 163K-075J	●	●	1.000	1.000	5.000	1.000	1.000	1.752	3	.750	GC□□3○○○-□□	1					
	GNDL R/L 164K-100J	●	●	1.000	1.000	5.000	1.000	1.000	1.969	4	1.000	GC□□40○○-□□	1					
	GNDL R/L 165K-100J	●	●	1.000	1.000	5.000	1.000	1.000	1.969	5	1.000	GC□N5○○○-□□	1					
	GNDL R/L 166K-100J	●	●	1.000	1.000	5.000	1.000	1.000	1.969	6	1.000	GC□N6○○○-□□	1					
Metric	**GNDL R/L 2020K-220J**	★	★	*20*	*20*	*125*	*20*	*20*	*44.5*	2	*20(18)*	GC□□20○○-□□	2	BX0520	5.0	—	XP02	LH040
	GNDL R/L 2020K-320J	★	★	*20*	*20*	*125*	*20*	*20*	*44.5*	3	*20(18)*	GC□□3○○○-□□	2					
	GNDL R/L 2020K-425J	★	★	*20*	*20*	*125*	*20*	*20*	*50*	4	*25(23)*	GC□□40○○-□□	2					
	GNDL R/L 2020K-525J	★	★	*20*	*20*	*125*	*20*	*20*	*50*	5	*25(23)*	GC□N5○○○-□□	2					
	GNDL R/L 2020K-625J	★	★	*20*	*20*	*125*	*20*	*20*	*50*	6	*25(23)*	GC□N6○○○-□□	2					
	GNDL R/L 2525K-220J	★	★	*25*	*25*	*125*	*25*	*25*	*44.5*	2	*20(18)*	GC□□20○○-□□	2	BX0520	5.0	—	XP02	LH040
	GNDL R/L 2525K-320J	★	★	*25*	*25*	*125*	*25*	*25*	*44.5*	3	*20(18)*	GC□□3○○○-□□	2					
	GNDL R/L 2525K-425J	★	★	*25*	*25*	*125*	*25*	*25*	*50*	4	*25(23)*	GC□□40○○-□□	2					
	GNDL R/L 2525K-525J	★	★	*25*	*25*	*125*	*25*	*25*	*50*	5	*25(23)*	GC□N5○○○-□□	2					
	GNDL R/L 2525K-625J	★	★	*25*	*25*	*125*	*25*	*25*	*50*	6	*25(23)*	GC□N6○○○-□□	2					

Combine the insert with a holder such that the Seat Size matches. Refer to page F21-F22 for applicable inserts. Dimensions in parentheses under maximum groove depth are for profiling inserts (RG type/RN type chipbreakers). See page F29 for GND-J parts and connecting method

External L-Styled (Side Cut) Grooving GND

External

GNDLS

External Grooving

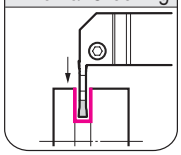


Fig 1

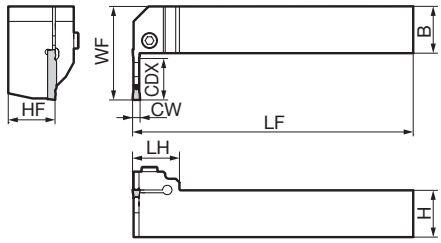


Figure shows right hand (R) tool.

Holder | Parts | Dimensions (inch/ *mm*)

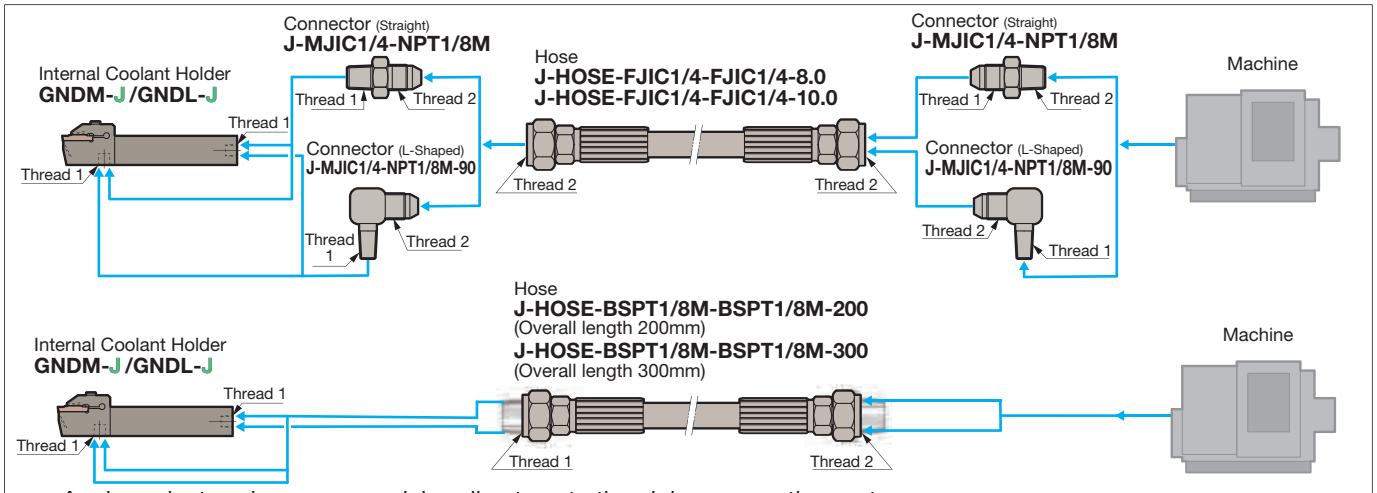
	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Seat Size	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Wrench
Inch	**GNDLS R/L 122K-060**	●	●	.750	.750	5.000	1.459	.750	–	2	.600	GC□□20○○-□□	1	BX0520	5.0	LH040
	GNDLS R/L 123K-060	●	●	.750	.750	5.000	1.459	.750	–	3	.600	GC□□3○○○-□□	1			
	GNDLS R/L 124K-070	●	●	.750	.750	5.000	1.787	.750	–	4	.700	GC□□40○○-□□	1			
	GNDLS R/L 162M-070	●	●	1.000	1.000	6.000	1.787	1.000	–	2	.700	GC□□20○○-□□	1	BX0520	5.0	LH040
	GNDLS R/L 163M-070	●	●	1.000	1.000	6.000	1.787	1.000	–	3	.700	GC□□3○○○-□□	1			
	GNDLS R/L 164M-090	●	●	1.000	1.000	6.000	1.984	1.000	–	4	.900	GC□□40○○-□□	1			
	GNDLS R/L 165M-090	●	●	1.000	1.000	6.000	1.984	1.000	–	5	.900	GC□N5○○○-□□	1			
	GNDLS R/L 166M-090	●	●	1.000	1.000	6.000	1.984	1.000	–	6	.900	GC□N6○○○-□□	1			
Metric	**GNDLS R/L 2020K-216**	★	★	*20*	*20*	*125*	*38*	*20*	*25*	2	*16*	GC□□20○○-□□	1	BX0520	5.0	LH040
	GNDLS R/L 2020K-316	★	★	*20*	*20*	*125*	*38*	*20*	*25*	3	*16*	GC□□30○○-□□	1			
	GNDLS R/L 2525M-218	★	★	*25*	*25*	*150*	*45*	*25*	*25*	2	*18*	GC□□20○○-□□	1	BX0520	5.0	LH040
	GNDLS R/L 2525M-318	★	★	*25*	*25*	*150*	*45*	*25*	*25*	3	*18*	GC□□3○○○-□□	1			
	GNDLS R/L 2525M-423	★	★	*25*	*25*	*150*	*50*	*25*	*25*	4	*23*	GC□□40○○-□□	1			
	GNDLS R/L 2525M-523	★	★	*25*	*25*	*150*	*50*	*25*	*25*	5	*23*	GC□N5○○○-□□	1			
	GNDLS R/L 2525M-623	★	★	*25*	*25*	*150*	*50*	*25*	*25*	6	*23*	GC□N6○○○-□□	1			

Combine the insert with a holder such that the Seat Size matches. Refer to page F21-F22 for applicable inserts

N·m Recommended Tightening Torque (N·m) | Recommended Cutting Conditions ☞ F14 & F15 | ★: Worldwide Warehouse Item | ●: USA Stocked Item

GND-J - Parts and Connection Methods

Piping Method for Hoses and Connectors



- Apply sealant such as commercial sealing tape to the piping connection parts.
- GNDM-J / GNDL-J holders have a plug (XP0_) mounted on the holder back end at shipping. (See Fig. 1)
  When piping from the holder back end, mount a plug (XP0_) on the bottom of the holder for use. (See Fig. 2)

Fig. 1 Piping from bottom (at shipping)

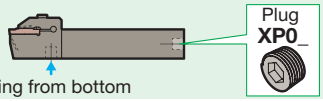
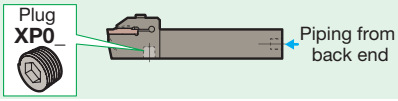


Fig. 2
Piping from back end



Parts (Plugs)

Dimensions (mm)

Cat. No.	Stock	Description	Thread Pitch
XP02	★	Plug	BSPT 1/8”
XP03	★	Plug	NPT 1/8”

Connectors are sold separately.

Parts (Cap Screw/ Wrench)

Dimensions (*mm*)

Cat. No.	Stock	Description	Wrench Size
BX0520	●	Cap Screw	*5mm Hex*
LH040	●	Wrench	*5mm Hex*

Connectors are sold separately.

Fig 1

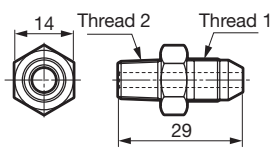
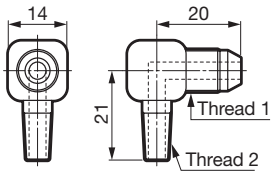


Fig 2



Hoses

Fig 1

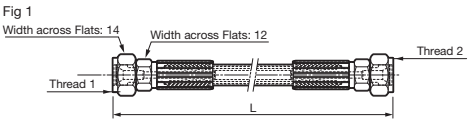
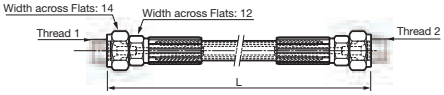


Fig 2



Parts (Hose)

Dimensions (inch / *mm*)

Cat. No.	Stock	L	End 1	End 2	Fig
J-HOSE-BSPT1/8M-BSPT1/8M-200	●	*200*	BSPT1/8M	BSPT1/8 M	2
J-HOSE-BSPT1/8M-BSPT1/8M-300	●	*300*	BSPT1/8M	BSPT1/8 M	2
J-HOSE-FJIC1/4-FJIC1/4-8.0	●	8.0	FJIC 1/4	FJIC 1/4	1
J-HOSE-FJIC1/4-FJIC1/4-10.0	●	10.0	FJIC 1/4	FJIC 1/4	1
J-HOSE-5/16-24M-5/16-24M-9.0	●	9.0	5/16-24M	5/16-24M	2
J-HOSE-M8X1M-M8X1M-9.0	●	9.0	M8X1 M	M8X1 M	2
J-HOSE-BSPP1/8M-BSPP1/8M-9.0	●	9.0	BSPP1/8 M	BSPP1/8 M	2

Hoses are sold separately.

Parts (Connector)

Dimensions (*mm*)

Cat. No.	Stock	Angle	Thread 1	Thread 2	Fig
J-MJIC1/4-NPT1/8M	★	0°	MJIC1/4	NPT1/8 M	1
J-MJIC1/4-NPT1/8M-90	●	90°	MJIC 1/4	NPT1/8 M	2
J-FJIC1/4-BSPT1/8M	★	0°	FJIC1/4	BSPT1/8 M	1
J-MJIC1/4-5/16-24M	★	0°	MJIC1/4	5/16-24 M	1
J-MJIC1/4-M8X1M	★	0°	MJIC1/4	M8 X 1 M	1
J-MJIC1/4-BSPP1/8M	★	0°	MJIC1/4	BSPP1/8 M	1
J-MJIC1/4-BSPT1/8M	★	0°	MJIC1/4	BSPT1/8 M	1
J-MJIC1/4-5/16-24M-90	★	90°	MJIC1/4	5/16-24 M	2
J-MJIC1/4-BSPP1/8M-90	★	90°	MJIC1/4	BSPP1/8 M	2
J-MJIC1/4-NPT1/8F	★	0°	MJIC1/4	NPT1/8F	3
J-G1/8-R1/8-00	★	0°	G1/8	R1/8	1
J-G1/8-R1/8-90	★	90°	G1/8	R1/8	2
J-NPT1/8-G1/8-00	★	0°	NPT1/8	G1/8	1
J-NPT1/8-R1/8-00	★	0°	NPT1/8	R1/8	1

Fig 2

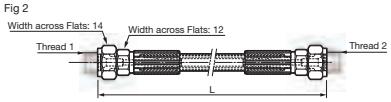
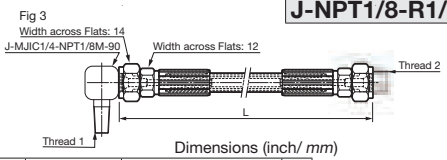


Fig 3



Parts (Hose Assembly)

Dimensions (inch/ *mm*)

Cat. No.	Stock	L	Thread 1	Thread 2	Fig
J-ASSY-NPT1/8M-NPT1/8M-90-8.0*	●	8.0	NPT1/8M	NPT1/8 M (90deg)	3
J-ASSY-NPT1/8M-NPT1/8M-90-10.0*	●	10.0	NPT1/8M	NPT1/8 M (90deg)	3
J-HOSE-G1/8-G1/8-200	●	*200*	G1/8	G1/8	2
J-HOSE-G1/8-G1/8-300	●	*300*	G1/8	G1/8	2
J-HOSE-MJIC1/4-NPT1/8-10.0	●	10.0	MJIC1/4	NPT1/8	2
J-HOSE-MJIC1/4-NPT1/8-8.0	●	8.0	MJIC1/4	NPT1/8	2
J-HOSE-R1/8-G1/8-200	●	*200*	R1/8	G1/8	2
J-HOSE-R1/8-G1/8-300	●	*300*	R1/8	G1/8	2

* Require separately sold MJIC Connectors to connect to holder or machine

N·m Recommended Tightening Torque (N·m) Recommended Cutting Conditions ☞ F14 & F15 ★: Worldwide Warehouse Item ●: USA Stocked Item

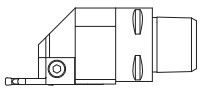
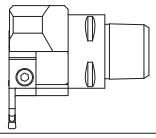
GND - Polygon Shank Style

Features and Benefits

- ISO Polygon shank holder
- Economic cassettes
- Compact and stable construction
- Repeatability of ± 2 µm interface
- Internal coolant supply directly from the holder to the cutting edge

PSC

Product Range - Holders

Application		Series	Shape	Grooving Width (mm) 2	3	4	5	6	Grooving Depth (mm)
External Grooving		PSC_0M00R/L Straight		2	3				12
						4	5	6	18
		PSC_0M90R/L L-Style		2	3				12
						4	5	6	18

Note: 2mm Grooving width - please use only for grooving, not for turning!

Identification Details - Polygon-Toolholder

PSC	40	-	G	M	00	R
Polygonshank	Shank Diameter (Ø D)		Series Symbol GND	Application External Multi-Purpose	Style 00 = Straight 90 = L-Style	Holder Design R = Right L = Left

Identification Details - Cassette

GND	C	M	L	3	12
Series Symbol GND	Cassette	Application External Multi-Purpose	Holder Design R = Right L = Left	Grooving Width	Max. Grooving Depth

Selection Chart

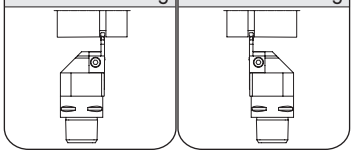
Cassette	Grooving Width (mm) 2	3	4	5	6	Max. Grooving Depth	Chipbreaker MG	ML	GG	GL	GF	RG	CG	GA
GNDCM R	■					12		○	○	○	○		○	○
GNDCM L	■						○	○	○	○	○		○	○
GNDCM R		■				12	○	○	○	○	○	○	○	○
GNDCM L		■					○	○	○	○	○	○	○	○
GNDCM R			■			18	○	○	○	○	○	○	○	○
GNDCM L			■				○	○	○	○	○	○	○	○
GNDCM R				■	■	18	○	○	○	○	○	○		○
GNDCM L				■	■		○	○	○	○	○	○		○

■ Stock ○ Recommendation

GND - Polygon Shank Style

External Multi-Purpose GND (Grooving, Turning, Profiling)

GNDCML	GNDCMR
External Grooving	External Grooving



Use for multi-purpose or profiling insert for turning (wide grooves).

Right handed Cassette goes with right handed holder

Left handed Cassette goes with left handed holder

Fig 1

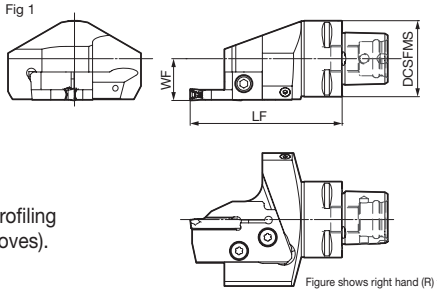
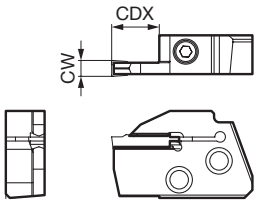


Figure shows right hand (R) tool.



Above figures show right hand tools.

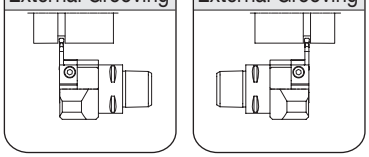
Dimensions (*mm*)

	Catalog Number	Stock		Seat Size CW	Grooving Depth CDX	Applicable Insert	Cap Screw	Tightening Torque (N·m)	Wrench
Cassette (R/L)	**GNDCM R/L 212**	★	★	*2*	*12*	GCM □ 20○○-□□	BX0512	5.0	LH040
	GNDCM R/L 312	★	★	*3*	*12*	GCM □ 3○○○-□□			
	GNDCM R/L 418	★	★	*4*	*18*	GCM □ 40○○-□□		6.0	
	GNDCM R/L 518	★	★	*5*	*18*	GCM □ 5○○○-□□			
	GNDCM R/L 618	★	★	*6*	*18*	GCM □ 6○○○-□□			

	Catalog Number	Stock		B	WF	LH	Torx Screw	Tightening Torque (N·m)	Wrench
Holder (R/L)	**PSC40GM00 R/L**	★	★	*40*	*22*	*80*	BFTX0619N	7.5	TRD25
	PSC50GM00 R/L	★	★	*50*	*27*	*80*			
	PSC63GM00 R/L	★	★	*63*	*33*	*80*			

External Multi-Purpose GND (Grooving, Turning, Profiling)

GNDCML	GNDCMR
External Grooving	External Grooving



Use for multi-purpose or profiling insert for turning (wide grooves).

Right handed Cassette goes with left handed holder

Left handed Cassette goes with right handed holder

Fig 1

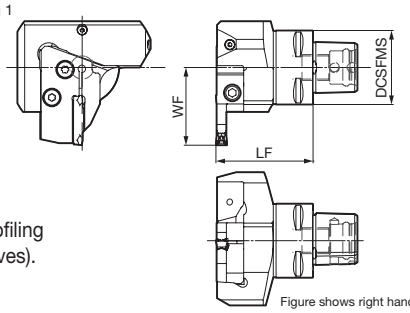
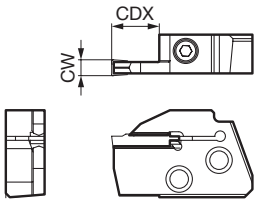


Figure shows right hand (R) tool.



Above figures show right handed holder with a left handed cassette.

Dimensions (*mm*)

	Catalog Number	Stock		Seat Size CW	Grooving Depth CDX	Applicable Insert	Cap Screw	Tightening Torque (N·m)	Wrench
Cassette (R/L)	**GNDCM L/R 212**	★	★	*2*	*12*	GCM □ 20○○-□□	BX0512	5.0	LH040
	GNDCM L/R 312	★	★	*3*	*12*	GCM □ 3○○○-□□			
	GNDCM L/R 418	★	★	*4*	*18*	GCM □ 40○○-□□		6.0	
	GNDCM L/R 518	★	★	*5*	*18*	GCM □ 5○○○-□□			
	GNDCM L/R 618	★	★	*6*	*18*	GCM □ 6○○○-□□			

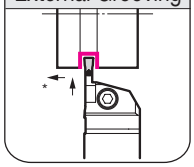
	Catalog Number	Stock		B	WF	LH	Torx Screw	Tightening Torque (N·m)	Wrench
Holder (R/L)	**PSC40GM90 R/L**	★	★	*40*	*42*	*52.5*	BFTX0619N	7.5	TRD25
	PSC50GM90 R/L	★	★	*50*	*47*	*55*			
	PSC63GM90 R/L	★	★	*63*	*54*	*57*			

GNDS / GNDN

External Multi-Purpose GND for Shallow Grooves (Grooving, Traverse Cutting, Profiling)

* For traverse cutting (groove expansion), use a multifunctional insert for profiling.

GNDS
External Grooving



External

Fig 1

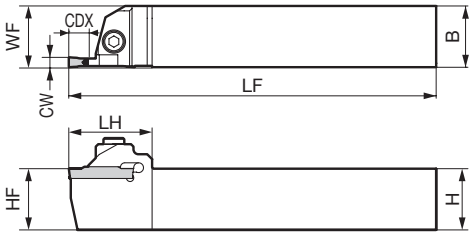


Figure shows right hand (R) tool.

Holder / Parts

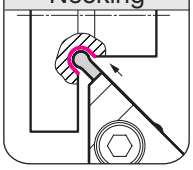
Dimensions (mm)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Seat Size CW	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Wrench
GNDS R/L 2020K-206	★	★	20	20	125	20	20	30	2	6	GC□□20○○-□□	1	BX0520	5.0	LH040
GNDS R/L 2020K-306	★	★	20	20	125	20	20	30	3	6	GC□□3○○○-□□	1			
GNDS R/L 2020K-410	★	★	20	20	125	20	20	34	4	10	GC□□40○○-□□	1			
GNDS R/L 2020K-510	★	★	20	20	125	20	20	34	5	10	GC□N5○○○-□□	1			
GNDS R/L 2020K-610	★	★	20	20	125	20	20	34	6	10	GC□N6○○○-□□	1			
GNDS R/L 2525M-206	★	★	25	25	150	25	25	30	2	6	GC□□20○○-□□	1	BX0520	5.0	LH040
GNDS R/L 2525M-306	★	★	25	25	150	25	25	30	3	6	GC□□3○○○-□□	1			
GNDS R/L 2525M-410	★	★	25	25	150	25	25	34	4	10	GC□□40○○-□□	1			
GNDS R/L 2525M-510	★	★	25	25	150	25	25	34	5	10	GC□N5○○○-□□	1			
GNDS R/L 2525M-610	★	★	25	25	150	25	25	34	6	10	GC□N6○○○-□□	1			

Combine the insert with a holder such that the width of cut (CW) matches. Refer to page F21-F22 for applicable inserts.

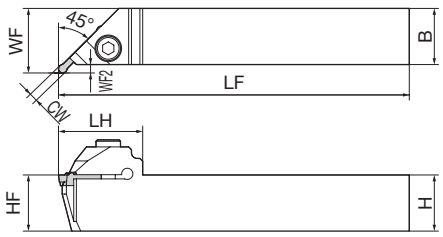
GND for Necking

GNDN
Necking



Necking

Fig 1



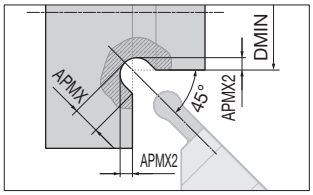


Figure shows right hand (R) tool.

Holder / Parts

Dimensions (mm)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Off Set WF2	Min. Work Diameter DMIN	Seat Size CW	APMX	APMX2	Applicable Insert	Fig	Cap Screw	N·m	Wrench
GNDN R/L 2020K-215-020	★	★	20	20	125	23	20	35	3.0	20	2	1.5	.64	GCMN2010-RN	1	BX0520	5.0	LH040
GNDN R/L 2020K-320-020	★	★	20	20	125	23	20	35	3.0	20	3	2.0	.79	GCMN3015-RN	1			
GNDN R/L 2020K-430-030	★	★	20	20	125	24	20	37	4.0	30	4	3.0	1.29	GCMN4020-RN	1			
GNDN R/L 2020K-535-030	★	★	20	20	125	25	20	40	5.0	30	5	3.5	1.44	GCMN5025-RN	1			
GNDN R/L 2020K-640-030	★	★	20	20	125	25	20	40	5.0	30	6	4.0	1.59	GCMN6030-RN	1			
GNDN R/L 2525M-215-020	★	★	25	25	150	28	25	35	3.0	20	2	1.5	.64	GCMN2010-RN	1	BX0520	5.0	LH040
GNDN R/L 2525M-320-020	★	★	25	25	150	28	25	35	3.0	20	3	2.0	.79	GCMN3015-RN	1			
GNDN R/L 2525M-430-030	★	★	25	25	150	29	25	37	4.0	30	4	3.0	1.29	GCMN4020-RN	1			
GNDN R/L 2525M-535-030	★	★	25	25	150	30	25	40	5.0	30	5	3.5	1.44	GCMN5025-RN	1			
GNDN R/L 2525M-640-030	★	★	25	25	150	30	25	40	5.0	30	6	4.0	1.59	GCMN6030-RN	1			

Combine the insert with a holder such that the width of cut (CW) matches. See page F16 for Key Points for Necking

GNDN Insert

Profiling / Radius Grooving / Necking

Fig 1

Dimensions (Inch / mm)

Appearance	Cat. No.	AC5015S	AC5025S	AC520U	AC530U	AC425K	AC8025P	AC8035P	AC830P	Seat Size CW: Seat Size	Seat Size CW: Grooving Width	Seat Size CW: Tolerance	Nose Radius RE	Overall Length L	Thickness S	Pcs /Pack	Fig
RN	GCMN2010-RN	●	●	●	●					2.0	.078	±.0012	.0394	.854	.142	5	1
	GCMN3015-RN	●	●	●	●	●	★	★	●	3.0	.118	±.0012	.0590	.882	.150		1
	GCMN4020-RN		●	●	●	●	★	★	●	4.0	.157	±.0012	.0785	1.102	.157		1
	GCMN5025-RN		★	●	●	●	★	★	●	5.0	.197	±.0012	.0985	1.106	.161		1
General-Purpose	GCMN6030-RN		●	●	●	●	●	★	●	6.0	.236	±.0012	.1181	1.106	.177		1

Identification Code

GND N R 20 20 K - 2 15 - 020

Series; Application Symbol: Necking; Feed Direction; Shank Height (mm); Shank Width (mm); Shank Length; Seat Size (mm); APMX ×10 (mm); Min. bore diameter (mm)

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions F14 & F15

★: Worldwide Warehouse Item

GNDXL

GND for External Deep Grooving and Parting

New

External

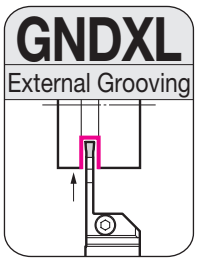


Fig 1

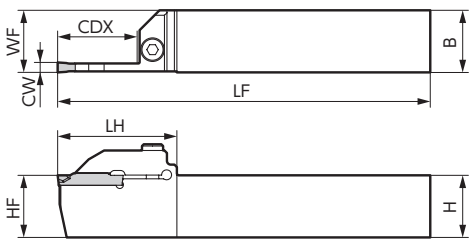


Figure shows right hand (R) tool.

Holder / Parts

Dimensions (Inch / *mm*)

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Seat Size CW	Max. Groove Depth CDX	Maximum Cut-off Diameter	Applicable Insert	Fig	Cap Screw	N·m	Wrench
Inch	**GNDXL R/L 122K-100**			0.750	0.750	5.000	0.750	0.750	1.654	*2*	1.000	2.000	GCMN2002-GF1	1	BX0520	5.0	LH040
	GNDXL R/L 123K-125	●	●	0.750	0.750	5.000	0.750	0.750	1.890	*3*	1.250	2.500	GCMN30○○-□□1	1			
	GNDXL R/L 124K-125	●	●	0.750	0.750	5.000	0.750	0.750	1.890	*4*	1.250	2.500	GCMN40○○-□□1	1			
	GNDXL R/L 125K-125	●	●	0.750	0.750	5.000	0.750	0.750	1.890	*5*	1.250	2.500	GCMN50○○-□□1	1			
	GNDXL R/L 126K-125	●	●	0.750	0.750	5.000	0.750	0.750	1.890	*6*	1.250	2.500	GCMN60○○-□□1	1			
	GNDXL R/L 162M-100			1.000	1.000	6.000	1.000	1.000	1.654	*2*	1.000	2.000	GCMN2002-GF1	1	BX0520	5.0	LH040
	GNDXL R/L 163M-125	●	●	1.000	1.000	6.000	1.000	1.000	1.890	*3*	1.250	2.500	GCMN30○○-□□1	1			
	GNDXL R/L 164M-125	●	●	1.000	1.000	6.000	1.000	1.000	1.890	*4*	1.250	2.500	GCMN40○○-□□1	1			
	GNDXL R/L 165M-125	●	●	1.000	1.000	6.000	1.000	1.000	1.890	*5*	1.250	2.500	GCMN50○○-□□1	1			
	GNDXL R/L 166M-125	●	●	1.000	1.000	6.000	1.000	1.000	1.890	*6*	1.250	2.500	GCMN60○○-□□1	1			
Metric	**GNDXL R/L 2020K-226**			*20*	*20*	*125*	*20*	*20*	*42.0*	*2*	*26*	*52*	GCM N2002-GF1	1	BX0520	5.0	LH040
	GNDXL R/L 2020K-332	★	★	*20*	*20*	*125*	*20*	*20*	*48.0*	*3*	*32*	*64*	GCM N30○○-□□1	1			
	GNDXL R/L 2020K-432	★	★	*20*	*20*	*125*	*20*	*20*	*48.0*	*4*	*32*	*64*	GCM N40○○-□□1	1			
	GNDXL R/L 2020K-532	★	★	*20*	*20*	*125*	*20*	*20*	*48.0*	*5*	*32*	*64*	GCM N50○○-□□1	1			
	GNDXL R/L 2020K-632	★	★	*20*	*20*	*125*	*20*	*20*	*48.0*	*6*	*32*	*64*	GCM N60○○-□□1	1			
	GNDXL R/L 2525M-226			*25*	*25*	*150*	*25*	*25*	*42.0*	*2*	*26*	*52*	GCM N2002-GF1	1	BX0520	5.0	LH040
	GNDXL R/L 2525M-332	★	★	*25*	*25*	*150*	*25*	*25*	*48.0*	*3*	*32*	*64*	GCM N30○○-□□1	1			
	GNDXL R/L 2525M-432	★	★	*25*	*25*	*150*	*25*	*25*	*48.0*	*4*	*32*	*64*	GCM N40○○-□□1	1			
	GNDXL R/L 2525M-532	★	★	*25*	*25*	*150*	*25*	*25*	*48.0*	*5*	*32*	*64*	GCM N50○○-□□1	1			
	GNDXL R/L 2525M-632	★	★	*25*	*25*	*150*	*25*	*25*	*48.0*	*6*	*32*	*64*	GCM N60○○-□□1	1			

Use the same combination of insert and holder edge width CW. Only one corner insert is available. The maximum groove depth CDX is the value for grooving.

GNDXL Insert (1 Corner)

Fig 1

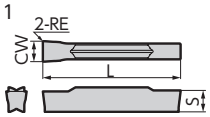
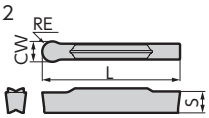


Fig 2



Grooving / Traversing (1 corner)

Dimensions (Inch / *mm*)

Cat. No.	AC5015S	AC5025S	AC530U	Seat Size CW: Seat Size	Grooving Width	Tolerance	Nose Radius RE	Overall Length L	Thickness S	Pcs /Pack	Fig
GCMN3002-ML1	●	●	●	*3.0*	.118	±.0012	.0079	.8307	.1496	5	1
GCMN4004-ML1	●	●	●	*4.0*	.157	±.0012	.0156	1.0394	.1575		1
GCMN5004-ML1	●	●	●	*5.0*	.197	±.0012	.0156	1.0394	.1614		1
GCMN6004-ML1	●	●	●	*6.0*	.236	±.0012	.0156	1.0394	.1772		1

Radius Grooving / Necking (1 corner)

Dimensions (Inch / *mm*

Cat. No.	AC5015S	AC5025S	AC530U	Seat Size CW: Seat Size	Grooving Width	Tolerance	Nose Radius RE	Overall Length L	Thickness S	Pcs /Pack	Fig
GCMN3015-RN1	●	●	●	*3.0*	.118	±.0012	.0591	*.8819*	.1496	5	2
GCMN6030-RN1	●	●	●	*6.0*	.236	±.0012	.1181	*1.1063*	.1772		2

Grooving and Parting (1 corner)

Dimensions (Inch / *mm*)

Cat. No.	AC5015S	AC5025S	AC530U	Seat Size CW: Seat Size	Grooving Width	Tolerance	Nose Radius RE	Overall Length L	Thickness S	Pcs /Pack	Fig
GCMN2002-GF1				*2.0*	.078	±.0012	.0079	.8307	.1417	5	1
GCMN3002-GF1	●	●	●	*3.0*	.118	±.0012	.0079	.8307	.1496		1
GCMN4002-GF1	●	●	●	*4.0*	.157	±.0012	.0079	1.0394	.1575		1
GCMN5002-GF1	●	●	●	*5.0*	.197	±.0012	.0079	1.0394	.1614		1
GCMN6002-GF1	●	●	●	*6.0*	.236	±.0012	.0079	1.0394	.1772		1

Use the same combination of insert and holder edge width CW. Please use in combination with the GNDXL holder. Cannot be used with the GNDIS holder.

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions F14 & F15

★: Worldwide Warehouse Item ●: USA Stocked Item

GNDF - Inch

GND for Face Grooving

Facing

* For traverse cutting (groove expansion), use a multifunctional insert for profiling.

GNDF

Face Grooving

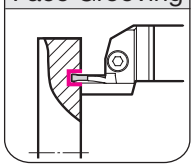
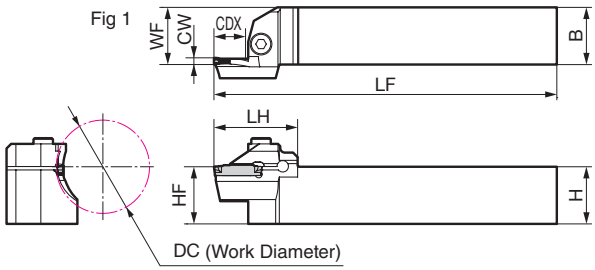
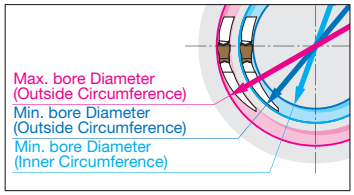


Fig 1





Holder

Figure shows right hand (R) tool.

Parts Dimensions (Inch)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Work Diameter DC	Seat Size CW	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Wrench
GNDF R/L 123K-050-035	●	●	.750	.750	5.000	.750	.750	1.402	1.378 - 1.772	3.0	.500	GC□N3○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 123K-050-040	●	●	.750	.750	5.000	.750	.750	1.402	1.575 - 2.165	3.0	.500		1			
GNDF R/L 123K-070-050	●	●	.750	.750	5.000	.750	.750	1.638	1.969 - 2.756	3.0	.700		1			
GNDF R/L 123K-070-065	●	●	.750	.750	5.000	.750	.750	1.638	2.559 - 3.937	3.0	.700		1			
GNDF R/L 123K-070-090	●	●	.750	.750	5.000	.750	.750	1.638	3.543 - 5.906	3.0	.700		1			
GNDF R/L 123K-070-140	●	●	.750	.750	5.000	.750	.750	1.638	5.512 - 7.874	3.0	.700		1			
GNDF R/L 123K-070-180	●	●	.750	.750	5.000	.750	.750	1.638	7.087 - 11.811	3.0	.700		1			
GNDF R/L 124K-070-040	●	●	.750	.750	5.000	.750	.750	1.638	1.575 - 2.165	4.0	.700	GC□N40○○-□□	1	BX0520	5.0	LH040
GNDF R/L 124K-090-050	●	●	.750	.750	5.000	.750	.750	1.835	1.969 - 2.756	4.0	.900		1			
GNDF R/L 124K-090-065	●	●	.750	.750	5.000	.750	.750	1.835	2.559 - 3.543	4.0	.900		1			
GNDF R/L 124K-090-085	●	●	.750	.750	5.000	.750	.750	1.835	3.346 - 5.118	4.0	.900		1			
GNDF R/L 124K-090-125	●	●	.750	.750	5.000	.750	.750	1.835	4.921 - 7.874	4.0	.900		1			
GNDF R/L 124K-090-180	●	●	.750	.750	5.000	.750	.750	1.835	7.087 - 11.811	4.0	.900		1			
GNDF R/L 124K-090-280	●	●	.750	.750	5.000	.750	.750	1.835	11.024 - 39.370	4.0	.900		1			
GNDF R/L 125K-090-050	●	●	.750	.750	5.000	.750	.750	1.835	1.969 - 2.756	5.0	.900	GC□N5○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 125K-090-065	●	●	.750	.750	5.000	.750	.750	1.835	2.559 - 3.543	5.0	.900		1			
GNDF R/L 125K-090-085	●	●	.750	.750	5.000	.750	.750	1.835	3.346 - 5.118	5.0	.900		1			
GNDF R/L 125K-090-125	●	●	.750	.750	5.000	.750	.750	1.835	4.921 - 7.874	5.0	.900		1			
GNDF R/L 125K-090-180	●	●	.750	.750	5.000	.750	.750	1.835	7.087 - 11.811	5.0	.900		1			
GNDF R/L 125K-090-280	●	●	.750	.750	5.000	.750	.750	1.835	11.024 - 39.370	5.0	.900		1			
GNDF R/L 126K-090-050	●	●	.750	.750	5.000	.750	.750	1.835	1.969 - 2.953	6.0	.900	GC□N6○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 126K-090-070	●		.750	.750	5.000	.750	.750	1.835	2.756 - 4.331	6.0	.900		1			
GNDF R/L 126K-090-100	●		.750	.750	5.000	.750	.750	1.835	3.397 - 7.874	6.0	.900		1			
GNDF R/L 126K-090-180	●		.750	.750	5.000	.750	.750	1.835	7.087 - 11.811	6.0	.900		1			
GNDF R/L 126K-090-280	●		.750	.750	5.000	.750	.750	1.835	11.024 - 39.370	6.0	.900		1			
GNDF R/L 163M-050-035	●	●	1.000	1.000	6.000	1.000	1.000	1.402	1.378 - 1.772	3.0	.500	GC□N3○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 163M-050-040	●	●	1.000	1.000	6.000	1.000	1.000	1.402	1.575 - 2.165	3.0	.500		1			
GNDF R/L 163M-070-050	●	●	1.000	1.000	6.000	1.000	1.000	1.638	1.969 - 2.756	3.0	.700		1			
GNDF R/L 163M-070-065	●	●	1.000	1.000	6.000	1.000	1.000	1.638	2.559 - 3.937	3.0	.700		1			
GNDF R/L 163M-070-090	●	●	1.000	1.000	6.000	1.000	1.000	1.638	3.543 - 5.906	3.0	.700		1			
GNDF R/L 163M-070-140	●	●	1.000	1.000	6.000	1.000	1.000	1.638	5.512 - 7.874	3.0	.700		1			
GNDF R/L 163M-070-180	●	●	1.000	1.000	6.000	1.000	1.000	1.638	7.087 - 11.811	3.0	.700		1			
GNDF R/L 164M-070-040	●	●	1.000	1.000	6.000	1.000	1.000	1.638	1.575 - 2.165	4.0	.700	GC□N40○○-□□	1	BX0520	5.0	LH040
GNDF R/L 164M-090-050	●	●	1.000	1.000	6.000	1.000	1.000	1.835	1.969 - 2.756	4.0	.900		1			
GNDF R/L 164M-090-065	●	●	1.000	1.000	6.000	1.000	1.000	1.835	2.559 - 3.543	4.0	.900		1			
GNDF R/L 164M-090-085	●	●	1.000	1.000	6.000	1.000	1.000	1.835	3.346 - 5.118	4.0	.900		1			
GNDF R/L 164M-090-125	●	●	1.000	1.000	6.000	1.000	1.000	1.835	4.921 - 7.874	4.0	.900		1			
GNDF R/L 164M-090-180	●	●	1.000	1.000	6.000	1.000	1.000	1.835	7.087 - 11.811	4.0	.900		1			
GNDF R/L 164M-090-280	●	●	1.000	1.000	6.000	1.000	1.000	1.835	11.024 - 39.370	4.0	.900		1			
GNDF R/L 165M-090-050	●	●	1.000	1.000	6.000	1.000	1.000	1.835	1.969 - 2.756	5.0	.900	GC□N5○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 165M-090-065	●	●	1.000	1.000	6.000	1.000	1.000	1.835	2.559 - 3.543	5.0	.900		1			
GNDF R/L 165M-090-085	●	●	1.000	1.000	6.000	1.000	1.000	1.835	3.346 - 5.118	5.0	.900		1			
GNDF R/L 165M-090-125	●	●	1.000	1.000	6.000	1.000	1.000	1.835	4.921 - 7.874	5.0	.900		1			
GNDF R/L 165M-090-180	●	●	1.000	1.000	6.000	1.000	1.000	1.835	7.087 - 11.811	5.0	.900		1			
GNDF R/L 165M-090-280	●	●	1.000	1.000	6.000	1.000	1.000	1.835	11.024 - 39.370	5.0	.900		1			
GNDF R/L 166M-090-050	●	●	1.000	1.000	6.000	1.000	1.000	1.835	1.969 - 2.953	6.0	.900	GC□N6○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 166M-090-070	●	●	1.000	1.000	6.000	1.000	1.000	1.835	2.756 - 4.331	6.0	.900		1			
GNDF R/L 166M-090-100	●	●	1.000	1.000	6.000	1.000	1.000	1.835	3.937 - 7.874	6.0	.900		1			
GNDF R/L 166M-090-180	●	●	1.000	1.000	6.000	1.000	1.000	1.835	7.087 - 11.811	6.0	.900		1			
GNDF R/L 166M-090-280	●	●	1.000	1.000	6.000	1.000	1.000	1.835	11.024 - 39.370	6.0	.900		1			

Combine the insert with a holder such that the width of cut (CW) matches. Refer to page F21-F22 for applicable inserts.

N·m Recommended Tightening Torque (N·m) Recommended Cutting Conditions ☞F14 & F15 ★: Worldwide Warehouse Item ●: USA Stocked Item

GNDF - Metric

GND for Face Grooving

Facing

* For traverse cutting (groove expansion), use a multifunctional insert for profiling.

GNDF

Face Grooving

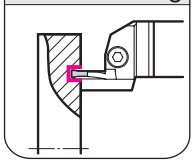
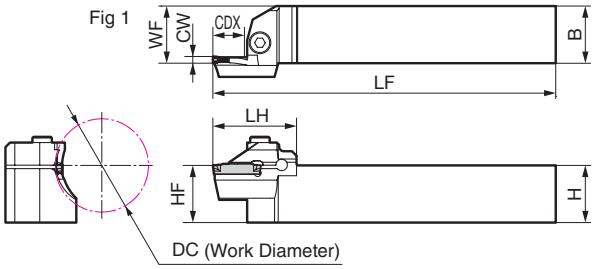
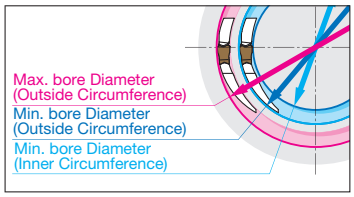


Fig 1





Holder

Figure shows right hand (R) tool.

Parts Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Work Diameter DC	Seat Size CW	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw	N·m	Wrench
GNDF R/L 2020K-312-035	★	★	20	20	125	20	20	35.6	35 to 45	3.0	12	GC□N3○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 2020K-312-040	★	★	20	20	125	20	20	35.6	40 to 55	3.0	12		1			
GNDF R/L 2020K-318-050	★	★	20	20	125	20	20	41.6	50 to 70	3.0	18		1			
GNDF R/L 2020K-318-065	★	★	20	20	125	20	20	41.6	65 to 100	3.0	18		1			
GNDF R/L 2020K-318-090	★	★	20	20	125	20	20	41.6	90 to 150	3.0	18		1			
GNDF R/L 2020K-318-140	★	★	20	20	125	20	20	41.6	140 to 200	3.0	18		1			
GNDF R/L 2020K-318-180	★	★	20	20	125	20	20	41.6	180 to 300	3.0	18		1			
GNDF R/L 2020K-418-040	★	★	20	20	125	20	20	41.6	40 to 55	4.0	18	GC□N40○○-□□	1	BX0520	5.0	LH040
GNDF R/L 2020K-423-050	★	★	20	20	125	20	20	46.6	50 to 70	4.0	23		1			
GNDF R/L 2020K-423-065	★	★	20	20	125	20	20	46.6	65 to 90	4.0	23		1			
GNDF R/L 2020K-423-085	★	★	20	20	125	20	20	46.6	85 to 130	4.0	23		1			
GNDF R/L 2020K-423-125	★	★	20	20	125	20	20	46.6	125 to 200	4.0	23		1			
GNDF R/L 2020K-423-180	★	★	20	20	125	20	20	46.6	180 to 300	4.0	23		1			
GNDF R/L 2020K-423-280	★	★	20	20	125	20	20	46.6	280 to 1000	4.0	23		1			
GNDF R/L 2020K-523-050	★	★	20	20	125	20	20	46.6	50 to 70	5.0	23	GC□N5○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 2020K-523-065	★	★	20	20	125	20	20	46.6	65 to 90	5.0	23		1			
GNDF R/L 2020K-523-085	★	★	20	20	125	20	20	46.6	85 to 130	5.0	23		1			
GNDF R/L 2020K-523-125	★	★	20	20	125	20	20	46.6	125 to 200	5.0	23		1			
GNDF R/L 2020K-523-180	★	★	20	20	125	20	20	46.6	180 to 300	5.0	23		1			
GNDF R/L 2020K-523-280	★	★	20	20	125	20	20	46.6	280 to 1000	5.0	23		1			
GNDF R/L 2020K-623-050	★	★	20	20	125	20	20	46.6	50 to 75	6.0	23	GC□N6○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 2020K-623-070	★	★	20	20	125	20	20	46.6	70 to 110	6.0	23		1			
GNDF R/L 2020K-623-100	★	★	20	20	125	20	20	46.6	100 to 200	6.0	23		1			
GNDF R/L 2020K-623-180	★	★	20	20	125	20	20	46.6	180 to 300	6.0	23		1			
GNDF R/L 2020K-623-280	★	★	20	20	125	20	20	46.6	280 to 1000	6.0	23		1			
GNDF R/L 2525M-312-035	★	★	25	25	150	25	25	35.6	35 to 45	3.0	12	GC□N3○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 2525M-312-040	★	★	25	25	150	25	25	35.6	40 to 55	3.0	12		1			
GNDF R/L 2525M-318-050	★	★	25	25	150	25	25	41.6	50 to 70	3.0	18		1			
GNDF R/L 2525M-318-065	★	★	25	25	150	25	25	41.6	65 to 100	3.0	18		1			
GNDF R/L 2525M-318-090	★	★	25	25	150	25	25	41.6	90 to 150	3.0	18		1			
GNDF R/L 2525M-318-140	★	★	25	25	150	25	25	41.6	140 to 200	3.0	18		1			
GNDF R/L 2525M-318-180	★	★	25	25	150	25	25	41.6	180 to 300	3.0	18		1			
GNDF R/L 2525M-418-040	★	★	25	25	150	25	25	41.6	40 to 55	4.0	18	GC□N40○○-□□	1	BX0520	5.0	LH040
GNDF R/L 2525M-423-050	★	★	25	25	150	25	25	46.6	50 to 70	4.0	23		1			
GNDF R/L 2525M-423-065	★	★	25	25	150	25	25	46.6	65 to 90	4.0	23		1			
GNDF R/L 2525M-423-085	★	★	25	25	150	25	25	46.6	85 to 130	4.0	23		1			
GNDF R/L 2525M-423-125	★	★	25	25	150	25	25	46.6	125 to 200	4.0	23		1			
GNDF R/L 2525M-423-180	★	★	25	25	150	25	25	46.6	180 to 300	4.0	23		1			
GNDF R/L 2525M-423-280	★	★	25	25	150	25	25	46.6	280 to 1000	4.0	23		1			
GNDF R/L 2525M-523-050	★	★	25	25	150	25	25	46.6	50 to 70	5.0	23	GC□N5○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 2525M-523-065	★	★	25	25	150	25	25	46.6	65 to 90	5.0	23		1			
GNDF R/L 2525M-523-085	★	★	25	25	150	25	25	46.6	85 to 130	5.0	23		1			
GNDF R/L 2525M-523-125	★	★	25	25	150	25	25	46.6	125 to 200	5.0	23		1			
GNDF R/L 2525M-523-180	★	★	25	25	150	25	25	46.6	180 to 300	5.0	23		1			
GNDF R/L 2525M-523-280	★	★	25	25	150	25	25	46.6	280 to 1000	5.0	23		1			
GNDF R/L 2525M-623-050	★	★	25	25	150	25	25	46.6	50 to 75	6.0	23	GC□N6○○○-□□	1	BX0520	5.0	LH040
GNDF R/L 2525M-623-070	★	★	25	25	150	25	25	46.6	70 to 110	6.0	23		1			
GNDF R/L 2525M-623-100	★	★	25	25	150	25	25	46.6	100 to 200	6.0	23		1			
GNDF R/L 2525M-623-180	★	★	25	25	150	25	25	46.6	180 to 300	6.0	23		1			
GNDF R/L 2525M-623-280	★	★	25	25	150	25	25	46.6	280 to 1000	6.0	23		1			

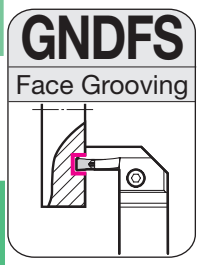
Combine the insert with a holder such that the width of cut (CW) matches. Refer to page F21-F22 for applicable inserts.

N·m Recommended Tightening Torque (N·m) Recommended Cutting Conditions F14 & F15 ★: Worldwide Warehouse Item ●: USA Stocked Item

GND for Face Grooving L-Styled (Non-Adjustable)

Facing

* For traverse cutting (groove expansion), use a multifunctional insert for profiling.



GNDFS PRODUCTS ARE MADE TO ORDER

Fig 1

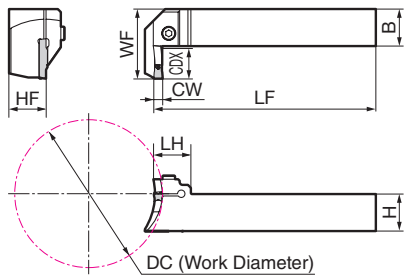
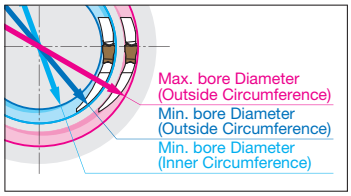


Figure shows right hand (R) tool.



Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Work Diameter DC	Seat Size CW	Max. Groove Depth CDX	Applicable Insert	Fig	Cap Screw BX0520 / BX0620	N·m	Wrench
GNDFS R/L 2525M-620-070			*25*	*25*	*150*	*47*	*25*	*25*	*70 to 100*	*6.0*	*20*	GC□N6○○○-□□	1	BX0520	5.0	LH040
GNDFS R/L 2525M-620-100			*25*	*25*	*150*	*47*	*25*	*25*	*100 to 200*	*6.0*	*20*		1			
GNDFS R/L 2525M-620-180			*25*	*25*	*150*	*47*	*25*	*25*	*180 to 300*	*6.0*	*20*		1			
GNDFS R/L 2525M-620-280			*25*	*25*	*150*	*47*	*25*	*25*	*280 to 1000*	*6.0*	*20*		1			
GNDFS R/L 2525M-620-450			*25*	*25*	*150*	*47*	*25*	*25*	*450 up*	*6.0*	*20*		1			
GNDFS R/L 3232P-620-070			*32*	*32*	*170*	*54*	*32*	*25*	*70 to 100*	*6.0*	*20*	GC□N6○○○-□□	1	BX0620	6.0	LH050
GNDFS R/L 3232P-620-100			*32*	*32*	*170*	*54*	*32*	*25*	*100 to 200*	*6.0*	*20*		1			
GNDFS R/L 3232P-620-180			*32*	*32*	*170*	*54*	*32*	*25*	*180 to 300*	*6.0*	*20*		1			
GNDFS R/L 3232P-620-280			*32*	*32*	*170*	*54*	*32*	*25*	*280 to 1000*	*6.0*	*20*		1			
GNDFS R/L 3232P-620-450			*32*	*32*	*170*	*54*	*32*	*25*	*450 up*	*6.0*	*20*		1			
GNDFS R/L 2525M-820-070			*25*	*25*	*150*	*47*	*25*	*30*	*70 to 100*	*8.0*	*20*	GCMN80○○-□□	1	BX0620	6.0	LH050
GNDFS R/L 2525M-820-100			*25*	*25*	*150*	*47*	*25*	*30*	*100 to 200*	*8.0*	*20*		1			
GNDFS R/L 2525M-820-180			*25*	*25*	*150*	*47*	*25*	*30*	*180 to 300*	*8.0*	*20*		1			
GNDFS R/L 2525M-820-280			*25*	*25*	*150*	*47*	*25*	*30*	*280 to 1000*	*8.0*	*20*		1			
GNDFS R/L 2525M-820-450			*25*	*25*	*150*	*47*	*25*	*30*	*450 up*	*8.0*	*20*		1			
GNDFS R/L 3232P-820-070			*32*	*32*	*170*	*54*	*32*	*30*	*70 to 100*	*8.0*	*20*	GCMN80○○-□□	1	BX0620	6.0	LH050
GNDFS R/L 3232P-820-100			*32*	*32*	*170*	*54*	*32*	*30*	*100 to 200*	*8.0*	*20*		1			
GNDFS R/L 3232P-820-180			*32*	*32*	*170*	*54*	*32*	*30*	*180 to 300*	*8.0*	*20*		1			
GNDFS R/L 3232P-820-280			*32*	*32*	*170*	*54*	*32*	*30*	*280 to 1000*	*8.0*	*20*		1			
GNDFS R/L 3232P-820-450			*32*	*32*	*170*	*54*	*32*	*30*	*450 up*	*8.0*	*20*		1			

Combine the insert with a holder such that the width of cut (CW) matches. These items are made to order.

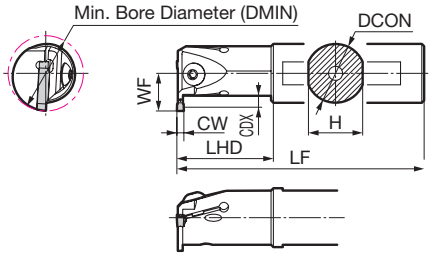
N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions ☞ F14 & F15

GND for Internal (ID) Grooving

Internal

Fig 1



Holder

Figure shows right hand (R) tool.

Parts Dimensions (inch / *mm*)

Cat. No.	Stock R	Stock L	Diameter DCON	Height H	Head LHD	Overall Length LF	Cutting Edge Distance WF	Min. Bore Diameter DMIN	Seat Size CW	Max. Groove Depth CDX	Applicable Insert	Fig	Screw	N·m	Wrench
GNDI R/L 162T-25	●	●	1.000	.906	1.575	8.000	.623	1.250	2	.250	GC□N20○○-□□	1	BH0516	5.0	LH030
GNDI R/L 163T-25	●	●	1.000	.906	1.575	8.000	.623	1.250	3	.250	GC□N3○○○-□□	1			
GNDI R/L 164T-25	●	●	1.000	.906	1.575	8.000	.748	1.250	4	.250	GC□N40○○-□□	1			
GNDI R/L 165T-25	●	●	1.000	.906	1.575	8.000	.748	1.250	5	.250	GC□N5○○○-□□	1			
GNDI R/L 166T-25	●	●	1.000	.906	1.575	8.000	.748	1.250	6	.250	GC□N6○○○-□□	1			
GNDI R/L 202T-40	●	●	1.250	1.181	1.969	10.000	1.024	1.575	2	.400	GC□N20○○-□□	1	BH0616	6.0	LH040
GNDI R/L 203T-40	●	●	1.250	1.181	1.969	10.000	1.024	1.575	3	.400	GC□N3○○○-□□	1			
GNDI R/L 204T-40	●	●	1.250	1.181	1.969	10.000	1.024	1.575	4	.400	GC□N40○○-□□	1			
GNDI R/L 205T-40	●	●	1.250	1.181	1.969	10.000	1.024	1.575	5	.400	GC□N5○○○-□□	1			
GNDI R/L 206T-40	●	●	1.250	1.181	1.969	10.000	1.024	1.575	6	.400	GC□N6○○○-□□	1			
GNDI R/L 243T-43	●	●	1.500	1.421	2.362	12.000	1.142	2.000	3	.430	GC□N3○○○-□□	1			
GNDI R/L 244T-43	●	●	1.500	1.421	2.362	12.000	1.142	2.000	4	.430	GC□N40○○-□□	1			
GNDI R/L 245T-43	●	●	1.500	1.421	2.362	12.000	1.142	2.000	5	.430	GC□N5○○○-□□	1			
GNDI R/L 246T-43	●	●	1.500	1.421	2.362	12.000	1.142	2.000	6	.430	GC□N6○○○-□□	1			
GNDI R/L 2532-T206	★	★	*25*	*23*	*40*	*200*	*16*	*32*	2	*6*	GC□N20○○-□□	1	BH0516	5.0	LH030
GNDI R/L 2532-T306	★	★	*25*	*23*	*40*	*200*	*16*	*32*	3	*6*	GC□N3○○○-□□	1			
GNDI R/L 2532-T406	★	★	*25*	*23*	*40*	*200*	*19*	*32*	4	*6*	GC□N40○○-□□	1			
GNDI R/L 2532-T506	★	★	*25*	*23*	*40*	*200*	*19*	*32*	5	*6*	GC□N5○○○-□□	1			
GNDI R/L 3240-T210	★	★	*32*	*30*	*50*	*250*	*26*	*40*	2	*10*	GC□N20○○-□□	1	BH0616	6.0	LH040
GNDI R/L 3240-T310	★	★	*32*	*30*	*50*	*250*	*26*	*40*	3	*10*	GC□N3○○○-□□	1			
GNDI R/L 3240-T410	★	★	*32*	*30*	*50*	*250*	*26*	*40*	4	*10*	GC□N40○○-□□	1			
GNDI R/L 3240-T510	★	★	*32*	*30*	*50*	*250*	*26*	*40*	5	*10*	GC□N5○○○-□□	1			
GNDI R/L 4050-T311	★	★	*40*	*38*	*60*	*300*	*31*	*50*	3	*11*	GC□N3○○○-□□	1	BH0616	6.0	LH040
GNDI R/L 4050-T411	★	★	*40*	*38*	*60*	*300*	*31*	*50*	4	*11*	GC□N40○○-□□	1			
GNDI R/L 4050-T511	★	★	*40*	*38*	*60*	*300*	*31*	*50*	5	*11*	GC□N5○○○-□□	1			
GNDI R/L 4050-T611	★	★	*40*	*38*	*60*	*300*	*31*	*50*	6	*11*	GC□N6○○○-□□	1			

Combine the insert with a holder such that the Seat Sze matches. Refer to page F21-F22 for applicable inserts. Not usable with GNDIS inserts.

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions F14 & F15

★: Worldwide Warehouse Item ●: USA Stocked Item

GND for Internal (ID) Grooving

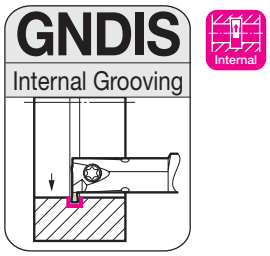


Fig 1

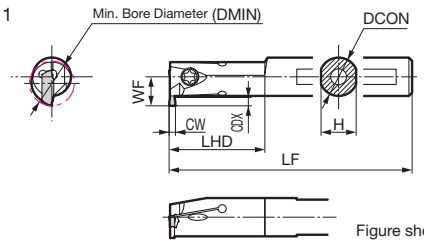


Figure shows right hand (R) tool.

Holder

Parts Dimensions (mm)

Cat. No.	Stock R	Stock L	Diameter DCON	Height H	Overall Length LF	Head LHD	Cutting Edge Distance WF	Min. Bore Diameter DMIN	Seat Size CW	Max. Groove Depth CDX	Applicable Insert	Fig	Flat Screw	N·m	Wrench
GNDIS R/L 1214-T1526	★	★	12	11	150	30	9.0	14	1.5	2.6	GXMN150005S-GF	1	BFTX0409N	3.4	LT15
GNDIS R/L 1214-T1536	★	★	12	11	150	30	10.0	14	1.5	3.6		1			
GNDIS R/L 1616-T1536	★	★	16	15	160	35	11.5	16	1.5	3.6		1			
GNDIS R/L 1620-T1546	★	★	16	15	160	40	14.5	20	1.5	4.6		1	BFTX0511N	5.0	LT20
GNDIS R/L 2025-T1566	★	★	20	19	180	40	19.0	25	1.5	6.6		1			
GNDIS R/L 1214-T2026	★	★	12	11	150	30	9.0	14	2.0	2.6	GXMN2002S-□□	1	BFTX0409N	3.4	LT15
GNDIS R/L 1214-T2036	★	★	12	11	150	30	10.0	14	2.0	3.6		1			
GNDIS R/L 1616-T2036	★	★	16	15	160	35	11.5	16	2.0	3.6		1			
GNDIS R/L 1620-T2046	★	★	16	15	160	40	14.5	20	2.0	4.6		1	BFTX0511N	5.0	LT20
GNDIS R/L 2025-T2066	★	★	20	19	180	40	19.0	25	2.0	6.6		1			
GNDIS R/L 1214-T3026	★	★	12	11	150	30	9.0	14	3.0	2.6	GXMN3002S-□□	1	BFTX0409N	3.4	LT15
GNDIS R/L 1214-T3036	★	★	12	11	150	30	10.0	14	3.0	3.6		1			
GNDIS R/L 1616-T3036	★	★	16	15	160	35	11.5	16	3.0	3.6		1			
GNDIS R/L 1620-T3046	★	★	16	15	160	40	14.5	20	3.0	4.6		1	BFTX0511N	5.0	LT20
GNDIS R/L 2025-T3066	★	★	20	19	180	40	19.0	25	3.0	6.6		1			

Combine the insert with a holder such that the width of cut (CW) matches. Only GXM inserts can be used.

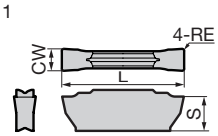
Identification Code

GND IS R 12 14 - T 15 26

Series	Application Symbol: Internal Diameter Machining	Feed Direction	Shank Dia. (mm)	Min. Bore Diameter (mm)	For Internal Diameter Machining	Seat Size x 10 (mm)	Maximum Groove Depth x 10 (mm)

GNDIS Inserts

Fig 1



(Coated Carbide)

Grooving / Traverse Cutting

Dimensions (mm)

Appearance	Cat. No.	AC520U	AC1030U	Seat Size CW: Seat Size	Seat Size CW: Tolerance	Nose Radius RE	Overall Length L	Thickness S	Pcs/Pack	Fig
ML Low Feed	**GXMN2002S-ML**	★	★	**2.0**	±0.03	0.2	11.1	3.1	5	1
	GXMN3002S-ML	★	★	**3.0**	±0.03	0.2	11.1	3.1		1

Grooving / Cut-Off Machining

Dimensions (mm)

Appearance	Cat. No.	AC520U	AC1030U	Seat Size CW: Seat Size	Seat Size CW: Tolerance	Nose Radius RE	Overall Length L	Thickness S	Pcs/Pack	Fig
GF Low Resistance	**GXMN150005S-GF**	-	★	**1.5**	±0.03	0.05	11.1	3.1	5	1
	GXMN2002S-GF	★	★	**2.0**	±0.03	0.2	11.1	3.1		1
	GXMN3002S-GF	★	★	**3.0**	±0.03	0.2	11.1	3.1		1

Combine the insert with a holder such that the width of cut (CW) matches. GCM/GCG inserts are not mutually compatible.

■ Recommended Cutting Conditions - GNDIS

Part Material	P Carbon Steel / Alloy Steel		M Stainless Steel		K Cast Iron		S Exotic Alloy	
Insert Grade	AC520U	AC1030U	AC520U	AC1030U	AC520U	AC1030U	AC520U	AC1030U
Cutting Speed v_c (SFM)	250-650	150-650	230-500	150-500	200-650	150-650	65-250	65-200

■ Grooving / Cut-Off / Necking

Chipbreaker		Feed Rate f (IPR) ML	Feed Rate f (IPR) GF
Seat Size CW (mm)	**1.5**	–	0.001 to 0.004
	2.0	0.001 to 0.005	0.001 to 0.005
	3.0	0.002 to 0.006	0.002 to 0.006

■ Traverse Cutting

Chipbreaker		ML Feed Rate f (IPR)	ML Depth of Cut a_p (Inch)
Seat Size CW (mm)	**2.0**	0.001 to 0.005	0.008 to 0.030
	3.0	0.002 to 0.006	0.012 to 0.050

N·m Recommended Tightening Torque (N·m)

★: Worldwide Warehouse Item ●: USA Stocked Item

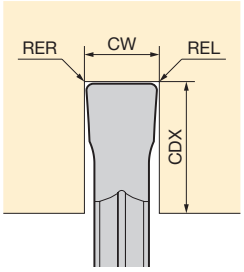
GND - Special Grooving Insert Request Form

Applicable Tool Holders (Seat Size: 2 to 6mm)

External Turning: GNDS, GNDM, GNDMS, GNDL, GNDLS, GNDCM
Internal Boring: GNDI (*GNDIS cannot be used as the insert shape is different)
Facing: GNDF, GNDFS

Special inserts with ground chipbreaker (customized seat sizes / width of cut and insert corner radius) can be made-to-order. To order, fill out the form below (indicate preference by circling the item or specify dimensions), and send it to a Sumitomo Electric Carbide, Inc. Sales Engineer or Authorized Distributor. (Make a copy of this form.) For grooving inserts with shape, width of cut or grade other than those listed below, contact your nearest Sumitomo Electric Carbide, Inc. Sales Engineer.

Your Company / Contact Information (Phone / Fax / Address, etc.)

Shape	Item	Description
	Seat Size CW (*mm*) (*2.00 to 6.59mm*)	
	Corner Radius RER (*mm*)	
	Corner Radius REL (*mm*)	
	Grade (Select from right)*1	AC530U / AC520U / EH520 / H10 / KH03 CBN Grade / PCD Grade - Inquire about other grades
	Grooving Depth CDX (*mm*)*2	

*1 If H10 is selected as the grade, the cutting edge will have a sharp edge.
*2 Set the breaker width based on CDX. The actual groove depth can only be less than or equal to the maximum groove depth configurable by each holder.

Form Instructions

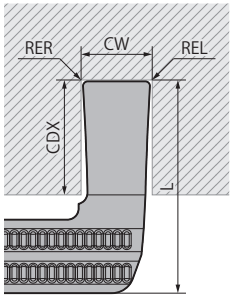
1. The applicable standard holder depends on the seat size. Refer to the chart on the right for manufacturable seat sizes and corner radius range for facing. (If using a corner radius exceeding this for facing, modification is required to prevent the holder from interfering with the work material.)
2. The corner radius maximum value for external turning and internal boring is 1/2 the width of cut.
3. Seat Size (CW) tolerance is ±*0.025mm* when manufactured.
4. WF dimensions for each holder are the CWS value for the applicable holder standard insert seat size as follows.
   (Standard holder dimension WF) + (WF - CWS) / 2
5. For inch widths of cut, inserts can also be supplied partially unground. Contact your local sales engineer for details.

Seat Size CW (Nominal Value)	Applicable Standard Holder	Corner radius (RER, REL) maximum value when used for facing (standard holder applicable)
2.00 to 2.59mm	*2mm Width Holder*	*0.2mm*
2.60 to 3.59mm	*3mm Width Holder*	*0.4mm*
3.60 to 4.59mm	*4mm Width Holder*	*0.8mm*
4.60 to 5.59mm	*5mm Width Holder*	
5.60 to 6.59mm	*6mm Width Holder*	

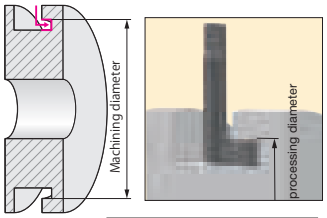
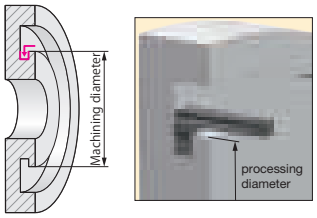
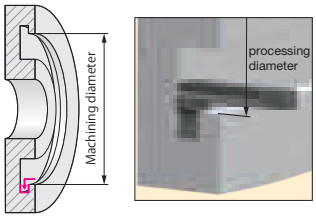
Quotation Sheet for 90-degree Inserts for Grooving Tool GND Series

When ordering, please fill in the required items (○ mark or dimensions, etc.) in the table below and contact our distributors or distributors. (Please make a copy of this sheet before using.)
For grooving inserts with shapes, edge widths, edge treatments, and insert grades other than those listed below, please contact our nearest sales office (see the end of this manual).

Your Company / Contact Information (Phone / Fax / Address, etc.)

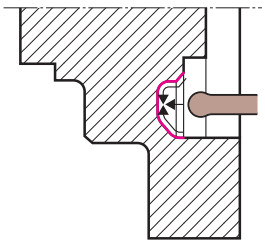
Shape	Item	Contents	
	Seat Size CW (*2.00 to 6.00mm*)	Inch/mm	
	Corner Radius RER	Inch/mm	
	Corner Radius REL	Inch/mm	
	Grade (Please select from the list on the right)	EH510 / EH520 / AC5015S / AC5025S	
	Grooving Depth CDX	Inch/mm	
	Cutting Edge Position L (5.80mm~) (Please fill in the allowable maximum value)	Inch/mm	
	Direction	Right Handed	Left Handed
	Insert thickness (Please choose from the list on the right)	Standard	High rigidity

Work processing part and processing method
(Please select one of the following and enter the processing diameter)

End face processing	Outer diameter machining	Internal diameter machining
		
Processing Diameter: *mm*	Processing Diameter: *mm*	Processing Diameter: *mm*

GND - Application Examples

4130H Steel Automotive Component Face Profiling

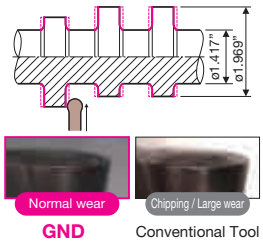


· High rigidity
· Chip evacuation
· Wear resistance

Holder: GNDFR2525M-423-125
Insert: GCMN4020-RN
Seat Size: 4.0
Cutting Conditions
v_C = 660 SFM
f = .0055 IPR, Wet

· Excellent chip evacuation performance
· Stable cutting without chattering or vibration

1050 Steel Camshaft Grooving / Finishing (Continuous to Heavy Interrupted)

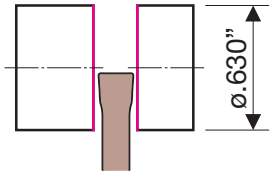


· High rigidity and chatter
· Chip evacuation
· Fracture resistance

Holder: GNDML2525M-618
Insert: GCMN6030-RG
Seat Size: 6.0
Cutting Conditions
v_C = 430 SFM
f = .014 IPR, Wet

· Stable cutting without chattering or vibration
· Excellent fracture resistance and stable chip evacuation

4135 Steel Tempered Hydraulic Component Cut-off

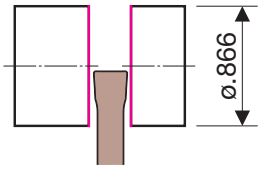


· Chip evacuation
· Wear resistance

Holder: GNDL R2525M-320
Insert: GCMN3002-GG
Seat Size: 3.0
Cutting Conditions
n = 4,000min^{-1}
v_C = 660 SFM
f = .002 IPR, Wet

· Stable chip evacuation
· Excellent wear resistance

1045 Steel Valve Cut-off

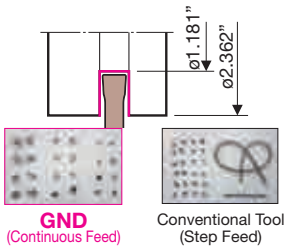


· High rigidity for chatter
· Chip evacuation

Holder: GNDMR2525M-312
Insert: GCMN3002-ML
Seat Size: 3.0
Cutting Conditions
v_C = 500 SFM
f = .002 to .006 IPR, Wet

· Stable cutting without chattering or vibration
· Stable chip evacuation

4140 Steel Office Machine Component Grooving

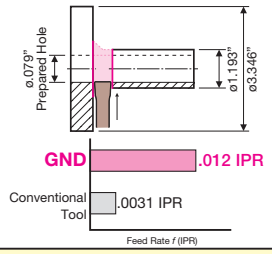


· Chip evacuation
· Machining efficiency

Holder: GNDLR2525M-320
Insert: GCMN3002-GG
Seat Size: 3.0
Cutting Conditions
v_C = 300 SFM
f = .0039 IPR, Wet

· Excellent chip evacuation performance
· 20% greater machining efficiency

4135 Steel Crank Cut-off

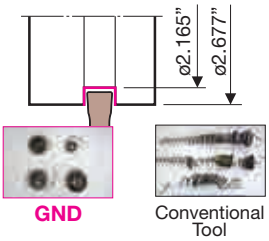


· High rigidity for chatter
· Chip evacuation

Holder: GNDLR2525M-320
Insert: GCMN3002-GG
Seat Size: 3.0
Cutting Conditions
v_C = 375 SFM
f = .012 IPR, Wet

· Improved machining efficiency
· Stable cutting without chattering or vibration

5120 Steel Gearshaft Grooving

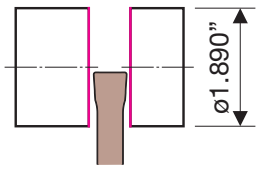


· High rigidity for chatter
· Chip evacuation

Holder: GNDMR2525M-312
Insert: GCMN3004-GG
Seat Size: 3.0
Cutting Conditions
v_C = 330 SFM
f = .0039 IPR, Wet

· Stable cutting without chattering or vibration
· Excellent chip evacuation performance

H13 Steel (45 to 48HRC) Machine Component Cut-off

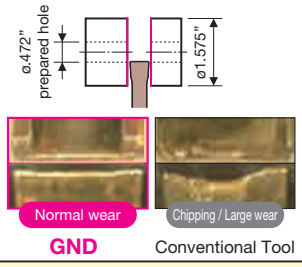


· High rigidity for chatter
· Chip evacuation

Holder: GNDL R2525M-425
Insert: GCMN4002-GG
Seat Size: 4.0
Cutting Conditions
v_C = 165 SFM
f = .0012 IPR, Wet

· Stable cutting without chattering or vibration
· Excellent chip evacuation performance
· Unexpected fractures prevented

1042 Steel Tempered Machine Component Cut-off



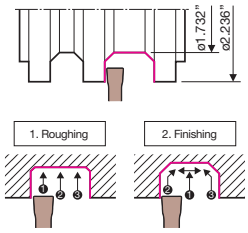
· High rigidity
· Chatter
· Fracture resistance

Holder: GNDL R2525M-320
Insert: GCMN3002-GG
Seat Size: 3.0
Cutting Conditions
n = 1,600min^{-1}
v_C = 660 SFM
f = .002 IPR, Wet

· Stable cutting without chattering or vibration
· Stable fracture resistance

GND - Application Examples

4130 Steel Gearshaft
Grooving / Profiling

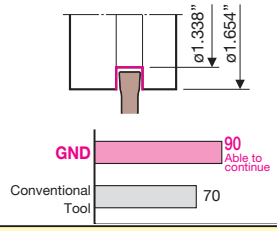


· High rigidity for chatter
· Chip evacuation

Holder: GNDMR2020K-518
Insert: GCMN5008-MG
Seat Size: 5.0
Cutting Conditions
v_C = 500 SFM
f = .0039 IPR, Wet

· Stable cutting without chattering or vibration
· Excellent chip evacuation performance

Sintered Ferrous Material Crank Sprocket Gear
Grooving / Finishing

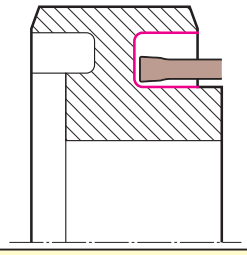


· High rigidity for chatter
· Chip evacuation
· Wear resistance

Holder: GNDLR2525M-220
Insert: GCMN2002-GG
Seat Size: 2.0
Cutting Conditions
v_C = 330 SFM
f = .003 IPR, Wet

· Stable cutting without chattering or vibration
· Excellent chip evacuation performance
· Excellent wear resistance increasing tool life by 130% or more

Sintered Component Clutch Hub Face
Grooving

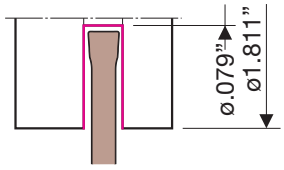


· Machining efficiency
· Chatter

Holder: GNDFR2020K-523-050
Insert: GCMN5008-MG
Seat Size: 5.0
Cutting Conditions
n = 500min^{-1}
v_C = 330 SFM
f = .0019 IPR, Wet

· Reduces cycle time by up to 20%
· Stable cutting without chattering or vibration

304 Stainless Measuring Component
Grooving

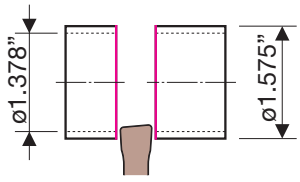


· High rigidity for chatter
· Chip evacuation

Holder: GNDLR2525M-320
Insert: GCMN3002-GG
Seat Size: 3.0
Cutting Conditions
v_C = 195 SFM
f = .001 IPR, Wet

· Stable cutting without chattering or vibration
· Excellent chip evacuation performance

303 Steel Hollow Round Bar Pipe
Cut-off

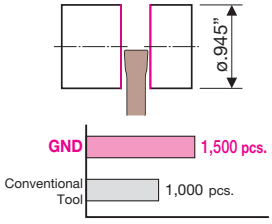


· Machining efficiency
· Chatter

Holder: GNDLR2020K-220
Insert: GCMR2002-CG-05
Seat Size: 2.0
Cutting Conditions
n = 1,000min^{-1}
v_C = 460 SFM
f = .0012 IPR, Wet

· Sharp cutting edge provides stable cutting
· Stable chip control for stable cutting

Stainless Steel Round Bar
Cut-off

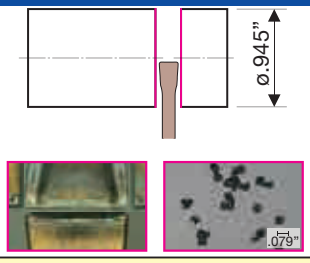


· Tool life
· Adhesion resistance

Holder: GNDML2020K-312
Insert: GCMN3002-GF
Seat Size: 3.0
Cutting Conditions
n = 1,000min^{-1}
f = .0059 → .0012 IPR, Wet

· Suppressed adhesion fracture achieves 150% tool life
· Stable cutting without chattering or vibration

4130 Steel Valve Spool
Cut-off

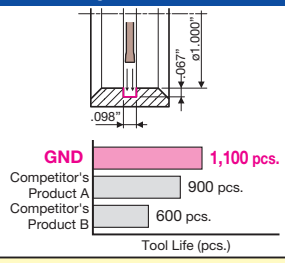


· Tool life
· Chip evacuation

Holder: GNDLR1212JX-1.2512
Insert: GCMN125005-GF
Seat Size: 1.25mm
Cutting Conditions
n = 2,000min^{-1}
f = .0019 IPR, Wet

· Slight damage and able to continue even after 7,500 uses
· Excellent chip evacuation performance

1045 Steel Motorcycle Transmission Component (Collar)
Internal Grooving

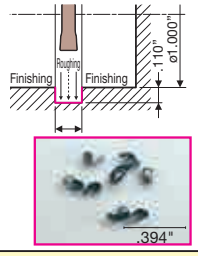


· Tool life
· Chip evacuation

Holder: GNDISR1620-T2046
Insert: GXMN2002S-GF
Seat Size: 2.0
Cutting Conditions
v_C = 500 SFM
f = .0012 IPR
a_p = .067", Wet

· Realizes stable chip evacuation and longer tool life through high-rigidity tools and 3D chipbreaker

4118 Steel Automotive Component (Coupling)
Internal Grooving

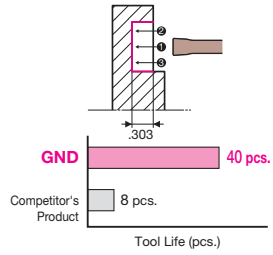


· Machining efficiency
· Chip evacuation

Holder: GNDISR1620-T2046
Insert: GXMN2002S-GF
Seat Size: 2.0
Cutting Conditions
v_C = Roughing 165 to Finishing 265 SFM
f = Roughing .0027 to Finishing .0019 IPR
a_p = .110", Wet

· Good chip evacuation reduces cycle time by eliminating unneeded processes, such as dwelling, which is present in competitor's products.

Stainless Cast Steel Turbine Housing Face
Grooving / Groove Expansion



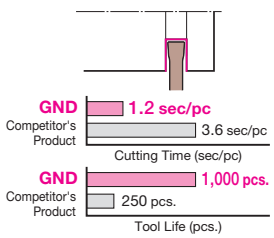
· High rigidity
· Tool life

Holder: GNDSL2525M-410
Insert: GCMN4004-GF
Seat Size: 4.0
Cutting Conditions
v_C = 260 SFM
f = .004 IPR
a_p = up to .303", Dry

· Stable cutting without chattering or vibration
· Excellent wear resistance for 5 times longer tool life

GND - Application Examples

1015 Steel Automotive Component
Grooving

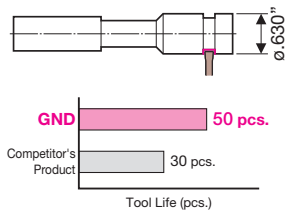


· Machining efficiency
· Tool life

Holder: GNDMR2525K-312J
Insert: GCMN3004-GG
Seat Size: 3.0
Cutting Conditions
v_c = 500 (300) SFM
f = .0039 (.0019) IPR
a_p = .374"
Wet → Internal Coolant Supply 305 PSI
*( ) competitors running parameters

· Double the feed rate of competitor tools, with no chatter
· 1.5 times the cutting speed thanks to an internal coolant holder, achieving 4 times longer tool life

Sintered Component Tap Component
Grooving

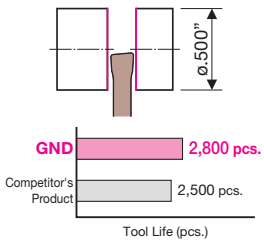


· Tool life
· Chip evacuation

Holder: GNDLL2020K-220J
Insert: GCMN2002-GF
Seat Size: 2.0
Cutting Conditions
v_c = 300 SFM
f = .0008 IPR
a_p = .079"
Wet → Internal Coolant Supply 218 PSI

· Coolant supply from near the cutting edge directly to the cutting point, achieves 1.7 times longer tool life
· Internal coolant supply realizes stable chip evacuation even at low feed machining

4804 Steel Free-cutting Steel Machine Component
Cut-off

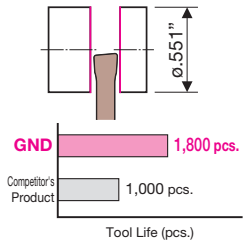


· Tool life
· Central burrs

Holder: GNDLR1212JX-212.5
Insert: GCMR20003-CF-10
Seat Size: 2.0
Cutting Conditions
v_c = 400 SFM
f = .0019 IPR
a_p = .250", Wet

· Excellent cutting edge sharpness for 1.12 times longer tool life
· Central burrs eliminated with handed insert

4135 Steel Machine Component
Cut-off

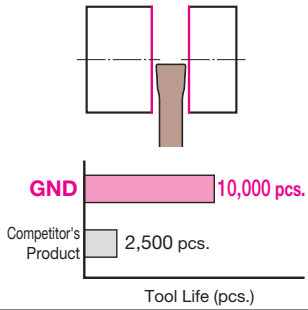


· Machined surface
· Tool life

Holder: GNDMR2020K-210
Insert: GCMR20003-CF-15
Seat Size: 2.0
Cutting Conditions
n = 2,500min^{-1}
f = .0016 IPR
Wet

· Excellent chip control improves machined surface
· Outstanding cutting edge sharpness for 1.8 times longer tool life

Pure Iron Automotive Component
Cut-off

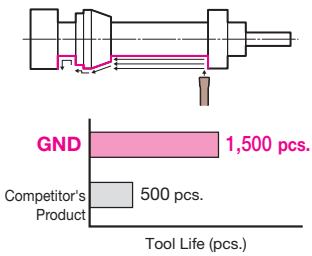


· Machining efficiency
· Tool life

Holder: GNDMR616JX-216J (Special Type)
Insert: GCMN2002-GF
Seat Size: 2.0
Cutting Conditions
v_c = up to 475 SFM
f = .0023 IPR
a_p = .197"
Wet → Internal Coolant Supply (Normal Pressure)

· Effective cutting edge cooling via internal coolant supply, achieving 4 times longer tool life
· Tool change reduced, enabling longer automatic operation
· Improved productivity through change to high- speed conditions

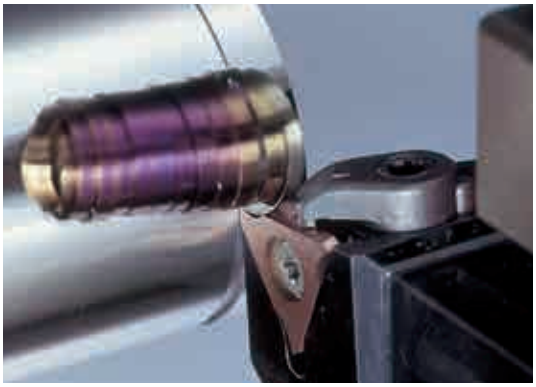
1045 Steel Equivalent Automotive Component
Grooving / Traverse Cutting



· Machined surface
· Tool life

Holder: GNDMR2020K-418J
Insert: GCMN4004-ML
Seat Size: 4.0
Cutting Conditions
n = 2,500min^{-1}
f = 0.0039 IPR
a_p = .019" to .079"
Wet → Internal Coolant Supply (Normal Pressure)

· Effective cutting edge cooling via internal coolant supply, achieving 3 times longer tool life
· Cutting edge sharpness maintained for significantly improved post-machining tearing as well



Features of GWC Series for Shallow Groove

- The same insert can be used for both external and internal grooving
- Full range of insert grades to cover a wide range of work materials
  Coated Carbide AC530U, Carbide H1, Coated Cermet T3000Z, Cermet T1500A, CBN BN2000, and PCD DA2200 are now in stock.
- A wide variety of grooving widths from (.060 - .090" & 0.33mm to 4.8mm
- SumiTurn B-Groove inserts with chipbreaker are now in stock
- Customers can modify the width of cut, nose radius and rake angle according to their own requirements with the blank inserts in stock.
  Customized edge shapes can be made-to-order.
  (Sumitomo Electric Carbide, Inc. also accepts such orders)

External

Double Clamp / Screw-on
for External Shallow Grooves

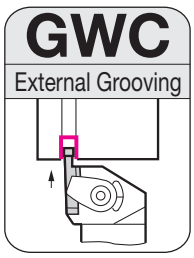


Fig 1

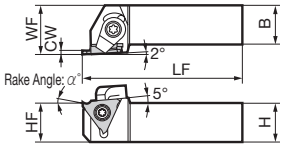


Fig 2

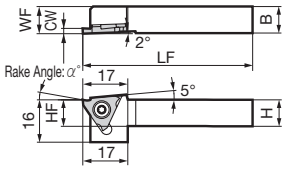


Fig 3

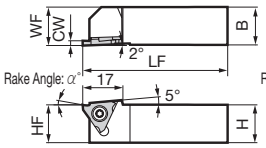
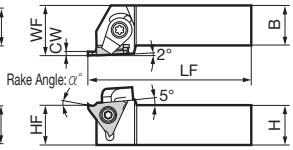
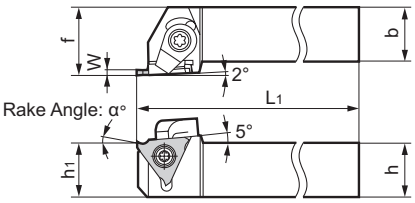


Fig 4



Note 1: Rake angle α° varies depending on the insert grade. Refer to Sumitomo General Catalog for details.
Note 2: Figures show right hand (R) tools.

Fig. 5



Holder | Parts

Dimensions (inch / *mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Width of Cut CW	Max. Groove Depth	Group No.	Fig	Flat Screw	N·m	Wrench	Clamp	Double Screw	N·m	Wrench
GWC R/L083 New	●	●	.500	.500	5.00	.500	.500	*.33 to 2.80*	*.8 to 2.5*	1	2	BFTX0409N	3.4	TRX15	—	—	—	—
GWC R/L103 New	●	●	.625	.625	5.00	.625	.625	*.33 to 2.80*	*.8 to 2.5*	1	3							
GWC R/L124C-25	●	●	.750	.750	5.00	.938	.750	.060 - .090	.1378	3	5	BFTX0511N	5.0	TRX20	CCM8U R/L	WB8-22 TL/T	5.0*	LT27
GWC R/L124C-35	●	●	.750	.750	5.00	.938	.750	.100 - .189	.1969	4	5							
GWC R/L164D-25	●	●	1.000	1.000	6.00	1.18	1.000	.060 - .090	.1378	3	5							
GWC R/L164D-35	●	●	1.000	1.000	6.00	1.18	1.000	.100 - .189	.1969	4	5							
GWC R/L1010-3	★	★	*10*	*10*	*125*	*10*	*10*	*.33 to 2.80*	*.8 to 2.5*	1	2	BFTX0409N	3.4	TRX15	—	—	—	—
GWC R/L1212-3	★	★	*12*	*12*	*125*	*12*	*12*	*.33 to 2.80*	*.8 to 2.5*	1	2							
GWC R/L1616-3	★	★	*16*	*16*	*125*	*16*	*16*	*.33 to 2.80*	*.8 to 2.5*	1	3							
GWC R/L2020-3	★	★	*20*	*20*	*125*	*25*	*20*	*.33 to 2.80*	*.8 to 2.5*	1	1				CCM6B R/L	WB6-20 TL/T	5.0*	LT20
GWC R/L2525-3	★	★	*25*	*25*	*150*	*30*	*25*	*.33 to 2.80*	*.8 to 2.5*	1	1							
GWC R/L2020-15	★	★	*20*	*20*	*125*	*25*	*20*	*1.00 to 1.45*	*2.0*	2	4	BFTX0511N	5.0	TRX20	CCM8U R/L	WB8-22 TL/T	5.0*	LT27
GWC R/L2020-25	★	★	*20*	*20*	*125*	*25*	*20*	*1.50 to 2.30*	*3.5*	3	1							
GWC R/L2020-35	★	★	*20*	*20*	*125*	*25*	*20*	*2.50 to 4.80*	*5.0*	4	1							
GWC R/L2525-15	★	★	*25*	*25*	*150*	*30*	*25*	*1.00 to 1.45*	*2.0*	2	4							
GWC R/L2525-25	★	★	*25*	*25*	*150*	*30*	*25*	*1.50 to 2.30*	*3.5*	3	1							
GWC R/L2525-35	★	★	*25*	*25*	*150*	*30*	*25*	*2.50 to 4.80*	*5.0*	4	1							

* mark: Cermet inserts have a recommended tightening torque of 4N·m.
Right-handed (R) tool holders can be used with right-handed (R) inserts.
* Refer to TGA type insert group numbers on pages F45 & F46 for applicable inserts. Select applicable inserts for the holders by using matching group numbers.
* Right-handed (R) tool holders are compatible with left-handed clamps (CCM○□L) and right-handed double screws (WB○-2○T)
Left-handed (L) tool holders are compatible with right-handed clamps (CCM○□R) and left-handed double screws (WB○-2○TL).

N·m Recommended Tightening Torque (N·m)

●= USA Stocked item ★= World Wide Warehouse Item

GWCS Series / GWCI Series

External

Double Clamp for External L-Shaped (Side Cut) Shallow Grooves

GWCS

External Grooving

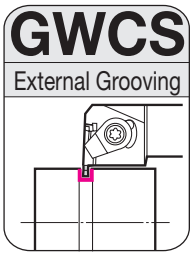
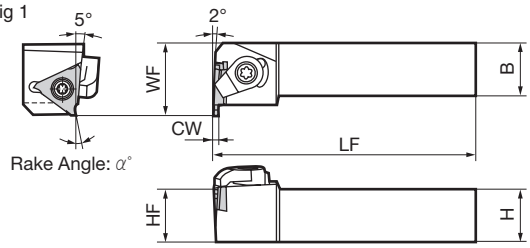


Fig 1



Note 1: Rake angle α° varies depending on the insert grade. Refer to the insert table at the bottom of this page for details.
Note 2: Figure shows right hand (R) tool.

Holder / Parts

Dimensions (mm)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Width of Cut CW	Max. Groove Depth	Group No.	Fig	Flat Screw	N·m	Wrench	Clamp	Double Screw	N·m	Wrench
GWCS R/L2020-3	★	★	20	20	125	25	20	.33 to 2.80	.8 to 2.5	1	1	BFTX0409N	3.4	TRX15	CCM6B R/L	WB6-20 TL/T	5.0*	LT20
GWCS R/L2525-3	★	★	25	25	150	30	25	.33 to 2.80	.8 to 2.5	1	1							
GWCS R/L2020-15	★	★	20	20	125	27	20	1.00 to 1.45	2.0	2	1	BFTX0511N	5.0	TRX20	CCM8U R/L	WB8-22 TL/T	5.0*	LT27
GWCS R/L2020-25	★	★	20	20	125	27	20	1.50 to 2.30	3.5	3	1							
GWCS R/L2020-35	★	★	20	20	125	27	20	2.50 to 4.80	5.0	4	1							
GWCS R/L2525-15	★	★	25	25	150	32	25	1.00 to 1.45	2.0	2	1							
GWCS R/L2525-25	★	★	25	25	150	32	25	1.50 to 2.30	3.5	3	1							
GWCS R/L2525-35	★	★	25	25	150	32	25	2.50 to 4.80	5.0	4	1							

* mark: Cermet inserts have a recommended tightening torque of 4N·m.
Right-handed (R) tool holders can be used with left-handed (L) inserts.
* Refer to TGA insert group numbers on pages F45 and F46 for GWCS holder applicable inserts. Select applicable inserts for the holders by using matching group numbers.
* Right-handed (R) tool holders are compatible with right-handed clamps (CCM○□R) and left-handed double screws (WB○-2○TL).
Left-handed (L) tool holders are compatible with left-handed clamps (CCM○□L) and right-handed double screws (WB○-2○T).

Internal

Screw-on for Internal Diameter Shallow Grooving

GWCI

Internal Grooving

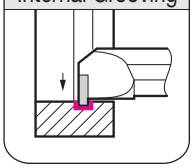
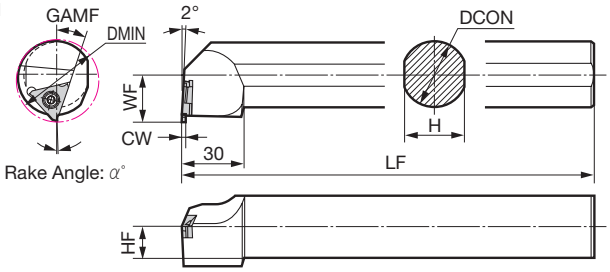


Fig 1



Note 1: Rake angle α° varies depending on the insert grade. Refer to the insert table at the bottom of this page for details.
Note 2: Figure shows right hand (R) tool.

Holder / Parts

Dimensions (inch / *mm*)

Cat. No.	Stock R	Stock L	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Min. Bore Diameter DMIN	Rake Angle GAMF	Width of Cut CW	Max. Groove Depth	Group No.	Gauge Insert	Fig	Flat Screw	N·m	Wrench
GWCI R/L163	●	●	1.000	.905	7.850	.690	.453	1.380	14°	.013 to .110	.020 to .080	1	TGA_3__	1	BFTX0409N	3.4	TRX15
GWCI R/L204	●	●	1.250	1.181	10.0	.890	.590	1.580	16°	.050 to .189	.070 to .100	2/3/4	TGA_4__	1	BFTX0511N	5.0	TRX20
GWCI R/L325	★	★	25	23	220	17.5	11.5	35	14°	0.33 to 2.80	0.5 to 2.0	1	TGA_3__	1	BFTX0409N	3.4	TRX15
GWCI R/L432	★	★	32	30	250	23.0	15.0	40	16°	1.25 to 4.80	1.7 to 2.5	2/3/4	TGA_4__	1	BFTX0511N	5.0	TRX20

Right-handed (R) tool holders can be used with left-handed (L) inserts.
*Refer to TGA insert group numbers on pages F45 and F46 for GWCI holder applicable inserts.

● Rake angle when fitted on a holder (E)

	Coated Carbide	Carbide	Coated Cermet	Cermet	SUMIBORON	SUMIDIA
	AC530U	H1	T3000Z	T1500A	BN2000	DA2200
External Grooving GWC GWCS	10°	20°	10°	5°	0°	10°
Internal Grooving GWCI R/L325	1°	11°	1°	-4°	-9°	1°
Internal Grooving GWCI R/L432	-1°	9°	-1°	-6°	-11°	-1°

●= USA Stocked item ★= World Wide Warehouse Item

N·m Recommended Tightening Torque (N·m)

TGA Inserts

(Coated Carbide / Cermet / Carbide / CBN-SUMIBORON / PCD-SUMIDIA)

Fig 1

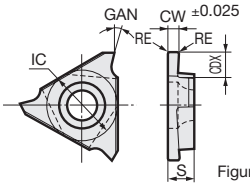


Figure shows right hand (R) tool.

Grade		Cutting Edge	GAN
Coated Carbide	AC530U	Honing	15°
Carbide	H1	Sharp Edge	25°
Coated Cermet	T3000Z	Honing	15°
Coated Cermet	T2500Z	Honing	15°
Cermet	T1500A	Sharp Edge	10°
SUMIBORON	BN2000	Negative Land	5°
SUMIDIA	DA2200	Sharp Edge	15°

* For the rake angle when fitted on the holder, refer to page F44.

Square Edged Grooving Insert

Dimensions (mm)

Cat. No.	AC530U		H1		T2500Z		T3000Z		T1500A		BN2000		DA2200		Width of Cut CW	Maximum Depth of Cut O.D.	Maximum Depth of Cut Internal Diameter	Maximum Groove Depth (mm) CDX	Nose Radius RE	Inscribed Circle IC	Thickness S	*Group No.	Fig
	R	L	R	L	R	L	R	L	R	L	R	L	R	L									
TGA R/L3033(E)	★	★	★	★	★	●	★	★	★	★	—	—	—	—	0.33	0.8	0.5	1.0	0.05	9.525	3.18	1	1
TGA R/L3050(E)	★	★	★	★	★	★	★	★	★	★	—	—	—	—	0.50	1.2	0.8	1.4	0.05	9.525	3.18	1	1
TGA R/L3075(E)	★	★	★	★	★	★	★	★	★	★					0.75								1
TGA R/L3095(E)	★	★	★	★	★	★	★	★	★	★					0.95								1
TGA R/L3100(E)	★	★	★	★	★	★	★	★	★	★					1.00								1
TGA R/L3110(E)	★	★			★	★	★	★	★	★					1.10								1
TGA R/L3125(E)	★	★	★	★	★	★	★	★	★	★					1.25								1
TGA R/L3135(E)	★	★			★	★	★	★	★	★					1.35	2.0	1.5	2.5	*3 0.1	9.525	3.18	1	1
TGA R/L3145(E)	★	★	★	★	★		★	★	★	★					1.45								1
TGA R/L3150(E)	★	★	★	★	★	★	★	★	★	★					1.50								1
TGA R/L3165(E)	★	★				★	★	★	★	★					1.65								1
TGA R/L3175(E)	★	★			★	★	★	★	★	★					1.75								1
TGA R/L3185(E)	★	★	★	★		★	★	★	★	★					1.85								1
TGA R/L3200(E)	★	★	★	★	★	★	★	★	★	★					2.00								1
TGA R/L3220(E)	★	★				★	★	★	★	★					2.20								1
TGA R/L3230(E)	★	★	★	★	★	★	★	★	★	★					2.30								1
TGA R/L3250(E)	★	★	★	★	★	★	★	★	★	★					2.50	2.5	2.0	3.0	*3 0.1	9.525	3.18	1	1
TGA R/L3265(E)	★	★			★		★	★	★	★					2.65								1
TGA R/L3270(E)	★	★			★		★	★	★	★					2.70								1
TGA R/L3280(E)	★	★			★	★	★	★	★	★					2.80								1
TGA R/L4125(E)	★	★	★	★	★	★	★	★	★	★	★		★		1.25	2.0	1.7	2.5	*2 0.2	12.70	4.76	2	1
TGA R/L4145(E)	★	★	★	★	★		★	★	★	★					1.45								1
TGA R/L4150(E)	★	★	★	★	★	★	★	★	★	★	★		★		1.50								1
TGA R/L4165(E)	★	★			★	★	★	★	★	★					1.65								1
TGA R/L4175(E)	★	★	★	★	★	★	★	★	★	★					1.75								1
TGA R/L4185(E)	★	★	★	★	★	★	★	★	★	★					1.85	3.5	2.5	3.9	*2 0.2	12.70	4.76	3	1
TGA R/L4200(E)	★	★	★	★	★	★	★	★	★	★	★		★		2.00								1
TGA R/L4220(E)	★	★			★		★	★	★	★					2.20								1
TGA R/L4230(E)	★	★	★	★	★	★	★	★	★	★					2.30								1
TGA R/L4250(E)	★	★	★	★	★	★	★	★	★	★	★		★		2.50	*1 5.0	2.5	*1 5.4	*2 0.3	12.70	4.76	4	1
TGA R/L4265(E)	★	★	★	★	★	★	★	★	★	★					2.65								1
TGA R/L4270(E)	★	★				★	★	★	★	★					2.70								1
TGA R/L4280(E)	★	★	★	★	★	★	★	★	★	★					2.80	*1 5.0	2.5	*1 5.4	*2 0.3	12.70	4.76	4	1
TGA R/L4300(E)	★	★	★	★	★	★	★	★	★	★	★		★		3.00								1
TGA R/L4320(E)	★	★			★		★	★	★	★					3.20	*1 5.0	2.5	5.4	*2 0.3	12.70	4.76	4	1
TGA R/L4330(E)	★	★	★	★	★	★	★	★	★	★					3.30								1
TGA R/L4350(E)	★	★	★	★	★		★	★	★	★	★		★		3.50				*2 0.3				1
TGA R/L4370(E)	★	★					★	★	★	★					3.70								1
TGA R/L4390(E)	★	★			★	★	★	★	★	★					3.90								1
TGA R/L4400(E)	★	★	★	★	★		★	★	★	★	★		★		4.00								1
TGA R/L4410(E)	★	★			★		★	★	★	★					4.10	5.0	2.5	5.4		12.70	4.76	4	1
TGA R/L4420(E)	★	★			★		★	★	★	★					4.20								1
TGA R/L4430(E)	★	★	★	★			★	★	★	★					4.30				*2 0.4				1
TGA R/L4440(E)	★	★					★	★	★	★					4.40								1
TGA R/L4450(E)	★	★	★	★	★	★	★	★	★	★					4.50								1
TGA R/L4480(E)	★	★	★	★	★		★	★	★	★					4.80						5.00		1

* Add E as the part number suffix for T1500A.
Select applicable inserts for the holders by using matching group numbers.
*1: CDX = 4.4 (maximum groove depth 4.0) for SUMIBORON and SUMIDIA (2.5 for internal diameter machining)
*2: RE = 0.2 for SUMIBORON; RE = 0.1 for SUMIDIA
*3: T1500A is RE = 0.2

TGA / TGA PSC

Fig 1

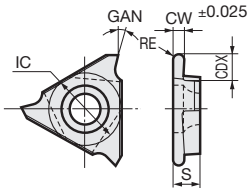


Figure shows right hand (R) tool.

(Coated Carbide / Cermet / Carbide)

Grade		Cutting Edge	GAN
Coated Carbide	AC530U	Honing	15°
Carbide	H1	Sharp Edge	25°
Coated Cermet	T3000Z	Honing	15°
Coated Cermet	T2500Z	Honing	15°
Cermet	T1500A	Sharp Edge	10°
SUMIBORON	BN2000	Negative Land	5°
SUMIDIA	DA2200	Sharp Edge	15°

* For the rake angle when fitted on the holder, refer to page F44.

Round Edged Grooving Insert

Dimensions (mm)

Cat. No.	AC530U		H1		T2500Z		T3000Z		Width of Cut CW	Maximum Depth of Cut		Maximum Groove Depth (mm) CDX	Nose Radius RE	Inscribed Circle IC	Thickness S	*Group No.	Fig
	R	L	R	L	R	L	R	L		O.D.	Internal Diameter						
TGA R/L4050R	★	★	★	★	★		★		1.00	**2.0**	**1.7**	2.5	0.50	12.70	4.76	2	1
TGA R/L4075R	★	★	★	★	★		★		1.50	**3.5**	**2.5**	3.9	0.75	12.70	4.76	3	1
TGA R/L4100R	★	★	★	★	★		★		2.00				1.00				1
TGA R/L4125R	★	★	★	★	★		★		2.50	**5.0**	**2.5**	5.4	1.25	12.70	4.76	4	1
TGA R/L4150R	★	★	★	★	★		★		3.00				1.50				1
TGA R/L4200R	★	★	★	★	★		★		4.00				2.00				1

* Refer to pages F43 and F44 for group numbers of holders that can be used with the GWC, GWCS and GWCI types.
Select applicable inserts for the holders by using matching group numbers.

Recommended Cutting Conditions

Work Material	P General Steel			M Stainless Steel			N Non-ferrous Metal		H Hardened Steel
Insert Grade	AC530U	T2500Z/T3000Z	T1500A	AC530U	T2500Z/T3000Z	T1500A	H1	DA2200	BN2000
Cutting Speed v_c (SFM)	160 to 650	330 to 600	330 to 600	160 to 650	260 to 500	260 to 400	650 to 1000	650 to 1000	260 to 400
Feed Rate f (IPR)	.001 to .004	.002 to .004	.002 to .003	.001 to .004	.002 to .003	.002 to .003	.002 to .006	.002 to .006	.001 to .003

● Ordering TGA Type Special Inserts

Use the "Special Grooving Insert Request Form" when ordering special inserts (with different shapes, widths of cut, and cutting edge lengths).

Make a copy of the form, fill it out and send it to a Sumitomo Electric Carbide, Inc. Sales Representative or distributor.

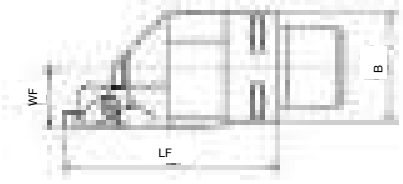
■ TGA PSC

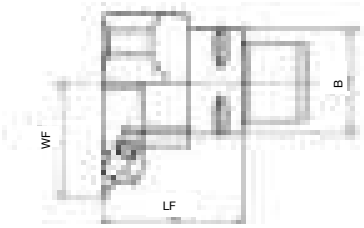
Characteristics of GWC PSC Series

- Similar insert can be use for both external and internal grooving
- Full range of insert grades to cover a wide range of work materials available:

Coated Carbide: AC530U
Uncoated Carbide: H1
Coated Cermet: T3000Z
Cermet :T1500A/T1200A
SUMIBORON: BN2000/BN250
SUMIDIA: DA2200

- A wide variation of grooving widths from 1.5mm to 4.8mm





■ Cassette

Cat. No. R / L	Stock R	Stock L	Grooving Width w (mm)	Grooving Depth a_r (mm)	Insert	Insert Screw	Tightening Torque (N·m)	Insert Wrench	Clamp Set	Cap Screw	Tightening Torque (N·m)	Clamp Wrench
GWCCM□25	★	★	*1.5 - 2.3*	*3.9*	TGA □4□□□	BFTX0511N	5.0	TRX20	SCP4A	BX0414	3.0	LH030
GWCCM□35	★	★	*2.5 - 4.8*	*5.4*	TGA □4□□□							

■ Holder

Holder (R/L)	Catalog Number	Stock		B	WF	LH	Torx Screw	Tightening Torque (N·m)	Wrench	Note
	PSC40GM00 R/L	★	★	*40 mm*	*22 mm*	*80 mm*	BFTX0619N	7.5	TRD25	Right handed Cassette goes with right handed holder
	PSC50GM00 R/L	★	★	*50mm*	*27 mm*	*80 mm*				Left handed Cassette goes with left handed holder
	PSC40GM90 R/L	★	★	*40 mm*	*42 mm*	*52.50 mm*				Right handed Cassette goes with left handed holder
	PSC50GM90 R/L	★	★	*50 mm*	*47 mm*	*55 mm*				Left handed Cassette goes with right handed holder

SumiTurn B-Groove

■ General Features

SumiTurn B-Groove (BF Type) inserts with chipbreaker have been added to the TGA Type grooving insert lineup to solve chip control problems.

■ Features

- Achieves good chip control in a wide range of grooving processes
- Good chip control during final wide groove touch-up with traverse cutting
- Series expansion of 14 items for circlip groove machining, covering grooving widths from 1.4mm to 4.5mm for a total of 60 stocked items.
- The AC530U grade with Super ZX Coat for a longer tool life is now in stock to cover various materials from steel and stainless steel to non-ferrous metals

Fig 1

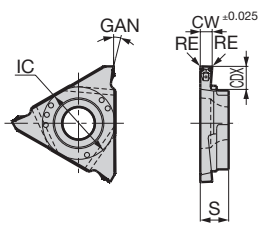
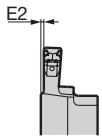


Fig 2



Grade		Cutting Edge	GAN
Coated Carbide	AC530U	Honing	15°

* For the rake angle when fitted on the holder, refer to page F44.

Note 1: Please note that inserts with edge width (CW) less than 1.85mm have different cutting edge distance (E2).
Note 2: Figure shows right hand (R) tool.

Recommended Cutting Conditions

Work Material	Machining Details	Cutting Conditions		Groove Width CW (*mm*) 1.4 to 2.3	2.5 to 3.3	3.5 to 4.5
General Steel P	Cutting Speed v_c (*m/min*)			*50 to 180*	*50 to 180*	*50 to 180*
	Grooving	Feed Rate f (*mm/rev*)		*0.03 to 0.12*	*0.04 to 0.12*	*0.05 to 0.12*
		Depth of Cut a_p (*mm*)	O.D.	*up to 3.5*	*up to 5.0*	*up to 5.0*
			Internal Diameter	*up to 2.5*	*up to 2.5*	*up to 2.5*
	Traverse Cutting	Feed Rate f (*mm/rev*)		*0.03 to 0.10*	*0.05 to 0.10*	*0.07 to 0.12*
		Depth of Cut a_p (*mm*)		*up to 0.3*	*up to 0.5*	*up to 0.7*
Stainless Steel M	Cutting Speed v_c (*m/min*)			*50 to 160*	*50 to 160*	*50 to 160*
	Grooving	Feed Rate f (*mm/rev*)		*0.03 to 0.12*	*0.04 to 0.12*	*0.05 to 0.12*
		Depth of Cut a_p (*mm*)	O.D.	*up to 3.5*	*up to 5.0*	*up to 5.0*
			Internal Diameter	*up to 2.5*	*up to 2.5*	*up to 2.5*
	Traverse Cutting	Feed Rate f (*mm/rev*)		*0.03 to 0.10*	*0.05 to 0.10*	*0.07 to 0.12*
		Depth of Cut a_p (*mm*)		*up to 0.3*	*up to 0.5*	*up to 0.7*

* Refer to pages F43 and F44 for group numbers of holders that can be used with the GWC, GWCS and GWCI types.
Select applicable inserts for the holders by using matching group numbers.

(Coated Carbide)

Chipbreaker Insert for Square Grooves BF

Dimensions (inch/*mm*)

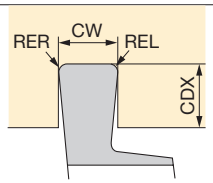
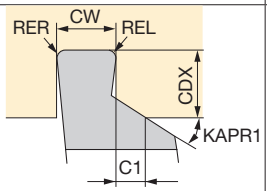
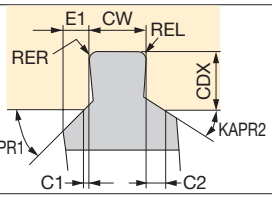
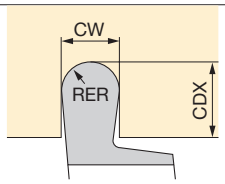
Cat. No.	AC530U R	AC530U L	Width of Cut CW	Maximum Depth of Cut O.D.	Maximum Depth of Cut Internal Diameter	Maximum Groove Depth (mm) CDX	Nose Radius RE	Inscribed Circle IC	Thickness S	Cutting Edge Distance E2	Group No.	Fig
TGA R/L 40062BF	●	●	.062							.016	3	2
TGA R/L 40072BF	●	●	.072							.010	3	2
TGA R/L 40088BF	●	●	.088	.138		.154	.008			.003	3	2
TGA R/L 40094BF	●	●	.094								4	1
TGA R/L 40097BF	●	●	.097								4	1
TGA R/L 40105BF	●	●	.105		.098			.500	.187		4	1
TGA R/L 40110BF	●	●	.110								4	1
TGA R/L 40122BF	●	●	.122	.197		.213	.012			0	4	1
TGA R/L 40125BF	●	●	.125								4	1
TGA R/L 40142BF	●	●	.142								4	1
TGA R/L 40156BF	●	●	.156				.016				4	1
TGA R/L 4140BF01	★	★	*1.40*	*2.0*	*1.7*	*2.5*	*0.1*	*12.70*	*4.76*	*0.300*	2	2
TGA R/L 4165BF01	★	★	*1.65*							*0.175*		2
TGA R/L 4190BF01	★	★	*1.90*	*3.5*	*2.5*	*3.9*	*0.1*	*12.70*	*4.76*	*0*	3	1
TGA R/L 4220BF01	★	★	*2.20*									1
TGA R/L 4270BF02	★	★	*2.70*									1
TGA R/L 4320BF02	★	★	*3.20*	*5.0*	*2.5*	*5.4*	*0.1*	*12.70*	*4.76*	*0*	4	1
TGA R/L 4420BF02	★	★	*4.20*									1
TGA R/L 4150BF	★	★	*1.50*							*0.250*		2
TGA R/L 4165BF	★	★	*1.65*							*0.175*		2
TGA R/L 4175BF	★	★	*1.75*							*0.125*		2
TGA R/L 4185BF	★	★	*1.85*	*3.5*	*2.5*	*3.9*	*0.2*	*12.70*	*4.76*	*0.075*	3	2
TGA R/L 4200BF	★	★	*2.00*									1
TGA R/L 4220BF	★	★	*2.20*							*0*		1
TGA R/L 4230BF	★	★	*2.30*									1
TGA R/L 4250BF	★	★	*2.50*									1
TGA R/L 4265BF	★	★	*2.65*									1
TGA R/L 4270BF	★	★	*2.70*									1
TGA R/L 4280BF	★	★	*2.80*									1
TGA R/L 4300BF	★	★	*3.00*	*5.0*	*2.5*	*5.4*	*0.3*	*12.70*	*4.76*	*0*	4	1
TGA R/L 4320BF	★	★	*3.20*									1
TGA R/L 4330BF	★	★	*3.30*									1
TGA R/L 4350BF	★	★	*3.50*									1
TGA R/L 4370BF	★	★	*3.70*									1
TGA R/L 4390BF	★	★	*3.90*									1
TGA R/L 4400BF	★	★	*4.00*									1
TGA R/L 4410BF	★	★	*4.10*									1
TGA R/L 4420BF	★	★	*4.20*	*5.0*	*2.5*	*5.4*	*0.4*	*12.70*	*4.76*	*0*	4	1
TGA R/L 4430BF	★	★	*4.30*									1
TGA R/L 4440BF	★	★	*4.40*									1
TGA R/L 4450BF	★	★	*4.50*									1

Special Grooving Insert Request Form

This form applies to the GWC, GWCS, and GWCI inserts.

To order special grooving inserts, fill out the form below (indicate preference by circling the item or specify dimensions), and send it to a Sumitomo Sales Representative or distributor. (Make a copy of this form.) For grooving insert shapes, widths of cut, cutting edge lengths and grades not listed below, contact your Sumitomo Sales Representative or distributor.

Your Company / Contact Information (Phone / Fax / Address, etc.)

Cat. No.	①	②	③	④
Shape				
Uses	Internal Grooving / External Grooving			
Holders	GWC / GWCS / GWCI			
Direction	Right Hand (R) / Left Hand (L)			
Insert Size	"3": ø9.525 "4": ø12.70			
CW				
CDX				
C1				
C2				
E1				
RER				
REL				
KAPR1				
KAPR2				
Grade				
Quantity				
Remarks				

Form instructions

1. The above illustration shows only external right-hand and internal left-hand inserts. (The external left-hand and internal right-hand inserts will be opposite to the above illustration.)
2. The following two insert sizes are available.
   3: Inscribed circle 9.525mm
   4: Inscribed circle 12.70mm
3. Dimension limits for groove width and groove depth.
   (1) Maximum Width of Cut (CW): 4.8mm
   · For Models ① and ④ : CW ≤ 4.8 (SumiTurn B-Groove (BF Type) is 4.5mm)
   · For Model ② : CW + C1 ≤ 4.8 (SumiTurn B-Groove (BF Type) is 4.5mm)
   · For Model ③ : CW + E1 (or C1) + C2 ≤ 4.8 (SumiTurn B-Groove (BF Type) is 4.5mm)
   (2) Minimum Width of Cut (CW) · For Insert Size "3": CW ≥ 0.33mm
   · For Insert Size "4": CW ≥ 0.75mm
   (3) Groove Depth (CDX) · For Insert Size "3": CDX ≤ 0.8 to CDX ≤ 2.5mm (For I.D.: CDX ≤ 0.8 to CDX ≤ 2.0)
   · For Insert Size "4": CDX ≤ 2.0 to CDX ≤ 5.0mm (For I.D.: CDX ≤ 2.0 to CDX ≤ 2.5)
4. SumiTurn B-Groove (BF Type) grooving inserts with chipbreaker are limited to insert size 4 and AC530U grade. For shape details, please contact us directly.
5. The following shows the standard tolerance for inserts.

Symbol	Standard Tolerance
CW	±0.025mm
CDX	±0.05mm
KAPR1, KAPR2	±1°

Unless otherwise specified, inserts are made to standard tolerances.

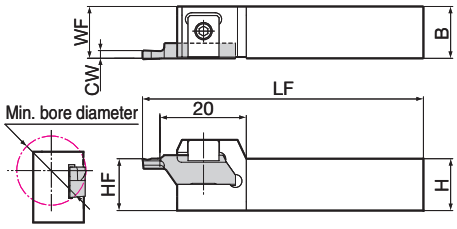
6. Insert grades are based on the catalogue numbers in stock.
7. The applicable tool holders for Models ①, ② and ④ should match the CW dimension. Contact us for Model ③.

CKB Toolholders

Facing

Clamp-on
for Very Small Diameter Face Grooving

Fig 1



Holder

Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Fig	Parts: Clamp	Parts: Double Screw	Parts: Wrench
CKBR1010-16	●	*10*	*10*	*111*	*10*	*10*	1	CKBW16	WB4-8	LH020
CKBR1212-16	●	*12*	*12*	*136*	*12*	*12*	1			
CKBR1616-16	●	*16*	*16*	*136*	*16*	*16*	1			
CKBR2020-16	●	*20*	*20*	*136*	*20*	*20*	1			
CKBR2525-16		*25*	*25*	*161*	*25*	*25*	1			

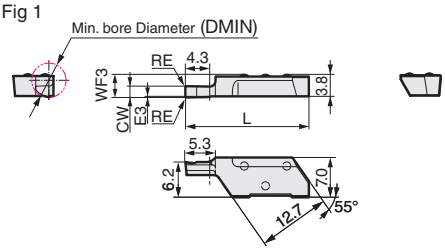
*For round shank holders, refer to page E64.

Insert (Coated Carbide)

Dimensions (*mm*)

Cat. No.	ACZ150	Min. Work Diameter DMIN	Cutting Edge Distance WF3	Cutting Edge Distance E3	Width of Cut CW	Nose Radius RE	Overall Length L	Max. Groove Depth CDX	Fig
KBMFR0615-05	●	*6.0*	*4.0*	*0.2*	*1.5*	*0.05*	*21.8*	*4.0*	1
KBMFR0620-05	●	*6.0*	*4.0*	*0.2*	*2.0*	*0.05*	*21.8*	*4.0*	1
KBMFR0630-05	●	*6.0*	*4.0*	*0.2*	*3.0*	*0.05*	*21.8*	*4.0*	1

Fig 1



●: USA Stocked Item

★: Worldwide Warehouse Item

▲: USA Limited Availability Item

CKB Toolholders

Internal

Clamp-on
for Internal Diameter Narrow Grooving

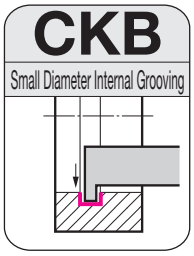
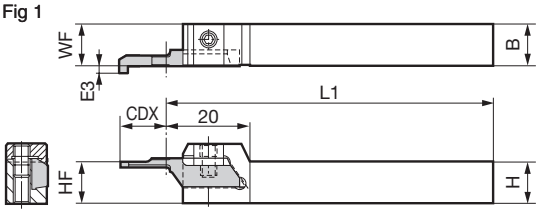


Fig 1



Refer to the insert table for E3 and CDX values.

Holder

Parts

Dimensions (mm)

Cat. No.	Stock	Height H	Width B	Overall Length L1	Cutting Edge Distance WF	Cutting Edge Height HF	Fig	Clamp	Double Screw	Wrench
CKB R1010-16	●	10	10	100	10	10	1	CKBW16	WB4-8	LH020
CKB R1212-16	●	12	12	125	12	12	1			
CKB R1616-16	●	16	16	125	16	16	1			
CKB R2020-16	●	20	20	125	20	20	1			
CKB R2525-16		25	25	150	25	25	1			

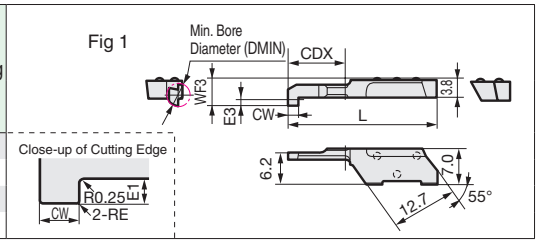
Refer to the insert table for E3 and CDX values.

Insert (Coated Carbide)

Dimensions (mm)

Cat. No.	AC1030U	Min. Bore Diameter DMIN	Width of Cut CW	Cutting Edge Distance WF3	Cutting Edge Distance E3	Nose Radius RE	Overall Length L	Maximum Groove Depth (mm) CDX	Fig
KBMG R0411-05	●	4.0	1.00	4.90	1.1	0.05	28.5	11	1
KBMG R0411-10	●	4.0	2.00	4.90	1.1	0.10	28.5	11	1
KBMG R0511-05	●	5.0	1.00	5.10	1.3	0.05	28.5	11	1
KBMG R0511-10	●	5.0	2.00	5.10	1.3	0.10	28.5	11	1

Fig 1



●: USA Stocked Item

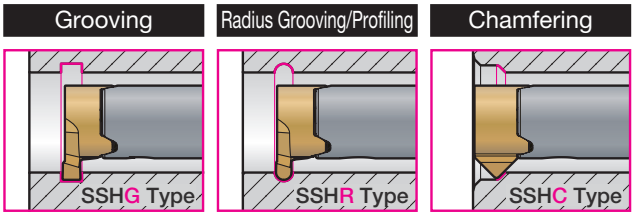
★: Worldwide Warehouse Item

▲: USA Limited Availability Item

SSH Toolholders

■ Features

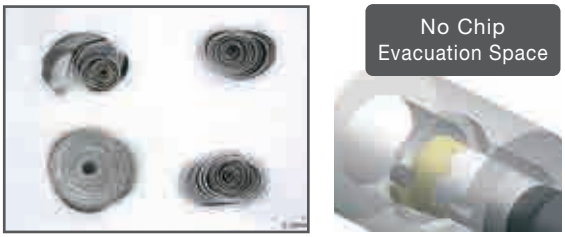
- Internal coolant supply for outstanding chip evacuation
- Tough carbide body for stable machining even with small diameters
- Adopts AC1030U for excellent machined surface quality
- Min. bore diameter of ø8mm and up supported
- Wide variety of widths of cut
  In addition to grooving applications, we have a lineup of 12 catalog items for c-clip groove machining



■ Chip Control

Stable and smooth evacuation of curled chips even on small bore diameters

SSH Type



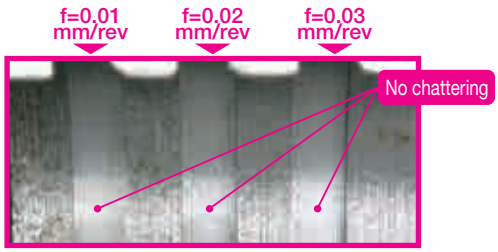
Evacuation from grooves is poor, inviting sudden breakage

Competitor's Product

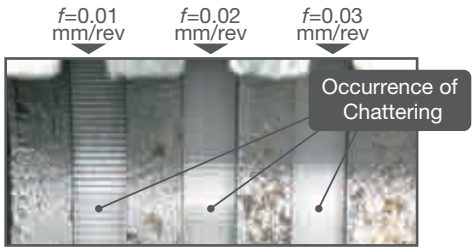
Part Material: Medium Strength Steel (S45C) Diameter: ø13mm Cutting Conditions: v_c=50m/min, f=0.02mm/rev, a_p=1.0mm Wet (Oil-based)

■ SSH Type Chatter Resistance

Outstanding sharpness and carbide shank suppress chatter



SSH Type

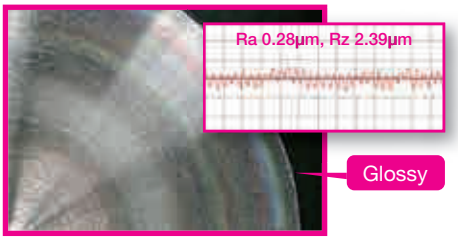


Competitor's Product

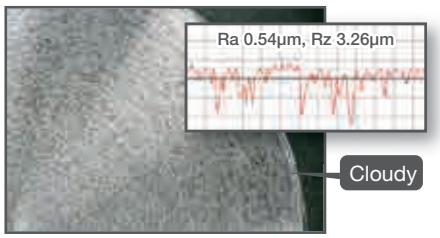
Part Material: Medium Strength Steel (S45C) Diameter: ø13mm Cutting Conditions: v_c=100m/min, f=0.01, 0.02, 0.03mm/rev, a_p=0.2mm Wet (Oil-based)

■ SSH Type Machined Surface Quality

Glossy, Beautiful Surface Finish



SSH Type



Competitor's Product

Part Material: Alloy Steel (SCM440) Diameter: ø30mm Cutting Conditions: v_c=180m/min, f=0.02mm/rev, a_p=0.2mm Wet (Oil-based)

SSH Toolholders

SSH
Internal Grooving

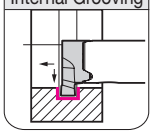


Fig 1

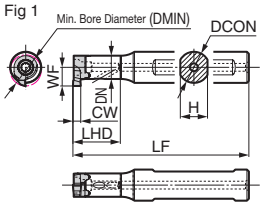
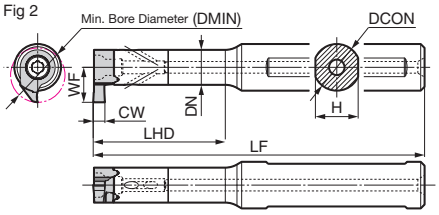


Fig 2



Internal

Grooving Tools

F

Holder

Dimensions (mm)

Cat. No.	Stock	Diameter DCON	Head Dia. DN	Height H	Overall Length LF	Head LHD	Min. Bore Diameter DMIN	Width of Cut CW	Applicable Insert	Fig	Parts: Flat Screw		Parts: Wrench
E08D-SSHM N125-08	★	8	6	7	60	12.5	8	**0.74 to 2.00**	SSH□ R/L 08...	1	BFTX02608IPS	1.2	TRX08IP
E08E-SSHM N210-08	★	8	6	7	70	21.0	8	**0.74 to 2.00**		1			
E12E-SSHM N125-08	★	12	6	11	70	12.5	8	**0.74 to 2.00**	SSH□ R/L 09...	1	BFTX02608IPS	1.2	TRX08IP
E12F-SSHM N210-08	★	12	6	11	80	21.0	8	**0.74 to 2.00**	SSH□ R/L 10...	1			
E12G-SSHM N300-08	★	12	6	11	90	30.0	8	**0.74 to 2.00**		1			
E12H-SSHM N420-08	★	12	6	11	100	42.0	8	**0.74 to 2.00**		1			
E12X-SSHM N195-14	★	12	9	11	75	19.5	14	**0.74 to 3.00**	SSH□ R/L 14...	2	BFTX0412IPS	5.0	LT15IP
E12H-SSHM N340-14	★	12	9	11	100	34.0	14	**0.74 to 3.00**		2			
E12J-SSHM N450-14	★	12	9	11	110	45.0	14	**0.74 to 3.00**		2			
E12X-SSHM N640-14	★	12	9	11	130	64.0	14	**0.74 to 3.00**		2			
E16F-SSHM N195-14	★	16	9	14	80	19.5	14	**0.74 to 3.00**		2	BFTX0412IPS	5.0	LT15IP
E16H-SSHM N340-14	★	16	9	14	100	34.0	14	**0.74 to 3.00**		2			
E16J-SSHM N450-14	★	16	9	14	110	45.0	14	**0.74 to 3.00**		2			
E16X-SSHM N640-14	★	16	9	14	130	64.0	14	**0.74 to 3.00**		2			

*The LF dimensions above are dimensions with SSHG/SSHR type insert mounted. For WF dimensions, see the table below.

Insert (Coated Carbide)

Dimensions (mm)

Applications	Cat. No.	AC1030U R	AC1030U L	Width of Cut CW	Max. Groove Depth CDX	Nose Radius RE	Cutting Edge Distance WF3	Cutting Edge Distance WF	Thickness S	Cutting Edge Distance E2	Applicable Holder	Fig
Grooving (08 size)	**SSHG R/L 0807400**	★	★	**0.74**	**1.0**	-	3.2	4.80	3.6	0.4	E08□-SSHMN○○○-08 E12□-SSHMN○○○-08	1
	SSHG R/L 0808400	★	★	**0.84**	**1.0**	-	3.2	4.80	3.6	0.4		1
	SSHG R/L 0809400	★	★	**0.94**	**1.0**	-	3.2	4.80	3.6	0.4		1
	SSHG R/L 0810000	★	★	**1.00**	**1.0**	-	3.2	4.80	3.1	-		1
	SSHG R/L 0811900	★	★	**1.19**	**1.0**	-	3.2	4.80	3.1	-		1
	SSHG R/L 0813900	★	★	**1.39**	**1.0**	-	3.2	4.80	3.0	-		1
	SSHG R/L 0815000	★	★	**1.50**	**1.0**	-	3.2	4.80	3.0	-		1
	SSHG R/L 0816900	★	★	**1.69**	**1.0**	-	3.2	4.80	3.0	-		1
	SSHG R/L 0820000	★	★	**2.00**	**1.0**	-	3.2	4.80	3.0	-		1
Grooving (09 size)	**SSHG R 0910010** New	★		**1.00**	**2.0**	0.10	3.6	5.50	3.5	-		2
	SSHG R 0915010 New	★		**1.50**	**2.0**	0.10	3.6	5.50	3.4	-		2
	SSHG R 0920010 New	★		**2.00**	**2.0**	0.10	3.6	5.50	3.4	-		2
	SSHG R 0920020 New	★		**2.00**	**2.0**	0.20	3.6	5.50	3.4	-		2
	SSHG R 0925010 New	★		**2.50**	**2.0**	0.10	3.6	5.50	3.4	-		2
	SSHG R 0925020 New	★		**2.50**	**2.0**	0.20	3.6	5.50	3.4	-		2
	SSHG R 0930010 New	★		**3.00**	**2.0**	0.10	3.6	5.50	3.4	-		2
	SSHG R 0930020 New	★		**3.00**	**2.0**	0.20	3.6	5.50	3.4	-		2
Grooving (10 size)	**SSHG R 1010010** New	★		**1.00**	**3.0**	0.10	3.6	6.50	3.5	-		2
	SSHG R 1015010 New	★		**1.50**	**3.0**	0.10	3.6	6.50	3.4	-		2
	SSHG R 1020010 New	★		**2.00**	**3.0**	0.10	3.6	6.50	3.4	-		2
	SSHG R 1020020 New	★		**2.00**	**3.0**	0.20	3.6	6.50	3.4	-		2
	SSHG R 1025010 New	★		**2.50**	**3.0**	0.10	3.6	6.50	3.4	-		2
	SSHG R 1025020 New	★		**2.50**	**3.0**	0.20	3.6	6.50	3.4	-		2
	SSHG R 1030010 New	★		**3.00**	**3.0**	0.10	3.6	6.50	3.4	-		2
	SSHG R 1030020 New	★		**3.00**	**3.0**	0.20	3.6	6.50	3.4	-		2
Radius Grooving/ Profiling	**SSHR R/L 08080**	★	★	**0.80**	**1.0**	0.40	3.2	4.80	3.1	-		3
	SSHR R/L 08120	★	★	**1.20**	**1.0**	0.60	3.2	4.80	3.1	-		3
	SSHR R/L 08180	★	★	**1.80**	**1.0**	0.90	3.2	4.80	3.0	-		3
Chamfering	**SSHC R/L 08454502**	★	★	-	**1.4**	0.20	1.8	4.65	3.6	-		4
Grooving	**SSHG R/L 1407400**	★	★	**0.74**	**1.2**	-	5.3	9.00	5.5	0.2	E12□-SSHMN○○○-14 E16□-SSHMN○○○-14	1
	SSHG R/L 1408400	★	★	**0.84**	**1.3**	-	5.3	9.00	5.5	0.2		1
	SSHG R/L 1409400	★	★	**0.94**	**1.5**	-	5.3	9.00	5.5	0.2		1
	SSHG R/L 1410000	★	★	**1.00**	**1.6**	-	5.3	9.00	5.5	0.2		1
	SSHG R/L 1411900	★	★	**1.19**	**4.0**	-	5.3	9.00	5.2	-		1
	SSHG R/L 1413900	★	★	**1.39**	**4.0**	-	5.3	9.00	5.1	-		1
	SSHG R/L 1415000	★	★	**1.50**	**4.0**	-	5.3	9.00	5.1	-		1
	SSHG R/L 1416900	★	★	**1.69**	**4.0**	-	5.3	9.00	5.1	-		1
	SSHG R/L 1420000	★	★	**2.00**	**4.0**	-	5.3	9.00	5.1	-		1
	SSHG R/L 1425000	★	★	**2.50**	**4.0**	-	5.3	9.00	5.1	-		1
	SSHG R/L 1430000	★	★	**3.00**	**4.0**	-	5.3	9.00	5.1	-		1
Radius Grooving/ Profiling	**SSHR R/L 14120**	★	★	**1.20**	**4.0**	0.60	5.3	9.00	5.2	-		3
	SSHR R/L 14180	★	★	**1.80**	**4.0**	0.90	5.3	9.00	5.1	-		3
	SSHR R/L 14200	★	★	**2.00**	**4.0**	1.00	5.3	9.00	5.1	-		3
	SSHR R/L 14220	★	★	**2.20**	**4.0**	1.10	5.3	9.00	5.1	-		3
	SSHR R/L 14300	★	★	**3.00**	**4.0**	1.50	5.3	9.00	5.1	-		3

Fig 1 (Grooving)

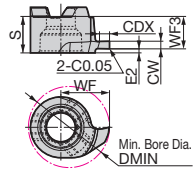


Fig 2 (Grooving)

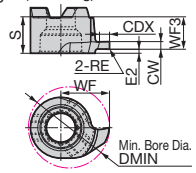


Fig 3 (Radius Grooving/Profiling)

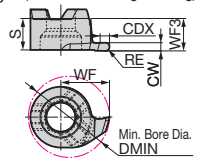
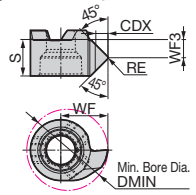


Fig 4 (Chamfering)



■ Recommended Cutting Conditions

Part Material	P Carbon Steel / Alloy Steel	M Stainless Steel	K Cast Iron
Cutting Speed v_c (SFM)	65-650	50-265	65-525
Feed Rate f (IPR)	0.0004-0.0012	0.0004-0.0012	0.0004-0.0012

★: Worldwide Warehouse Item

SGIT Toolholders

Internal

Screw-on
for Internal Diameter Narrow Grooving

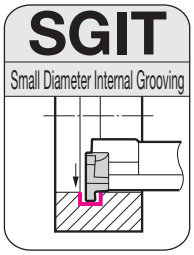
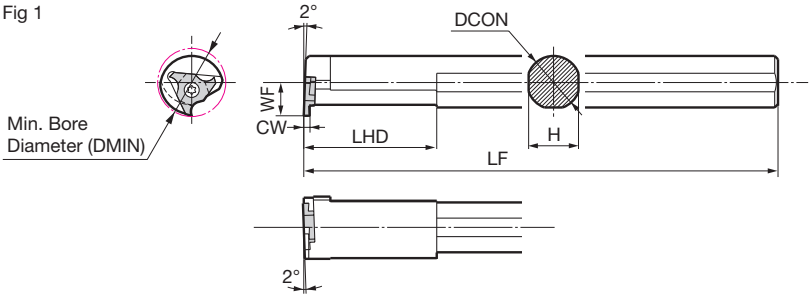


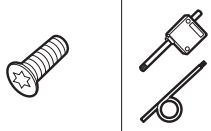
Fig 1



Holder

Parts Dimensions (mm)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Head LHD	Min. Bore Diameter	Width of Cut CW	Max. Groove Depth	Applicable Insert	Fig	Flat Screw	Wrench
SGIT R08	★	8	7.0	125	5.0	20	10.0	0.50 to 2.00	0.8*	GITL3○○○	1	BFTX02506NS	RT08
SGIT R10	★	10	9.0	150	6.0	25	12.0	0.50 to 2.00	0.8*		1		
SGIT R12	★	12	11.0	180	7.0	30	14.0	1.00 to 2.00	1.8	GITL5○○○	1	BFTX0307NS	RT10
SGIT R14	★	14	13.0	180	8.0	35	16.0	1.00 to 2.00	1.8		1		
SGIT R16	★	16	15.0	200	10.0	40	20.0	1.50 to 2.00	2.8	GITL6○○○	1	BFTX0307NS	RT10
SGIT R20	★	20	19.0	200	12.0	40	25.0	1.50 to 2.00	2.8		1		



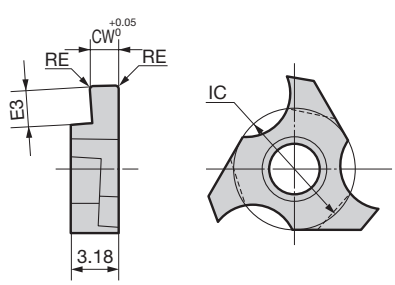
* The maximum groove depth is 0.5mm when GITL3050 is set. (Cutting edge CW = 0.5mm)

Insert (Coated Carbide)

Dimensions (mm)

Cat. No.	ACZ150	Width of Cut CW	Cutting Edge Distance E3	Nose Radius RE	Inscribed Circle IC	Applicable Holder	Fig
GIT L3050	★	0.50	1.2	0.05	5.56	SGIT R08 SGIT R10	1
GIT L3065	★	0.65	1.2	0.05	5.56		1
GIT L3075	★	0.75	1.2	0.05	5.56		1
GIT L3100	★	1.00	1.2	0.05	5.56		1
GIT L3125	★	1.25	1.2	0.20	5.56		1
GIT L3145	★	1.45	1.2	0.20	5.56		1
GIT L3150	★	1.50	1.2	0.05	5.56		1
GIT L3200	★	2.00	1.2	0.10	5.56		1
GIT L5100	★	1.00	2.2	0.05	7.94	SGIT R12 SGIT R14	1
GIT L5145	★	1.45	2.2	0.20	7.94		1
GIT L5150	★	1.50	2.2	0.05	7.94		1
GIT L5175	★	1.75	2.2	0.20	7.94		1
GIT L5200	★	2.00	2.2	0.10	7.94		1
GIT L6150	★	1.50	3.2	0.20	9.525	SGIT R16 SGIT R20	1
GIT L6175	★	1.75	3.2	0.20	9.525		1
GIT L6200	★	2.00	3.2	0.20	9.525		1

Fig 1

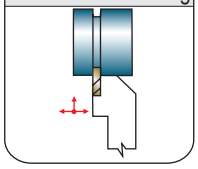


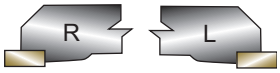
Grooving Tools

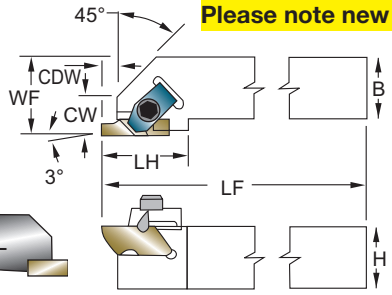
F

NS / SS

SumiNotch Grooving







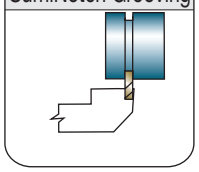
Please note new product codes for SumiNotch items, See below

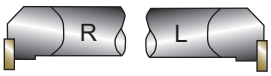
New Sumitomo Catalog Number		Previous Catalog Number		Stock		B	H	LF	CDW	LH	WF	CW	Applicable Insert		Right Hand Clamp	Left Hand Clamp	Screw
Right	Left	Right	Left	R	L												
NSR062	**NSL062**	SSR062	SSL062	★	★	.375	.375	2.50	.138	1.25	.562	.500	SG-2R	SG-2L	TF74	TF75	S-310 or ST-1291
NSR082J	**NSL082J**	SSR-82V	SSL-82V	★	★	.500	.500	3.50	.138	1.25	.750	.500					
NSR102B	**NSL102B**	SSR-102B	SSL-102B	★	★	.625	.625	4.50	.138	1.25	.875	.500					
NSR122B	**NSL122B**	SSR-122B	SSL-122B	★	★	.750	.750	4.50	.138	1.25	1.00	.500					
		SSR-162C	SSL-162C	▲	▲	1.00	1.00	5.00	.138	1.25	1.25	.500					
NSR162D	**NSL162D**	SSR162D	SSL162D	★	★	1.00	1.00	6.00	.138	1.25	1.25	.500	SG-3R	SG-3L	TF72	TF73	S-412 or ST-1297
		SSR-123A	SSL-123A	▲	▲	.750	0.75	4.00	.210	1.25	1.00	.500					
NSR123B	**NSL123B**	SSR-123B	SSL-123B	★	★	.750	0.75	4.50	.210	1.25	1.00	.500					
NSR163C	**NSL163C**	SSR-163C	SSL-163C	★	★	1.00	1.00	5.00	.210	1.25	1.25	.500					
NSR163D	**NSL163D**	SSR-163D	SSL-163D	★	★	1.00	1.00	6.00	.210	1.25	1.25	.500					
NSR203D	**NSL203D**	SSR-203D	SSL-203D	★	★	1.25	1.25	6.00	.210	1.25	1.50	.500					

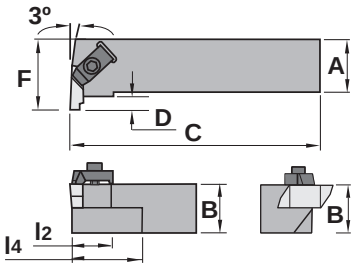
Note: NS & SS Holder, right-hand holder uses right hand insert and right hand clamp.

NE / SE

SumiNotch Grooving





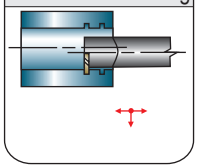


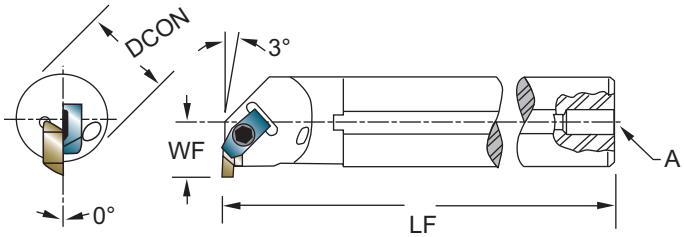
New Sumitomo Catalog Number		Previous Catalog Number		Stock		H	B	LH	LF	LH	D	WF	Applicable Insert		Right Hand Clamp	Left Hand Clamp	Screw
Right	Left	Right	Left	R	L												
NER062	**NEL062**	SER062	SEL062	★	★	.375	.375	.500	2.500	1.000	.138	.750	SG-2R	SG-2L	TF74	TF75	ST-1291
NER082J	**NEL082J**	SER082J	SEL082J	★	★	.500	.500	.500	3.500	1.000	.138	.750					
NER102B	**NEL102B**	SER102B	SEL102B	★	★	.625	.625	-	4.500	1.000	.138	.750					
NER122B	**NEL122B**	SER122B	SEL122B	★	★	.750	.750	.500	4.500	1.000	.138	1.000					
NER123B	**NEL123B**	SER123B	SEL123B	★	★	.750	.750	.750	4.500	2.000	.210	1.125	SG-3R	SG-3L	TF72	TF73	ST-1297
NER163D	**NEL163D**	SER163D	SEL163D	★	★	1.000	1.000	.750	6.000	2.000	.210	1.250					
NER203D	**NEL203D**	SER203D	SEL203D	★	★	1.250	1.250	.750	6.000	2.000	.210	1.500					

Note: NE & SE Holder, Right-hand holder uses left hand insert and left hand clamp.

A-NE / A-SE

SumiNotch Grooving



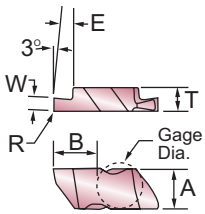


New Sumitomo Catalog Number		Previous Catalog Number		Stock		DCON	LF	WF	Min. Bore	D	A	Applicable Insert		Right Hand Clamp	Left Hand Clamp	Screw
Right	Left	Right	Left	R	L											
A08M-NER2	**A08M-NEL2**	A08-SER2	A08-SEL2	★	★	.500	8.000	.437	.730	.138	1/4-18 NPT	SG-2R	SG-2L	TF74	TF75	S-310 or ST-1291
A10S-NER2	**A10S-NEL2**	A10-SER2	A10-SEL2	★	★	.625	10.000	.500	1.000	.138	1/4-18 NPT					
A12S-NER2	**A12S-NEL2**	A12-SER2	A12-SEL2	★	★	.750	10.000	.562	1.125	.138	1/4-18 NPT					
A16T-NER2	**A16T-NEL2**	A16-SER2	A16-SEL2	★	★	1.000	12.000	.688	1.375	.138	1/4-18 NPT					
A16T-NER3	**A16T-NEL3**	A16-SER3	A16-SEL3	★	★	1.000	12.000	.688	1.375	.210	1/4-18 NPT	SG-3R	SG-3L	TF72	TF73	S-412 or ST-1297
A20U-NER3	**A20U-NEL3**	A20-SER3	A20-SEL3	★	★	1.250	14.000	.875	1.750	.210	1/4-18 NPT					
A24U-NER3	**A24U-NEL3**	A24-SER3	A24-SEL3	★	★	1.500	14.000	1.000	2.000	.210	1/4-18 NPT					

★: Worldwide Warehouse Item
▲ : Limited Availability Item, made to order, or discontinued

Note: Right-hand boring bars use left-hand inserts/clamp. Left-hand boring bars use right-hand inserts/clamp.

SumiNotch - Inserts



Left SG	Coated EH520V	CBN BN250	CBN BN350	W ±.001	R	E ±.001	T	A	B	Gage Dia.	Right SG	Coated EH520V	CBN BN250	CBN BN350
SG-2031L	•			.031	.002/.005	.050	.150	.219	.2700	.1875	SG-2031R	•		
SG-2041L	•			.041	.002/.005	.050					SG-2041R	•		
SG-2047L	•			.047	.002/.005	.050					SG-2047R	•		
SG-2058L	•			.058	.005/.010	.050					SG-2058R	•		
SG-2062L	•			.062	.005/.010	.110					SG-2062R	•		
SG-2094L	•			.094	.005/.010	.110					SG-2094R	•		
SG-2125L	•			.125	.005/.010	.110					SG-2125R	•		
SG-3047L	•			.047	.005/.010	.120	.195	.344	.4050	.3750	SG-3047R	•	•	•
SG-3062L	•	•	•	.062	.005/.010	.120					SG-3062R	•	•	•
SG-3072L	•			.072	.005/.010	.120					SG-3072R	•		
SG-3088L	•			.088	.005/.010	.180					SG-3088R	•		
SG-3094L	•	•	•	.094	.005/.010	.180					SG-3094R	•	•	•
SG-3097L	•			.097	.005/.010	.180					SG-3097R	•		
SG-3105L	•			.105	.005/.010	.180					SG-3105R	•		
SG-3110L	•			.110	.005/.010	.180					SG-3110R	•		
SG-3122L	•			.122	.005/.010	.180					SG-3122R	•		
SG-3125L	•	•	•	.125	.005/.010	.180					SG-3125R	•	•	•
SG-3142L	•			.142	.005/.010	.180					SG-3142R	•		
SG-3156L	•			.156	.005/.010	.180					SG-3156R	•		
SG-3178L	•			.178	.005/.010	.180					SG-3178R	•		
SG-3185L	•			.185	.020/.025	.180					SG-3185R	•		
SG-3189L	•			.189	.020/.025	.180					SG-3189R	•		•

Left SG-CB	Coated EH520V	W ±.001	R	E ±.001	T	A	B	Gage Dia.	Right SG-CB	Coated EH520V
SG-2047L-CB	•	.047	.002/.005	.050	.150	.219	.2700	.1875	SG-2047R-CB	•
SG-2062L-CB	•	.062	.005/.010	.110					SG-2062R-CB	•
SG-2078L-CB	•	.078	.005/.010	.110					SG-2078R-CB	•
SG-2094L-CB	•	.094	.005/.010	.110					SG-2094R-CB	•
SG-2125L-CB	•	.125	.005/.010	.110					SG-2125R-CB	•
SG-3047L-CB	•	.047	.005/.010	.075	.195	.344	.4050	.3750	SG-3047R-CB	•
SG-3062L-CB	•	.062	.005/.010	.120					SG-3062R-CB	•
SG-3072L-CB	•	.072	.005/.010	.120					SG-3072R-CB	•
SG-3078L-CB	•	.078	.005/.010	.120					SG-3078R-CB	•
SG-3088L-CB	•	.088	.005/.010	.180					SG-3088R-CB	•
SG-3094L-CB	•	.094	.005/.010	.180					SG-3094R-CB	•
SG-3125L-CB	•	.125	.005/.010	.180					SG-3125R-CB	•
SG-3189L-CB	•	.189	.020/.025	.180					SG-3189R-CB	•

• = USA Stocked Item

Recommended Cutting Conditions

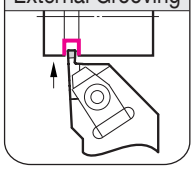
Cutting Conditions below reflect EH520V grade

Material		Speed (SFM)	Feed Rate (in/rev)
Steels	free-machining carbon alloys plain carbon steels alloy steels 190-330HB alloy steels 330-450HB	450-750 400-700 400-700 350-600	.004 - .012
Stainless Steels	martensitic/ferritic stainless steel austenitic stainless steel	250-650 175-700	.004 - .009
Cast Iron	gray cast iron 190-330HB gray cast iron 330-450HB alloy/ductile irons	400-700 350-600 250-650	.004 - .015
High Temperature Alloys	high temp alloys 200-260HB high temp alloys 260-450HB titanium alloys Ti 6Al-4V	60-250 30-175 90-250	.003 - .008
Non-Ferrous Materials	free-machining aluminum alloys copper/zinc/brass non-metallics	600-2500 300-900 350-1200	.004 - .012

GWB Toolholders

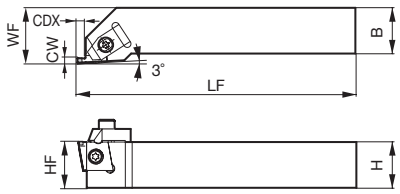
■ Features
- Vertically-mounted insert enhances tool rigidity
- Double clamping holder design improves stability during continuous and interrupted cutting. Can also be used for traverse cutting
- Long tool life for interrupted cutting applications with the Coated CBN - SUMIBORON BNC30G grade for grooving (BN2000 recommended for continuous cutting)
- Suited for grooving hardened steel, powdered metals, and cast irons. Variety of widths available from .059 to .236" and *1.5 to 6.0mm*

GWB
External Grooving



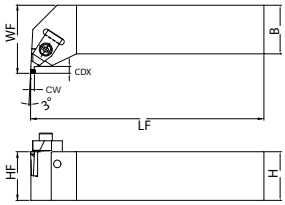
External | CBN

Fig 1



Double Clamp
for Hardened Steel Shallow Grooves

Fig. 2



Dimensions (inch / *mm*)

Holder / Parts

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Width of Cut CW	Max. Groove Depth CDX	Group No.	Fig	Clamp	Cap Screw	N·m	Flat Screw	Spring	Wrench
Inch	**GWB R/L 165D4**	●	●	1.00	1.00	6.000	1.181	1.0	.059 ≤ CW ≤ .177	.138 to .197	1	1	TF72 (Right Hand) / TF73 (Left Hand)	BX0520T	5.0	BFTX0511N	GSP06	TRX20
Inch	**GWB R/L 165D6**	●	●	1.00	1.00	6.039	1.181	1.0	.059 ≤ CW ≤ .236	.197	2	1						
Inch 90° Series	**GWBS R/L 125D4**	●	●	.750	.750	6.000	.880	.750	.059 ≤ CW ≤ .177	.138 to .197	1	2						
Inch 90° Series	**GWBS R/L 165D4**	●	●	1.00	1.00	6.000	1.167	1.0	.059 ≤ CW ≤ .177	.138 to .197	1	2						
Inch 90° Series	**GWBS R/L 165D6**	●	●	1.00	1.00	6.000	1.167	1.0	.177 ≤ CW ≤ .236	.197	2	2						
Inch 90° Series	**GWBS R/L 205D4**	●	●	1.25	1.25	6.000	1.75	1.25	.059 ≤ CW ≤ .177	.138 to .197	1	2						
Metric	**GWB R/L 2525-45**	★	★	*25*	*25*	*151 (150)*	*30*	*25*	*1.5 ≤ CW ≤ 4.5*	*3.5 to 5.0*	1	1						
Metric	**GWB R/L 2525-60**	★	★	*25*	*25*	*151*	*30*	*25*	*4.5 < CW ≤ 6.0*	*5.0*	2	1						

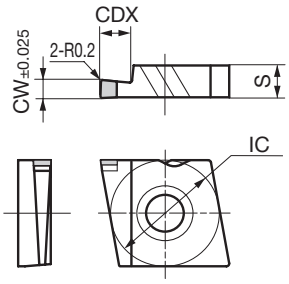
Dimensions in ( ) are for width of cut (CW) of 3.0 or less. GWBR holders take Right-Handed insert – GWBL take Left-Handed inserts. GWBSR takes Left-Handed insert and clamp, GWBSL take Right-Handed insert and clamp.

Insert (CBN / SUMIBORON)

Dimensions (inch / *mm*)

Cat. No.	BN7000 R	BN7000 L	BN7500 R	BN7500 L	BN2000 R	BN2000 L	BNC30G R	BNC30G L	Width of Cut CW	Groove Depth CDX	Inscribed Circle IC	Thickness S	Group No.	Applicable Holder	Fig
CGA R/L 4062					●	●	●	●	.062	.1378	.625	.1875	1	GWB R/L 1□□D4	1
CGA R/L 4094					●	●	●	●	.094	.1575	.625	.1875	1	GWB R/L 2525-45	1
CGA R/L 4125					●	●	●	●	.125	.1969	.625	.1875	1		1
CGA R/L 6189					●	●	●	●	.189	.1969	.625	.250	2	GWB R/L 2525-60 / GWB R/L 1□□D6	1
CGA R/L 1504150	●	●	●	●	●	●	●	●	*1.5*	*3.5*	*15.875*	*4.76*	1	GWB R/L 1□□D4 / GWB R/L 2525-45	1
CGA R/L 1504200	●	●	●	●	●	●	●	●	*2.0*	*3.5*	*15.875*	*4.76*			1
CGA R/L 1504250					●	●	●	●	*2.5*	*4.0*	*15.875*	*4.76*			1
CGA R/L 1504300	●	●	●	●	●	●	●	●	*3.0*	*4.0*	*15.875*	*4.76*			1
CGA R/L 1504350					●	●	●	●	*3.5*	*5.0*	*15.875*	*4.76*			1
CGA R/L 1504400	●	●	●	●	●	●	●	●	*4.0*	*5.0*	*15.875*	*4.76*			1
CGA R/L 1504450					●	●	●	●	*4.5*	*5.0*	*15.875*	*4.76*			1
CGA R/L 1506500					●	●	●	●	*5.0*	*5.0*	*15.875*	*6.35*	2	GWB R/L 2525-60 / GWB R/L 1□□D6	1
CGA R/L 1506550					●	●	●	●	*5.5*	*5.0*	*15.875*	*6.35*			1
CGA R/L 1506600					●	●	●	●	*6.0*	*5.0*	*15.875*	*6.35*			1

Fig 1



* It is also possible to manufacture widths of cut other than those listed above (CW = 1.5 to 6.0mm).

Grade Features (See page L9 for details on BN7000 & BN7500)

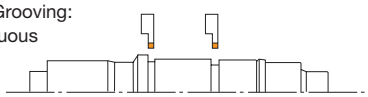
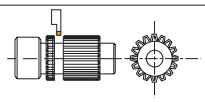
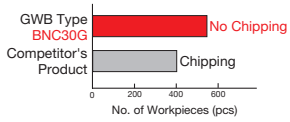
Grade	Application Range	Features	HV(GPa)	TRS(GPa)
BN2000	Continuous Grooving	General-purpose grade with superior wear resistance	31 to 34	1.0 to 1.1
BNC30G	Interrupted Grooving	Grade suited to interrupted grooving. Features tough substrate and special ceramic coating that exhibits both peel-off and wear resistance.	33 to 35	1.1 to 1.2

Recommended Cutting Conditions

Cutting Conditions	H Hardened Steel
Cutting Speed v_c (SFM)	260 to 400
Feed Rate f (IPR)	.0016 to .0032

* In order to avoid thermal cracking of the SUMIBORON cutting edge during interrupted cutting, ensure that the work material is thoroughly dry before cutting.

Application Examples

Tooling	Work Material	Tool Cat. No.	Cutting Condition	Tool Life Comparison
Shaft Grooving: Continuous  Required Surface Roughness for Groove Sides: Ra0.4μm	Carburized steel 58 to 62HRC	CGAR1504200 BN2000	v_c: 120m/min f : 0.05mm/rev Groove Depth: 2mm Dry	
Spline Grooving: Interrupted 	Carburized steel 58 to 62HRC	CGAR1504200 BNC30G	v_c: 100m/min f : 0.05mm/rev Groove Depth: 1.6mm Dry	

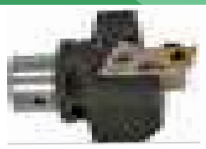
N·m Recommended Tightening Torque (N·m)

CGA PSC / BNGG

CGA PSC

Features & Benefits

- New double clamping system provides reliable grooving of hardened steel
- 80° tangentially mounted CGA style insert for improved rigidity
- Wide range of widths and grades for continuous and interrupted grooving operations
- New special coated CBN grade BNC30G extends tool life of insert



Dimensions (*mm*)

Cassette

Cat. No. R / L	Stock R	Stock L	Grooving Width w (*mm*)	Grooving Depth a_r (*mm*)	Insert	Insert Screw	Tightening Torque (N·m)	Insert Wrench	Clamp Set	Cap Screw	Tightening Torque (N·m)	Clamp Wrench
GWBCM□45	★	★	*1.5 - 2.0*	*3.5*	CGA1504□□0	BFTX0511N	5.0	TRX20	SCP4A	BX0414	3.0	LH030
			2.5 - 3.0	*4.0*	CGA4□□□							
GWBCM□60	★	★	*3.5 - 6.0*	*5.0*	CGA1506□□0 CGA6□□□							

Holder

	Catalog Number	Stock		B	WF	LH	Torx Screw	Tightening Torque (N·m)	Wrench	Note
Holder (R/L)	PSC40GM00 R/L	★	★	*40*	*22*	*82*	BFTX0619N	7.5	TRD25	Right handed Cassette goes with right handed holder
	PSC50GM00 R/L	★	★	*50*	*27*	*82*				Left handed Cassette goes with left handed holder
	PSC40GM90 R/L	★	★	*40*	*43*	*52.5*				Right handed Cassette goes with left handed holder
	PSC50GM90 R/L	★	★	*50*	*48*	*55*				Left handed Cassette goes with right handed holder

BNGG

External CBN

Features & Benefits

Top Clamp
for Hardened Steel Shallow Grooves

- Improved rigidity for longer tool life
  Strong clamping reduces insert breakage and holder chatter
- Enhanced tooling for *2mm* fine grooves or threading
  Grooving and threading can be done by changing the support

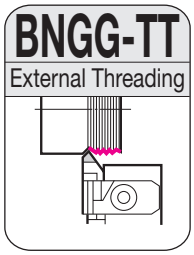


Fig 1 (Grooving)

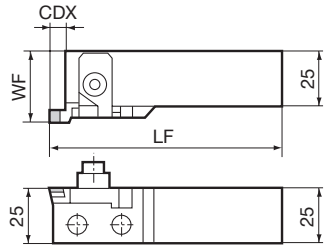
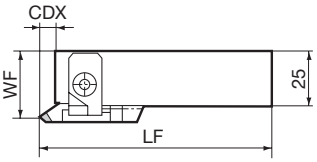


Fig. 2 (Threading)



Dimensions (inch/ *mm*)

Holder

	Cat. No.	Stock R	Stock L	Cutting Edge Distance WF	Groove Depth CDX	Overall Length LF	Applicable Insert	Shank Size	Fig
Grooving	BNGG R/L 160	●		1.250	.200	6.000	BNGNT	1.00 x 1.00	1
	BNGG R/L2525-200	★		*30.5*	*4*	*150*	BNGNT0200 R/L	*25mm x 25mm*	1
	BNGG R/L2525-250	★		*30.5*	*4*	*150*	BNGNT0250 R/L		1
	BNGG R/L2525-300	★		*30.5*	*5*	*150*	BNGNT0300 R/L		1
	BNGG R/L2525-400	★		*30.5*	*6*	*151*	BNGNT0400 R/L		1
	BNGG R/L2525-500	★		*30.5*	*6*	*151*	BNGNT0500 R/L		1
	BNGG R/L2525-600	★		*30.5*	*7*	*152*	BNGNT0600 R/L		1
	BNGG R/L2525-TT	★		*28.5*	*5*	*150*	BNTT1020 R/L, BNTT1530 R/L		2

Inserts are not embedded into tool holders.

* Holder body is universal. The anvil can be configured for different groove widths or threading by changing the support.

Insert (CBN / SUMIBORON)

Dimensions (*mm*)

	Cat. No.	BN250 R	BN250 L	BNX20 R	BNX20 L	BN350 R	BN350 L	BNX25 R	BNX25 L	Width of Cut CW	Groove Depth CDX	Nose Radius RE	Overall Length L	Cutting Edge Distance WF3	Applicable Holder	Fig
Grooving	BNGNT0200 R/L	●				●				*2.0*	*4.0*	*0.2*	*25*	*6.0*	BNGG R/L 2525-200	1
	BNGNT0250 R/L	●				●				*2.5*	*4.0*	*0.2*	*25*	*6.0*	BNGG R/L 2525-250	1
	BNGNT0300 R/L	●				●				*3.0*	*5.0*	*0.4*	*25*	*6.0*	BNGG R/L 2525-300	1
	BNGNT0400 R/L	●				●				*4.0*	*6.0*	*0.4*	*26*	*6.0*	BNGG R/L 2525-400	1
	BNGNT0500 R/L	●				●				*5.0*	*6.0*	*0.4*	*26*	*6.0*	BNGG R/L 2525-500	1
	BNGNT0600 R/L	●				●				*6.0*	*7.0*	*0.4*	*27*	*6.0*	BNGG R/L 2525-600	1
Threading	BNTT1020 R/L	●								*Pitch 1.0 to 2.0*		*0.14*	*25*	*4.0*	BNGG R/L 2525-TT	2
	BNTT1530 R/L	●								*Pitch 1.5 to 3.0*		*0.2*	*25*	*4.0*		2

Fig. 1 (Grooving)

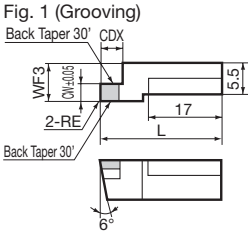
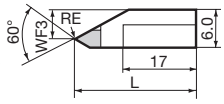


Fig. 2 (Threading)



Parts **Anvil Sold Separately**

Applicable Holder	Anvil	Clamp	Adjustment Screw	Spring	Cap Screw	Wrench	
BNGG R/L 160	BNGS R/L	BNGC R/L	FMJ	GSP06	BX0615 (For Clamp) BX0414 (For Support)	LH050 (For Clamp) LH030 (For Support)	1.8×45
BNGG R/L2525-200	BNGS R/L 200						
BNGG R/L2525-250	BNGS R/L 250						
BNGG R/L2525-300	BNGS R/L 300						
BNGG R/L2525-400	BNGS R/L 400						
BNGG R/L2525-500	BNGS R/L 500						
BNGG R/L2525-600	BNGS R/L 600						
BNGG R/L2525-TT	BNGS R/L TT						

Recommended Cutting Conditions

• Grooving

Cutting Conditions	H Hardened Steel
Cutting Speed v_c (SFM)	250 – 400
Feed Rate *f* (IPR)	.001 - .0025

• Threading

Cutting Conditions	H Hardened Steel
Cutting Speed v_c (SFM)	250 – 400
Feed Rate *f* (in.)	Maximum Pitch .118

Cut-Off Tools F

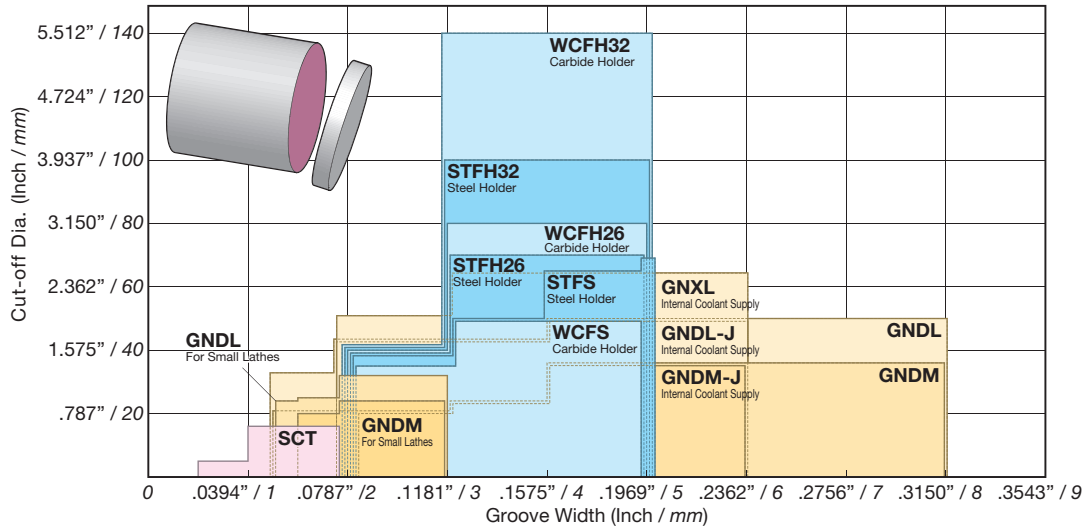
F58 to F67

Cut-Off Tools		Cut-Off Tool Series Selection Guide F59
		SumiGrip Introduction F60
		WCF Inserts F61
	SumiGrip Jr.	STFH F62
		STFS F63
	SumiGrip	WCFH F64
		WCFS F65
	SEC-Small Diameter Cut-Off Tool Holders	SCT F66

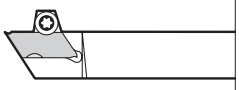
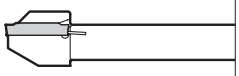
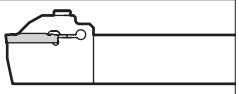
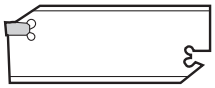
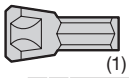
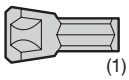
Stock Markings and Symbols		
	●: Standard stocked item ★: Worldwide Warehouse Item ▲: Limited Avaibility Item, made to order, or discontinued (please confirm stock availability).	Blank: Made-to-order item — mark: Not available

Selection Guide

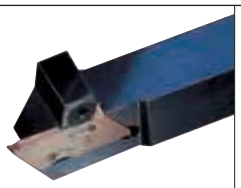
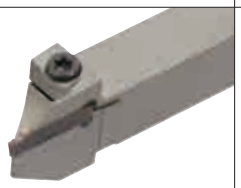
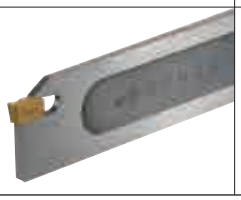
Cut-off



■ Range of Tool Applications (For Solid Workpieces)

Applications	Series	Shape	Insert Shape ( ): indicates no. of cutting edges	Cut-off Dia. 25 50 75 100(mm) / Groove Width 2 4 6 8 10(mm)	Features
For Small Lathes	**SCT**		(2) In Stock: Right Left Neutral	16.0 / 2.0 / 0.5	· Ground insert with good sharpness · Can clamp even from behind · 2-cornered type
For Small to Medium Diameters	**GNDM/ GNDL** For Small Lathes		(2) In Stock: Right Left Neutral	32.0 / 1.25 / 3.0	· High-rigidity design and outstanding chip control · Unground 2-cornered type · Available Seat Size starting at *1.25mm*
	GNDM(-J)/ GNDL(-J) GNDXL			50.0 / 2.0 / 8.0	· High-rigidity body, rigid clamping · Outstanding chip control · Unground 2-cornered type
For Medium to Large Diameters	**STFH/ STFS** (SumiGrip Jr.)		 (1) In Stock: Right Left Neutral	100.0 / 2.0 / 5.0	· Can be used for large diameter machining up to *ø100mm* · Economical steel shank · 1-cornered self-grip type
	WCFH/ WCFS (SumiGrip)		 (1) In Stock: Right Left Neutral	140.0 / 2.0 / 5.0	· Can be used for large diameter machining up to *ø140mm* · High-rigidity carbide shank · 1-cornered self-grip type

■ Cut-Off Tool Series

Small Diameter Cut-Off Toolholders **SCT**		· Our first recommendation for small lathes · Excellent sharpness reduces cutting resistance and central pips!	
Cut-off Toolholders **GND Grooving** GNDM(-J) / GNDL(-J) GNDXL		· Our first recommendation for small to medium diameters · Enables stable cutting off due to high-rigidity body and rigid clamping	
Cut-off Toolholders **SumiGrip Jr.** Steel Shank **SumiGrip** Carbide Shank		· Our first recommendation for medium to large diameters · Blade type is also available for cutting off up to *ø140mm*	

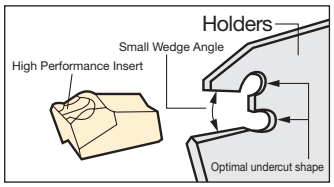
SumiGrip

■ Features

- Available in carbide blade (SumiGrip) and steel blade (SumiGrip Jr.)
- Capable of interrupted machining.
- Can be used for cutting off, grooving, chamfering, etc.

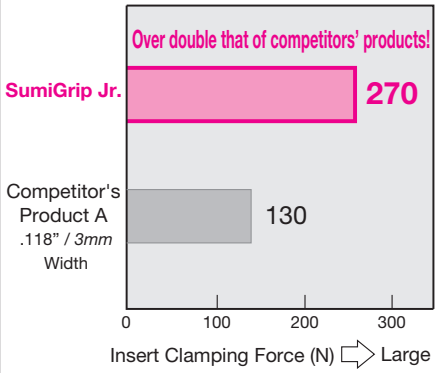
■ Types

1. Tool Block Type
   STFH (Steel) / WCFH (Carbide)
2. Shank Type
   STFS (Steel) / WCFS (Carbide)

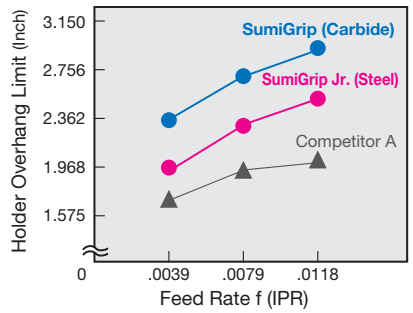


■ Cutting Performance (Holder)

● Insert Clamping Force

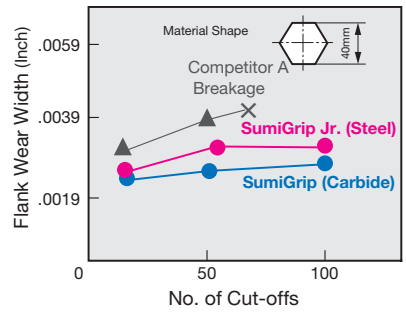


● Holder Overhang



Part Material: Medium Strength 1045 Steel (ø1.968", 250HB)
Cutting Conditions: v_c= 260 SFM, Dry

● Wear Resistance



Part Material: Medium Strength 1045 Steel (Hex), Insert: .118" Width Coated
Cutting Conditions: v_c= 500 SFM, f= .0059 SFM
Wet (Water Soluble)

■ GG / GF / CF Chipbreaker, New Grade: AC1030U

- Utilizing grooving tool GND Series chipbreakers for excellent chip control.
- Low cutting force chipbreaker GF (neutral) or CF (handed) inserts, coupled with a carbide blade enable stable machining and prevents chattering even when machining stainless steel.
- Achieving stable and long tool life with the AC1030U grade.

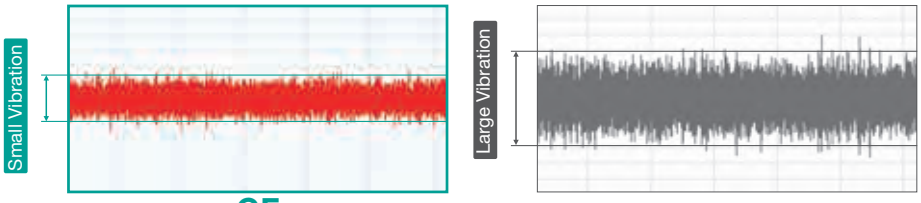
■ Cutting Performance (Chipbreaker)

- Chip Control Performance

GF | GG | Conventional Tool

Part Material: 1045 Steel (ø1.575")
.118" Width Cut-Off
Cutting Conditions: v_c= 330 SFM
f= .0039 IPR
Wet

- Anti-Vibration Performance



GF | Conventional Tool

Part Material: SUS316 (ø1.575")
.118" Width Cut-Off
Cutting Conditions: v_c= 330 SFM
f= .0039 IPR
Wet

WCF Inserts

Fig. 1 (Neutral (N))

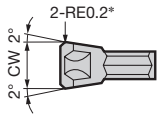


Fig. 2 (Right Hand (R))

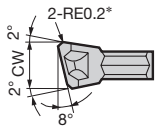
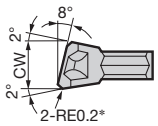


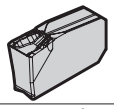
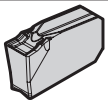
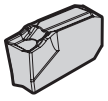
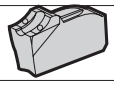
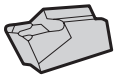
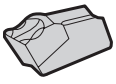
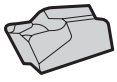
Fig. 3 (Left Hand (L))



*WCF□ 2T: 2-RE0.15

STFH Insert (SumiGrip/SumiGrip Jr. Common Insert) (Coated Carbide / Cermet / Carbide)

Dimensions (*mm*)

Appearance	Cat. No.	AC830P	AC225	AC1030U	T1500A	G10E	Width of Cut CW	Applicable Holder	Fig
WCF N○-GG General-purpose 	**WCFN2-GG**	●	-		-	-	*2.0*	STFH ○○-2 /STFS R/L / WCFH / WCFS R/L	1
	WCFN3-GG	●	-		-	-	*3.0*	STFH ○○-3 /STFS R/L / WCFH / WCFS R/L	1
	WCFN4-GG	●	-		-	-	*4.0*	STFH ○○-4 /STFS R/L / WCFH / WCFS R/L	1
	WCFN5-GG	★	-		-	-	*5.0*	STFH ○○-5 /STFS R/L / WCFH / WCFS R/L	1
WCF N○-GF Exotic Alloy Low Feed 	**WCFN2-GF**		-	●	-	-	*2.0*	STFH ○○-2 /STFS R/L / WCFH / WCFS R/L	1
	WCFN3-GF		-	●	-	-	*3.0*	STFH ○○-3 /STFS R/L / WCFH / WCFS R/L	1
	WCFN4-GF		-	●	-	-	*4.0*	STFH ○○-4 /STFS R/L / WCFH / WCFS R/L	1
	WCFN5-GF		-	●	-	-	*5.0*	STFH ○○-5 /STFS R/L / WCFH / WCFS R/L	1
WCF □○-CF Exotic Alloy Low Feed (With Feed Direction) 	**WCFR3-CF**		-	●	-	-	*3.0*	STFH ○○-3 /STFS R/L / WCFH / WCFS R/L	2
	WCFL3-CF		-	●	-	-	*3.0*		3
	WCFR4-CF		-	★	-	-	*4.0*	STFH ○○-4 /STFS R/L / WCFH / WCFS R/L	2
	WCFL4-CF		-	★	-	-	*4.0*		3
WCF □2T Small Diameter Low Resistance 	**WCFN2T**	▲	-	-	-	-	*2.0*	STFH ○○-2 /STFS R/L / WCFH / WCFS R/L	1
	WCFR2T	▲	-	-	-	-	*2.0*		2
	WCFL2T	▲	-	-	-	-	*2.0*		3
WCF □○ No Chipbreaker For General Steel 	**WCFN3**	▲	-	-	-	-	*3.0*	STFH ○○-3 /STFS R/L / WCFH / WCFS R/L	1
	WCFR3	▲	-	-	-	-	*3.0*		2
	WCFL3	▲	-	-	-	-	*3.0*		3
	WCFN4	▲	-	-	-	-	*4.0*	STFH ○○-4 /STFS R/L / WCFH / WCFS R/L	1
	WCFR4	▲	-	-	-	-	*4.0*		2
	WCFL4	▲	-	-	-	-	*4.0*		3
	WCFN5	▲	-	-	-	-	*5.0*	STFH ○○-5 /STFS R/L / WCFH / WCFS R/L	1
	WCFR5	★	-	-	-	-	*5.0*		2
	WCFL5	★	-	-	-	-	*5.0*		3
WCF □○A Exotic Alloy Low Feed 	**WCFN2A**		▲	-	-		*2.0*	STFH ○○-2 /STFS R/L / WCFH / WCFS R/L	1
	WCFN3A		●	-		★	*3.0*	STFH ○○-3 /STFS R/L / WCFH / WCFS R/L	1
	WCFR3A		▲	-			*3.0*		2
	WCFL3A		▲	-	-		*3.0*		3
	WCFN4A		▲	-	★		*4.0*	STFH ○○-4 /STFS R/L / WCFH / WCFS R/L	1
	WCFR4A		▲	-	-		*4.0*		2
	WCFL4A		▲	-	-		*4.0*		3
	WCFN5A		▲	-	-		*5.0*	STFH ○○-5 /STFS R/L / WCFH / WCFS R/L	1
	WCFR5A		-	-	-		*5.0*		2
	WCFL5A		-	-	-		*5.0*		3
WCF □○B Cast Iron Light Alloys 	**WCFN3B**		-	-	-	★	*3.0*	STFH ○○-3 /STFS R/L / WCFH / WCFS R/L	1
	WCFR3B		-	-	-	★	*3.0*		2
	WCFL3B		-	-	-	★	*3.0*		3
	WCFN4B		-	-	-	★	*4.0*	STFH ○○-4 /STFS R/L / WCFH / WCFS R/L	1
	WCFR4B		-	-	-	★	*4.0*		2
	WCFL4B		-	-	-		*4.0*		3
*Same breaker shape as the type for general steel (WCF□○), but with smaller cutting edge treatment.	**WCFN5B**		-	-	-	★	*5.0*	STFH ○○-5 /STFS R/L / WCFH / WCFS R/L	1
	WCFR5B		-	-	-		*5.0*		2
	WCFL5B		-	-	-	★	*5.0*		3

Recommended Cutting Conditions

Part Material		Cutting Speed v_c (SFM)					
		Coated Carbide			Cermet	Carbide	
		AC830P	AC225	AC1030U	T1500A	A30	G10E
P Steel	General Steel	260-660	160-660	260-660	260-660	150-400	-
	Mild Steel	330-750	160-750	330-750	330-750	230-500	-
	Die Steel	200-500	160-500	200-500	200-500	150-400	-
M Stainless Steel		230-500	160-500	200-500	-	230-450	-
K Cast Iron		-	160-660	-	-	-	160-400
N Non-ferrous Metal		-	-	-	-	-	660-1650

Breaker & Type		Feed f (IPR)										
		Neutral						Handed				
		GG	GF	none	T	A	B	none	CF	T	A	B
Width (*mm*)	*2*	.002-.008	.0012-.005	-	.0012-.004	.0012-.005	-	-	-	.0012-.004	-	-
	3	.003-.010	.0015-.006	.003-.010	-	.0015-.006	.002-.006	.003-.010	.002-.005	-	.0015-.006	.002-.006
	4	.004-.012	.002-.007	.004-.012	-	.002-.007	.002-.007	.004-.012	.002-.005	-	.002-.007	.002-.007
	5	.004-.014	.002-.008	.004-.012	-	.002-.008	.0025-.008	.004-.012	-	-	-	.0025-.008

★ Worldwide Warehouse Item ▲ USA Limited Availability Item

STFH

Cut-off

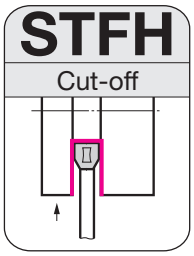
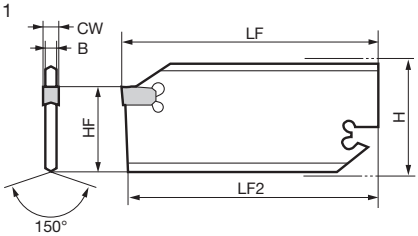
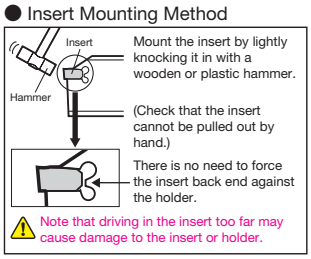


Fig 1



Cut-off
(Steel Holder/Tool Block)

● Insert Mounting Method



Cut-Off Tools

F

Holder

Parts Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Height HF	Reference Length LF2	Width of Cut CW	Max. Cut-Off Diameter	Applicable Insert	Applicable Tool Block	Fig	Wrench
STFH26-2	●	*26*	*1.6*	*109*	*21.4*	*108*	*2.0*	*40*	WCF○2□	SBN 20-26 SBU 20-26	1	SL-4
STFH26-3	●	*26*	*2.4*	*109*	*21.4*	*108*	*3.0*	*70*	WCF○3□		1	
STFH26-4	★	*26*	*3.4*	*109*	*21.4*	*108*	*4.0*	*70*	WCF○4□		1	
STFH26-5	★	*26*	*4.3*	*109*	*21.4*	*108*	*5.0*	*70*	WCF○5□		1	
STFH32-2	●	*32*	*1.6*	*149*	*25.0*	*148*	*2.0*	*40*	WCF○2□	SBN 20-32 SBN 25-32 SBU 20-32 SBU 25-32	1	SL-4
STFH32-3	●	*32*	*2.4*	*149*	*25.0*	*148*	*3.0*	*100*	WCF○3□		1	
STFH32-4	★	*32*	*3.4*	*149*	*25.0*	*148*	*4.0*	*100*	WCF○4□		1	
STFH32-5	★	*32*	*4.3*	*149*	*25.0*	*148*	*5.0*	*100*	WCF○5□		1	

*The shape of STFH32-2 is slightly different from the above figure. Refer to F61 for applicable inserts.

Fig 1

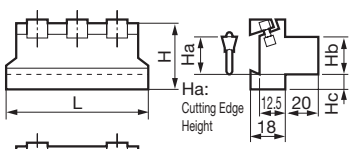


Fig 2

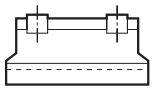


Fig 1

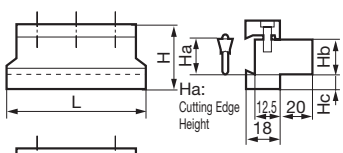
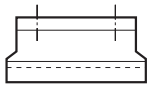


Fig 2



Tool Lock: SBN (Integrated)

Parts Dimensions (Inch/ *mm*)

Cat. No.	Stock	Cutting Edge Height Ha	Mounting Length Hb	Mounting Position Hc	Height H	Overall Length L	Fig	Clamp	Double Screw	Wrench
SBN063-26	●	.625	.625	.500	1.719	3.000	1	BWS30	WB8-20	LH040
SBN075-26	●	.750	.750	.375	1.719	3.156	1			
SBN100-32	●	1.000	1.000	.3125	2.000	4.500	1			
SBN20-26	★	*20*	*20*	*10.0*	*45*	*80*	2			
SBN20-32	★	*20*	*20*	*13.5*	*50*	*100*	1			
SBN25-32	★	*25*	*25*	*8.5*	*50*	*110*	1			

Tool Lock: SBU (Split Type)

Parts Dimensions (inch/ *mm*)

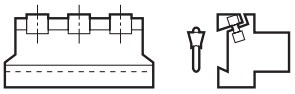
Cat. No.	Stock	Cutting Edge Height Ha	Mounting Length Hb	Mounting Position Hc	Height H	Overall Length L	Fig	Clamp Wedge	Cap Screw	Wrench
SBU075-26	●	.750	.750	.4375	1.781	3.156	1	BCS15	BX0622	LH050
SBU075-32	●	.750	.750	.531	2.000	4.000	1	BCS20		
SBU100-32	●	1.000	1.000	.344	2.000	4.344	1	BCS25		
SBU20-26	★	*20*	*20*	*10.0*	*45*	*80*	2	BCS15		
SBU20-32	★	*20*	*20*	*13.5*	*50*	*100*	1	BCS20		
SBU25-32	★	*25*	*25*	*8.5*	*50*	*110*	1	BCS25		

Tool Block Selection Guide

● USA Stocked Item ★ Worldwide Warehouse Item

Integrated

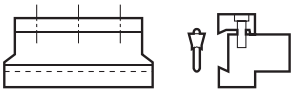
SBN Ex.: SBN20-32



· Applicable to toolpost **A** shown on the right.

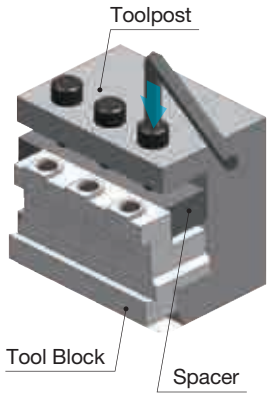
Split

SBU Ex.: SBU20-32



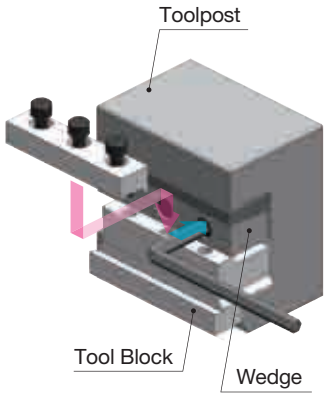
· Applicable to toolpost **A** or **B** shown on the right.
· Large clamp ensures a wide clamp area that enables long holder overhang.

A General-purpose Lathe, etc.
SBN **SBU**



(Clamp from above)

B Turret Toolpost, etc.
SBU



(Clamp from the side)

STFS

Cut-off

For Cut-off
(Steel Holder/Shank)

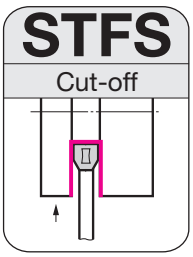


Fig 1

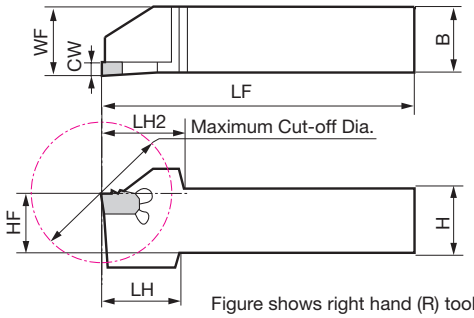
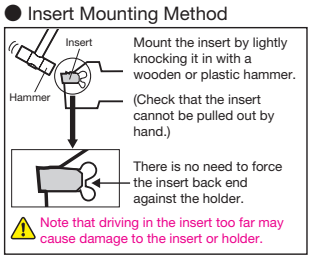


Figure shows right hand (R) tool.

● Insert Mounting Method



Holder

Parts Dimensions (inch/*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Head LH2	Width of Cut CW	Max. Cut-Off Diameter	Applicable Insert	Fig	Wrench
STFS R/L-063-2			.625	.625	4.000	.625	.625	-	-	.080	1.250	WCF○2□	1	SL-4
STFS R/L-075-2	●	●	.750	.750	5.000	.750	.750	-	-	.080	1.600		1	
STFS R/L-063-3	●		.625	.625	4.000	.625	.625	-	-	.120	1.400	WCF○3□	1	
STFS R/L-075-3	●	●	.750	.750	5.000	.750	.750	-	-	.120	2.000		1	
STFS R/L-100-3	●	●	1.000	1.000	6.000	1.000	1.000	-	-	.120	2.000		1	
STFS R/L1010-2	★	★	*10*	*10*	*86*	*10*	*10*	*17*	*17*	*2.0*	*28*	WCF○2□	1	SL-4
STFS R/L1212-2	★	★	*12*	*12*	*110*	*12*	*12*	*18*	*18*	*2.0*	*30*		1	
STFS R/L1616-2	★	★	*16*	*16*	*110*	*16*	*16*	-	*19*	*2.0*	*32*		1	
STFS R/L2020-2	★	★	*20*	*20*	*125*	*20*	*20*	-	*24*	*2.0*	*40*		1	
STFS R/L1616-3	★	★	*16*	*16*	*110*	*16*	*16*	*20*	*22*	*3.0*	*35*	WCF○3□	1	SL-4
STFS R/L2012-3	★	★	*20*	*12*	*110*	*12*	*20*	-	*24*	*3.0*	*40*		1	
STFS R/L2020-3	★	★	*20*	*20*	*125*	*20*	*20*	-	*30*	*3.0*	*50*		1	
STFS R/L2525-3	★	★	*25*	*25*	*150*	*25*	*25*	-	*30*	*3.0*	*50*		1	
STFS R/L2020-4	★	★	*20*	*20*	*125*	*20*	*20*	-	*33*	*4.0*	*55*	WCF○4□	1	SL-4
STFS R/L2525-4	★	★	*25*	*25*	*150*	*25*	*25*	-	*38*	*4.0*	*65*		1	
STFS R/L2020-5	★	★	*20*	*20*	*125*	*20*	*20*	-	*35*	*5.0*	*60*	WCF○5□	1	SL-4
STFS R/L2525-5	★	★	*25*	*25*	*150*	*25*	*25*	-	*40*	*5.0*	*70*		1	

Refer to F61 for applicable inserts.

• USA Stocked Item ★ Worldwide Warehouse Item

WCFH

Cut-off

For Cut-off
(Carbide Holder/Tool Block Type)

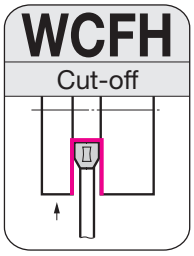


Fig 1

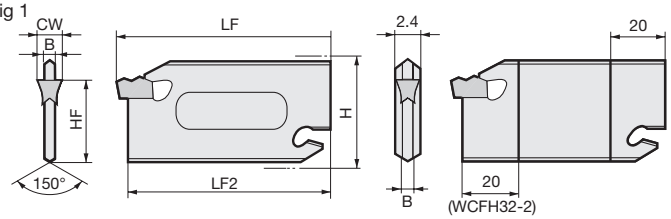
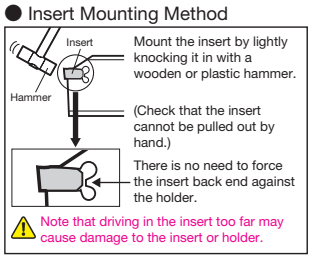


Figure shows right hand (R) tool.

● Insert Mounting Method



Holder

Parts Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Height HF	Reference Length LF2	Width of Cut CW	Max. Cut-Off Diameter	Applicable Insert	Applicable Tool Block	Fig	Wrench
WCFH26-2	★	*26*	*1.7*	*110*	*21.4*	*109.0*	*2*	*40*	WCF□2○	SBN20-26 SBU20-26	1	SL-2
WCFH26-3	●	*26*	*2.4*	*110*	*21.4*	*108.5*	*3*	*80*	WCF□3○		1	SL-1
WCFH26-4	●	*26*	*3.4*	*110*	*21.4*	*108.5*	*4*	*80*	WCF□4○		1	
WCFH26-5	●	*26*	*4.3*	*110*	*21.4*	*108.5*	*5*	*80*	WCF□5○		1	
WCFH32-2	★	*32*	*1.7*	*150*	*25.0*	*149.0*	*2*	*40*	WCF□2○	SBN20-32 SBN25-32 SBU20-32 SBU25-32	1	SL-2
WCFH32-3	●	*32*	*2.4*	*150*	*25.0*	*148.5*	*3*	*140*	WCF□3○		1	SL-1
WCFH32-4	●	*32*	*3.4*	*150*	*25.0*	*148.5*	*4*	*140*	WCF□4○		1	
WCFH32-5	●	*32*	*4.3*	*150*	*25.0*	*148.5*	*5*	*140*	WCF□5○		1	

Refer to F61 for applicable inserts.

Fig 1

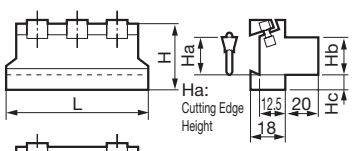


Fig 2

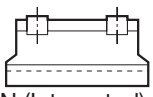


Fig 1

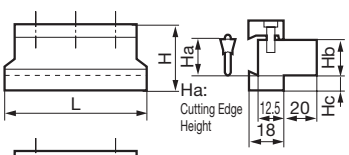
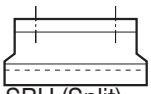


Fig 2



Tool Lock: SBN (Integrated)

Parts Dimensions (Inch/ *mm*)

Cat. No.	Stock	Cutting Edge Height Ha	Mounting Length Hb	Mounting Position Hc	Height H	Overall Length L	Fig	Clamp	Double Screw	Wrench
SBN063-26	●	.625	.625	.500	1.719	3.000	1	BWS30	WB8-20	LH040
SBN075-26	●	.750	.750	.375	1.719	3.156	1			
SBN100-32	●	1.000	1.000	.3125	2.000	4.500	1			
SBN20-26	★	*20*	*20*	*10.0*	*45*	*80*	2			
SBN20-32	★	*20*	*20*	*13.5*	*50*	*100*	1			
SBN25-32	★	*25*	*25*	*8.5*	*50*	*110*	1			

Tool Lock: SBU (Split)

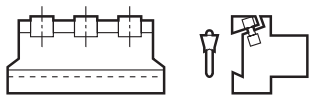
Parts Dimensions (inch/ *mm*)

Cat. No.	Stock	Cutting Edge Height Ha	Mounting Length Hb	Mounting Position Hc	Height H	Overall Length L	Fig	Clamp Wedge (BCS15 / BCS20 / BCS25)	Cap Screw	Wrench
SBU075-26	●	.750	.750	.4375	1.781	3.156	1	BCS15	BX0622	LH050
SBU075-32	●	.750	.750	.531	2.000	4.000	1	BCS20		
SBU100-32	●	1.000	1.000	.344	2.000	4.344	1	BCS25		
SBU20-26	★	*20*	*20*	*10.0*	*45*	*80*	2	BCS15		
SBU20-32	★	*20*	*20*	*13.5*	*50*	*100*	1	BCS20		
SBU25-32	★	*25*	*25*	*8.5*	*50*	*110*	1	BCS25		

Tool Block Selection Guide

Integrated

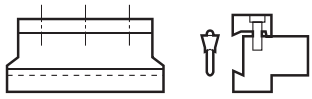
SBN Ex.: SBN20-32



· Applicable to toolpost **A** shown on the right.

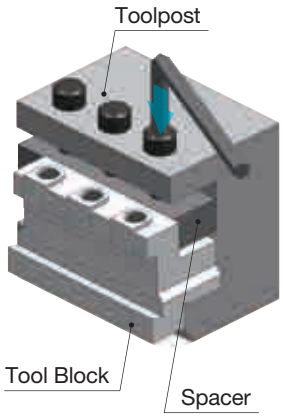
Split

SBU Ex.: SBU20-32



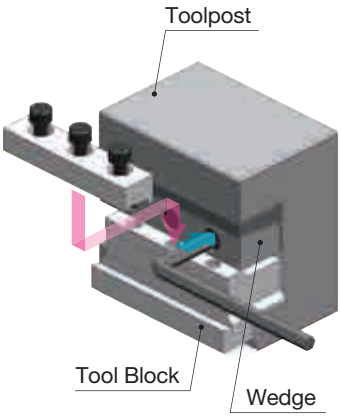
· Applicable to toolpost **A** or **B** shown on the right.
· Large clamp ensures a wide clamp area that enables long holder overhang.

A General-Purpose Lathe, etc. **SBN** **SBU**



(Clamp from above)

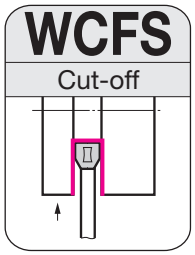
B Turret Toolpost, etc. **SBU**



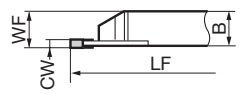
(Clamp from the side)

WCFS

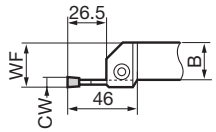
For Cut-off
(Carbide Holder/Shank)



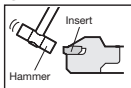
Brazed Blade



Blade Clamp



● Insert Mounting Method



Mount the insert by lightly knocking it in with a wooden or plastic hammer.
(Check that the insert cannot be pulled out by hand.)

⚠ Note that driving in the insert too far may cause damage to the insert or holder.

Fig 1

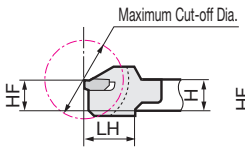


Fig 2

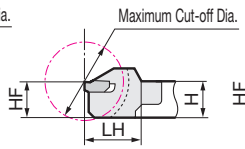


Fig 3

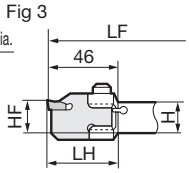


Fig 4

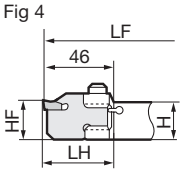


Figure shows right hand (R) tool.

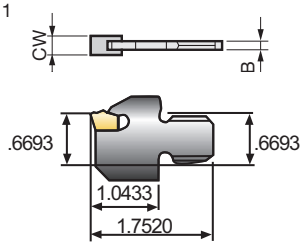
Holder

Parts Dimensions (mm)

Type	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Height HF	Head LH	Width of Cut CW	Max. Cut-Off Diameter	Applicable Blade	Applicable Insert	Fig	Wrench
Clamp	**WCFS R/L 063-3**	●	●	.625	.625	4.000	.625	.625	**.1181**	2.000	WCFH17-3	WCF□3○	3	SL-1
	WCFS R/L 075-3	●	●	.750	.750	4.500	.750	.750	**.1181**	2.000	WCFH17-3	WCF□3○	3	
	WCFS R/L 075-4	●	●	.750	.750	4.500	.750	.750	**.1575**	2.000	WCFH17-4	WCF□4○	3	
	WCFS R/L 075-5	●	●	.750	.750	4.500	.750	.750	**.1969**	2.000	WCFH17-5	WCF□5○	3	
	WCFS R/L 100-3	●	●	1.000	1.000	6.000	1.000	1.000	**.1181**	2.000	WCFH17-3	WCF□3○	4	
	WCFS R/L 100-4	●	●	1.000	1.000	6.000	1.000	1.000	**.1575**	2.000	WCFH17-4	WCF□4○	4	
	WCFS R/L 100-5	●		1.000	1.000	6.000	1.000	1.000	**.1969**	2.000	WCFH17-5	WCF□5○	4	
Brazed	**WCFS R/L1010-2**	★	★	*10*	*10*	*86*	*10*	*10*	***2***	*28*	—	WCF□2○	1	SL-2
	WCFS R/L1212-2	★	★	*12*	*12*	*110*	*12*	*18*	***2***	*30*	—	WCF□2○	1	
	WCFS R/L1616-2	★	★	*16*	*16*	*100*	*16*	*25*	***2***	*35*	—	WCF□2○	2	
	WCFS R/L1616-3	★	★	*16*	*16*	*100*	*16*	*25*	***3***	*35*	—	WCF□3○	2	SL-1
Clamp	**WCFS R/L20-3**	★	★	*20*	*20*	*125*	*20*	*46*	***3***	*50*	WCFH17-3	WCF□3○	3	SL-1
	WCFS R/L20-4	★	★	*20*	*20*	*125*	*20*	*46*	***4***	*50*	WCFH17-4	WCF□4○	3	
	WCFS R/L20-5	★		*20*	*20*	*125*	*20*	*46*	***5***	*50*	WCFH17-5	WCF□5○	3	
	WCFS R/L25-3	★	★	*25*	*25*	*150*	*25*	*46*	***3***	*50*	WCFH17-3	WCF□3○	4	SL-1
	WCFS R/L25-4	★	★	*25*	*25*	*150*	*25*	*46*	***4***	*50*	WCFH17-4	WCF□4○	4	
	WCFS R/L25-5	★		*25*	*25*	*150*	*25*	*46*	***5***	*50*	WCFH17-5	WCF□5○	4	

Refer to below for applicable blade. Blade is included with the holder.

Fig 1



Blade

Dimensions (inch / *mm*)

Cat. No.	Stock	Width of Cut CW	Width B	Applicable Holder	Fig
WCFH 17-3	●	**.118 / *3***	.094 / *2.4*	WCFS R/L20-3,25-3	1
WCFH 17-4	●	**.157 / *4***	.134 / *3.4*	WCFS R/L20-4,25-4	1
WCFH 17-5	●	**.197 / *5***	.169 / *4.3*	WCFS R/L20-5,25-5	1

Parts

Applicable Holder	Cap Screw	Wrench
WCFS R/L-063-○, WCFS R/L-075○, WCFS R/L-100○	BX0622	LH050
WCFS R/L20-○, WCFS R/L25-○	BX0622	LH050

SCT

Cut-off

For Cut-off
(Carbide Holder/Tool Block Type)

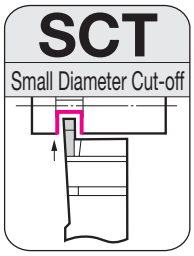


Fig 1

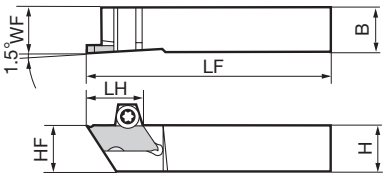


Fig 2

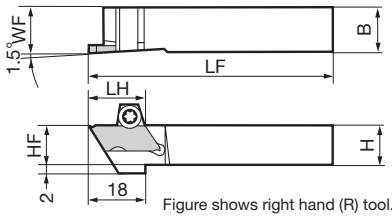


Figure shows right hand (R) tool.

Holder (Right Handed)

Parts Dimensions (inch/mm)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig	Flat Screw	Wrench
SCT R08	●	.500	.500	6.0	.500	.500	.591	CT R05○○○○(-NB)	1	BFTX0410T8L	TRX08
SCT R10	●	.625	.625	6.0	.625	.625	.591	CT R12○○○○(-NB)	1		
SCT R12	●	.750	.750	6.0	.750	.750	.591		1		
SCT R1010	★	*10*	*10*	*120*	*10*	*10*	*15*	CT R05○○○○(-NB)	1	BFTX0410T8L	TRX08
SCT R1212	★	*12*	*12*	*120*	*12*	*12*	*15*	CT R12○○○○(-NB)	1		
SCT R1616	★	*16*	*16*	*120*	*16*	*16*	*15*		1		
SCT R1010-16	★	*10*	*10*	*120*	*10*	*10*	*18*	CT R16○○○○(-NB)	2	BFTX0410T8L	TRX08
SCT R1212-16	★	*12*	*12*	*120*	*12*	*12*	*18*		1		
SCT R1616-16	★	*16*	*16*	*120*	*16*	*16*	*18*		1		

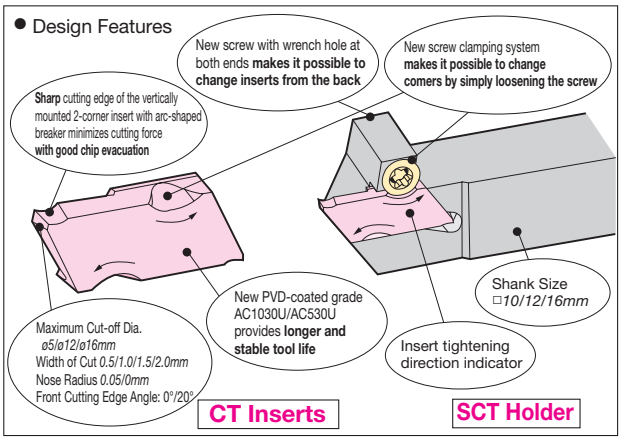
Holder (Left Handed)

Parts Dimensions (inch/mm)

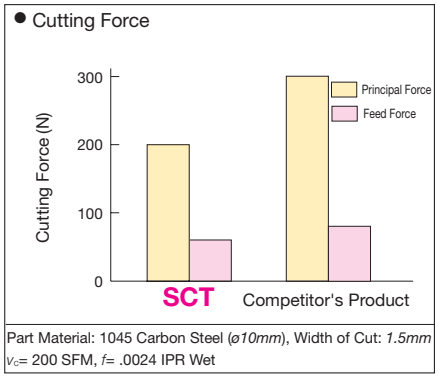
Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig	Flat Screw	Wrench
SCT L08	●	.500	.500	6.0	.500	.500	.591	CT L05○○○○(-NB)	1	BFTX0410T8R	TRX08
SCT L10	●	.625	.625	6.0	.625	.625	.591	CT L12○○○○(-NB)	1		
SCT L12	●	.750	.750	6.0	.750	.750	.591		1		
SCT L1010	★	*10*	*10*	*120*	*10*	*10*	*15*	CT L05○○○○(-NB)	1	BFTX0410T8R	TRX08
SCT L1212	★	*12*	*12*	*120*	*12*	*12*	*15*	CT L12○○○○(-NB)	1		
SCT L1616	★	*16*	*16*	*120*	*16*	*16*	*15*		1		
SCT L1010-16	★	*10*	*10*	*120*	*10*	*10*	*18*	CT L16○○○○(-NB)	2	BFTX0410T8R	TRX08
SCT L1212-16	★	*12*	*12*	*120*	*12*	*12*	*18*		1		
SCT L1616-16	★	*16*	*16*	*120*	*16*	*16*	*18*		1		

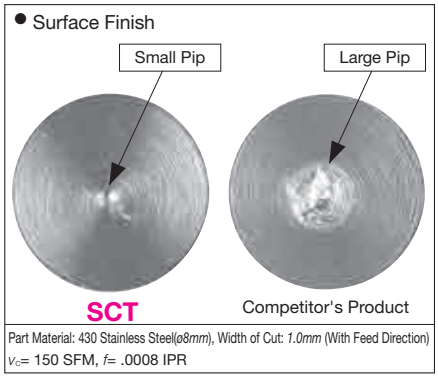
Features

- Simple Indexable Inserts
  New clamping system makes it possible to change corners simply by loosening the screw from the back
- High quality surface finish
  Excellent chip removal with good surface finish even at the center of the part material end face.
- Long, stable tool life with PVD-coated grades: AC1030U and AC530U

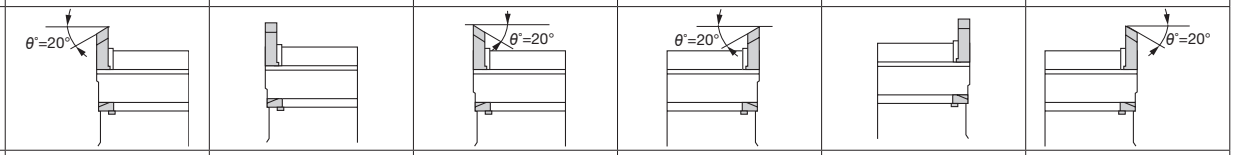
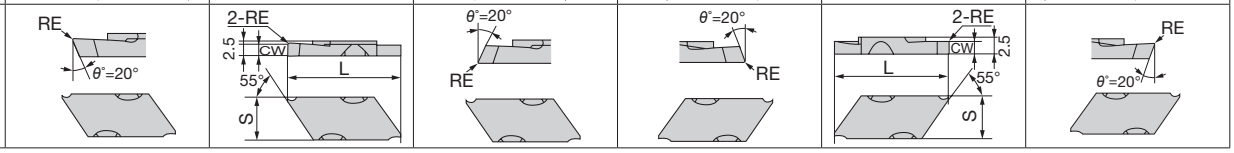


Performance





Insert Mounting Status and Dimensions (Figure shows insert with chipbreaker)

Holder Feed Direction	For Right-handed Holder (SCTR)			For Left-handed Holder (SCTL)		
Insert Cat. No.	CTR○○R	CTR○○N	CTR○○L	CTL○○R	CTL○○N	CTL○○L
Holder Mounting Status						
Insert Shape and Dimensions						

Inserts (For Right-handed Holders) (Coated Carbide)

Dimensions (*mm*)

Cat. No.	AC1030U R	AC1030U N	AC1030U L	AC530U R	AC530U N	AC530U L	Max. Cut-off Dia.	Width of Cut CW	Nose Radius RE	Overall Length L	Thickness S	Chipbreaker	Applicable Holder
CTR 050505 R/N/L	★	★	★	★	★	★	5	0.5	0.05	19	7	Yes	SCT R08 SCT R10 SCT R12 SCT R1010 SCT R1212 SCT R1616
CTR 050500 R/N/L	★	★		★	★		5	0.5	0				
CTR 121005 R/N/L	★	★	★	★	★	★	12	1.0	0.05	19	7	Yes	
CTR 121505 R/N/L	★	★	★	★	★	★	12	1.5					
CTR 122005 R/N/L	★	★		★	★		12	2.0					
CTR 121000 R/N/L	★	★		★	★		12	1.0	0				
CTR 121500 R/N/L	★	★		★	★		12	1.5					
CTR 122000 R/N/L	★	★		★	★		12	2.0					
CTR 161005 R/N/L							16	1.0	0.05	23.1	8.3	Yes	SCT R1010-16 SCT R1212-16 SCT R1616-16
CTR 161505 R/N/L	★	★		★	★		16	1.5					
CTR 162005 R/N/L	★	★	★	★	★	★	16	2.0					
CTR 161000 R/N/L							16	1.0	0				
CTR 161500 R/N/L	★	★		★	★		16	1.5					
CTR 162000 R/N/L	★	★	★	★	★	★	16	2.0					
CTR 050500 R/N/L-NB							5	0.5	0	19	7	No	SCT R08 SCT R10 SCT R12 SCT R1010 SCT R1212 SCT R1616
CTR 121000 R/N/L-NB	★			★			12	1.0	0	19	7	No	
CTR 121500 R/N/L-NB	★			★			12	1.5					
CTR 122000 R/N/L-NB	★			★			12	2.0					
CTR 161000 R/N/L-NB							16	1.0	0	23.1	8.3	No	SCT R1010-16 SCT R1212-16 SCT R1616-16
CTR 161500 R/N/L-NB							16	1.5					
CTR 162000 R/N/L-NB	★			★			16	2.0					

Inserts (For Left-handed Holders) (Coated Carbide)

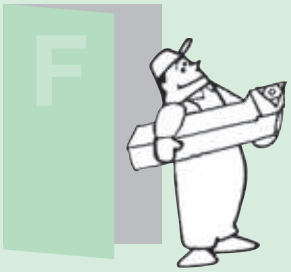
Dimensions (*mm*)

Cat. No.	AC1030U R	AC1030U N	AC1030U L	AC530U R	AC530U N	AC530U L	Max. Cut-off Dia.	Width of Cut CW	Nose Radius RE	Overall Length L	Thickness S	Chipbreaker	Applicable Holder
CTL 050505 R/N/L	★	★		★	★		5	0.5	0.05	19	7	Yes	SCT L08 SCT L10 SCT L12 SCT L1010 SCT L1212 SCT L1616
CTL 050500 R/N/L	★	★		★	★		5	0.5	0				
CTL 121005 R/N/L	★	★	★	★	★	★	12	1.0	0.05	19	7	Yes	
CTL 121505 R/N/L	★	★	★	★	★	★	12	1.5					
CTL 122005 R/N/L	★	★		★	★		12	2.0					
CTL 121000 R/N/L	★	★		★	★		12	1.0	0				
CTL 121500 R/N/L	★	★		★	★		12	1.5					
CTL 122000 R/N/L	★	★		★	★		12	2.0					
CTL 161005 R/N/L							16	1.0	0.05	23.1	8.3	Yes	SCT L1010-16 SCT L1212-16 SCT L1616-16
CTL 161505 R/N/L	★	★		★	★		16	1.5					
CTL 162005 R/N/L	★	★	★	★	★	★	16	2.0					
CTL 161000 R/N/L							16	1.0	0				
CTL 161500 R/N/L	★	★		★	★		16	1.5					
CTL 162000 R/N/L	★	★		★	★		16	2.0					
CTL 050500 R/N/L-NB							5	0.5	0	19	7	No	SCT L08 SCT L10 SCT L12 SCT L1010 SCT L1212 SCT L1616
CTL 121000 R/N/L-NB							12	1.0	0	19	7	No	
CTL 121500 R/N/L-NB							12	1.5					
CTL 122000 R/N/L-NB							12	2.0					
CTL 161000 R/N/L-NB							16	1.0	0	23.1	8.3	No	SCT L1010-16 SCT L1212-16 SCT L1616-16
CTL 161500 R/N/L-NB							16	1.5					
CTL 162000 R/N/L-NB							16	2.0					

Threading Tools

F68 to F86

F



Threading Tools

For Externall Diameters

Internal Diameters

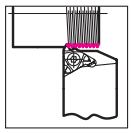
Threading Tool Series Selection Guide **F69**
Basics of Threads **F72**
SSTE / SSTI **F73**
LTE **F74**
STE / SSTE **F75**
STI / SSTI **F76**
SSTE / SSTI Inserts **F77**
SSTE/SSTI Type Guidelines for Depth of Cut and No. of Passes ... **F82**
TME /TMI Threading Inserts **F83**
TME/TMI Tool Guidelines for Depth of Cut and No. of Passes ... **F84**
STH (General Purpose) **F86**

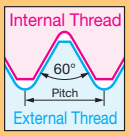
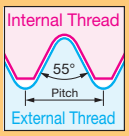
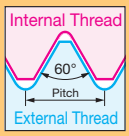
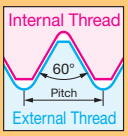
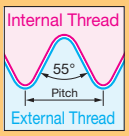
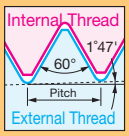
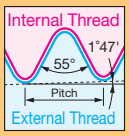
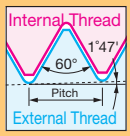
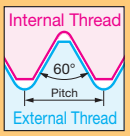
Stock Markings and Symbols

●: Standard stocked item
★: Worldwide Warehouse Item
▲: Limited Avaibility Item, made to order, or discontinued (please confirm stock availability).

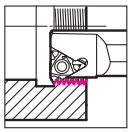
Blank: Made-to-order item
— mark: Not available

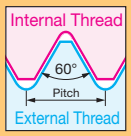
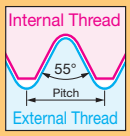
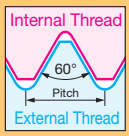
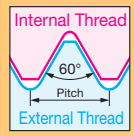
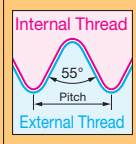
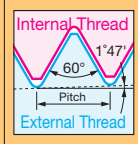
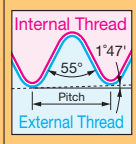
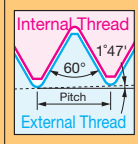
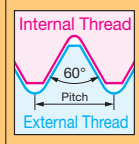
■ External Threading



Applications / Thread Ridge Shape	General Industrial Use				Pipe Couplings for Gas, Water and Water Faucets		Pipe Threads for Steam, Gas and Water Supply Pipes		Aerospace Equipment
									
Type	60° General-purpose Thread	55° General-purpose Thread (Whitworth)	60° ISO Metric Thread	60° Unified Thread	55° Parallel Thread for Pipe/Whitworth	60° American NPT	55° Taper Thread for Pipe BSPT	60° American NPTF	60° UNJ
Symbol	M / UNC/UNF	W	M	UNC/UNF	G/Rp/W	NPT	R/Rc	NPTF	UNJ
Pitch	mm / Threads/Inch	Threads/Inch	mm	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch
Wiper Edge	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SSTE	0.50 to 3.00 / 48 to 8	48 to 8	0.75, 1.00, 1.25 1.50, 1.75, 2.00 2.50, 3.00	32, 28, 24 20, 18, 16 14, 13, 12 10, 8	36, 32, 28 24, 20, 19 18, 16, 14 12, 11, 10 8	27, 18, 14 11.5, 8	28, 19 14, 11	27, 18, 14 11.5	32, 28, 24 20, 18, 16 14, 12, 10
LTE	1.00 to 3.00 / 24 to 8	24 to 10	1.00, 1.25, 1.50 1.75, 2.00, 2.50 3.00, 3.50, 4.00	24, 20, 18 16, 14, 12 8	–	–	28, 19 14, 11	–	–
STE	1.00 to 3.00 / 24 to 8	24 to 10	1.00, 1.25, 1.50 1.75, 2.00, 2.50 3.00	24, 20, 18 16, 14, 12 8	–	–	28, 19 14, 11	–	–
STH	0.20 to 1.50	48 to 16	–	–	–	–	–	–	–

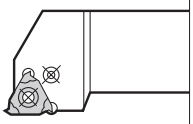
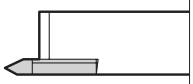
■ Internal Threading



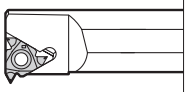
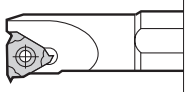
Applications / Thread Ridge Shape	General Industrial Use				Pipe Couplings for Gas, Water and Water Faucets		Pipe Threads for Steam, Gas and Water Supply Pipes		Aerospace Equipment
									
Type	60° General-purpose Thread	55° General-purpose Thread (Whitworth)	60° ISO Metric Thread	60° Unified Thread	55° Parallel Thread for Pipe/Whitworth	60° American NPT	55° Taper Thread for Pipe BSPT	60° American NPTF	60° UNJ
Symbol	M / UNC/UNF	W	M	UNC/UNF	G/Rp/W	NPT	R/Rc	NPTF	UNJ
Pitch	mm / Threads/Inch	Threads/Inch	mm	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch	Threads/Inch
Wiper Edge	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SSTI	0.50 to 3.00 / 48 to 8	48 to 8	0.75, 1.00, 1.25 1.50, 1.75, 2.00 2.50, 3.00	32, 28, 24 20, 18, 16 14, 13, 12 10, 8	28, 24 20, 19	27, 18, 14 11.5, 8	28, 19	27, 18, 14 11.5, 8	32, 28, 24 20, 18, 16 14, 12, 10
STI	1.00 to 3.00 / 24 to 8	—	1.00, 1.25, 1.50 1.75, 2.00, 2.50 3.00	—	—	—	—	—	—

Product Range

■ External Threading Tools

Series	Appearance	Structure: Screw-on	Clamp-on	Lever Lock	Drawing Pin	Features	Applicable Thread Symbol
SSTE	→F75	●				· Adopts a flat 3-corner insert. Ground cutting edge flank produces superior machined surface with sharp cutting edge · Stable chip control through use of a 3D molded breaker · Large lineup of inserts with a wiper edge	M, W, UNC/UNF, G/Rp/W, NPT, R/Rc, NPTF, UNJ
LTE/ STE	 →F74, F75	●		●		· Range of lever lock holders with strong clamping force (shank size □*25 to 32mm*) and screw-on type holders (shank size □*12 to 16mm*) · M-Class flat-mounted 3-corner insert is economical · Range of cermet grades · Stable chip control with incorporated chipbreaker	M, W, UNC/UNF, G/Rp/W, NPT, R/Rc, NPTF, UNJ
STH	 →F86	●				· For a small lathe with a shank size of □*20mm* or less · 2-corner vertically-mounted insert enables space-saving threading · Can also be used for back-turning threading with bar feeder · Can also be used for small-pitch (min. *0.2mm*) threading	M, W, UNC/UNF, G/Rp/W, NPT, R/Rc, NPTF, UNJ

■ Internal Threading Tools

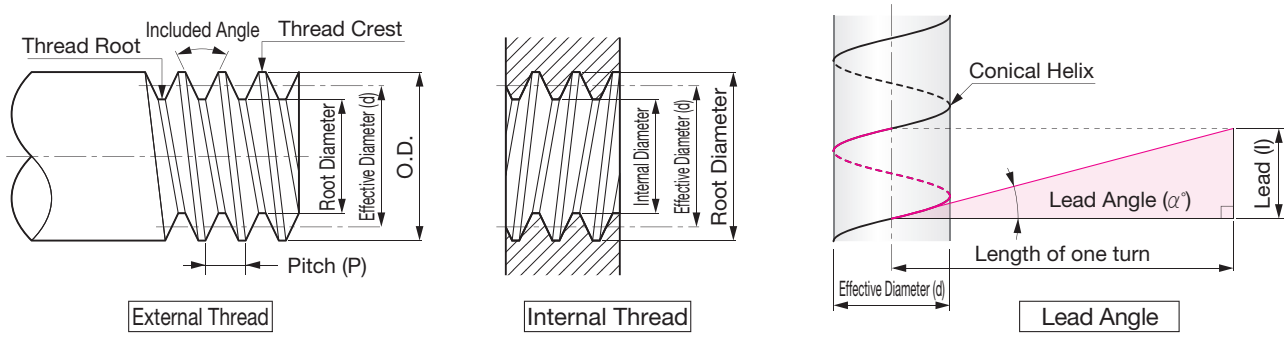
Series	Appearance	Structure: Screw-on	Clamp-on	Lever Lock	Drawing Pin	Features	Min. bore diameter (mm)	Applicable Thread Symbol
SSTI	 →F76	●				· Adopts a flat 3-corner insert. Ground cutting edge flank produces superior machined surface with sharp cutting edge · Stable chip control through use of a 3D molded breaker · Large lineup of inserts with a wiper edge	ø18	M, W, UNC/UNF, G/Rp/W, NPT, R/Rc, NPTF, UNJ
STI	 →F76	●				· M-Class flat-mounted 3-corner insert is economical · Stable chip control with incorporated chipbreaker · Range of cermet grades	ø20	M, UNC/UNF, NPT, NPTF

Note: The minimum machining diameter is the diameter of the screw prepared hole.

M : 60° ISO General-purpose Metric Thread
W : 55° General-purpose Thread (Whitworth)
UNC/UNF : 60° Unified Thread
G/Rp/W : 55° Parallel Thread for Pipe
NPT : 60° American NPT
R/Rc : 55° Taper Thread for Pipe BSPT
NPTF : 60° American NPTF
UNJ : 60° UNJ

Basics of Threading

■ Parts of a Screw



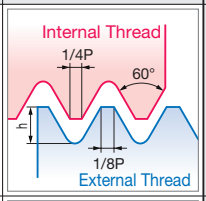
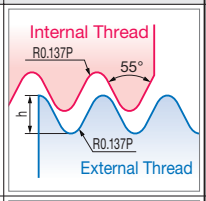
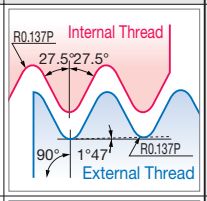
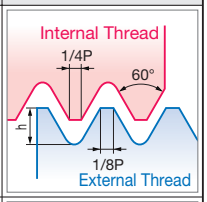
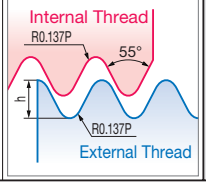
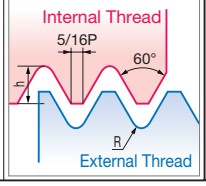
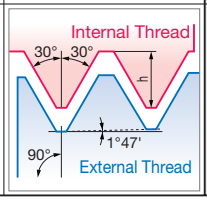
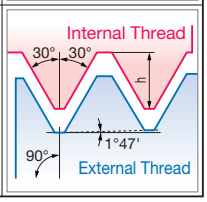
Effective Diameter (d) : Diameter of imaginary cylinder that passes through the thread at the point where the groove and ridge widths are equal
Pitch (P) : Distance between two ridges adjacent to each other
Lead (l) : Distance the screw thread moves axially in one turn
(On a single threaded screw, the lead and pitch are identical.)
Lead Angle (α) : Angle made by the conical helix of the thread ridge at a pitch diameter with a plane perpendicular to the axis

● Lead Angle Calculation

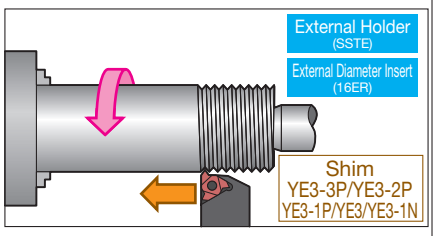
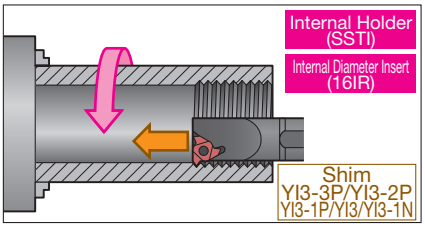
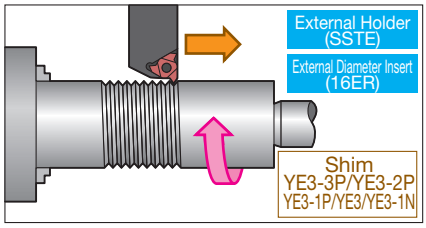
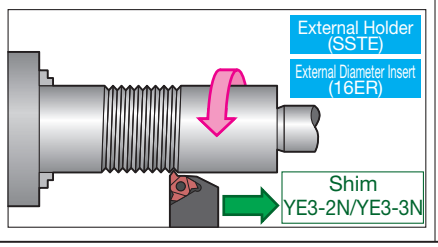
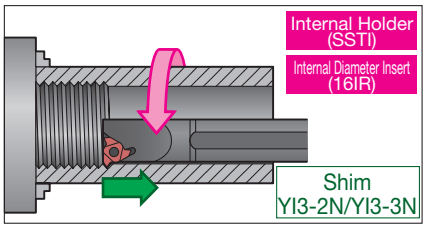
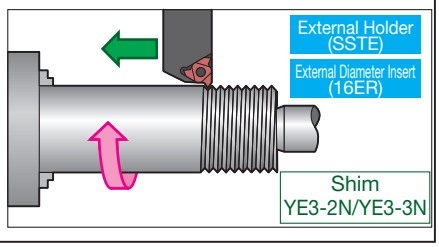
$$\tan \alpha^\circ = \frac{l}{\pi \times d} = \frac{n \times P}{\pi \times d}$$

α° : Lead Angle
l : Lead
n : No. of Threads
P : Pitch
d : Effective Screw Diameter

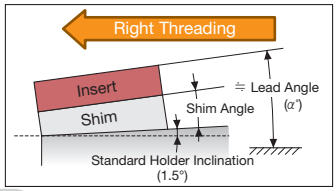
■ Main Screw Types and Standard Thread Patterns

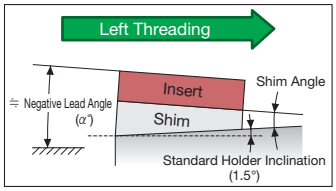
Applications	Symbol	Basic Profile	Applications	Symbol	Basic Profile	Applications	Symbol	Basic Profile	Applications	Symbol	Basic Profile
Metric Thread	M		Parallel Thread for Pipe	Internal Thread G(PF) Rp(PS) External Thread G(PF)		Taper Thread for Pipe	Internal Thread Rc(PT) (BSPT) External Thread R(PT) (BSPT)		Unified Thread	UN UNC UNF UNEF	
Whitworth Thread	W BSW BSP		Thread for Aerospace Instruments	UNJ		American Taper Thread for Pipe	NPT		American Taper Thread for Pipe	NPTF	

■ Tool Holder and Insert Selection Guide (SSTE / SSTI)

	External Diameter (Spindle Rotation Forward)	Internal Diameter (Forward Spindle Rotation)	External Diameter (Spindle Rotation Backward)
Right Threading			
Left Threading			

■ Threading Method and Angle of Insert





SSTE / SSTI

■ Features

- High-precision inserts with wiper edge for threading, supporting a wide range of applications from general industrial machinery to pipes and aerospace devices
- Stable chip control through use of a 3D molded chipbreaker
- Ground cutting edge flank for improved cutting edge sharpness, resulting in high quality threads

Ground flank periphery around cutting edge

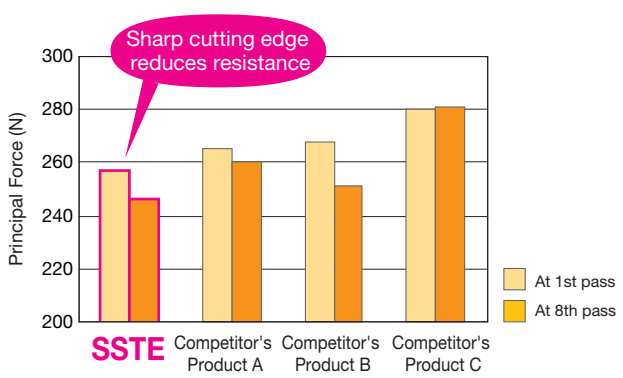
■ Product Range

Applications	Type	Wiper Edge	External/ Internal	Pitch (mm)	TPI (Threads/Inch)	Insert Cat. No. (Example)
General Industrial Use	60° General-purpose Thread	No	External	0.5 – 3.0	48 to 8	16ER A60-CB
			Internal	0.5 – 3.0	48 to 8	16IR A60-CB
	55° General-purpose Thread		External		48 to 8	16ER A55-CB
			Internal		48 to 8	16IR A55-CB
	60° ISO Metric Thread	Yes	External	0.75 1.0 1.25 1.5 1.75 2.0 2.5 3.0		16ER 075ISO-CB
			Internal	0.75 1.0 1.25 1.5 1.75 2.0 2.5 3.0		16IR 075ISO-CB
	60° Unified Thread		External		32 24 20 18 16 14 13 12 10 8	16ER 32UN-CB
			Internal		32 24 20 18 16 14 13 12 10 8	16IR 32UN-CB
Pipe Coupling for Gas, Water and Water Faucets	55° Parallel Thread for Pipe/Whitworth		External		36 32 28 24 20 18 16 14 12 11 10	16ER 36W-CB
			Internal		28 24 20 19	16IR 28W-CB
	60° American NPT		External		27 19 14 12 8	16ER 27NPT-CB
			Internal		27 19 14 12 8	16IR 27NPT-CB
Steam, Gas and Water Supply Pipes	55° Taper Thread for Pipe BSPT		External		28 19 14 11	16ER 28BSPT-CB
			Internal		28 19	16IR 28BSPT-CB
	60° American NPTF		External		27 19 14 12	16ER 27NPTF-CB
			Internal		27 19 14 12 8	16IR 27NPTF-CB
Aerospace Equipment	60° UNJ		External		32 24 20 18 16 14 12 10	16ER 32UNJ-CB
			Internal		32 24 20 18 16 14 12 10	16IR 32UNJ-CB

For inch holders, the STH and STI holders will also fit these products

■ Application Examples

● Comparison of Cutting Force



Part Material: Medium 1045 Carbon Steel , M30 × 1.5
Cutting Conditions: v_c= 500 SFM Wet 8 passes Thread infeed method: Radial infeed

● Machined Surface Comparison

Part Material: Medium 1045 Carbon Steel, M30 × 1.5
Cutting Conditions: v_c= 500 SFM Wet 8 passes Thread infeed method: Radial infeed

External

Screw-on / Lever Lock
for External Diameter

M	Metric Thread
W	Whitworth Thread
UNC/UNF	Unified Thread
R/Rc	Taper Thread for Pipe

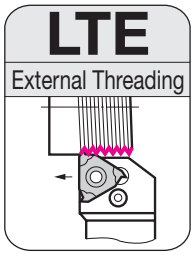
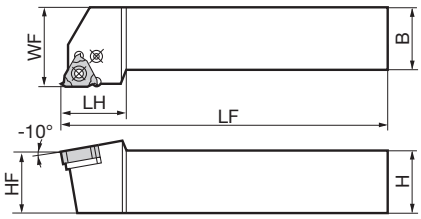


Fig 1



Holder

Parts

Dimensions (inch / *mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Head LH	Fig	Lever Pin	Bolt	Shim	Shim Retainer	Wrench
LTER123C	●	.750	.750	5.000	1.000	.750	1.000	1	LCL3S	LCS3TE	LSTE31-0	LSP3	LH025
LTER163D	●	1.000	1.000	6.000	1.250	1.000	1.000	1					
LTE R2020	★	*20*	*20*	*125*	*25*	*20*	*25*	1					
LTE R2525	★	*25*	*25*	*150*	*32*	*25*	*25*	1					
LTE R2525M22	★	*25*	*25*	*150*	*32*	*25*	*28*	1	LCL4S	LCS4	LSTE42-0	LSP4	LH030
LTE R3232P22	★	*32*	*32*	*170*	*40*	*32*	*28*	1					

Refer to below for shim selection.

Holder Identification Code

(Example) **S S T E R 25 25 M 16**

① Series

Symbol
SST Type

② External/Internal

Symbol	Distinction
E	External
I	Internal

③ Feed Direction

Symbol	Feed Direction
R	Right Hand

④ Shank Height/Work Dia.

	Symbol	(mm)
External (Shank Height)	16	16
	20	20
	25	25
Internal (Min. bore diameter)	18	18
	20	20
	24	24
	31	31
	37	37

⑤ Shank Width/ Diameter

	Symbol	(mm)
External (Shank Width)	16	16
	20	20
	25	25
Internal (Shank Diameter)	12	12
	16	16
	20	20
	25	25
	32	32

⑥ Overall Length Symbo

Symbol	(mm)
H	100
K	125
M	150
Q	180
S	250

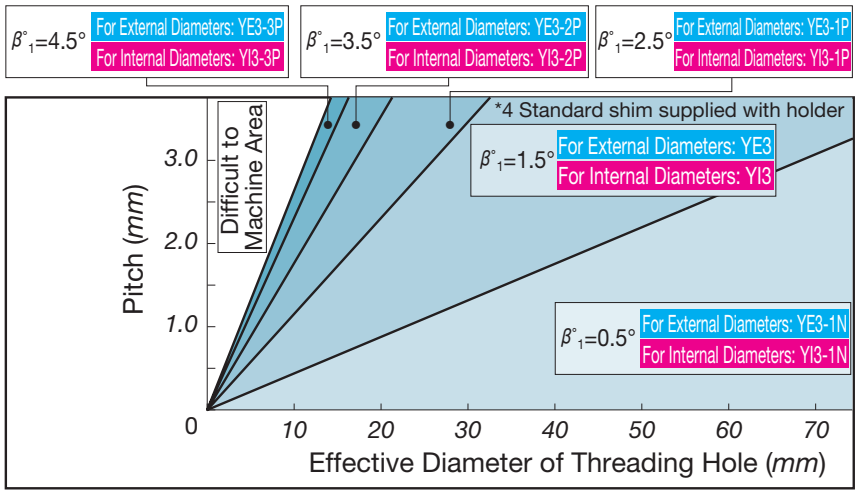
⑦ Insert Size

Symbol	Inscribed Circle (mm)
16	9.525

Shim and Selection Criteria

Applications	Recommended Lead Angle (β)	External Cat. No.	External Stock	Internal Cat. No.	Internal Stock
Right-hand Thread	**4.5°**	**YE3-3P**	★	**YI3-3P**	★
	3.5°	**YE3-2P**	★	**YI3-2P**	★
	2.5°	**YE3-1P**	★	**YI3-1P**	★
	1.5°	**YE3***4	★	**YI3***4	★
	0.5°	**YE3-1N**	★	**YI3-1N**	★
Left-hand Thread	**-0.5°**	**YE3-2N**	★	**YI3-2N**	★
	-1.5°	**YE3-3N**	★	**YI3-3N**	★

*4 Standard shim supplied with holder.



N·m Recommended Tightening Torque (N·m)

★ Worldwide Warehouse Item

External

Screw-on / Lever Lock
for External Diameter

M Metric Thread
W Whitworth Thread
UNC/UNF Unified Thread
R/Rc Taper Thread for Pipe

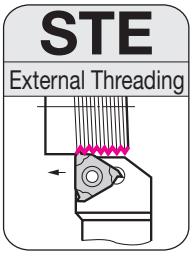
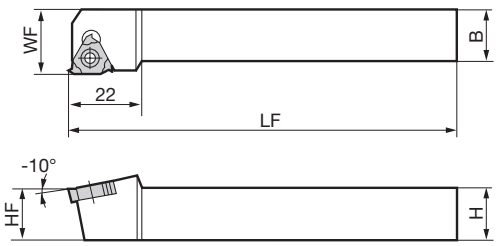


Fig 1



Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Fig	Flat Screw	N·m	Wrench
STE R1212	★	*12*	*12*	*100*	*16*	*12*	1	BFTX03508	2.0	TRX10
STE R1616	★	*16*	*16*	*100*	*20*	*16*	1			

External

Screw-on
for External Diameter

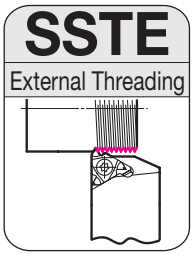
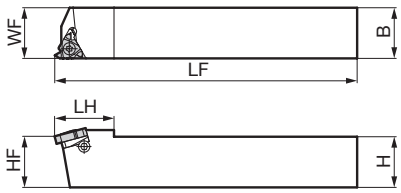
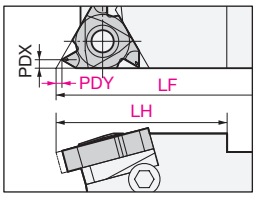


Fig 1





The values for dimensions LF and LH below are only for reference.
The actual value is the value on page F77 minus the PDY insert dimension.

Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Head LH	Cutting Edge Distance WF	Cutting Edge Height HF	Fig	Flat Screw	N·m	Shim Screw	Flat Washer	Shim	Wrench
SSTE R1616H16	★	*16*	*16*	*100*	*20.5*	*16*	*16*	1	BFTX0312N	2.0	BX0304*1	PW3	YE3	TRX10
SSTE R2020K16	★	*20*	*20*	*125*	*30.0*	*20*	*20*	1						
SSTE R2525M16	★	*25*	*25*	*150*	*30.0*	*25*	*25*	1						

*1 Shim screw wrench is sold separately.

★ Worldwide Warehouse Item
N·m Recommended Tightening Torque (N·m)

Holder Identification F74
Details of Shim Selection F74

STI / SSTI

Internal

Screw-on
for Internal Diameter

M Metric Thread
UNC/UNF Unified Thread

STI

Internal Threading

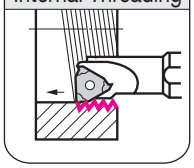
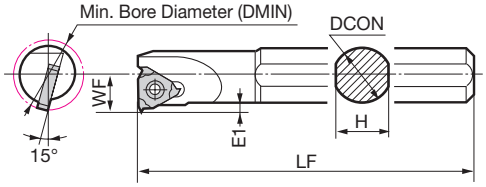


Fig 1



Holder

Parts

Dimensions (inch / *mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Distance E1	Min. Bore Diameter DMIN	Fig	Flat Screw	N·m	Wrench
STIR103	•	.625	.590	6.000	.406	.1080	.750	1	BFTX03508	2.0	TRX10
STIR123	•	.750	.670	7.000	.492	.1525	1.000	1			
STIR163	•	1.000	.905	8.000	.600	.1375	1.150	1			
STIR203	•	1.250	1.142	10.000	.724	.1415	1.400	1			
STIR243	•	1.500	1.378	12.000	.897	.1560	1.700	1			
STIR316	★	*16*	*15*	*150*	*11*	*3.5*	*20*	1			
STIR320	★	*20*	*18*	*180*	*14*	*5.0*	*25*	1			

Internal

Screw-on
for Internal Diameter

SSTI

Internal Threading

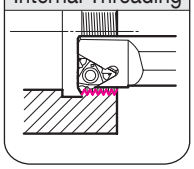


Fig 1

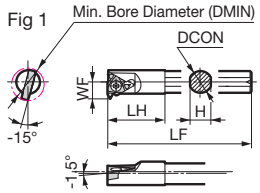


Fig 2

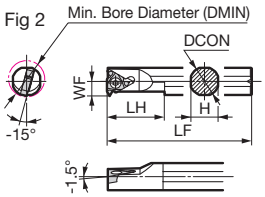
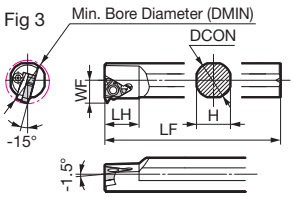
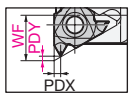


Fig 3





The values for dimension WF below are only for reference.
The actual value is the value on page F78
minus the PDY insert dimension.

Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Diameter DCON	Height H	Overall Length LF	Head LH	Cutting Edge Distance WF	Min.Bore Diameter DMIN*2	Fig	Flat Screw	N·m	Shim Screw	Flat Washer	Shim	Wrench
SSTI R1812M16[*3]	★	*12*	*11.0*	*150*	*32.0*	*10.2*	*18*	1	BFTX03085N	2.0	-	-	-	TRX10
SSTI R2016M16[*3]	★	*16*	*15.0*	*150*	*63.5*	*9.2*	*20*	2						
SSTI R2420Q16	★	*20*	*18.0*	*180*	*19.0*	*13.5*	*24*	3	BFTX0312N	2.0	BX0304[*1]	PW3	YI3	
SSTI R3125S16	★	*25*	*23.0*	*250*	*14.3*	*16.5*	*31*	3						
SSTI R3732S16	★	*32*	*30.0*	*250*	*14.3*	*20.0*	*37*	3						

*1 Shim screw wrench is sold separately. *2 The minimum bore diameter is the diameter of the prepared hole. *3 Left-hand threads are not available.

★ Worldwide Warehouse Item

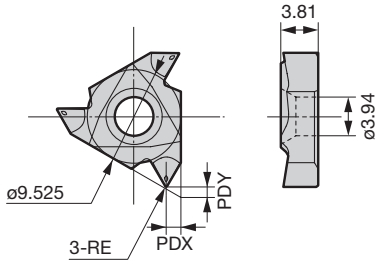
N·m Recommended Tightening Torque (N·m)

SSTE / SSTI Inserts

SSTE Guidelines for Depth of Cut and No. of Passes F81

External

Fig 1



(Coated Carbide)

ER Insert

(Coated Carbide)

60°/55° General-purpose Threads (Partial Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	16ER A60-CB	★	0.5-1.5	16 - 48	0.8	0.6	0.09	5	2
	16ER AG60-CB	★	0.5-3.0	8 - 48	1.5	1.1	0.10		2
	16ER G60-CB	★	2.0-3.0	8 - 14	1.5	1.1	0.20		2
55°	16ER A55-CB	★	—	16 - 48	0.8	0.5	0.05	5	2
	16ER AG55-CB	★	—	8 - 48	1.5	1.1	0.08		2
	16ER G55-CB	★	—	8 - 14	1.5	1.1	0.22		2

60° ISO Metric Thread (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	16ER 075 ISO-CB	★	0.75	—	0.5	1.0	0.09	5	2
	16ER 100 ISO-CB	★	1.00	—	0.8	0.6	0.14		2
	16ER 125 ISO-CB	★	1.25	—	0.8	0.7	0.15		2
	16ER 150 ISO-CB	★	1.50	—	0.8	0.7	0.20		2
	16ER 175 ISO-CB	★	1.75	—	1.5	1.0	0.23		2
	16ER 200 ISO-CB	★	2.00	—	1.5	1.1	0.26		2
	16ER 250 ISO-CB	★	2.50	—	1.5	1.2	0.33		2
	16ER 300 ISO-CB	★	3.00	—	1.5	1.1	0.41		2

60° Unified Thread (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	16ER 32UN-CB	★	—	32	0.5	1.0	0.10	5	2
	16ER 28UN-CB	★	—	28	0.8	0.7	0.11		2
	16ER 24UN-CB	★	—	24	0.8	0.7	0.13		2
	16ER 20UN-CB	★	—	20	0.8	0.7	0.16		2
	16ER 18UN-CB	★	—	18	0.8	0.7	0.18		2
	16ER 16UN-CB	★	—	16	0.8	0.8	0.20		2
	16ER 14UN-CB	★	—	14	1.5	1.2	0.23		2
	16ER 13UN-CB	★	—	13	1.5	1.1	0.26		2
	16ER 12UN-CB	★	—	12	1.5	1.0	0.27		2
	16ER 10UN-CB	★	—	10	1.5	1.2	0.33		2
	16ER 08UN-CB	★	—	8	1.5	1.2	0.42		2

55° Parallel Thread for Pipe / Whitworth (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/Pack	Fig
55°	16ER 36W-CB	★	—	36	0.5	1.0	0.10	5	2
	16ER 32W-CB	★	—	32	0.5	1.0	0.11		2
	16ER 28W-CB	★	—	28	0.8	0.6	0.12		2
	16ER 24W-CB	★	—	24	0.8	0.6	0.15		2
	16ER 20W-CB	★	—	20	0.8	0.6	0.18		2
	16ER 19W-CB	★	—	19	0.8	0.6	0.18		2
	16ER 18W-CB	★	—	18	0.8	0.6	0.19		2
	16ER 16W-CB	★	—	16	0.8	0.6	0.22		2
	16ER 14W-CB	★	—	14	1.5	1.0	0.25		2
	16ER 12W-CB	★	—	12	1.5	1.1	0.29		2
	16ER 11W-CB	★	—	11	1.5	1.1	0.32		2
	16ER 10W-CB	★	—	10	1.5	1.1	0.35		2
	16ER 08W-CB	★	—	8	1.5	1.1	0.43		2

★ Worldwide Warehouse Item

60° American NPT (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	16ER 27NPT-CB	★	—	27	0.8	0.6	0.06	5	2
	16ER 18NPT-CB	★	—	18	0.8	0.6	0.06		2
	16ER 14NPT-CB	★	—	14	1.5	1.0	0.08		2
	16ER 115NPT-CB	★	—	11.5	1.5	1.0	0.08		2
	16ER 08NPT-CB	★	—	8	1.5	1.1	0.13		2

55° Taper Thread for Pipe / BSPT (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/Pack	Fig
55°	16ER 28BSPT-CB	★	—	28	0.8	0.6	0.13	5	2
	16ER 19BSPT-CB	★	—	19	0.8	0.6	0.18		2
	16ER 14BSPT-CB	★	—	14	1.5	1.3	0.25		2
	16ER 11BSPT-CB	★	—	11	1.5	1.0	0.31		2

60° American NPTF (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	16ER 27NPTF-CB	★	—	27	0.8	0.6	0.06	5	2
	16ER 18NPTF-CB	★	—	18	0.8	0.6	0.06		2
	16ER 14NPTF-CB	★	—	14	1.5	1.0	0.13		2
	16ER 115NPTF-CB	★	—	11.5	1.5	1.0	0.12		2

60° UNJ (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X Direction PDX	Y Direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	16ER 32UNJ-CB	★	—	32	0.5	1.0	0.13	5	2
	16ER 28UNJ-CB	★	—	28	0.8	0.6	0.15		2
	16ER 24UNJ-CB	★	—	24	0.8	0.6	0.18		2
	16ER 20UNJ-CB	★	—	20	0.8	0.7	0.21		2
	16ER 18UNJ-CB	★	—	18	0.8	0.6	0.23		2
	16ER 16UNJ-CB	★	—	16	0.8	0.6	0.25		2
	16ER 14UNJ-CB	★	—	14	1.5	1.1	0.29		2
	16ER 12UNJ-CB	★	—	12	1.5	1.1	0.34		2
	16ER 10UNJ-CB	★	—	10	1.5	1.1	0.40		2

Insert Nomenclature

(Example) **16 E R 150 ISO - CB**

① Insert Size

Symbol	Inscribed Circle (mm)
16	9.525

② External/Internal

Symbol	Distinction
E	External
I	Internal

③ Feed Direction

Symbol	Feed Direction
R	Right Hand

④ Pitch or TPI

Metric = Pitch x 100
Inch= TPI
(115 only for 11.5)
(Example) 075: Pitch 0.75mm
150: Pitch 1.5mm
20: 20TPI

	Symbol	Pitch/TPI
With Wiper Edge	A	Pitch 0.5 to 1.5mm TPI : 16 to 48
Without Wiper Edge	AG	Pitch 0.5 to 3.0mm TPI : 8 to 48
	G	Pitch 2.0 to 3.0mm TPI : 8 to 14

⑤ Thread Type

Wiper Edge	Symbol	Type
Yes	ISO	Metric Thread
	UN	Unified Thread
	W	Whitworth
	NPT	American Taper Thread for Pipe
	BSPT	Taper Thread for Pipe
	NPTF	American Taper Thread for Pipe
	UNJ	For Aerospace Equipment
No	60	60° General-purpose Thread
	55	55° General-purpose Thread

⑥ Chipbreaker

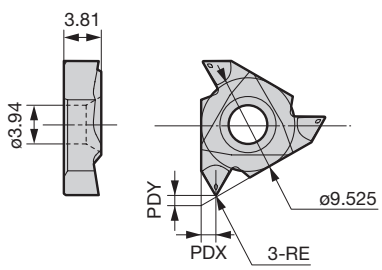
Symbol	Description
CB	With Chipbreaker

SSTE / SSTI Inserts

Internal

SSTE Type Guidelines for Depth of Cut and No. of Passes F72

Fig 1



(Coated Carbide)

60°/55° General-purpose Threads (Partial Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X direction PDX	Y direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	**16IR A60-CB**	★	0.5-1.5	16 - 48	0.8	0.5	0.09	5	1
	16IR AG60-CB	★	0.5-3.0	8 - 48	1.5	1.1	0.10		1
	16IR G60-CB	★	2.0-3.0	8 - 14	1.5	1.1	0.18		1
55°	**16IR A55-CB**	★	-	16 - 48	0.8	0.5	0.05	5	1
	16IR AG55-CB	★	-	8 - 48	1.5	1.1	0.08		1
	16IR G55-CB	★	-	8 - 14	1.5	1.1	0.20		1

60° ISO Metric Thread (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X direction PDX	Y direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	**16IR 075 ISO-CB**	★	0.75	-	0.5	0.9	0.04	5	1
	16IR 100 ISO-CB	★	1.00	-	0.8	0.6	0.06		1
	16IR 125 ISO-CB	★	1.25	-	0.8	0.6	0.07		1
	16IR 150 ISO-CB	★	1.50	-	0.8	0.6	0.09		1
	16IR 175 ISO-CB	★	1.75	-	1.5	1.0	0.10		1
	16IR 200 ISO-CB	★	2.00	-	1.5	1.1	0.13		1
	16IR 250 ISO-CB	★	2.50	-	1.5	1.1	0.15		1
	16IR 300 ISO-CB	★	3.00	-	1.5	1.1	0.19		1

60° Unified Thread (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X direction PDX	Y direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	**16IR 32UN-CB**	★	-	32	0.5	0.9	0.04	5	1
	16IR 28UN-CB	★	-	28	0.8	0.6	0.06		1
	16IR 24UN-CB	★	-	24	0.8	0.7	0.06		1
	16IR 20UN-CB	★	-	20	0.8	0.6	0.08		1
	16IR 18UN-CB	★	-	18	0.8	0.6	0.08		1
	16IR 16UN-CB	★	-	16	0.8	0.7	0.09		1
	16IR 14UN-CB	★	-	14	1.5	1.1	0.13		1
	16IR 13UN-CB	★	-	13	1.5	1.1	0.11		1
	16IR 12UN-CB	★	-	12	1.5	1.1	0.13		1
	16IR 10UN-CB	★	-	10	1.5	1.1	0.15		1
	16IR 08UN-CB	★	-	8	1.5	1.1	0.20		1

55° Parallel Thread for Pipe / Whitworth (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X direction PDX	Y direction PDY	Nose Radius RE	Pcs/Pack	Fig
55°	**16IR 28W-CB**	★	-	28	0.8	0.6	0.12	5	1
	16IR 24W-CB	★	-	24	0.8	0.6	0.14		1
	16IR 20W-CB	★	-	20	0.8	0.6	0.18		1
	16IR 19W-CB	★	-	19	0.8	0.6	0.18		1

60° American NPT (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X direction PDX	Y direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	**16IR 27NPT-CB**	★	-	27	0.8	0.6	0.06	5	1
	16IR 18NPT-CB	★	-	18	0.8	0.6	0.06		1
	16IR 14NPT-CB	★	-	14	1.5	1.1	0.08		1
	16IR 115NPT-CB	★	-	11.5	1.5	1.0	0.08		1
	16IR 08NPT-CB	★	-	8	1.5	1.0	0.13		1

55° Taper Thread for Pipe / BSPT (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X direction PDX	Y direction PDY	Nose Radius RE	Pcs/Pack	Fig
55°	**16IR 28BSPT-CB**	★	-	28	0.8	0.6	0.13	5	1
	16IR 19BSPT-CB	★	-	19	0.8	0.6	0.18		1

60° American NPTF (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X direction PDX	Y direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	**16IR 27NPTF-CB**	★	-	27	0.8	0.6	0.06	5	1
	16IR 18NPTF-CB	★	-	18	0.8	0.6	0.08		1
	16IR 14NPTF-CB	★	-	14	1.5	1.0	0.13		1
	16IR 115NPTF-CB	★	-	11.5	1.5	1.0	0.08		1
	16IR 08NPTF-CB	★	-	8	1.5	1.1	0.13		1

60° UNJ (Full Profile)

Dimensions (mm)

Thread Ridge Angle	Cat. No.	AC530U	Pitch mm	Pitch Threads/Inch	X direction PDX	Y direction PDY	Nose Radius RE	Pcs/Pack	Fig
60°	**16IR 32UNJ-CB**	★	-	32	0.5	0.9	0.04	5	1
	16IR 28UNJ-CB	★	-	28	0.8	0.6	0.05		1
	16IR 24UNJ-CB	★	-	24	0.8	0.6	0.06		1
	16IR 20UNJ-CB	★	-	20	0.8	0.6	0.06		1
	16IR 18UNJ-CB	★	-	18	0.8	0.6	0.06		1
	16IR 16UNJ-CB	★	-	16	0.8	0.6	0.09		1
	16IR 14UNJ-CB	★	-	14	1.5	1.1	0.09		1
	16IR 12UNJ-CB	★	-	12	1.5	1.1	0.11		1
	16IR 10UNJ-CB	★	-	10	1.5	1.1	0.15		1

Insert Cat. No. Nominal

(Example) **16 I R 150 ISO - CB**

① Insert Size

Symbol	Inscribed Circle (mm)
16	9.525

② External/Internal

Symbol	Ex/In
E	O.D.
I	Internal Diameter

③ Feed Direction

Symbol	Feed Direction
R	Right Hand

④ Pitch or TPI

With Wiper Edge: Metre= Pitch x 100, Inch= TPI (115 only for 11.5)
(Example) 075: Pitch 0.75mm, 150: Pitch 1.5mm, 20: 20TPI

Symbol	Pitch/TPI
Without Wiper Edge A	Pitch : 0.5 to 1.5mm, TPI : 16 to 48
Without Wiper Edge AG	Pitch : 0.5 to 3.0mm, TPI : 8 to 48
Without Wiper Edge G	Pitch : 2.0 to 3.0mm, TPI : 8 to 14

⑤ Thread Type

Wiper Edge	Symbol	Type
Yes	ISO	Metric Thread
	UN	Unified Thread
	W	Whitworth
	NPT	American Taper Thread for Pipe
	BSPT	Taper Thread for Pipe
	NPTF	American Taper Thread for Pipe
	UNJ	For Aerospace Equipment
No	60	60° General-purpose Thread
	55	55° General-purpose Thread

⑥ Chipbreaker

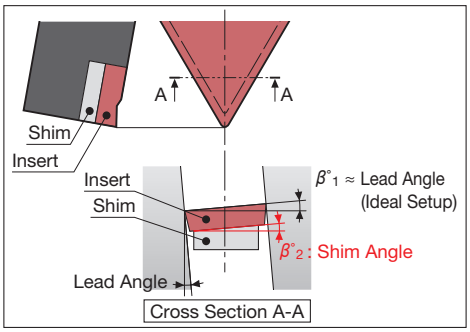
Symbol	Description
CB	With Chipbreaker

★ Worldwide Warehouse Item

SSTE / SSTI Inserts

■ Shim Selection

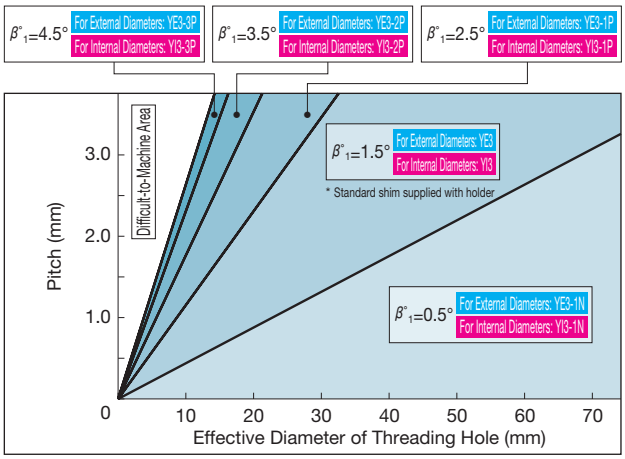
If the pitch is large or the threading diameter is small, the threading lead angle will become large and the effective relief angle will become small.
It is ideal to set the threading insert so that both right and left relief angles are equal.
Therefore, it is necessary to select an appropriate shim based on the thread pitch and effective diameter using the table below.



■ Shim Selection Procedure

1. Choose from [Right-Hand Thread / Left-Hand Thread] in the table.
2. Locate the required threading "pitch".
3. Locate the cell with the required "Effective Diameter" range.
4. Confirm the part no. at the "Shim" row above the corresponding "Effective Diameter" cell located previously. If the shim part no. is different from the one currently in use, change to the correct one.

Example: When machining a M16x2.0 external right-hand thread, the pitch diameter is 14.701mm. In the table below, locate [2.0]mm under the "Pitch" column then move along the row to the right to locate the required "Effective Diameter" range [11.4 - 17.4]mm.
As such, the correct shim should be [YE3-1P], shown in the corresponding cell under the "External" row above.



● Pitch (mm)

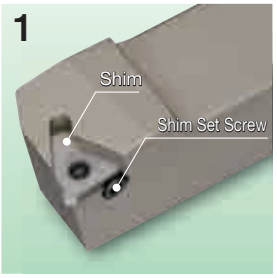
Right-hand/Left-hand Thread		For Right-hand Thread					For Left-hand Thread	
Lead Angle		4.5°	3.5°	2.5°	1.5°	0.5°	-0.5°	-1.5°
Shim	External	YE3-3P	YE3-2P	YE3-1P	**YE3***	YE3-1N	YE3-2N	YE3-3N
	Internal	YI3-3P	YI3-2P	YI3-1P	**YI3***	YI3-1N	YI3-2N	YI3-3N
	Shim Angle (β_1)	3°	2°	1°	0°	-1°	-2°	-3°
Pitch (*mm*)		Effective Diameter (*mm*)						
0.5		*1.9 - 2.2*	*2.2 - 2.8*	*2.8 - 4.3*	*4.3 - 11.4*	*> 11.4*	*> 11.4*	*11.4 - 4.3*
0.75		*2.8 - 3.3*	*3.3 - 4.3*	*4.3 - 6.5*	*6.5 - 17.1*	*> 17.1*	*> 17.1*	*17.1 - 6.5*
1.0		*3.8 - 4.3*	*4.3 - 5.7*	*5.7 - 8.7*	*8.7 - 22.8*	*> 22.8*	*> 22.8*	*22.8 - 8.7*
1.25		*4.7 - 5.4*	*5.4 - 7.1*	*7.1 - 10.9*	*10.9 - 28.5*	*> 28.5*	*> 28.5*	*28.5 - 10.9*
1.5		*5.7 - 6.5*	*6.5 - 8.5*	*8.5 - 13.0*	*13.0 - 34.2*	*> 34.2*	*> 34.2*	*34.2 - 13.0*
1.75		*6.6 - 7.6*	*7.6 - 10.0*	*10.0 - 15.2*	*15.2 - 39.9*	*> 39.9*	*> 39.9*	*39.9 - 15.2*
2.0		*7.6 - 8.7*	*8.7 - 11.4*	*11.4 - 17.4*	*17.4 - 45.6*	*> 45.6*	*> 45.6*	*45.6 - 17.4*
2.5		*9.5 - 10.8*	*10.8 - 14.2*	*14.2 - 21.7*	*21.7 - 57.0*	*> 57.0*	*> 57.0*	*57.0 - 21.7*
3.0		*11.4 - 13.0*	*13.0 - 17.1*	*17.1 - 26.0*	*26.0 - 68.4*	*> 68.4*	*> 68.4*	*68.4 - 26.0*

● TPI (threads/inch)

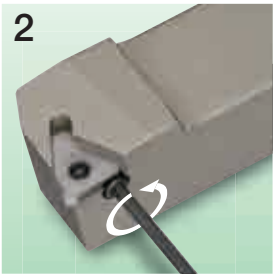
Right-hand/Left-hand Thread		For Right-hand Thread					For Left-hand Thread	
Lead Angle		4.5°	3.5°	2.5°	1.5°	0.5°	-0.5°	-1.5°
Shim	External	YE3-3P	YE3-2P	YE3-1P	**YE3***	YE3-1N	YE3-2N	YE3-3N
	Internal	YI3-3P	YI3-2P	YI3-1P	**YI3***	YI3-1N	YI3-2N	YI3-3N
	Shim Angle (β_1)	3°	2°	1°	0°	-1°	-2°	-3°
TPI (Threads/Inch)		Effective Diameter (*mm*)						
32		*3.0 - 3.3*	*3.3 - 4.6*	*4.6 - 6.9*	*6.9 - 18.0*	*> 18.0*	*> 18.0*	*18.0 - 6.9*
28		*3.0 - 3.8*	*3.8 - 5.1*	*5.1 - 7.9*	*7.9 - 20.8*	*> 20.8*	*> 20.8*	*20.8 - 7.9*
27		*3.6 - 4.1*	*4.1 - 5.3*	*5.3 - 8.1*	*8.1 - 21.3*	*> 21.3*	*> 21.3*	*21.3 - 8.1*
24		*4.1 - 4.6*	*4.6 - 6.1*	*6.1 - 9.1*	*9.1 - 24.4*	*> 24.4*	*> 24.4*	*24.4 - 9.1*
20		*4.8 - 5.6*	*5.6 - 7.1*	*7.1 - 10.9*	*10.9 - 29.0*	*> 29.0*	*> 29.0*	*29.0 - 10.9*
18		*5.3 - 6.1*	*6.1 - 8.1*	*8.1 - 12.4*	*12.4 - 32.5*	*> 32.5*	*> 32.5*	*32.5 - 12.4*
16		*5.8 - 6.9*	*6.9 - 8.9*	*8.9 - 13.7*	*13.7 - 35.8*	*> 35.8*	*> 35.8*	*35.8 - 13.7*
14		*6.9 - 7.9*	*7.9 - 10.2*	*10.2 - 15.7*	*15.7 - 41.1*	*> 41.1*	*> 41.1*	*41.1 - 15.7*
13		*7.4 - 8.4*	*8.4 - 11.2*	*11.2 - 17.0*	*17.0 - 44.7*	*> 44.7*	*> 44.7*	*44.7 - 17.0*
12		*8.1 - 9.1*	*9.1 - 12.2*	*12.2 - 18.5*	*18.5 - 48.8*	*> 48.8*	*> 48.8*	*48.8 - 18.5*
11.5		*8.4 - 9.7*	*9.7 - 12.4*	*12.4 - 19.3*	*19.3 - 50.3*	*> 50.3*	*> 50.3*	*50.3 - 19.3*
11		*8.9 - 9.9*	*9.9 - 13.2*	*13.2 - 20.1*	*20.1 - 52.6*	*> 52.6*	*> 52.6*	*52.6 - 20.1*
10		*9.7 - 10.9*	*10.9 - 14.5*	*14.5 - 22.1*	*22.1 - 57.9*	*> 57.9*	*> 57.9*	*57.9 - 22.1*
9		*10.7 - 12.2*	*12.2 - 16.0*	*16.0 - 24.4*	*24.4 - 64.3*	*> 64.3*	*> 64.3*	*64.3 - 24.4*
8		*11.9 - 13.7*	*13.7 - 18.0*	*18.0 - 27.7*	*27.7 - 72.4*	*> 72.4*	*> 72.4*	*72.4 - 27.7*

* SSTE Type/SSTI Type holders are shipped with shims for lead angle of β_1 = 1.5° (SSTE Type: YE3, SSTI Type: YI3).
Shims for lead angles of β_1 = -1.5°, -0.5°, 0.5°, 2.5°, 3.5°, and 4.5° are sold separately.
* Shims are not needed for SSTI R1812M16 and SSTI R2016M16. (The holders are already provided with the standard holder inclination of 1.5°.)

■ Shim Replacement



Remove the insert to expose the shim.

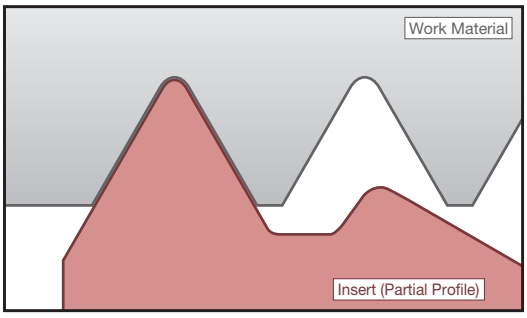
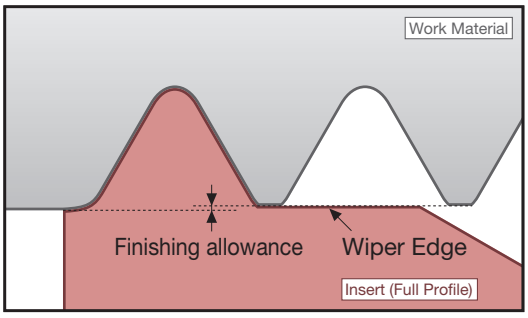


Loosen the shim set screw by one to two turns.

Remove the shim and mount a different shim that matches the lead edge angle.

Tighten the shim set screw. (Recommended Tightening Torque 1.0 to 1.5N·m)

■ Wiper Edge (Partial Profile & Full Profile)

Partial Profile	Full Profile
	
· Performs threading without machining thread ridges (the machined surface from the previous process is left unworked.) · Enables machining of threads with different pitch widths with the same insert · Finishing of the internal (or external) diameter is required before the threading process. · Fine burrs are easily formed on edges of ridges	· Enables machining of workpieces into shapes compliant with thread standards · Only specific thread specifications and pitch can be machined · In order to finish a thread with the wiper edge, a finishing allowance of 0.1mm on each side is required · Edges of ridges can be rounded off.

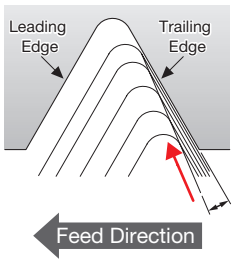
■ Infeed Method

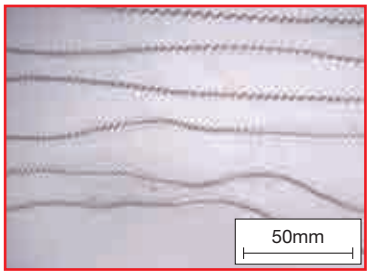
The modified flank infeed is recommended for the SSTE Type/SSTI Type.
This infeed method, which features reduced chip curl diameters and stable chip control, can also decrease chipping on trailing edges that often occurs in radial infeed machining. (1° is recommended for the modification angle.)

● Impact of Infeed Method on Chip Shapes

Work Material: SUS316, M30 x 1.5 Cutting Conditions: v_c=60mm/min Wet, 8 Passes

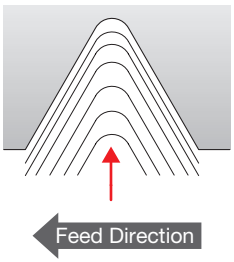
Modified Flank Infeed

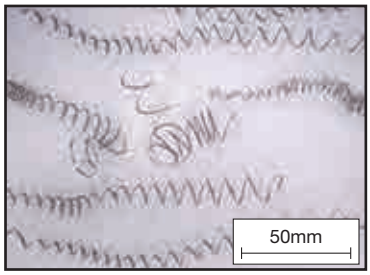




Reduced curl diameters ensure smooth, stable chip control (performance)

Radial Infeed Machining





Large curl diameters cause unstable chip control

Guide to Depth of Cut and No. of Passes

SSTE Guidelines for Depth of Cut

■ External Metric Threads (Depth of cut per pass: *mm*)

Pitch (*mm*)	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00
Overall Depth of Cut (*mm*)	0.48	0.64	0.80	0.92	1.10	1.26	1.57	1.87
No. of Passes	4	5	7	8	10	12	14	16
1	0.24	0.25	0.25	0.28	0.28	0.30	0.38	0.40
2	0.12	0.15	0.15	0.15	0.15	0.16	0.19	0.22
3	0.07	0.11	0.12	0.12	0.12	0.13	0.15	0.15
4	0.05	0.08	0.09	0.10	0.10	0.10	0.10	0.13
5		0.05	0.08	0.09	0.10	0.09	0.10	0.12
6			0.06	0.07	0.09	0.09	0.09	0.10
7			0.05	0.06	0.08	0.08	0.09	0.10
8				0.05	0.07	0.07	0.08	0.09
9					0.06	0.07	0.08	0.09
10					0.05	0.06	0.07	0.08
11						0.06	0.07	0.08
12						0.05	0.06	0.07
13							0.06	0.07
14							0.05	0.06
15								0.06
16								0.05

■ External Unified Threads (Depth of cut per pass: mm)

Threads/Inch	32	28	24	20	18	16	14	13	12	11	10	9	8
Overall Depth of Cut (*mm*)	0.50	0.57	0.67	0.80	0.89	1.00	1.15	1.23	1.34	1.46	1.60	1.78	2.00
No. of Passes	4	4	5	7	8	10	11	12	12	14	14	16	16
1	0.24	0.25	0.25	0.26	0.26	0.28	0.28	0.30	0.30	0.30	0.38	0.38	0.40
2	0.14	0.17	0.19	0.15	0.15	0.15	0.15	0.18	0.18	0.18	0.20	0.20	0.25
3	0.07	0.10	0.12	0.10	0.12	0.10	0.12	0.13	0.13	0.13	0.15	0.13	0.19
4	0.05	0.05	0.06	0.09	0.10	0.09	0.10	0.10	0.12	0.12	0.12	0.12	0.16
5			0.05	0.08	0.08	0.08	0.10	0.08	0.11	0.11	0.10	0.11	0.14
6				0.07	0.07	0.07	0.09	0.08	0.10	0.10	0.09	0.10	0.12
7				0.05	0.06	0.07	0.08	0.07	0.09	0.08	0.09	0.10	0.11
8					0.05	0.06	0.07	0.07	0.08	0.08	0.08	0.09	0.10
9						0.05	0.06	0.06	0.07	0.07	0.08	0.09	0.09
10						0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.08
11							0.05	0.05	0.05	0.06	0.07	0.08	0.07
12								0.05	0.05	0.06	0.06	0.07	0.07
13										0.05	0.06	0.07	0.06
14										0.05	0.05	0.06	0.06
15												0.05	0.05
16												0.05	0.05

No. of passes and depths of cut in the table above are general guidelines only. Increase or decrease depending on conditions. However, the maximum depth of cut should be kept to 0.5mm or less.
When using an insert with a wiper edge, add machining allowance to the total depth of cut.

■ Recommended Cutting Conditions

Work Material	P Carbon Steel	P Alloy Steel (up to 330HB)	M Stainless Steel	K Gray Cast Iron (up to 330HB)	K Ductile Cast Iron	S Titanium Alloy
Cutting Speed v_c (m/min)	75 to 150	75 to 135	60 to 120	90 to 180	75 to 135	24 to 90

Guide to Depth of Cut and No. of Passes

SSTI Guidelines for Depth of Cut

■ Internal Metric Threads (Depth of cut per pass: mm)

Pitch (mm)	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00
Overall Depth of Cut (mm)	0.49	0.58	0.74	0.89	1.04	1.18	1.47	1.76
No. of Passes	4	5	8	10	11	12	14	16
1	0.20	0.22	0.22	0.25	0.25	0.25	0.30	0.30
2	0.12	0.14	0.14	0.12	0.17	0.18	0.19	0.20
3	0.12	0.10	0.09	0.08	0.10	0.12	0.15	0.17
4	0.05	0.07	0.07	0.08	0.08	0.10	0.12	0.14
5		0.05	0.06	0.07	0.08	0.09	0.10	0.12
6			0.06	0.07	0.07	0.08	0.09	0.11
7			0.05	0.06	0.07	0.07	0.08	0.10
8			0.05	0.06	0.06	0.07	0.08	0.10
9				0.05	0.06	0.06	0.07	0.08
10				0.05	0.05	0.06	0.07	0.08
11					0.05	0.05	0.06	0.07
12						0.05	0.06	0.07
13							0.05	0.06
14							0.05	0.06
15								0.05
16								0.05

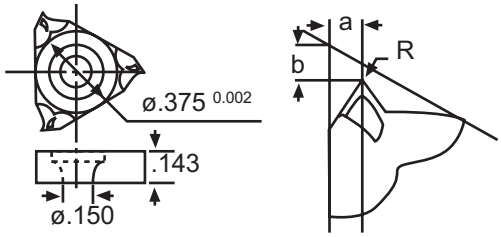
■ Internal Unified Threads (Depth of cut per pass: mm)

Threads/Inch	32	28	24	20	18	16	14	13	12	11	10	9	8
Overall Depth of Cut (mm)	0.43	0.49	0.57	0.69	0.76	0.86	0.98	1.06	1.15	1.25	1.37	1.53	1.72
No. of Passes	4	4	5	7	8	10	11	12	12	14	14	16	16
1	0.20	0.20	0.20	0.22	0.22	0.22	0.25	0.25	0.27	0.27	0.27	0.30	0.30
2	0.10	0.16	0.16	0.12	0.13	0.13	0.15	0.15	0.16	0.16	0.18	0.18	0.22
3	0.08	0.08	0.09	0.09	0.10	0.08	0.10	0.10	0.12	0.12	0.16	0.16	0.18
4	0.05	0.05	0.07	0.08	0.08	0.08	0.08	0.08	0.10	0.10	0.12	0.11	0.15
5			0.05	0.07	0.07	0.07	0.07	0.08	0.09	0.08	0.10	0.09	0.12
6				0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.09	0.09	0.11
7				0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.10
8					0.05	0.06	0.06	0.06	0.06	0.07	0.07	0.08	0.09
9						0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.08
10						0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.07
11							0.04	0.05	0.05	0.05	0.05	0.06	0.06
12								0.04	0.04	0.05	0.05	0.06	0.06
13										0.04	0.04	0.05	0.05
14										0.04	0.04	0.05	0.05
15												0.04	0.04
16												0.04	0.04

No. of passes and depths of cut in the table above are general guidelines only. Increase or decrease depending on conditions. However, the maximum depth of cut should be kept to 0.5mm or less.
When using an insert with a wiper edge, add machining allowance to the total depth of cut.

■ Recommended Cutting Conditions

Work Material	P Carbon Steel	P Alloy Steel (up to 330HB)	M Stainless Steel	K Gray Cast Iron (up to 330HB)	K Ductile Cast Iron	S Titanium Alloy
Cutting Speed v_c (m/min)	75 to 150	75 to 135	60 to 120	90 to 180	75 to 135	24 to 90



▲ USA Limited Availability Item

External Laydown - Full Profile (ISO Metric)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade Uncoated A30	Coated EH20Z	Coated AC225	Cermet T130A	R	Included Angle θ°	a	b
TME100R	1.00	-		▲	▲		.0050	60	.031	.047
TME125R	1.25	-	▲	▲	▲	▲	.0067			
TME150R	1.50	-	▲	▲	▲	▲	.0080		.039	
TME175R	1.75	-			▲		.0094		.047	
TME200R	2.00	-	▲	▲	▲	▲	.0106		.055	
TME250R	2.50	-	▲	▲	▲	▲	.0140			
TME300R	3.00	-		▲	▲		.0165		.071	

Full Profile (Inch)

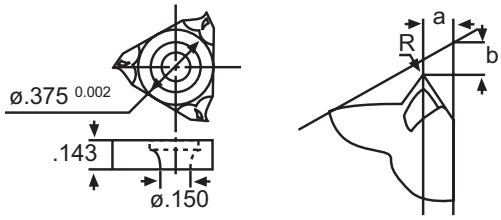
Catalog Number	Pitch (mm)	Threads /in	Stock Grade Uncoated A30	Coated EH20Z	Coated AC225	Cermet T1500A	Cermet T130A	R	Included Angle θ°	a	b
TUE24R	-	24	▲		▲		▲	.0047	60	.031	.047
TUE20R	-	20	▲	▲	▲		▲	.0059			
TUE18R	-	18	▲	▲	▲		▲	.0067		.039	
TUE16R	-	16	▲	▲	▲		▲	.0079		.047	
TUE14R	-	14	▲	▲	▲	▲	▲	.0091			
TUE12R	-	12	▲	▲	▲	▲	▲	.0110		.055	
TUE08R	-	8		▲	▲			.0169		.071	

Partial Profile (55°)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade Uncoated A30	Coated AC225	Cermet T130A	R	Included Angle θ°	a	b
TWE1410R	-	14~10	▲	▲	▲	.009	55	.055	.047
TWE2416R	-	24~16	▲	▲	▲	.005			

Partial Profile (60°)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade Uncoated A30	Coated EH20Z	Coated AC225	Cermet T130A	R	Included Angle θ°	a	b
TME1020R	1.0~2.0	24~12	▲	▲	▲	▲	.005	60	.043	.047
TME1530R	1.50~3.0	16~8	▲	▲	▲	▲	.008		.063	.039



Internal Laydown - Full Profile (ISO Metric)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade Uncoated A30	Coated EH20Z	Coated AC225	Cermet T130A	R	Included Angle θ°	a	b
TMI100R	1.00	-	▲	▲	▲	▲	.0024	60	.031	.047
TMI125R	1.25	-	▲		▲		.0030			
TMI150R	1.50	-			▲	▲	.0035		.039	
TMI175R	1.75	-	▲	▲	▲		.0043		.047	
TMI200R	2.00	-	▲		▲	▲	.0050		.055	
TMI250R	2.50	-	▲		▲		.0063			
TMI300R	3.00	-		▲	▲		.0080		.071	

Partial Profile (60°)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade Uncoated A30	Coated EH20Z	Coated AC225	Cermet T1500A	Cermet T130A	R	Included Angle θ°	a	b
TMI1020R	1.0~2.0	24~12	▲	▲	▲	▲	▲	.0024	60	.039	.047
TMI1530R	1.5~3.0	16~8	▲	▲	▲	▲	▲	.0035		.060	

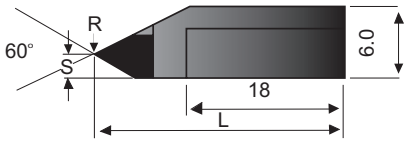
Partial Profile (NPT)

Catalog Number	Pitch (mm)	Threads /in	Stock Grade Uncoated A30	Coated EH20Z	Cermet T130A	R	Included Angle θ°	a	b
TNPTI115R	-	11.5	▲	▲	▲	.0004	60	.059	.043

Threading Inserts for BNGG Holders

Catalog Number	Pitch (*mm*)	Threads /in	Grade CBN BN250	R (*mm*)	Included Angle θ°	S (*mm*)	L (*mm*)
BNTT1020R	*1.0 ~ 2.0*	28-12	▲	*.14*	60	-	*25*
BNTT1530R	*1.50 ~ 3.00*	18-8	▲	*.20*		*.060*	

Holder & Anvils F57



External Threading Tool Depth of Cut Guide

■ With Wiper Edge

Applications		Cat. No.	Reference Cat. No.	Pitch	Depth of Cut	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14
60° Metric Thread	External	**TME 100R**	16ER 100ISO-TE	1.00mm	0.68	5	0.20	0.16	0.14	0.11	0.07									
		TME 125R	16ER 125ISO-TE	1.25	0.83	6	0.20	0.18	0.15	0.12	0.11	0.07								
		TME 150R	16ER 150ISO-TE	1.50	0.96	7	0.22	0.18	0.14	0.13	0.12	0.10	0.07							
		TME 175R	16ER 175ISO-TE	1.75	1.12	8	0.22	0.19	0.16	0.14	0.13	0.12	0.09	0.07						
		TME 200R	16ER 200ISO-TE	2.00	1.25	8	0.25	0.21	0.18	0.16	0.15	0.13	0.10	0.07						
		TME 250R	16ER 250ISO-TE	2.50	1.55	10	0.27	0.24	0.20	0.18	0.16	0.13	0.11	0.10	0.09	0.07				
		TME 300R	16ER 300ISO-TE	3.00	1.85	12	0.28	0.25	0.20	0.19	0.17	0.15	0.13	0.12	0.10	0.10	0.09	0.07		
		TME 350R	22ER 350ISO-TE	3.50	2.25	13	0.30	0.27	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.11	0.09	0.07	
		TME 400R	22ER 400ISO-TE	4.00	2.57	14	0.35	0.32	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10	0.09	0.08	0.07
	Internal	**TMI 100R**	16IR 100ISO-TI	1.00mm	0.63	5	0.18	0.16	0.12	0.10	0.07									
		TMI 125R	16IR 125ISO-TI	1.25	0.77	6	0.18	0.16	0.14	0.12	0.10	0.07								
		TMI 150R	16IR 150ISO-TI	1.50	0.90	7	0.20	0.16	0.14	0.13	0.11	0.09	0.07							
		TMI 175R	16IR 175ISO-TI	1.75	1.03	8	0.20	0.18	0.15	0.14	0.11	0.10	0.08	0.07						
		TMI 200R	16IR 200ISO-TI	2.00	1.18	8	0.22	0.19	0.17	0.15	0.14	0.13	0.11	0.07						
		TMI 250R	16IR 250ISO-TI	2.50	1.44	10	0.25	0.22	0.19	0.16	0.14	0.12	0.10	0.10	0.09	0.07				
		TMI 300R	16IR 300ISO-TI	3.00	1.70	12	0.27	0.24	0.20	0.17	0.14	0.12	0.12	0.10	0.10	0.09	0.08	0.07		
60° Unified Thread	External	**TUE 24R**	16ER 24UN-TE	24TPI	0.72	5	0.20	0.18	0.15	0.12	0.07									
		TUE 20R	16ER 20UN-TE	20	0.85	6	0.21	0.18	0.16	0.13	0.10	0.07								
		TUE 18R	16ER 18UN-TE	18	0.95	6	0.22	0.20	0.18	0.16	0.12	0.07								
		TUE 16R	16ER 16UN-TE	16	1.05	7	0.22	0.20	0.17	0.15	0.13	0.11	0.07							
		TUE 14R	16ER 14UN-TE	14	1.20	8	0.22	0.20	0.18	0.16	0.14	0.12	0.11	0.07						
		TUE 12R	16ER 12UN-TE	12	1.38	9	0.25	0.22	0.19	0.17	0.15	0.13	0.11	0.09	0.07					
		TUE 08R	16ER 08UN-TE	8	2.05	12	0.28	0.25	0.23	0.21	0.19	0.17	0.15	0.14	0.13	0.12	0.11	0.07		
55° Taper Thread for Pipe	External	**TPE 28R**	16ER 28BSPT-TE	28TPI	0.62	5	0.18	0.15	0.13	0.10	0.06									
		TPE 19R	16ER 19BSPT-TE	19	0.92	6	0.22	0.20	0.17	0.15	0.11	0.07								
		TPE 14R	16ER 14BSPT-TE	14	1.04	7	0.22	0.20	0.17	0.15	0.13	0.10	0.07							
		TPE 11R	16ER 11BSPT-TE	11	1.50	9	0.25	0.22	0.21	0.19	0.17	0.15	0.13	0.11	0.07					

*When pitch becomes smaller, decrease the cutting speed. In the case of inserts for internal threading without wiper edge, the number of passes should be increased.

■ Recommended Cutting Speeds

(Units: m/min)

Work Material \ Tool Grade		T1500A / T130A	A30	ST10P
P	Mild Steel	100 - 150	70 - 120	120 - 180
P	Low-carbon Steel	80 - 130	70 - 100	90 - 150
P	Alloy Steel	80 - 120	70 - 100	80 - 130
M	Stainless Steel	-	70 - 100	-

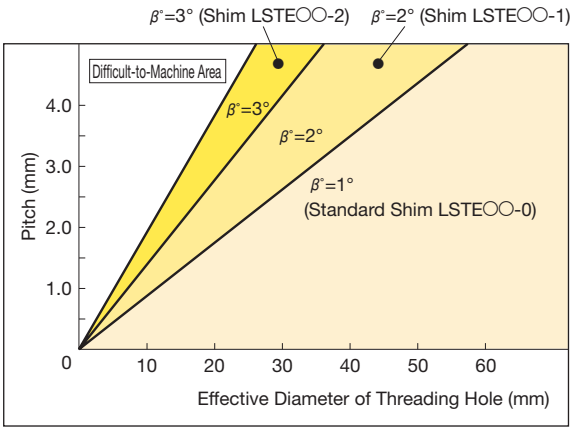
External Threading Tool Depth of Cut Guide

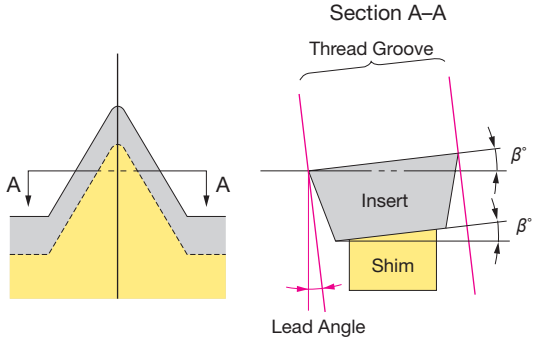
■ Without Wiper Edge

Applications		Cat. No.	Reference Cat. No.	Nose Radius	Pitch	Depth of Cut	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14
60° Metric Thread	External	TME 1020R	16ER 102060-TE	0.13	1.00mm	0.65	5	0.20	0.16	0.12	0.10	0.07									
					1.25	0.84	6	0.20	0.18	0.16	0.13	0.10	0.07								
					1.50	1.03	7	0.22	0.20	0.17	0.15	0.12	0.10	0.07							
					1.75	1.22	8	0.22	0.21	0.18	0.16	0.15	0.13	0.10	0.07						
					2.00	1.41	10	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.09	0.07				
		TME 1530R	16ER 153060-TE	0.20	1.50mm	0.95	7	0.22	0.17	0.14	0.13	0.12	0.10	0.07							
					1.75	1.14	8	0.22	0.18	0.16	0.15	0.14	0.12	0.10	0.07						
					2.00	1.33	9	0.25	0.20	0.18	0.16	0.15	0.13	0.10	0.09	0.07					
					2.50	1.71	12	0.25	0.22	0.19	0.17	0.15	0.14	0.13	0.12	0.10	0.09	0.08	0.07		
					3.00	2.09	14	0.25	0.22	0.20	0.20	0.18	0.17	0.15	0.14	0.14	0.10	0.10	0.09	0.08	0.07
	Internal	TMI 1020R	16IR 102060-TI	0.06	1.00mm	0.59	6	0.16	0.12	0.10	0.08	0.08	0.05								
					1.25	0.75	7	0.16	0.14	0.12	0.10	0.10	0.08	0.05							
					1.50	0.92	8	0.18	0.15	0.14	0.12	0.10	0.10	0.08	0.05						
					1.75	1.08	9	0.18	0.16	0.14	0.13	0.12	0.12	0.10	0.08	0.05					
					2.00	1.24	10	0.20	0.18	0.15	0.14	0.12	0.12	0.10	0.10	0.08	0.05				
		TMI 1530R	16IR 153060-TI	0.09	1.50mm	0.91	8	0.18	0.14	0.14	0.12	0.10	0.10	0.08	0.05						
					1.75	1.07	9	0.18	0.16	0.13	0.13	0.12	0.12	0.10	0.08	0.05					
					2.00	1.23	10	0.20	0.18	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.05				
					2.50	1.56	12	0.20	0.18	0.16	0.16	0.15	0.13	0.13	0.11	0.11	0.10	0.08	0.05		
					3.00	1.88	14	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.10	0.10	0.10	0.08	0.07	0.05
55° Whitworth Thread	External	TWE 2416R	16ER 241655-TE	0.13	20TPI	0.80	6	0.20	0.17	0.15	0.12	0.09	0.07								
					19	0.84	6	0.20	0.18	0.16	0.13	0.10	0.07								
					18	0.90	7	0.20	0.18	0.15	0.12	0.10	0.08	0.07							
					16	1.03	7	0.22	0.20	0.17	0.15	0.12	0.10	0.07							
					14TPI	1.07	8	0.20	0.17	0.15	0.14	0.13	0.12	0.09	0.07						
		TWE 1410R	16ER 141055-TE	0.23	12	1.29	9	0.22	0.20	0.17	0.15	0.14	0.13	0.12	0.09	0.07					
					11	1.43	10	0.22	0.21	0.18	0.16	0.14	0.13	0.12	0.11	0.09	0.07				
					10	1.60	11	0.22	0.21	0.18	0.17	0.16	0.14	0.13	0.12	0.11	0.09	0.07			

*When pitch becomes smaller, decrease the cutting speed. In the case of inserts for internal threading without wiper edge, the number of passes should be increased.

■ Shim Selection for External Threading Tool LTE Type Holder





Standard shim that comes with LTE has β=1°.
β=2°, 3° shims are sold separately.
STE and STI Type holders do not come with shims.

External

Screw-on
for External Diameter

M Metric Thread
W Whitworth Thread

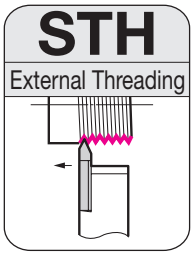


Fig 1

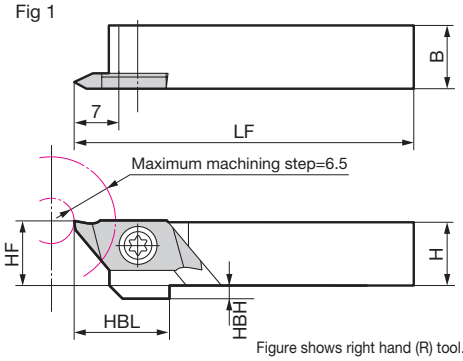
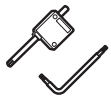


Figure shows right hand (R) tool.

Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Height HF	Step HBH	Bottom Offset HBL	Applicable Insert	Fig	Flat Screw	Wrench
												
STH R/L0810	★	★	*8*	*10*	*120*	*8*	*4*	*15*	TH R/L Type	1	BFTX0410NTW	RT08
STH R/L1010	★	★	*10*	*10*	*120*	*10*	*2*	*15*		1		
STH R/L1212F	★	★	*12*	*12*	*85*	*12*	-	*15*		1	BFTX0412NTW	
STH R/L1212	★	★	*12*	*12*	*120*	*12*	-	*15*		1		
STH R/L1616H	★	★	*16*	*16*	*100*	*16*	-	*15*		1		
STH R/L1616	★	★	*16*	*16*	*120*	*16*	-	*15*		1		
STH R/L2020	★	★	*20*	*20*	*80*	*20*	-	*15*		1	BFTX0410NT	LT25NT

Insert (Coated Carbide)

Dimensions (*mm*)

Cat. No.	ACZ150 R	ACZ150 L	Pitch mm	Pitch Threads/Inch	Overall Length L	Height W1	Nose Radius RE	X direction PDX	Thread Ridge Angle PNA	Cutting Edge Shape	Applicable Holder	Fig
TH R/L6002075A	★	★	*0.20 to 0.75*	-	*20*	*8*	-	*0.40*	*60*	(A)	STH Type	1
TH R/L6002075B	★	★	*0.20 to 0.75*	-	*20*	*8*	-	*0.40*	*60*	(A)		2
TH R/L6005125A	★	★	*0.50 to 1.25*	-	*20*	*8*	*0.05*	*0.80*	*60*	(B)		1
TH R/L6005125B	★	★	*0.50 to 1.25*	-	*20*	*8*	*0.05*	*0.80*	*60*	(B)		2
TH R/L601015N	★	★	*1.00 to 1.50*	-	*20*	*8*	*0.10*	*1.25*	*60*	(B)		3
TH R/L550515A	★	★	*0.529 to 1.58*	*48 to 16*	*20*	*8*	*0.05*	*0.80*	*55*	(B)		1
TH R/L550515B	★	★	*0.529 to 1.58*	*48 to 16*	*20*	*8*	*0.05*	*0.80*	*55*	(B)		2

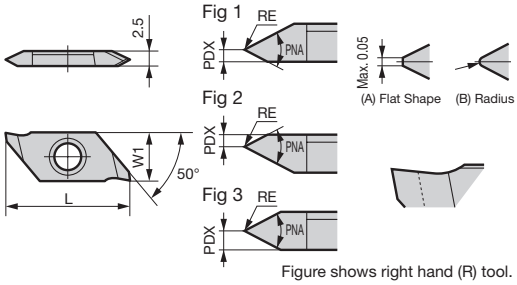
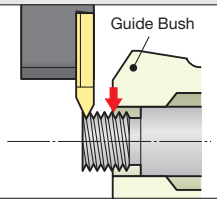
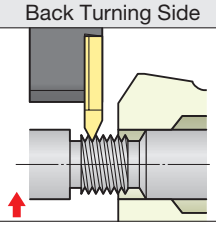
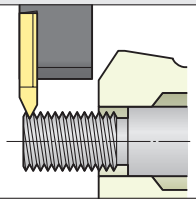
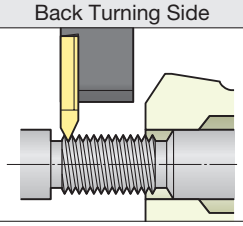


Figure shows right hand (R) tool.

Holder/Insert Combinations

Feed Direction	Right Hand		Left Hand	
Cutting Edge Position	Guide Bush Side	Back Turning Side	Guide Bush Side	Back Turning Side
Threading Illustration				
Holders	STH R (Right Hand)	STH R (Right Hand)	STH L (Left Hand)	STH L (Left Hand)
Insert	TH R····A	TH R····B	TH L····B	TH L····A
Features	It is often used in common tooling for workpieces that have a thread at their top end. In this type of tooling, the undercutting width indicated with the arrow can be reduced since the cutting edge point is placed closer to the guide bush side.	Often used when a thread is at the middle of the workpiece or at the rear. In this type of tooling, the undercutting width indicated with the arrow can be reduced since the cutting edge point is placed closer to the back turning side.	With a left hand holder used, a sufficient cutting distance can be kept since the cutting edge position is separate from the guide bush. For the left-hand holder, the selection of A type and B type is the reverse of the right-hand holder. (B indicates the guide bush side while A indicates the back turning side.)	

Tooling Systems
Polygon Shank Style & Cartridges
G1 to G32

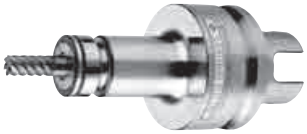
G

Tooling Systems Overview ····· G2
HSK Tooling System ····· G3
Polygonal Shank Style (PSC) Overview ····· G8
Polygonal Shank Style (PSC) Nomenclature ····· G10
DCLN / DCRN / DDHN PSC Toolholder ····· G12
DDJN / DDNN / DRSN PSC Toolholder ····· G13
DTFN / DVJN / DVVN PSC Toolholder ····· G14
DWLN / SCLC / SDJC PSC Toolholder ····· G15
PRSC / SRSC PSC Toolholder ····· G16
SVHB / SVJB / SVJC Toolholder ····· G17
DCLN / DWLN Boring Bar ····· G18
SCLC / SSKC Boring Bar ····· G19
STFC Boring Bar ····· G20
PSC Adaptors ····· G21
Smart Damper Arbors ····· G24
IGETALLOY ABS System ····· G26
Modular Taper Shank / HSK Tooling System ····· G28
Micro Units / Cartridge Units ····· G29
Boring Quills / Carbide Line Boring Bars ····· G32

Stock Markings and Symbols

★ Worldwide Warehouse Item
Blank: Made-to-order item
- mark: Not available

■ Tooling Systems

Application	System Name		Feature	Ref. Page
Turning	ICTM STANDARD HSK Tooling System		Shanks for turning applications in multi-tasking machines, conforming to the ICTM (Interface Committee for Turning Mill) Standard. Compatible with HSK-A type, tools can be shared between multi-tasking machines and machining centers. Compliant with ISO standard ISO12164-3:2008.	G3 ~
Turning / Milling	Polygon Shank-SumiPolygon		Polygonal keyless coupling system achieves an indexing accuracy of ±2μm. Supports both turning and rotating tools. Compliant with ISO standard ISO26623-1:2008.	G8 ~
Milling	Smart Damper™		A special anti-vibration mechanism is built in to utilize high-efficiency and high quality machining with a long overhang.	G24 ~
Milling	IGETALLOY ABS System		This quick change system for round tools uses an unique mechanism with a strong holding force. The system offers high rigidity and precision, and exhibits good indexing accuracy during tool changes.	G26 ~
Milling	Modular Taper Shank		Achieving high-precision machining by increasing rigidity at high-speed rotations with two locating faces on the taper and flange, along with an excellent clamping mechanism. Compliant with ISO standard ISO 26622-1:2008.	G28
Milling	HSK Tooling System		The ISO standard for milling shanks with 2 locating faces.	G28

ICTM STANDARD

HSK TOOLING SYSTEM ARE MADE TO ORDER ITEMS

■ Features

The HSK tooling system has been adopted by Japan's 17 major machine tool manufacturers as the interface for turning tools in multi-tasking machines. It is based on the ICTM (Interface Committee for Turning Mill) standard.
Based on the ISO standard HSK shank, this system is designed to improve precision in turning applications, and is compatible with the HSK-A type that is widely use on machining centers.

* Catalog numbers have been changed due to ISO standardization (ISO 12164-3:2008).

For support with non-standard specifications, contact us directly.

General External Turning and Profiling
Double Clamp

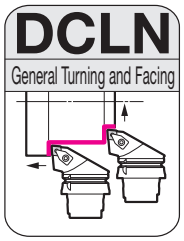


Fig 1

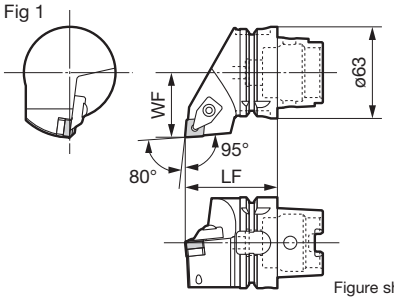


Figure shows right hand (R) tool.

Insert

(Representative example)

Applicable Insert Cat. No.	Ref. Page
CN□□43○○	B22 ~

CNMG432EGE

Holder / Parts

Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock R	Stock L	Overhang LF	Cutting Edge WF	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shim	Wrench
HSK63TH-DCLN R/L-DX12	H63A-WH-DCLN R/L-DX12			*65*	*45*	1	SCP-2	5.0	CNS1204	BFTX0409N	TRX15(*)	LH040

*Wrench for shim is sold separately from the main body.

General External Turning and Profiling
Double Clamp

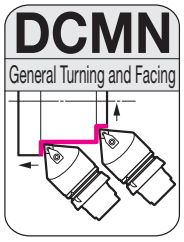
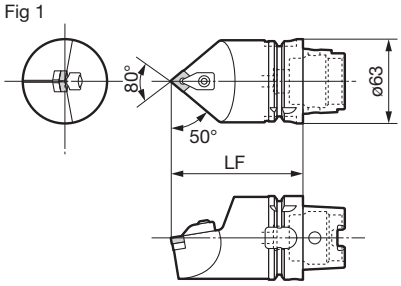


Fig 1



Insert

(Representative example)

Applicable Insert Cat. No.	Ref. Page
CN□□43○○	B22 ~

CNMG432EGE

Holder / Parts

Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock	Overhang LF	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shim	Wrench
HSK63TH-DCMN N-H12	H63A-WH-DCMN N-H12		*100*	1	SCP-2	5.0	CNS1204	BFTX0409N	TRX15(*)	LH040
HSK63TH-DCMN N-L12	H63A-WH-DCMN N-L12		*140*	1						

*Wrench for shim is sold separately from the main body.

N·m Recommended Tightening Torque (N·m)

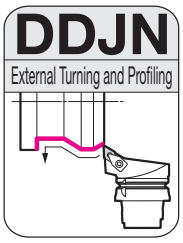


Fig 1

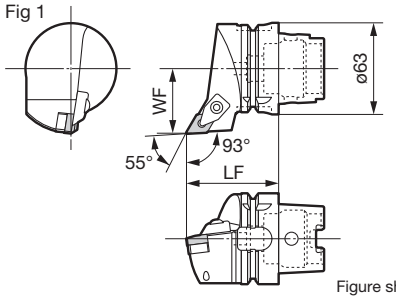


Figure shows right hand (R) tool.

HSK TOOLING SYSTEM ARE MADE TO ORDER ITEMS

General External Turning and Profiling
Double Clamp

Insert

Applicable Insert Cat. No.	Ref. Page
DN□□43○○	B32 ~

(Representative example)

DNMG432EGE

Holder

Parts

Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock R	Stock L	Overhang LF	Cutting Edge WF	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shim	Wrench
HSK63TH-DDJN R/L-DX15	H63A-WH-DDJN R/L-DX15			*65*	*45*	1	SCP-2	5.0	DNS1504	BFTX0409N	TRX15(*)	LH040

*Wrench for shim is sold separately from the main body.

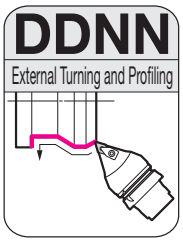
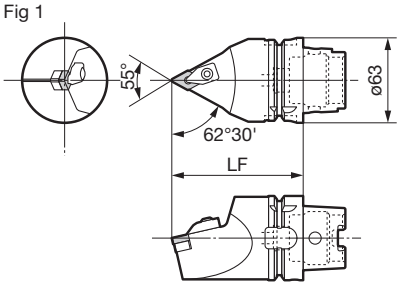


Fig 1



General External Turning and Profiling
Double Clamp

Insert

Applicable Insert Cat. No.	Ref. Page
DN□□43○○	B32 ~

(Representative example)

DNMG432EGE

Holder

Parts

Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock	Overhang LF	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shim	Wrench
HSK63TH-DDNN N-H15	H63A-WH-DDNN N-H15		*100*	1	SCP-2	5.0	DNS1504	BFTX0409N	TRX15(*)	LH040
HSK63TH-DDNN N-L15	H63A-WH-DDNN N-L15		*140*	1						

*Wrench for shim is sold separately from the main body.

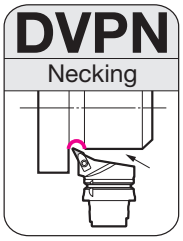


Fig 1

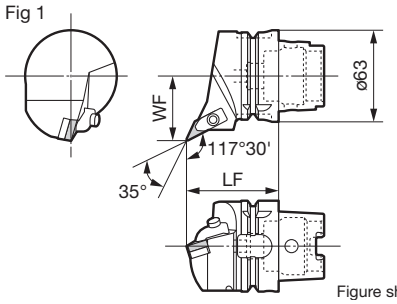


Figure shows right hand (R) tool.

General External Turning and Profiling
Double Clamp

Insert

Applicable Insert Cat. No.	Ref. Page
VN□□33○○	B62 ~

(Representative example)

VNMG332EGE

Holder

Parts

Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock R	Stock L	Overhang LF	Cutting Edge WF	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shim	Wrench
HSK63TH-DVPN R/L-DX16	H63A-WH-DVPN R/L-DX16			*65*	*45*	1	SCP-4	5.0	VNS1604	BFTX0307N	TRX10(*)	LH040

*Wrench for shim is sold separately from the main body.

N·m Recommended Tightening Torque (N·m)

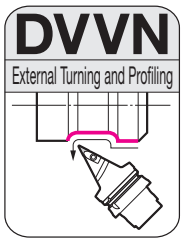
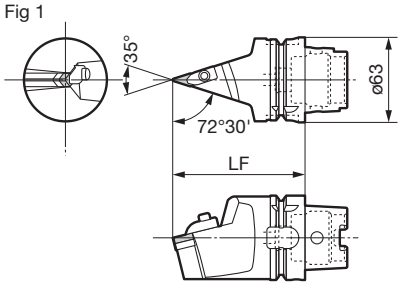


Fig 1



HSK Tooling System ARE MADE TO ORDER ITEMS

General External Turning and Profiling
Double Clamp

Insert

(Representative example)

Applicable Insert Cat. No.	Ref. Page
VN□□33○○	B62 ~

VNMG332EGE

Holder / Parts

Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock	Overhang LF	Fig	Clamp Set		Shim	Shim Screw	Wrench for Shim	Wrench
						N·m				
HSK63TH-DVVN N-H16	H63A-WH-DVVN N-H16		*100*	1	SCP-4	5.0	VNS1604	BFTX0307N	TRX10(*)	LH040

*Wrench for shim is sold separately from the main body.

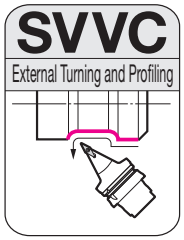
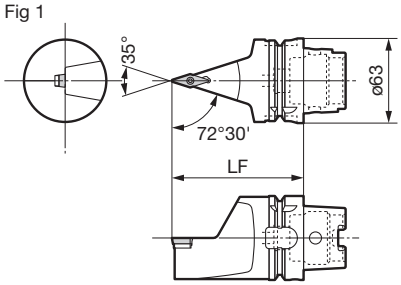


Fig 1



General External Turning and Profiling
Screw-on

Insert

(Representative example)

Applicable Insert Cat. No.	Ref. Page
VC□□33○○	B124 ~

VCMT332ESU

Holder / Parts

Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock	Overhang LF	Fig	Pin	Nut	Shim	Flat Insert Screw	Wrench for Shim	Wrench
HSK63TH-SVVC N-H16	H63A-WH-SVVCN-H16		*100*	1	VP25	CPV33N	SVP32	BFTX03508	TRX10(*)	LH025
HSK63TH-SVVC N-L16	H63A-WH-SVVCN-L16		*140*	1						

*Wrench for shim is sold separately from the main body.

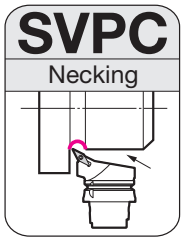


Fig 1

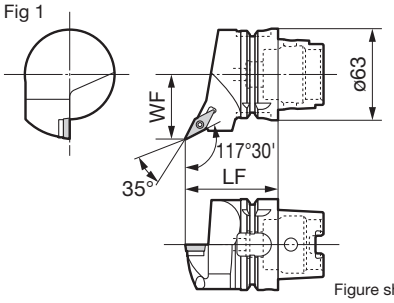


Figure shows right hand (R) tool.

General External Turning and Profiling
Screw-on

Insert

(Representative example)

Applicable Insert Cat. No.	Ref. Page
VC□□33○○	B124 ~

VCMT332ESU

Holder / Parts

Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock R	Stock L	Overhang LF	Cutting Edge WF	Fig	Pin	Nut	Shim	Flat Insert Screw	Wrench for Shim	Wrench
HSK63TH-SVPC R/L-DX16	H63A-WH-SVPCL-DX16			*65*	*45*	1	VP20	CPV33N	SVP32	BFTX03508	TRX10(*)	LH025

*Wrench for shim is sold separately from the main body.

N·m Recommended Tightening Torque (N·m)

HSK TOOLING SYSTEM ARE MADE TO ORDER ITEMS

General External Turning and Profiling
Double Clamp

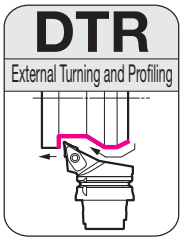
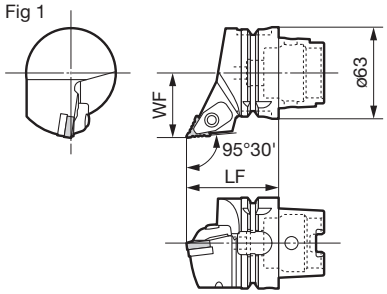


Fig 1



SumiTurn T-REX

Insert

Applicable Insert Cat. No.	Ref. Page
TRM5517○○	C28

(Representative example)

TRM551708-LU

Holder

Parts

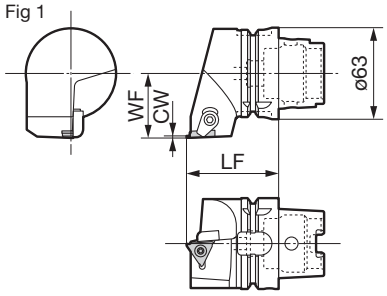
Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock	Overhang LF	Cutting Edge WF	Fig	Clamp Plate	Spring	Cap Screw		Shim	Shim Screw	Wrench	Wrench for Shim
HSK63TH-DTR55C R-DX17	H63A-WH-DTR55C R-DX17		*65*	*45*	1	TRCP3	S-SP4-20	BX0520	3.5 to 4.5	TRW5505	BFTX0307N	TSW040	TRX10(*)

*Wrench for shim is sold separately from the main body.
Refer to TRM series inserts on C28 for applicable inserts.

External Grooving
Double Clamp

Fig 1



Insert

Applicable Insert Cat. No.	Ref. Page
TGAR4○○○□	F45
TGAR4○○○BF	F47

(Representative example)

TGAR4150

Holder

Parts

Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock	Overhang LF	Cutting Edge WF	Width of Cut CW	Group No.	Fig	Flat Insert Screw		Clamp Plate	Double Screw	Wrench	Wrench
HSK63TH-GWC R-DX412	H63A-WH-GWC R-DX412		*65*	*45*	*1.25 to 1.45*	2	1	BFTX0511N	5.0	CCM8UL	WB8-22T	TRX20	LT27
HSK63TH-GWC R-DX415	H63A-WH-GWC R-DX415		*65*	*45*	*1.50 to 2.30*	3	1						
HSK63TH-GWC R-DX425	H63A-WH-GWC R-DX425		*65*	*45*	*2.50 to 4.80*	4	1						

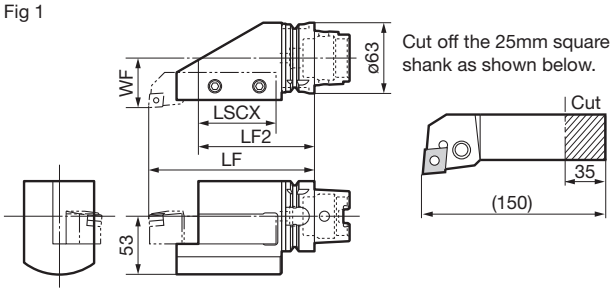
Refer to TGA series insert group numbers on F45, F46 and F47 for applicable inserts. Select applicable inserts for the holders by using matching group numbers.

N·m Recommended Tightening Torque (N·m)

HSK TOOLING SYSTEM ARE MADE TO ORDER ITEMS

Square Shank Holder

Fig 1



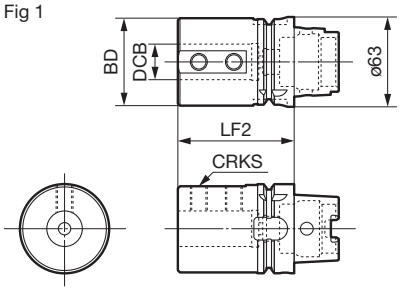
Holder

Parts Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock	Overhang LF	Overhang LF2	Clamping Length LSCX	Cutting Edge WF	Fig	Set Screw	Wrench
HSK63TH-S2525 R-105	H63A-WH-S2525 R-105		*150*	*105*	*70*	*45*	1	BTD0809	LH040

Holder for Boring Bar

Fig 1



Holder

Parts Dimensions (*mm*)

Cat. No.	Previous Cat. No.	Stock	Shank Dia. DCB	Body Dia. BD	Min. Clamping Length LF2	Screw CRKS	Fig	Set Screw	Wrench
HSK63TH-C08-65	H63A-WH-C08-65		*8*	*28*	*65*	M8	1	BTD0809	LH040
HSK63TH-C10-70	H63A-WH-C10-70		*10*	*35*	*70*	M8	1	BTD0812	
HSK63TH-C12-70	H63A-WH-C12-70		*12*	*42*	*70*	M8	1		
HSK63TH-C16-75	H63A-WH-C16-75		*16*	*48*	*75*	M10	1	BTD1015	LH050
HSK63TH-C20-75	H63A-WH-C20-75		*20*	*52*	*75*	M10	1		
HSK63TH-C25-83	H63A-WH-C25-83		*25*	*62*	*83*	M12	1	BTD1218	LH060
HSK63TH-C32-87	H63A-WH-C32-87		*32*	*62*	*87*	M12	1	BTD1215	
HSK63TH-C40-97	H63A-WH-C40-97		*40*	*65*	*97*	M16	1	BTD1610	LH080

Cut the boring bar to fit.

Polygon Shank Toolholders

■ General Features

SumiPolygon shanks feature keyless couplings with the characteristic polygonal shape, which bear cutting torque evenly on three surfaces, providing high rigidity and high index accuracy.

For support with non-standard design specifications, contact us directly.

■ Features

● Sizes
- Shank size PSC32 (DCSFMS = 32mm) to PSC80 (DCSFMS = 80mm) supported

● High Rigidity/High Precision
- 1/20 polygon tapered shape supported on 2 faces for high rigidity
- Keyless coupling distributes cutting torque uniformly to 3 faces, reducing fluctuations in cutting edge height
- Repeatability when tools are changed is within ±2μm on all 3 axes

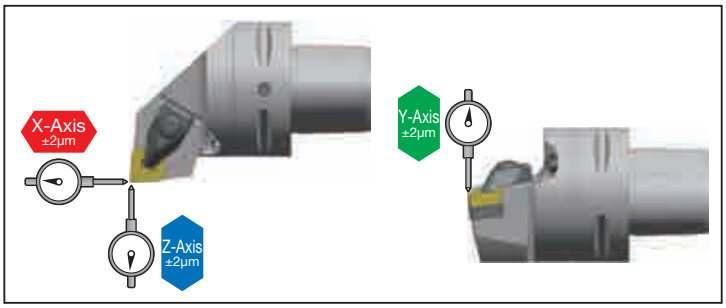
● Reduced Tool Change Time
- Changing inserts on the machine is not needed so the tool change time is significantly reduced

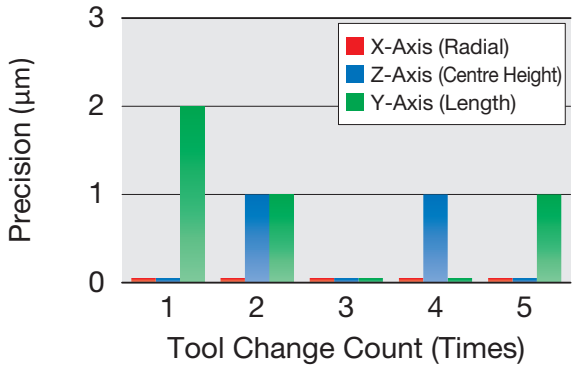
● Coolant supported (up to 1MPa)

■ Coupling Structure

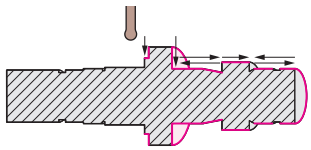
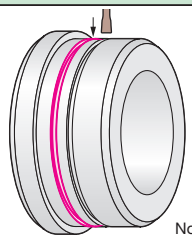
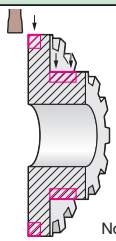
■ Repeat Accuracy

Repeatability when tools are changed is within ±2μm on all 3 axes X-Axis (Radial Direction) Y-Axis (Center Height Direction), Z-Axis (Lengthwise Direction)





Application Examples

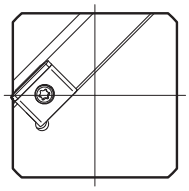
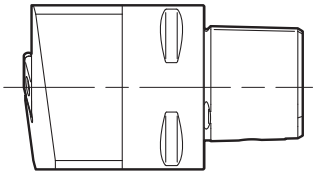
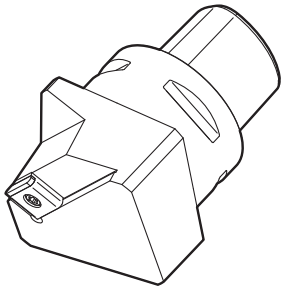
Nickel-Chromium Molybdenum Alloy Output Shaft Grooving	Stainless Steel Socket Joint Grooving	Powdered Metal Sprocket Grooving/Facing
 No Abnormal Chatter or Vibration	 No Abnormal Chatter or Vibration	 No Abnormal Chatter or Vibration
Holders : PSC40 Special Type Insert : GCMN4020-RG (AC425K) Cutting Conditions : v_c = 400 to 460 SFM, f = 0.079 to 0.014 IPR a_p = .079" Wet	Holders : PSC40 Special Type Insert : GCMN4008-MG (AC530U) Cutting Conditions : v_c=330 SFM, f=0.0039 IPR a_p = .112" Wet	Holders : PSC40 Special Type Insert : Special Insert (Blade Diameter .25") MG (AC530U) Cutting Conditions : Grooving v_c=600 SFM, f=0.0063 IPR, a_p=.157" x 2 passes Wet Facing v_c=625 SFM, f=0.0071 IPR, a_p=0.0079" Wet

Made-to-Order Product Design Example

For support with non-standard design specifications, contact us directly.

Hard Skiving Tool

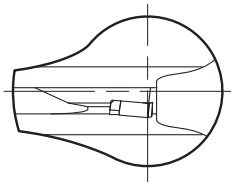
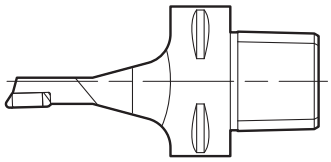
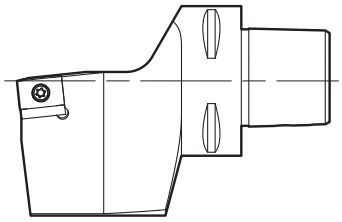
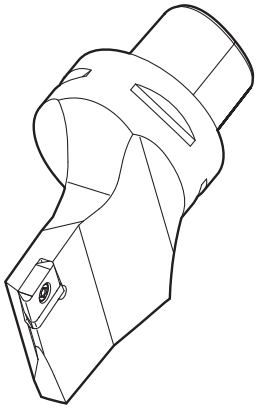
High-Efficiency Hardened Steel Machining Tool

XD Type Holders

For details on SEC-XD Type Tool Holders (holders and inserts), see the separate "Tools for Machining Automotive Engine Parts" catalog.

Tools for Crank Shaft Machining

Polygon Shank Nomenclature

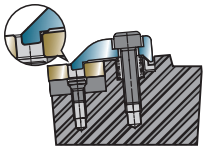
PSC
Polygon Shank Type

40-
Polygon Shank Size

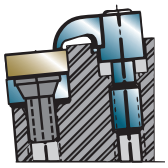
Sizes:
- 32 mm
- 40 mm
- 50 mm
- 63 mm
- 80 mm

D
Insert Holding

D Clamp Mechanism

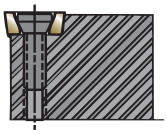


C Clamp

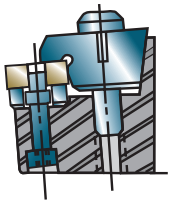


M Clamp and Lock Pin

S Screw Only



W Wedge Clamp



D
Insert Shape

C Diamond — 80°

D Diamond — 55°

R Round — 360°

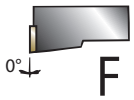
S Square — 90°

T Triangle — 60°

V Diamond — 35°

W Trigon — 80°

J
Holder / Boring Bar Style

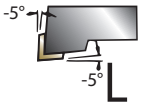


F 0° end cutting offset shank

H -17.5° end cutting offset shank

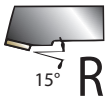
J -3° side cutting offset shank

K 15° end cutting offset shank

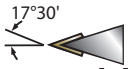


L 5° side & end cutting offset shank

N 27.5° cutting shank



R 15° side cutting offset shank



V 17°30' side cutting straight shank

All lead angles are ±1°

Polygon Shank Nomenclature

N

Insert Relief Angle

B
5°

C
7°

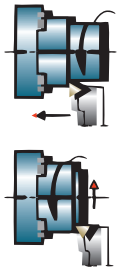
N
0°

P
11°

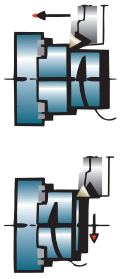
R

Hand

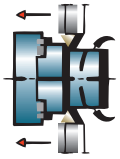
R
Right Hand



L
Left Hand



N
Neutral Hand



27

Distance from center (mm)

Holder Sizes:
22 mm
27 mm
35 mm
45 mm
55 mm

Boring Bar Sizes:
11 mm
13 mm
17 mm
22 mm
27 mm
35 mm

Neutral Holders WF: 0.5 mm

050

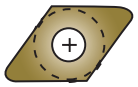
Holder Length (mm)

Holder Sizes:
40 mm
45 mm
50 mm
60 mm
62 mm
65 mm
80 mm

Boring Bar Sizes:
65 mm
70 mm
75 mm
80 mm
90 mm
100 mm
110 mm
140 mm

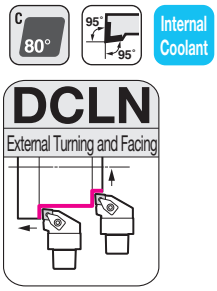
33

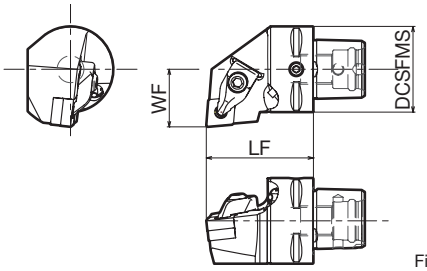
Insert Size



Inscribed Circle
&
Thickness

Polygon Toolholders





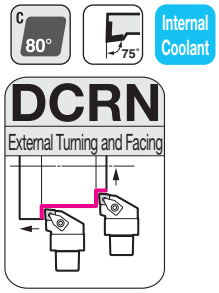
External Turning
Double Clamp

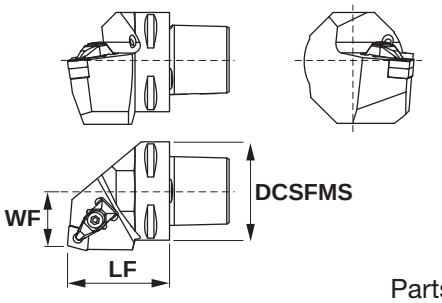
Figure shows right hand (R) tool.

Holder / Parts

Dimensions (inch)

Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench	Optional Hardware For Clamp	Optional Hardware for CBN
PSC32-DCLN R/L -22040-32	★	★	1.260	0.866	1.575	-6°	-6°	CN□□32	ST-1764	ICSN-332	CL-2708	CLB-1695	SP-4294	LH030	–	–
PSC40-DCLN R/L -27050-32	★	★	1.575	1.063	1.969	-6°	-6°									
PSC32-DCLN R/L -22045-43	★	★	1.260	0.866	1.772	-6°	-6°	CN□□ 43	ST-1766	ICSN-442	CL-2712	CLB-1696	SP-4295	LH040	CL-2435	ST-1086
PSC40-DCLN R/L -27050-43	★	★	1.575	1.063	1.969	-6°	-6°									
PSC50-DCLN R/L -35060-43	★	★	1.969	1.378	2.362	-6°	-6°									
PSC63-DCLN R/L -45065-43	★	★	2.480	1.772	2.559	-6°	-6°									
PSC80-DCLN R/L -55080-43	★	★	3.150	2.165	3.150	-6°	-6°									
PSC40-DCLN R/L -27055-54	★	★	1.575	1.063	2.165	-6°	-6°	CN□□ 54	ST-1768	ICSN533	CL-2716	CLB-1696	SP-4295	LH040	–	–
PSC50-DCLN R/L -35060-54	★	★	1.969	1.378	2.362	-6°	-6°									
PSC63-DCLN R/L -45065-54	★	★	2.480	1.772	2.559	-6°	-6°									
PSC80-DCLN R/L -55080-54	★	★	3.150	2.165	3.150	-6°	-6°									
PSC50-DCLN R/L -35060-64	★	★	1.969	1.378	2.362	-6°	-6°	CN□□ 64	ST-1770	ICSN633	CL-2719	CLB-1696	SP-4295	LH040	–	–
PSC63-DCLN R/L -45065-64	★	★	2.480	1.772	2.559	-6°	-6°									
PSC80-DCLN R/L -55080-64	★	★	3.150	2.165	3.150	-6°	-6°									



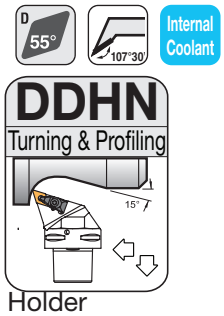


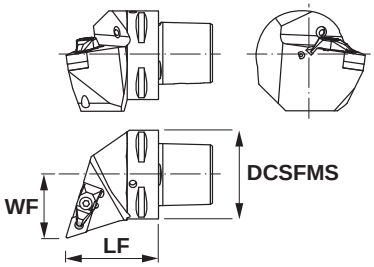
External Turning
Double Clamp

Holder / Parts

Dimensions (inch)

Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC40-DCRN R/L -22050-43	★	★	1.575	1.969	0.866	-6°	-6°	CN□□43	ST-1766	ICSN-442	CL-2712	CLB-1696	SP-4295	LH040
PSC50-DCRN R L -27060-43	★	★	1.969	2.362	1.063	-6°	-6°							
PSC63-DCRN R/L -35065-43	★	★	2.480	2.559	1.378	-6°	-6°							
PSC50-DCRN R/L -27060-54	★	★	1.969	2.362	1.063	-6°	-6°	CN□□ 54	ST-1768	ICSN-553	CL-2716			
PSC63-DCRN R/L -35065-54	★	★	2.480	2.559	1.378	-6°	-6°							
PSC80-DCRN R/L -55080-54	★	★	3.150	3.150	2.165	-6°	-6°							
PSC50-DCRN R/L -27060-64	★	★	1.969	2.362	1.063	-6°	-6°	CN□□ 64	ST-1770	ICSN633	CL-2719			
PSC63-DCRN R/L -35065-64	★	★	2.480	2.559	1.378	-6°	-6°							
PSC80-DCRN R/L -55080-64	★	★	3.150	3.150	2.165	-6°	-6°							





External Turning
Double Clamp

Alternative

Applicable Insert	Shim
DN□□43	IDSN-442

Holder / Parts

Dimensions (inch)

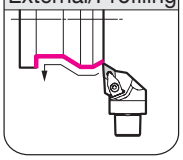
Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC40-DDHN R/L -27055-44	★	★	1.575	1.063	2.165	-6°	-7°	DN□□ 44	ST-1766	IDSN-432	CL-2712	CLB-1696	SP-4295	LH040
PSC50-DDHN R/L -35060-44	★	★	1.969	1.378	2.362	-6°	-7°							
PSC63-DDHN R/L -45065-44	★	★	2.480	1.772	2.559	-6°	-7°							
PSC80-DDHN R/L -55080-44	★	★	3.150	2.165	3.150	-6°	-7°							

★ Worldwide Warehouse Item

Polygon Toolholders

DDJN

External/Profiling



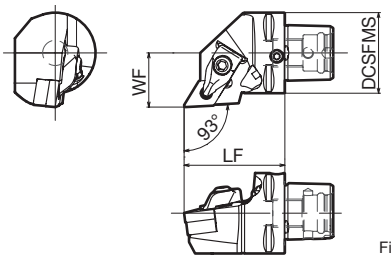


Figure shows right hand (R) tool.

External Turning
Double Clamp

Alternative

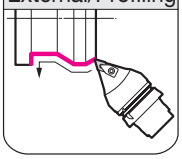
Applicable Insert	Shim
DN□□43	IDSN-442

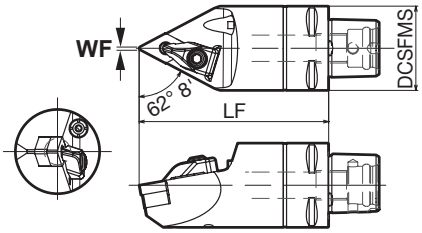
Holder — Parts — Dimensions (inch)

Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC32-DDJN R/L -22045-33	★	★	1.260	0.866	1.772	-6°	-7°	DN□□ 33	ST-1764	IDSN-322	CL-2708	CLB-1695	SP-4294	LH030
PSC40-DDJN R/L -27050-33	★	★	1.575	1.063	1.969	-6°	-7°							
PSC50-DDJN R/L -35060-33	★	★	1.969	1.378	2.362	-6°	-7°							
PSC63-DDJN R/L -45065-33	★	★	2.480	1.772	2.559	-6°	-7°							
PSC40-DDJN R/L -27055-43	★	★	1.575	1.063	2.165	-6°	-7°	DN□□ 44	ST-1766	IDSN432	CL-2712	CLB-1696	SP-4295	LH040
PSC50-DDJN R/L -35060-43	★	★	1.969	1.378	2.362	-6°	-7°							
PSC63-DDJN R/L -45065-43	★	★	2.480	1.772	2.559	-6°	-7°							
PSC80-DDJN R/L -55080-43	★	★	3.150	2.165	3.150	-6°	-7°							

DDNN

External/Profiling





External Turning
Double Clamp

Alternative

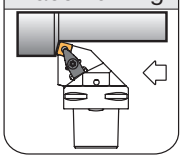
Applicable Insert	Shim
DN□□43	IDSN-442

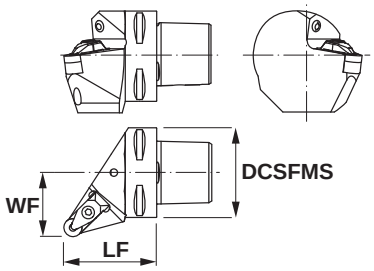
Holder — Parts — Dimensions (inch)

Catalog Number	Stock N	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC40-DDNNN00050-33	★	1.575	0.020	1.969	-5°	-9°	DN□□ 33	ST-1764	IDSN-322	CL-2708	CLB-1695	SP-4294	LH040
PSC50-DDNNN00060-33	★	1.969	0.020	2.362	-5°	-9°							
PSC40-DDNNN00055-43	★	1.575	0.020	2.165	-5°	-9°	DN□□ 44	ST-1766	IDSN432	CL-2712	CLB-1696	SP-4295	
PSC50-DDNNN00060-43	★	1.969	0.020	2.362	-5°	-9°							
PSC63-DDNNN00065-43	★	2.480	0.020	2.559	-5°	-9°							
PSC80-DDNNN00080-43	★	3.150	0.020	3.150	-5°	-9°							

DRSN

Face Turning





External Turning
Double Clamp

Holder — Parts — Dimensions (inch)

Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC40-DRSN R/L -27050-43	★	★	1.575	1.063	1.969	-6°	-6°	RN□□ 43	ST-1766	IRSN-44	CL-2712	CLB-1696	SP-4295	LH040
PSC50-DRSN R/L -35060-43	★	★	1.969	1.378	2.362	-6°	-6°							
PSC63-DRSN R/L -45065-43	★	★	2.480	1.772	2.559	-6°	-6°							

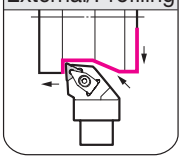
★ Worldwide Warehouse Item

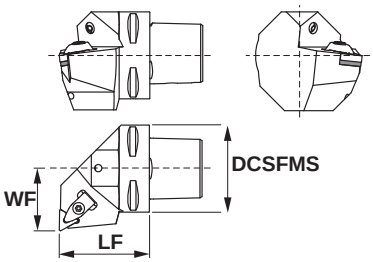
Polygon Toolholders

External Turning
Double Clamp

DTFN

External/Profiling





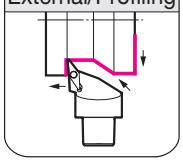
Holder | Parts | Dimensions (inch)

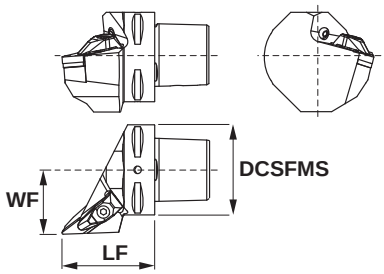
Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC32-DTFN R/L -22040-33	★	★	1.260	0.866	1.575	-6°	-6°	TN□□ 33	ST-1764	ITSN-342	CL-2708	CLB-1695	SP-4294	LH040
PSC40-DTFN R/L -27050-33	★	★	1.575	1.063	1.969	-6°	-6°							
PSC50-DTFN R/L -35060-33	★	★	1.969	1.378	2.362	-6°	-6°							
PSC50-DTFN R/L -35060-33	★	★	2.480	1.772	2.559	-6°	-6°							
PSC40-DTFN R/L -27050-43	★	★	1.575	1.063	1.969	-6°	-6°	TN□□ 43	ST-1766	ITSN443	CL-2712	CLB-1696	SP-4295	
PSC50-DTFN R/L -35060-43	★	★	1.969	1.378	2.362	-6°	-6°							
PSC63-DTFN R/L -45065-43	★	★	2.480	1.772	2.559	-6°	-6°							

External Turning
Screw-on

DVJN

External/Profiling





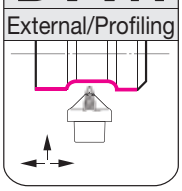
Holder | Parts | Dimensions (inch)

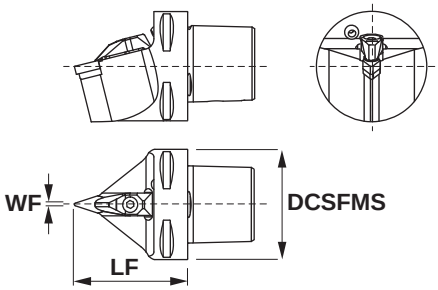
Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC40-DVJN R/L -27062-33	★	★	1.575	1.063	2.441	-4°	-13°	VN□□ 33	ST-1764	IVSN-322	CL-2708	CLB-1695	SP-4294	LH040
PSC50-DVJN R/L -35065-33	★	★	1.969	1.378	2.559	-4°	-13°							
PSC63-DVJN R/L -45065-33	★	★	2.480	1.772	2.559	-4°	-13°							
PSC80-DVJN R/L -55080-33	★	★	3.150	2.165	3.150	-4°	-13°							

External Turning
Screw-on

DVVN

External/Profiling



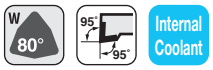


Holder | Parts | Dimensions (inch)

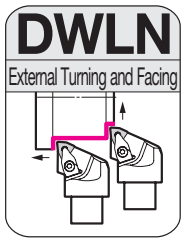
Catalog Number	Stock N	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC40-DVVNN00062-33	★	1.575	0.866	2.441	-6°	-6°	VN□□ 33	ST-1764	IVSN-322	CL-2708	CLB-1695	SP-4294	LH040
PSC50-DVVNN00065-33	★	1.969	1.063	2.559	-6°	-6°							
PSC63-DVVNN00065-33	★	2.480	1.378	2.559	-6°	-6°							
PSC80-DVVNN00080-33	★	3.150	1.772	3.150	-6°	-6°							

★ Worldwide Warehouse Item

Polygon Toolholders



External Turning
Double Clamp



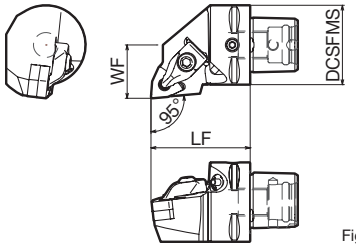
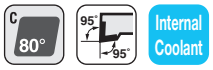


Figure shows right hand (R) tool.

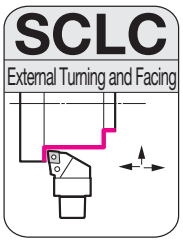
Holder | Parts

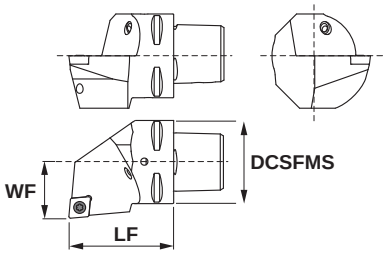
Dimensions (inch)

Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC32-DWLN R/L -22040-33	★	★	1.260	0.866	1.575	-6°	-6°	WN□□ 33	ST-1764	IWSN-322	CL-2708	CLB-1695	SP-4294	LH040
PSC40-DWLN R/L -27050-33	★	★	1.575	1.063	1.969	-6°	-6°							
PSC50-DWLN R/L -35060-33	★	★	1.969	1.378	2.362	-6°	-6°							
PSC63-DWLN R/L -45065-33	★	★	2.480	1.772	2.559	-6°	-6°							
PSC40-DWLN R/L -27050-43	★	★	1.575	1.063	1.969	-6°	-6°	WN□□ 43	ST-1766	IWSN433	CL-2712	CLB-1696	SP-4295	LH040
PSC50-DWLN R/L -35060-43	★	★	1.969	1.378	2.362	-6°	-6°							
PSC63-DWLN R/L -45065-43	★	★	2.480	1.772	2.559	-6°	-6°							
PSC80-DWLN R/L -55080-43	★	★	3.150	2.165	3.150	-6°	-6°							



External Turning
Lever Lock



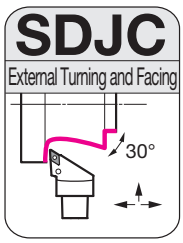


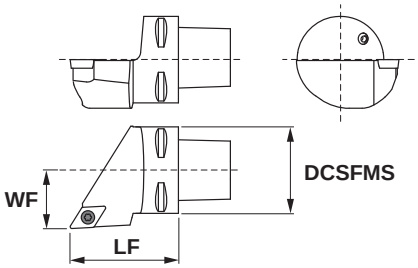
Holder | Parts

Dimensions (inch)

Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench	Shim	Shim Screw
PSC32-SCLC R/L -22040-32.5	★	★	1.260	0.866	1.575	-0°	-0°	CC□□ 32.5	BFTX0407N	TRX15	-	-
PSC40-SCLC R/L -27050-32.5	★	★	1.575	1.063	1.969	-0°	-0°					
PSC50-SCLC R/L -35060-32.5	★	★	1.969	1.378	2.362	-0°	-0°					
PSC63-SCLC R/L -45065-32.5	★	★	2.480	1.772	2.559	-0°	-0°					
PSC32-SCLC R/L -22040-43	★	★	1.260	0.866	1.575	-0°	-0°	CC□□ 43	BFTX0405	TRX15040	SH-3614	ST-1540
PSC40-SCLC R/L -27050-43	★	★	1.575	1.063	1.969	-0°	-0°					
PSC50-SCLC R/L -35060-43	★	★	1.969	1.378	2.362	-0°	-0°					
PSC63-SCLC R/L -45065-43	★	★	2.480	1.772	2.559	-0°	-0°					

External Turning
Lever Lock





Holder

Dimensions (inch)

Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench	Shim	Shim Screw
PSC32-SDJC R/L -22040-21.5	★	★	1.260	0.866	1.575	-0°	-0°	DC□□ 21.5	BFTX02506N	TRX08	-	-
PSC40-SDJC R/L -27050-21.5	★	★	1.575	1.063	1.969	-0°	-0°					
PSC32-SDJC R/L -22040-32.5	★	★	1.260	0.866	1.575	-0°	-0°	DC□□ 32.5	BFTX03515	TRX15	SH-3714	ST-1750
PSC40-SDJC R/L -27050-32.5	★	★	1.575	1.063	1.969	-0°	-0°					
PSC50-SDJC R/L -35060-32.5	★	★	1.969	1.378	2.362	-0°	-0°					
PSC63-SDJC R/L -45065-32.5	★	★	2.480	1.772	2.559	-0°	-0°					

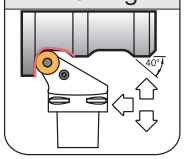
★ Worldwide Warehouse Item

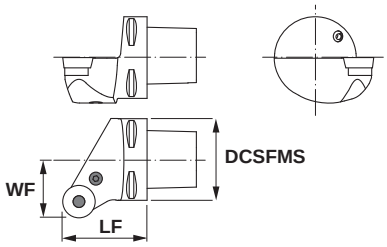
Polygon Toolholders

Internal Coolant

Multi-purpose Boring
Screw-on

PRSC
Profiling





Holder

Parts

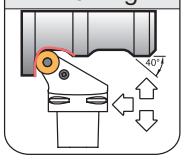
Dimensions (inch)

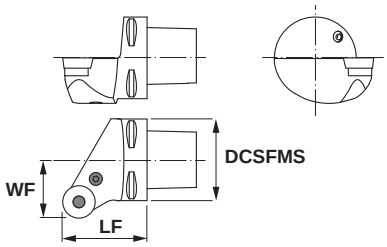
Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Lever Pin	Insert Screw	Wrench	Shim	Hardware	Pin
PSC80-PRSC R/L -55080-20	★	★	3.150	2.165	3.150	0°	0°	RC□□ 20	LCL-8120	ST-1708	LH030	SH-3820	H-4115	LP-0015
PSC63-PRSC R/L -45065-25	★	★	2.480	1.772	2.559	0°	0°	RC□□ 25	LCL-8125	ST-1710	LH040	SH-3825	H-4119	LP-0019
PSC80-PRSC R/L -55080-25	★	★	3.150	2.165	3.150	0°	0°							
PSC80-PRSC R/L -55080-32	★	★	3.150	2.165	3.150	0°	0°	RC□□ 32	LCL-8132	ST-1612	LH050	SH-3832	H-4125	LP-0025

Internal Coolant

Multi-purpose Boring
Screw-on

SRSC
Profiling





Holder

Dimensions (inch)

Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Insert Screw	Wrench	Shim	Shim Screw
PSC32-SRSC R/L -22040-10	★	★	1.260	0.866	1.575	0°	0°	RC□□10	ST-1335	TRX-5516	SH-3811	ST-1750
PSC40-SRSC R/L -27050-10	★	★	1.575	1.063	1.969	0°	0°					
PSC50-SRSC R/L -35060-10	★	★	1.969	1.378	2.362	0°	0°					
PSC63-SRSC R/L -45065-10	★	★	2.480	1.772	2.559	0°	0°					
PSC40-SRSC R/L -27050-12	★	★	1.575	1.063	1.969	0°	0°	RC□□12		TRX-5516	SH-3814	ST-1750
PSC50-SRSC R/L -35060-12	★	★	1.969	1.378	2.362	0°	0°					
PSC63-SRSC R/L -45065-12	★	★	2.480	1.772	2.559	0°	0°					
PSC50-SRSC R/L -35060-16	★	★	1.969	1.378	2.362	0°	0°	RC□□16	ST-1540	TRX-5517	SH-3816	ST-1765
PSC63-SRSC R/L -45065-16	★	★	2.480	1.772	2.559	0°	0°					
PSC50-SRSC R/L -35060-20	★	★	1.969	1.378	2.362	0°	0°	RC□□20	ST-1260	TRX-5520	SH-3919	ST-1059
PSC63-SRSC R/L -45065-20	★	★	2.480	1.772	2.559	0°	0°					

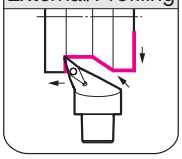
★ Worldwide Warehouse Item

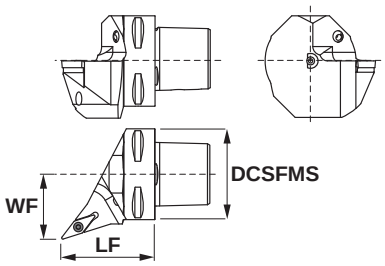
Polygon Toolholders

External Turning
Screw-on

SVHB

External/Profiling





Holder

Parts

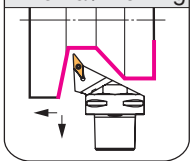
Dimensions (inch)

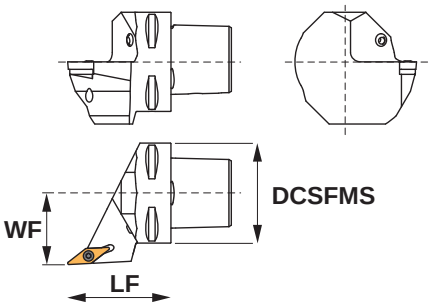
Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Insert Screw	Wrench	Shim	Shim Screw
PSC40-SVHB R/L -27050-33	★	★	1.575	1.063	1.969	-4°	-13°	VB□□ 33	ST-1335	TRX15	SH-3718	ST-1750
PSC50-SVHB R/L -35060-33	★	★	1.969	1.378	2.362	-4°	-13°					
PSC63-SVHB R/L -45065-33	★	★	2.480	1.772	2.559	-4°	-13°					

External Turning
Screw-on

SVJB

External/Profiling





Holder

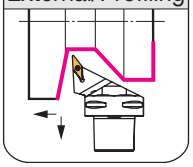
Dimensions (inch)

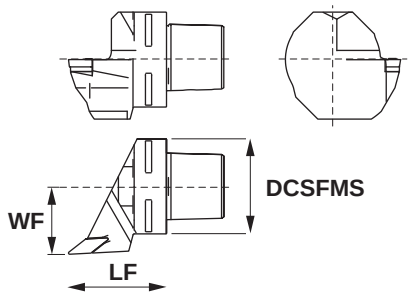
Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Insert Screw	Wrench	Shim	Shim Screw
PSC40-SVJB R/L -27050-33	★	★	1.575	1.063	1.969	0°	0°	VB□□ 33	ST-1335	TRX15	SH-3718	ST-1750
PSC50-SVJB R/L -35060-33	★	★	1.969	1.378	2.362	0°	0°					
PSC63-SVJB R/L -45065-33	★	★	2.480	1.772	2.559	0°	0°					

External Turning
Screw-on

SVJC

External/Profiling





Holder

Dimensions (inch)

Catalog Number	Stock R	Stock L	Mounting DCSFMS	Cutting Edge WF	Overhang LF	Rake Angle	Incline Angle	Applicable Insert	Insert Screw	Wrench	Shim	Shim Screw
PSC32-SVJC R/L -22040-22	★	★	1.260	0.866	1.575	0°	0°	VC□□ 22	ST-1225	TRX15040	-	-
PSC40-SVJC R/L -27050-22	★	★	1.575	1.063	1.969	0°	0°					
PSC50-SVJC R/L -35060-22	★	★	1.969	1.378	2.362	0°	0°					
PSC40-SVJC R/L -27050-33	★	★	1.575	1.063	1.969	0°	0°	VC□□ 33	ST-1335	TRX15	SH-3718	ST-1750
PSC50-SVJC R/L -35060-33	★	★	1.969	1.378	2.362	0°	0°					
PSC63-SVJC R/L -45065-33	★	★	2.480	1.772	2.559	0°	0°					

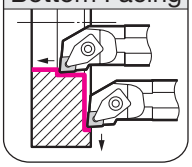
★ Worldwide Warehouse Item

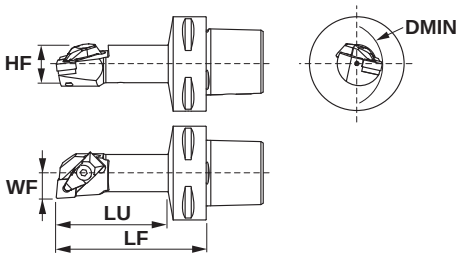
Polygon Shank Boring Bars

Internal Coolant

Internal Turning
Double Clamp

DCLN
Bottom Facing





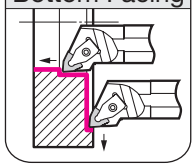
Holder | Parts | Dimensions (inch)

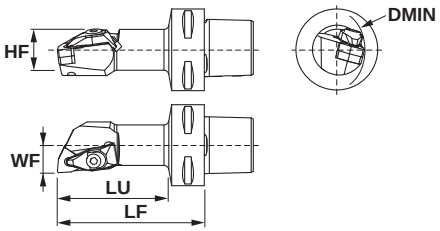
Catalog Number	Stock R	Stock L	Min Bore Dia. DMIN	Height HF	Cutting Edge WF	Overhang LF	Usable Length LU	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC40-DCLN R/L -13080-32	★	★	0.984	0.787	0.512	3.150	2.244	-6°	-14°	CN□□32	-	-	CL-2708	CLB-1695	SP-4294	LH040
PSC50-DCLN R/L -13080-32	★	★	0.984	0.787	0.512	3.150	2.205	-6°	-14°							
PSC40-DCLN R/L -17090-43	★	★	1.260	0.984	0.669	3.543	2.677	-6°	-12°	CN□□43	ST-1766	ICSN-442	CL-2712	CLB-1696	SP-4295	
PSC50-DCLN R/L -17090-43	★	★	1.260	0.984	0.669	3.543	2.598	-6°	-12°							
PSC63-DCLN R/L -17100-43	★	★	1.260	0.984	0.669	3.937	2.835	-6°	-12°							
PSC63-DCLN R/L -27140-54	★	★	1.969	1.575	1.063	5.512	4.488	-6°	-16°	CN□□54	ST-1768	ICSN-533	CL-2716	CLB-1696	SP-4295	

Internal Coolant

Medium Diameter General-purpose
Double Clamp

DWLN
Bottom Facing





Holder | Parts | Dimensions (inch)

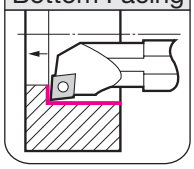
Catalog Number	Stock R	Stock L	Min Bore Dia. DMIN	Height HF	Cutting Edge WF	Overhang LF	Usable Length LU	Rake Angle	Incline Angle	Applicable Insert	Screw	Shim	Clamp	Clamp Bolt	Spring	Wrench
PSC40-DWLN R/L -13075-33	★	★	1.299	0.787	0.512	2.953	2.047	-6°	-17°	WN□□33	ST-1764	IWSN-322	CL-2708	CLB-1695	SP-4294	LH040
PSC40-DWLN R/L -17090-43	★	★	1.378	0.984	0.669	3.543	2.677	-6°	-12°	WN□□43	ST-1766	IWSN-433	CL-2712	CLB-1696	SP-4295	
PSC50-DWLN R/L -17090-43	★	★	1.378	0.984	0.669	3.543	2.598	-6°	-12°							

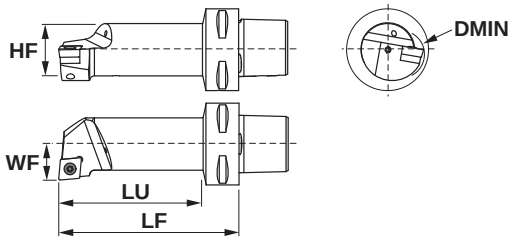
★ Worldwide Warehouse Item

Polygon Shank Boring Bars

Internal Finishing to Medium Cutting
Screw-on

SCLC
Bottom Facing



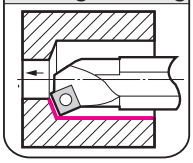


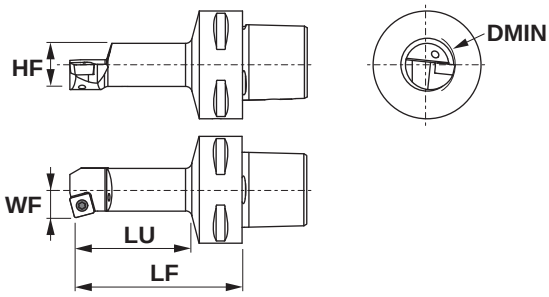
Holder / Parts — Dimensions (inch)

Catalog Number	Stock R	Stock L	Min Bore Dia. DMIN	Height HF	Cutting Edge WF	Overhang LF	Usable Length LU	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench	Shim	Screw
PSC32-SCLC R/L -11065-32.5	★	★	0.787	0.630	0.433	2.559	1.890	0°	-12°	CC□□32.5	BFTX0407N	TRX15	-	-
PSC32-SCLC R/L -13075-32.5	★	★	0.984	0.787	0.512	2.953	2.323	0°	-8°					
PSC32-SCLC R/L -17090-32.5	★	★	1.260	0.984	0.669	3.543	2.953	0°	-6°					
PSC40-SCLC R/L -11070-32.5	★	★	0.787	0.630	0.433	2.756	1.850	0°	-12°					
PSC40-SCLC R/L -13080-32.5	★	★	0.984	0.787	0.512	3.150	2.283	0°	-8°					
PSC40-SCLC R/L -17090-32.5	★	★	1.260	0.984	0.669	3.543	2.717	0°	-6°					
PSC40-SCLC R/L -27080-32.5	★	★	1.969	1.562	1.063	3.150	2.362	0°	-6°					
PSC50-SCLC R/L -11070-32.5	★	★	0.787	0.630	0.433	2.756	1.811	0°	-12°					
PSC50-SCLC R/L -13080-32.5	★	★	0.984	0.787	0.512	3.150	2.205	0°	-8°					
PSC50-SCLC R/L -17090-32.5	★	★	1.260	0.984	0.669	3.543	2.638	0°	-6°					
PSC50-SCLC R/L -35100-32.5	★	★	2.480	1.956	1.378	3.937	3.189	0°	-4°					
PSC32-SCLC R/L -17090-43	★	★	1.260	0.984	0.669	3.543	2.953	0°	-6°	CC□□43	BFTX0511N	TRX20	SH-3614	ST-1760
PSC32-SCLC R/L -22064-43	★	★	1.575	1.248	0.866	2.520	1.969	0°	-10°			TRX-5517		
PSC32-SCLC R/L -22096-43	★	★	1.575	1.366	0.866	3.780	3.228	0°	-10°					
PSC40-SCLC R/L -17090-43	★	★	1.260	0.984	0.669	3.543	2.717	0°	-6°			TRX20	-	-
PSC40-SCLC R/L -22110-43	★	★	1.575	1.260	0.866	4.331	3.504	0°	-10°			TRX-5517	SH-3614	ST-1760
PSC40-SCLC R/L -27080-43	★	★	1.969	1.562	1.063	3.150	2.362	0°	-8°					
PSC50-SCLC R/L -17090-43	★	★	1.260	0.984	0.669	3.543	2.638	0°	-6°			TRX20	-	-
PSC50-SCLC R/L -22110-43	★	★	1.575	1.260	0.866	4.331	3.465	0°	-10°			TRX-5517	SH-3614	ST-1760
PSC50-SCLC R/L -27140-43	★	★	1.969	1.575	1.063	5.512	4.685	0°	-8°					
PSC50-SCLC R/L- 35100-43	★	★	2.480	1.956	1.378	3.937	3.150	0°	-5°					

Internal General
Screw-on

SSKC
Through Boring



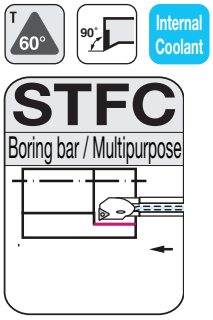


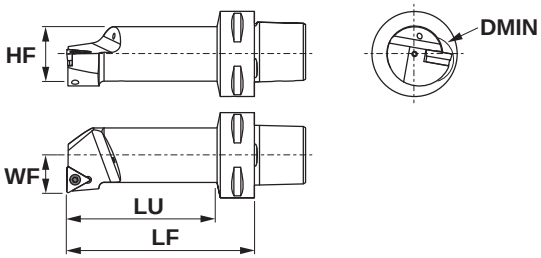
Holder / Parts — Dimensions (inch)

Catalog Number	Stock R	Stock L	Min Bore Dia. DMIN	Height HF	Cutting Edge WF	Overhang LF	Usable Length LU	Rake Angle	Incline Angle	Applicable Insert	Screw	Wrench
PSC40-SSKC R/L -13080-32.5	★	★	0.984	0.787	0.512	3.150	2.283	0°	-6°	SC□□32.5	BFTX0511N	TRX-5517
PSC50-SSKC R/L -13080-32.5	★	★	0.984	0.787	0.512	3.150	2.205	0°	-6°			

★ Worldwide Warehouse Item

Polygon Shank Boring Bars





Multi-purpose Boring
Screw-on

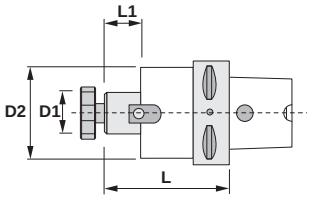
Holder | Parts

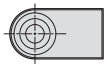
Dimensions (inch)

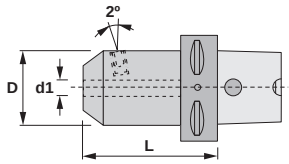
Catalog Number	Stock R	Stock L	Min Bore Dia. DMIN	Height HF	Cutting Edge WF	Overhang LF	Usable Length LU	Rake Angle	Incline Angle	Applicable Insert	DMIN	Wrench	Shim	Screw
PSC32-STFC R/L -11065-21.5	★	★	0.787	0.630	0.433	2.559	1.890	0°	-4°	TC□□21.5	BFTX02507	TRX15040	-	-
PSC32-STFC R/L -13075-21.5	★	★	0.984	0.787	0.512	2.953	2.323	0°	-3°					
PSC40-STFC R/L -11070-21.5	★	★	0.787	0.630	0.433	2.756	1.850	0°	-4°					
PSC40-STFC R/L -13080-21.5	★	★	0.984	0.787	0.512	3.150	2.244	0°	-3°					
PSC50-STFC R/L -11070-21.5	★	★	0.787	0.630	0.433	2.756	1.811	0°	-4°					
PSC50-STFC R/L -13080-21.5	★	★	0.984	0.787	0.512	3.150	2.205	0°	-3°					
PSC32-STFC R/L -17090-32.5	★	★	1.260	0.984	0.669	3.543	2.913	0°	-3.5°	TC□□32.5	BFTX0407N	TRX15	-	ST-1750
PSC40-STFC R/L -17090-32.5	★	★	1.260	0.984	0.669	3.543	2.717	0°	-6°					
PSC40-STFC R/L -22110-32.5	★	★	1.575	1.260	0.866	4.331	3.504	0°	-10°		BFTX0315	TRX-5516	SH-3414	
PSC50-STFC R/L -17090-32.5	★	★	1.260	0.984	0.669	3.543	2.638	0°	-6°		BFTX0407N	TRX15	-	
PSC50-STFC R/L -22110-32.5	★	★	1.575	1.260	0.866	4.331	3.465	0°	-10°		BFTX0315	TRX-5516	SH-3414	

★ Worldwide Warehouse Item

PSC Adaptors



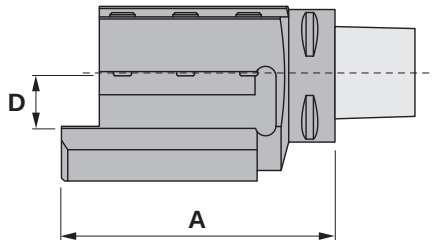
PSC Shell Mill Holders								
Catalog Number	Dimensions							
	PSC	D1	L	L1	D2	Cap	Drive Key	Screw
PSC50-0.75SMH	50	.750	2.756	0.709	1.693	CAP-10107	DRKEY-86207	ST-11103
PSC50-1.00SMH	50	1.000	0.984	0.709	2.126	CAP-10110	DRKEY-86210	ST-11004
PSC50-1.50SMH	50	1.50	1.772	0.906	3.150	CAP-10115	DRKEY-86215	ST-11006
PSC63-0.75SMH	63	.750	1.181	0.709	2.047	CAP-10107	DRKEY-86207	ST-11103
PSC63-1.00SMH	63	1.000	1.181	0.709	2.480	CAP-10110	DRKEY-86210	ST-11004
PSC63-1.50SMH	63	1.50	1.772	0.906	3.150	CAP-10115	DRKEY-86215	ST-11006



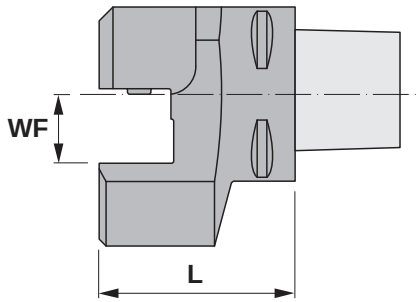
PSC Boring Bar Adapters					2 x
Catalog Number	Dimensions				
	PSC	d1	D	L	Bolt
PSC40-0.75BBA	40	.750	1.752	2.362	BOLT-15407
PSC50-0.75BBA	50	.750	1.752	2.362	BOLT-15407
PSC50-1.00BBA	50	1.000	2.248	3.346	BOLT-15410*
PSC50-1.25BBA	50	1.250	2.480	3.347	BOLT-15410*
PSC63-0.75BBA	63	.7500	1.752	2.560	BOLT-15407
PSC63-1.00BBA	63	1.000	2.248	3.347	BOLT-15410*
PSC63-1.25BBA	63	1.250	2.480	3.347	BOLT-15410*

* has 4 bolts instead of standard 2

PSC Adaptors

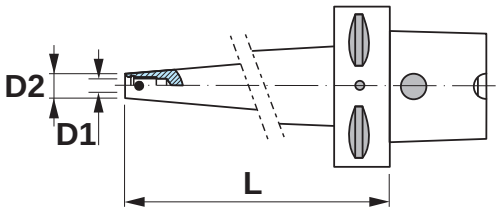


PSC Straight Square Shank Toolholder Adaptor							
Catalog Number		Dimensions					
Right	Left	PSC	Type	D	L	Clamp Bolt	Coolant Bolt
PSC50-0.75THR	PSC50-0.75THL	50	Turning toolholder for square tool left/right hand	.750	3.858	CLB-17207	COB-29708
PSC63-0.75THR	PSC63-0.75THL	63		.750	3.937	CLB-17207	COB-29708
PSC63-1.00THR	PSC63-1.00THL	63		1.000	5.118	CLB-17210	COB-29708



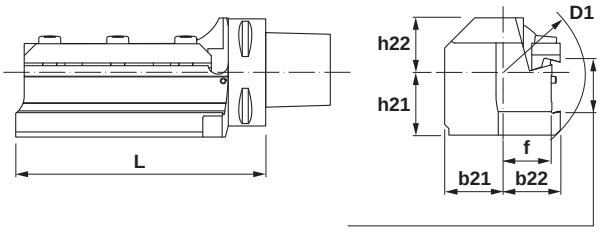
PSC 90° Square Shank Toolholder Adaptor						
Catalog Number	Dimensions					
	PSC	Type	WF	L	Clamp Bolt	Coolant Bolt
PSC50-0.75STH	50	Multi-purpose adaptor for square toolholders	.750	2.244	CLB-17307	COB-29708
PSC63-0.75STH	63		.750	2.323	CLB-17307	COB-29708

PSC Adaptors



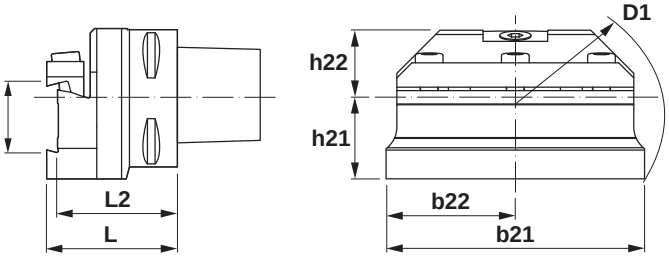
PSC Modular Endmill Adapters

Catalog Number	PSC	Dimensions		
		L	D1	D2
PSC40-MA08	40	2.756	M8	0.512
PSC40-MA10	40	3.150	M10	0.709
PSC40-MA12	40	3.150	M12	0.827
PSC50-MA08	50	2.756	M8	0.512
PSC50-MA10	50	3.150	M10	0.709
PSC50-MA12	50	3.150	M12	0.827
PSC50-MA16	50	3.150	M16	1.142
PSC63-MA08	63	2.756	M8	0.512
PSC63-MA10	63	3.543	M10	0.709
PSC63-MA12	63	3.937	M12	0.827
PSC63-MA16	63	3.937	M16	1.142
PSC80-MA12	80	3.937	M12	0.827
PSC80-MA16	80	3.937	M16	1.142
PSC100-MA12	100	4.724	M12	0.827
PSC100-MA16	100	4.724	M16	1.142



PSC Tool Mount for Cutoff Blades

Catalog Number	Stock		Dimensions										
	R	L	PSC	Blade Size	D1	b21	b22	f	h21	h22	L	Cap	Screw
PSC50-SBN26 R/L	★	★	50	26	3.465	0.984	1.260	1.063	1.181	1.024	3.74	CAP-80526	ST-11008
PSC63-SBN32 R/L	★	★	63	32	4.173	1.260	1.555	1.260	1.496	1.260	5.787	CAP-80632	ST-11108
PSC80-SBN32 R/L	★	★	80	32	4.961	1.594	1.890	1.594	1.594	1.594	6.102	CAP-80632	ST-11108
PSC100-SBN32 R/L	★	★	100	32	5.709	1.969	2.283	1.988	1.988	1.969	6.299	CAP-80632	ST-11108



PSC Radial Mount for Blades Adaptor

Catalog Number	Stock		Dimensions										
	R	L	PSC	Blade Size	D1	b21	b22	h21	h22	L	L2	Cap	Screw
PSC50-RMA26 R/L	★	★	50	26	3.937	3.150	1.575	1.181	0.992	2.283	2.087	CAP-80526	ST-11008
PSC63-RMA32 R/L	★	★	63	32	5.551	4.724	2.362	1.457	1.260	2.480	2.186	CAP-81632	ST-11108
PSC80-RMA32 R/L	★	★	80	32	5.709	4.724	2.362	1.594	1.575	2.795	2.500	CAP-81632	ST-11108
PSC100-RMA32 R/L	★	★	100	32	5.709	4.724	2.362	1.988	1.969	2.953	2.657	CAP-81632	ST-11108

Damper Arbors

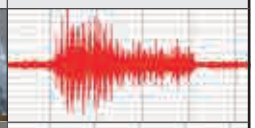
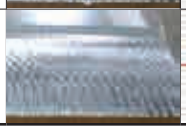
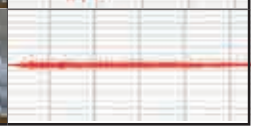
■ General Features

Dampers are arbors equipped with a special anti-vibration mechanism that has both counter damping and friction damping effects.
This reduces chatter and prevents decreased machined surface quality and tool life when machining with a large overhang.

■ Features

· Using a basic holder and damper head in combination
· Basic holder lineup supports **BBT50** arbor and **HSK-A100** arbors in different lengths.
· Through-center coolant compatible.

Surface Milling Example with 347mm Overhang Length

Arbor	Results	
	Machined Surface	Vibration
Competitor's Arbor No vibration control mechanism		
Damper With Vibration Control Mechanism		

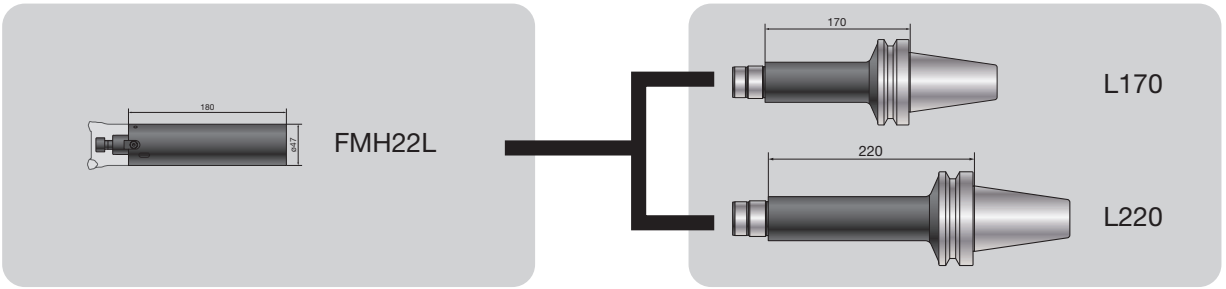
Reduce chatter by using a smart damper!!

Part Material: Medium-Carbon Steel (S50C)
Diameter: ø63mm (5-Flute)
Cutting Conditions: v_c = 100m/min, f_z = 1.0mm/t, a_p = 1.4mm, a_e = 30mm

■ Combination Example (**BBT50** Type)

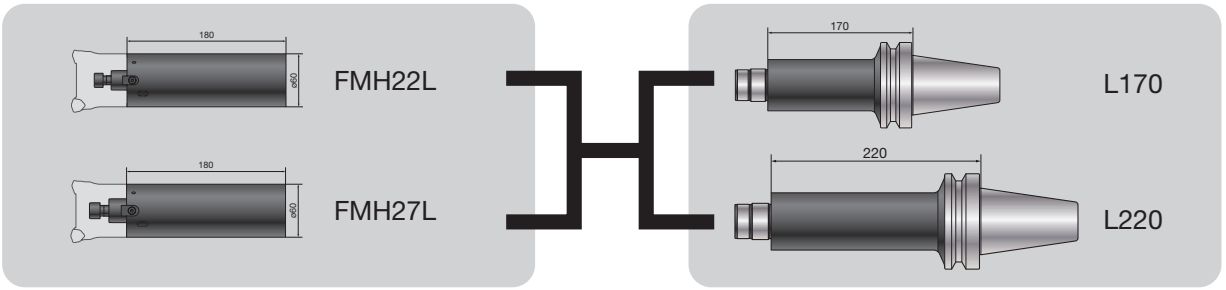
Damper Head | Basic Holder

ø47 Type



S-SDF36**47**FMH□□L180 | S-SDF36**47**L□□□-BBT50

ø60 Type

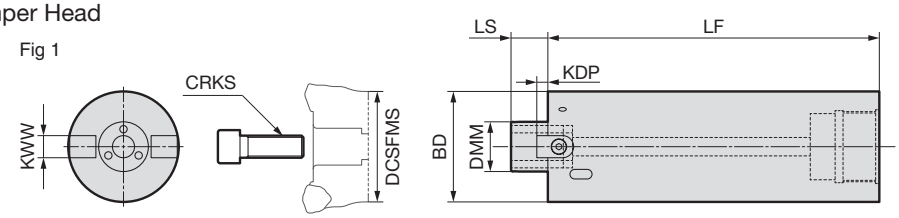


S-SDF36**60**FMH□□L180 | S-SDF36**60**L□□□-BBT50

★ Worldwide Warehouse Item

Damper Head

Fig 1



Stock Table

Dimensions (mm)

Cat. No.	Stock	Shank Dia. DMM	Body Dia. BD	Overhang LF	Shank Length LS	Groove Width KWW	Groove Depth KDP	Screw CRKS	Weight (kg)	Mounting DCSFMS	Fig
S-SDF3647FMH22L180	★	22	47	180	18	10	5	M10	3.0	36 up	1
S-SDF3660FMH22L180	★	22	60	180	18	10	5	M10	4.5	49 up	1
S-SDF3660FMH27L180	★	27	60	180	20	12	6	M12	4.5	46 up	1

Refer to the user's manual for methods of mounting to basic tool holders.
The cutter is not included in the weight.
A hook wrench and clamp bolt for tightening the cutter are included.
DCSFMS shows the cutter mounting surface diameter. Use caution if the mounting surface diameter is small relative to the cutter outer diameter.

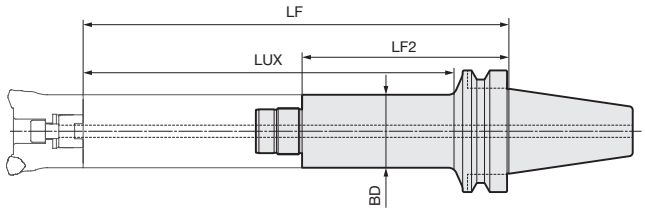
Identification Code

S-SDF36 47 FMH 22 L180

Connection Method | Body Dia. | Series Code | Shank Dia. | Overhang

Basic Holder BBT50 Type

Fig 1



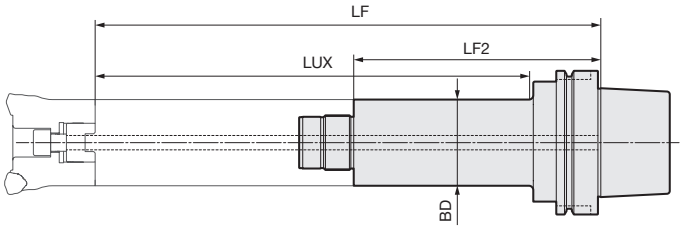
Stock Table

Dimensions (mm)

Cat. No.	Stock	Body Dia. BD	Overhang LF	Min. Clamping Length LF2	Effective Overhang LUX	Weight (kg)	Applicable Damper Head	Fig
S-SDF3647L170-BBT50	★	47	350	170	297	5.6	S-SDF3647FMH○○L○○○	1
S-SDF3647L220-BBT50	★	47	400	200	347	6.3	S-SDF3647FMH○○L○○○	1
S-SDF3660L170-BBT50	★	60	350	170	297	6.7	S-SDF3660FMH○○L○○○	1
S-SDF3660L220-BBT50	★	60	400	200	347	7.8	S-SDF3660FMH○○L○○○	1

Basic Holder HSK-A100 Type

Fig 1



Stock Table

Dimensions (mm)

Cat. No.	Stock	Body Dia. BD	Overhang LF	Min. Clamping Length LF2	Effective Overhang LUX	Weight (kg)	Applicable Damper Head	Fig
S-SDF3647L170-HSKA100	★	47	350	170	310	4.4	S-SDF3647FMH○○L○○○	1
S-SDF3647L220-HSKA100	★	47	400	220	360	5.0	S-SDF3647FMH○○L○○○	1
S-SDF3660L170-HSKA100	★	60	350	170	310	5.5	S-SDF3660FMH○○L○○○	1
S-SDF3660L220-HSKA100	★	60	400	220	360	6.0	S-SDF3660FMH○○L○○○	1

Identification Code

S-SDF36 47 L170 - BBT50

Connection Method | Body Dia. | Min. Clamping Length | Shank type

*Smart Damper™ is a registered trademark of BIG DAISHOWA Co., Ltd.

★ Worldwide Warehouse Item

ABS System

ABS SYSTEM
ARE MADE TO ORDER ITEMS

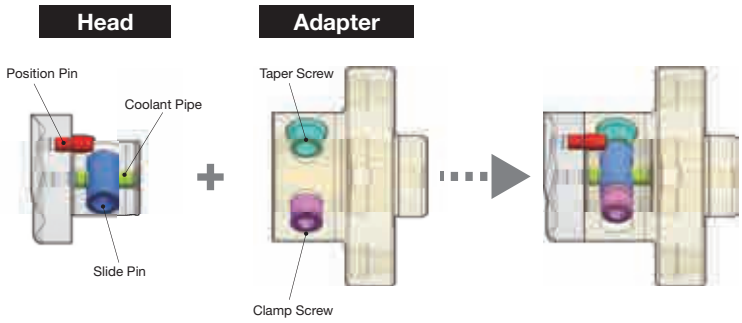
■ Features

The IGETALLOY ABS system has received high acclamation worldwide for its strong clamping force, high rigidity and high precision. ABS is one of the quick change systems for round tools, which increases our customers' productivity in special tooling applications, while simplifying and standardising these special tools.
The SBA system is also available. For details, please contact us.

■ Overview

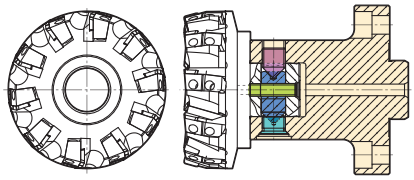
- The clamp screw, taper screw and slide pin act as a wedge for strong holding force.
- High rigidity, high precision. High indexing accuracy during tool changes.
- A wide array of sizes are available to cover a variety of tools.
- Easy handling allows short tool change times.
- Allows coolant supply from inside the spindle.
- Strong clamping force with small diameters.

■ Clamp Mechanism

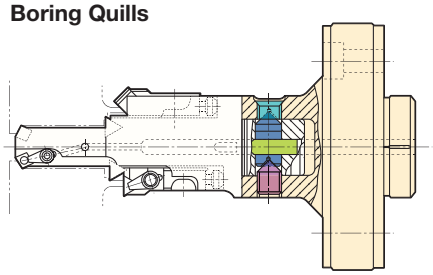


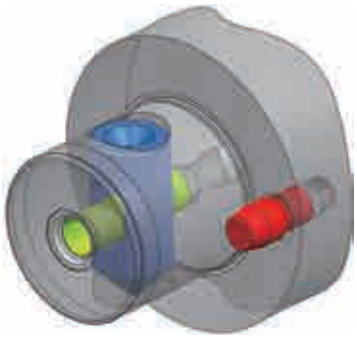
■ ABS System Design Examples

Indexable Cutters



Boring Quills





■ ABS Standard (Head)

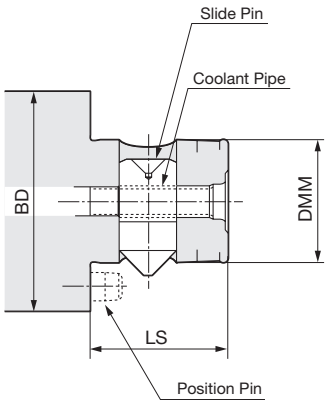
Head Dimensions

Dimensions (mm)

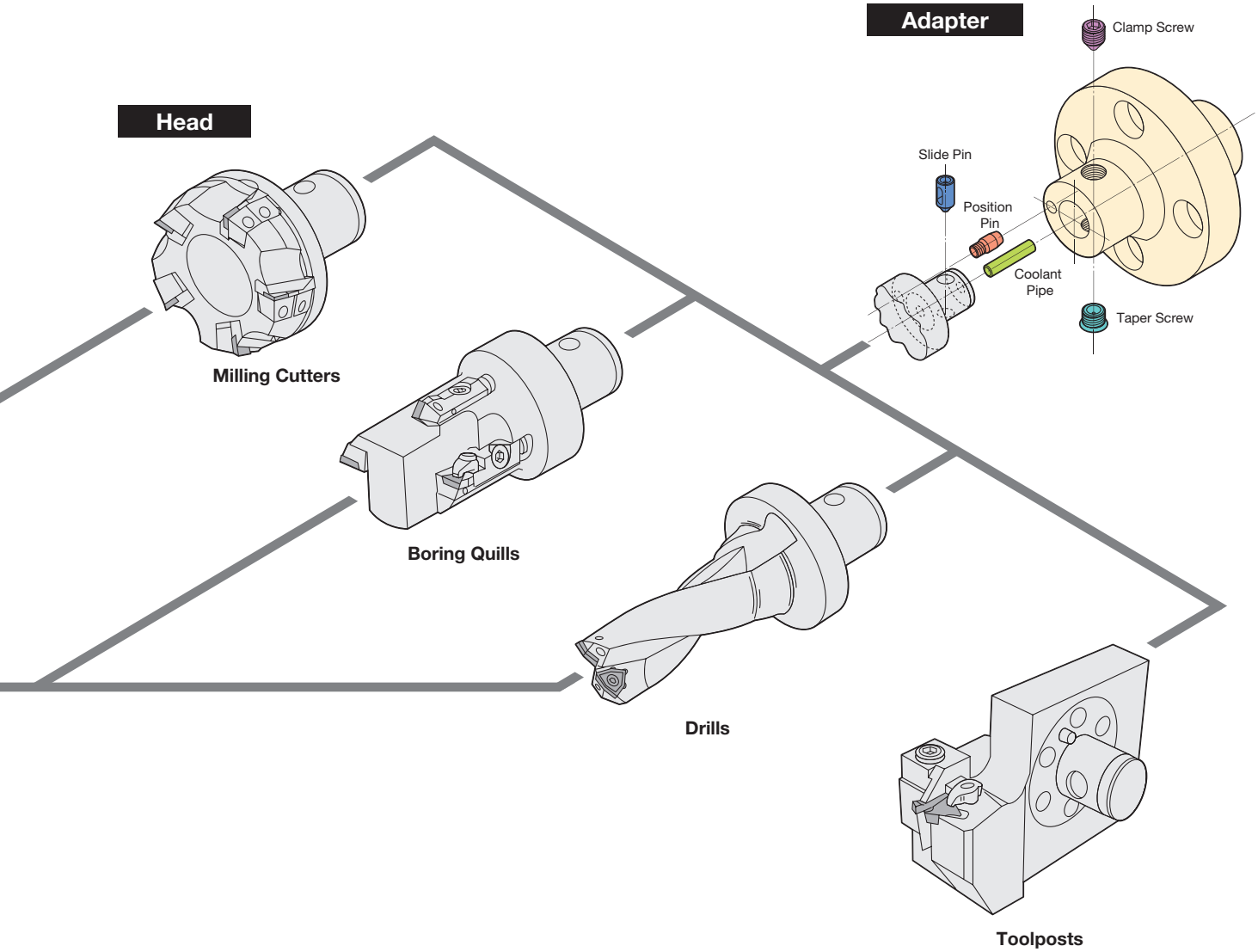
Cat. No.	Body Dia. BD	Shank Dia. DMM	Shank Length LS
ABS 25M	25	13	20
ABS 32M	32	16	23
ABS 40M	40	20	26
ABS 50M	50	28	31
ABS 63M	63	34	38
ABS 80M	80	46	43

Spare Parts

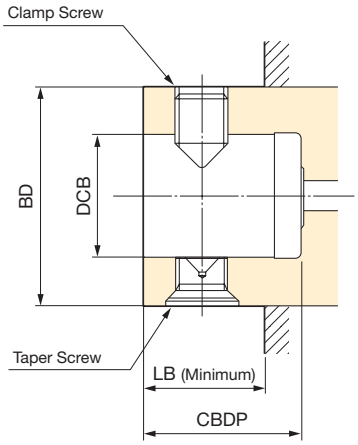
Set Cat. No.	Slide Pin	Position Pin	Coolant Pipe
ABS 25-ES-M3	ABS 25-E3.2	ABS 25-E4	ABS 25-E6
ABS 32-ES-M3	ABS 32-E3.2	ABS 32-E4	ABS 32-E6
ABS 40-ES-M3	ABS 40-E3.2	ABS 40-E4	ABS 40-E6
ABS 50-ES-M3	ABS 50-E3.2	ABS 50-E4	ABS 50-E6
ABS 63-ES-M3	ABS 63-E3.2	ABS 63-E4	ABS 63-E6
ABS 80-ES-M3	ABS 80-E3.2	ABS 80-E4	ABS 80-E6



ABS SYSTEM
ARE MADE TO ORDER ITEMS



■ ABS Standard (Adapter)



Adapter Dimensions

Dimensions (mm)

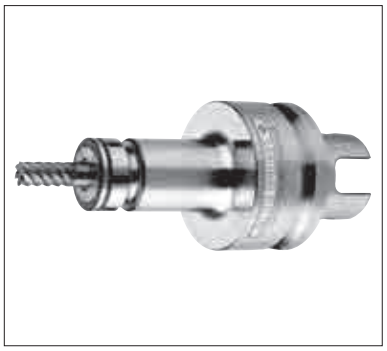
Cat. No.	Body Dia. BD	Shank Dia. DCB	Shank Length CBDP	Min. Clamping Length LB
ABS 25W	25	13	22	13.0
ABS 32W	32	16	25	16.0
ABS 40W	40	20	30	18.5
ABS 50W	50	28	34	22.0
ABS 63W	63	34	41	28.0
ABS 80W	80	46	48	34.0
ABS100W	100	56	58	40.5
ABS125W	125	70	76	51.0
ABS160W	160	90	96	53.0
ABS200W	200	112	116	82.0

Spare Parts

Set Cat. No.	Clamp Screw	Taper Screw
ABS 25-FS-W	**ABS 25-F1**	**ABS 25-F2**
ABS 32-FS-W	**ABS 32-F1**	**ABS 32-F2**
ABS 40-FS-W	**ABS 40-F1**	**ABS 40-F2**
ABS 50-FS-W	**ABS 50-F1**	**ABS 50-F2**
ABS 63-FS-W	**ABS 63-F1**	**ABS 63-F2**
ABS 80-FS-W	**ABS 80-F1**	**ABS 80-F2**
ABS100-FS-W	**ABS100-F1**	**ABS100-F2**
ABS125-FS-W	**ABS125-F1**	**ABS125-F2**
ABS160-FS-W	**ABS160-F1**	**ABS160-F2**
ABS200-FS-W	**ABS200-F1**	**ABS200-F2**

Modular Taper Shank / HSK Tooling System

*Catalog numbers have been changed due to the establishment of ISO standard ISO 26622-1:2008.



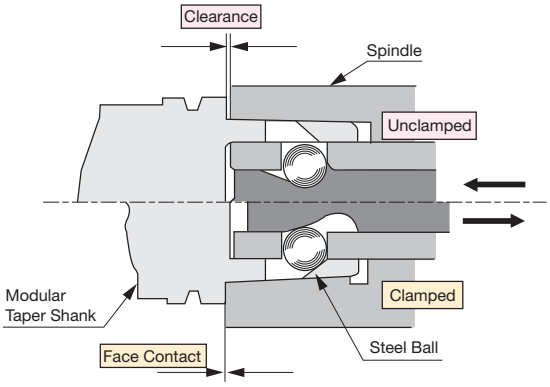
Modular Taper Shank

This has widespread use throughout Europe and the United States.

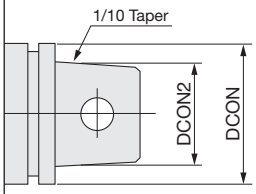
Features

- Tool shape suitable for high-speed rotations.
- Achieving high-precision machining by increasing rigidity at high-speed rotations with two locating faces on the taper and flange, along with an excellent clamping mechanism.
- Hollow and short taper reduces weight and shortens ATC time when changing tools.

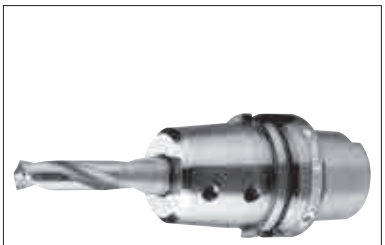
Mechanism



Size



Cat. No.	Mounting Dia. DCON	Mounting Dia. DCON2
TS32	32	24
TS40	40	30
TS50	50	40
TS63	63	50
TS80	80	64



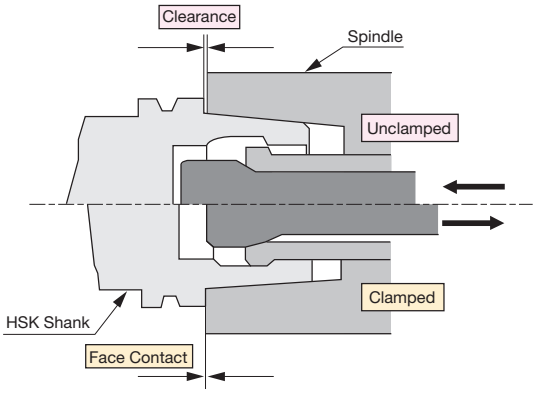
HSK Tooling System

This hollow shank was developed by RWTH Aachen University and the German Industry Association, and has been adopted as an ISO standard.

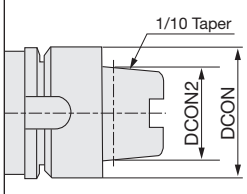
Features

- DIN standard with 2 locating faces.
- Two locating faces on the taper and flange for high precision and high rigidity machining.
- Hollow and short taper reduces weight and allows for high-speed ATC.

Mechanism



Size

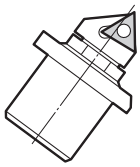
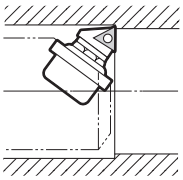
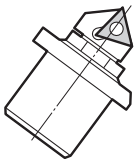
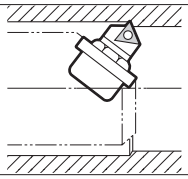
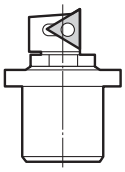
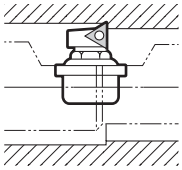
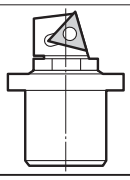
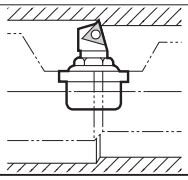


Cat. No.	Mounting Dia. DCON	Mounting Dia. DCON2
HSK A32	32	24
HSK A40	40	30
HSK A50	50	38
HSK A63	63	48
HSK A80	80	60
HSK A100	100	75

This section introduces an overview of the series.
Refer to the separate "SEC-Cartridge Unit / Micro Unit" catalog for details on Micro Units (holders, inserts, spare parts) and quill unit seat machining.

Note: Use MUP type micro units when designing new tooling.
Conventional tool types (MUN type) are manufactured only as replacement parts.

■ Micro Unit Cat. No. by Model / Tooling Type

		MUP Type			MUN Type		
Illustrations	Tooling	Cat. No.	Min. Bore Dia. (mm)	Stock	Cat. No.	Min. Bore Dia. (mm)	Stock
		MUP1-A0	25	★	MUN2-A0	36	
		MUP2-A0	36	★	MUN3-A0	47	
		MUP3-A0	47	★	MUN3L-A0	54	
		MUP4-A0	73		MUN4-A0	73	
					MUN4L-A0	78	
		MUP1-A15	25		MUN2-A15	36	
		MUP2-A15	36		MUN3-A15	47	
		MUP3-A15	47		MUN3L-A15	54	
		MUP4-A15	73		MUN4-A15	73	
					MUN4L-A15	78	
		MUP1-V0	25	★	MUN2-V0	36	
		MUP2-V0	36	★	MUN3-V0	47	
		MUP3-V0	47	★	MUN3L-V0	54	
		MUP4-V0	73		MUN4-V0	73	
					MUN4L-V0	78	
		MUP1-V15	25		MUN2-V15	36	
		MUP2-V15	36		MUN3-V15	47	
		MUP3-V15	47		MUN3L-V15	54	
		MUP4-V15	73		MUN4-V15	73	
					MUN4L-V15	78	

*If a left hand unit is required, include "LH" after the catalogue number. (Ex.: MUP1-A0-LH, MUP1-V0-LH)
*Inserts and wrenches are not included with Micro Units.

★ Worldwide Warehouse Item

Cartridge Units

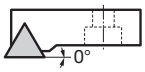
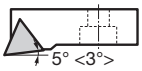
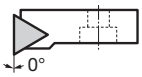
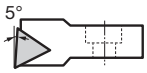
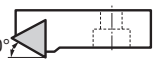
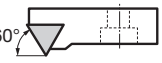
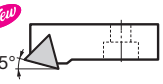
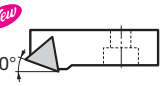
This section introduces an overview of the series.
Refer to the separate "SEC-Cartridge Unit/Micro Unit" catalogue for details on Micro Units (holders, inserts, spare parts) and quill unit seat machining.

■ Features of Each Model

Classification	Standard type	MINIT type		ISO type			
Cat. No.	BU type	MINIT P24 type	MINIT N38 type	SP type/SX type/SC type (Expanded, New, New)	CP type (Expanded)	CE type (Expanded)	PN type
Shape / Items	The most common type of cartridge units	Mini type with good edge sharpness and chip control	Compact type for multi-tooling configurations	Screw-on type positive cutting edge with excellent sharpness and chip evacuation	Positive cutting edge type for low-rigidity work	High rake cutting edge type for non-ferrous metal machining	Negative cutting edge type with excellent compatibility and economy
Clamp Mechanism	Pin Lock	Screw-on	Pin Lock	Screw-on	Clamp-on	Clamp-on	Pin Lock
Adjustability	Yes	Axial: No Radial: Yes	No (By using shims)	Yes	Yes	Yes	Yes
Rake Angle	Neg.	Pos.	Neg.	Pos.	Pos.	Pos.	Neg.
Applicable Insert Relief Angle	0°	11°	0°	11° (SP type) 7° (SX type/SC type)	11°	20°	0°
Cutting Edge Position	Above centre	Above centre and on centre	Above centre	On Centre	On Centre	On Centre	On Centre
Min. Bore Dia. (mm)	ø24	ø24	ø38	ø30	ø30	ø30	ø38

■ Cartridge Unit Cat. No. (For Triangular Inserts) by Model/Tooling type

( ) shows the min. bore diameter (mm).

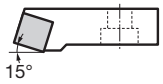
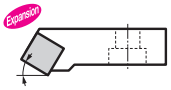
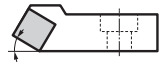
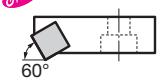
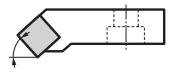
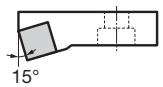
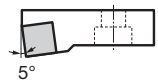
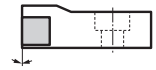
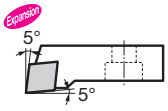
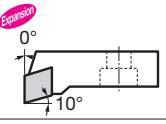
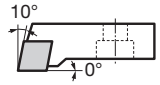
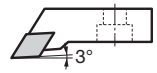
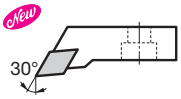
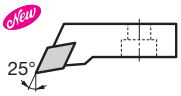
Configuration	BU type	Stock R	Stock L	MINIT P24 type	Stock R	Stock L	MINIT N38 type	Stock R	Stock L	SP type/SX type/SC type	Stock R	Stock L	CP type	Stock R	Stock L	CE type	Stock R	Stock L	PN type	Stock R	Stock L
 0°							MTGN3 R/L(38)	★	★	STGP R/L-10CA(38)	★	★	CTGP R/L10CA(38)	★	★	CTGE R/L10CA(38)			PTGN R/L10CA(38)	★	★
										STGP R/L-12CA(50)	★	★	CTGP R/L12CA(50)	★	★	CTGE R/L12CA(50)			PTGN R/L12CA(50)	★	★
										STGP R/L-16CA(60)	★	★	CTGP R/L16CA(60)	★	★				PTGN R/L16CA(60)	★	★
																			PTGN R/L20CA(70)		★
 5° <3°> < >: MINIT P24	BU224 R/L(48)	★		MTJP22 R/L(24)	★	★	MTJN3 R/L(38)	★		STJP R/L-10CA(38)	★	★	CTJP R/L10CA(38)	★		CTJE R/L10CA(38)	★				
	BU225 R/L(60)	★								STJP R/L-12CA(50)	★	★	CTJP R/L12CA(50)	★		CTJE R/L12CA(50)	★				
										STJP R/L-16CA(55)	★	★	CTJP R/L16CA(55)								
 0°	BU252 R/L(24)	★	★	MTFP22 R/L(24)	★	★	MTFN3 R/L(38)	★	★	STFP R/L- 8CA(30)	★	★	CTFP R/L 8CA(30)	★	★	CTFE R/L 8CA(30)	★	★	PTFN R/L10CA(38)	★	★
	BU253 R/L(30)	★								STFP R/L-10CA(38)	★	★	CTFP R/L10CA(38)	★	★	CTFE R/L10CA(38)	★	★	PTFN R/L12CA(50)	★	★
	BU254 R/L(38)	★								STFP R/L-12CA(50)	★	★	CTFP R/L12CA(50)	★	★	CTFE R/L12CA(50)	★	★	PTFN R/L16CA(55)	★	★
	BU255 R/L(48)	★	★							STFP R/L-16CA(55)	★	★	CTFP R/L16CA(55)	★	★	CTFE R/L16CA(55)	★		PTFN R/L20CA(70)	★	★
	BU256 R/L(55)	★											CTFP R/L20CA(70)	★	★	CTFE R/L20CA(70)	★				
5° <3°> < >: MINIT P24/N38	BU293 R/L(30)	★		MTUP22 R/L(24)	★	★	MTUN3 R/L(38)	★	★	STUP R/L-10CA(38)	★	★	CTUP R/L10CA(38)	★	★	CTUE R/L10CA(38)	★				
	BU294 R/L(38)	★								STUP R/L-12CA(50)	★	★	CTUP R/L12CA(50)	★		CTUE R/L12CA(50)					
	BU295 R/L(48)	★	★							STUP R/L-16CA(55)	★	★	CTUP R/L16CA(55)	★							
5° 	BU295ER/L(48)		★																		
30° 										STTP R/L- 8CA(30)	★	★	CTTP R/L 8CA(30)	★		CTTE R/L 8CA(30)	★		PTTN R/L10CA(38)	★	
										STTP R/L-10CA(38)	★	★	CTTP R/L10CA(38)	★	★	CTTE R/L10CA(38)	★		PTTN R/L12CA(50)	★	★
										STTP R/L-12CA(50)	★	★	CTTP R/L12CA(50)	★	★	CTTE R/L12CA(50)	★		PTTN R/L16CA(60)	★	
										STTP R/L-16CA(60)	★	★	CTTP R/L16CA(60)	★	★	CTTE R/L16CA(60)					
45°										STSP R/L-10CA(38)	★	★	CTSP R/L10CA(38)	★		CTSE R/L 8CA(30)	★				
										STSP R/L-12CA(50)	★	★	CTSP R/L12CA(50)	★		CTSE R/L10CA(38)	★				
										STSP R/L-16CA(55)	★	★	CTSP R/L16CA(55)	★		CTSE R/L12CA(50)	★				
																CTSE R/L16CA(55)					
60° 				MTWP22 R/L(24)	★	★	MTWN3 R/L(38)	★		STWP R/L- 8CA(30)	★	★	CTWP R/L 8CA(30)	★		CTWE R/L 8CA(30)	★				
										STWP R/L-10CA(38)	★	★	CTWP R/L10CA(38)	★	★	CTWE R/L10CA(38)	★				
										STWP R/L-12CA(50)	★	★	CTWP R/L12CA(50)	★	★	CTWE R/L12CA(50)	★				
										STWP R/L-16CA(55)	★	★	CTWP R/L16CA(55)			CTWE R/L16CA(55)					
New 15° 										STRP R/L 8CA(30)	★	★	CTRP R/L 8CA(30)	★		CTRE R/L 8CA(30)	★				
										STRP R/L 10CA(38)	★	★	CTRP R/L 10CA(38)	★	★	CTRE R/L 10CA(38)	★				
New 20° 										STXP R/L 8CA(30)	★	★	CTXP R/L 8CA(30)	★	★	CTXE R/L 8CA(30)	★	★			
										STXP R/L 10CA(38)	★	★	CTXP R/L 10CA(38)	★	★	CTXE R/L 10CA(38)	★	★			

*Inserts and wrenches are not included with Cartridge Units.

★ Worldwide Warehouse Item

■ Tool Holder Cat. No. (For Square Inserts, 80°, 55°, Diamond Inserts)

( ) shows the min. bore diameter (mm).

Configuration	BU type	Stock R	Stock L	MINIT P24 type	Stock R	Stock L	MINIT N38 type	Stock R	Stock L	Expansion New New SP type/SX type/SC type	Stock R	Stock L	Expansion CP type	Stock R	Stock L	Expansion CE type	Stock R	Stock L	PN type	Stock R	Stock L
 15°	BU113 R/L(30)	★					MSRN4 R/L(38)	★	★	SSRP R/L-10CA(38)	★	★	CSRP R/L10CA(38)	★		CSRE R/L10CA(38)	★				
	BU114 R/L(38)	★											CSRP R/L12CA(50)	★		CSRE R/L12CA(50)	★				
	BU115 R/L(48)	★											CSRP R/L16CA(55)	★							
Expansion  30°	BU133 R/L(30)	★		MSTP04 R/L(24)	★	★	MSTN4 R/L(38)	★	★	SSTP R/L 10CA(38)	★	★	CSTP R/L 8CA(30)	★	★	CSTE R/L 8CA(30)	★	★			
	BU134 R/L(38)	★	★										CSTP R/L 10CA(38)	★	★	CSTE R/L 10CA(38)	★	★			
	BU135 R/L(48)	★	★																		
 30°	BU134E R/L(30)		★																		
	BU135E R/L(38)		★																		
New  60°										SSWP R/L 10CA(38)	★	★	CSWP R/L 8CA(30)	★	★	CSWE R/L 8CA(30)	★	★			
													CSWP R/L 10CA(38)	★	★	CSWE R/L 10CA(38)	★	★			
 45°	BU142 R/L(24)	★	★	MSSP04 R/L(24)	★	★	MSSN4 R/L(38)	★	★	SSSP R/L- 8CA(30)	★	★	CSSP R/L 8CA(30)	★		CSSE R/L 8CA(30)	★		PSSN R/L10CA(38)	★	★
	BU143 R/L(30)	★								SSSP R/L-10CA(38)	★	★	CSSP R/L10CA(38)	★	★	CSSE R/L10CA(38)	★	★	PSSN R/L12CA(50)	★	★
	BU144 R/L(38)	★	★										CSSP R/L12CA(50)	★	★	CSSE R/L12CA(50)			PSSN R/L16CA(55)	★	★
	BU145 R/L(48)	★	★										CSSP R/L16CA(55)	★		CSSE R/L16CA(55)					
 15°	BU152 R/L(24)	★	★				MSKN4 R/L(38)	★	★	SSKP R/L- 8CA(30)	★	★	CSKP R/L 8CA(30)	★		CSKE R/L 8CA(30)	★	★	PSKN R/L10CA(38)	★	
	BU153 R/L(30)	★	★							SSKP R/L-10CA(38)	★	★	CSKP R/L10CA(38)	★	★	CSKE R/L10CA(38)	★	★	PSKN R/L12CA(50)	★	★
	BU154 R/L(38)	★	★										CSKP R/L12CA(50)	★		CSKE R/L12CA(50)	★		PSKN R/L16CA(55)	★	
	BU155 R/L(48)	★	★										CSKP R/L16CA(55)	★		CSKE R/L16CA(55)	★		PSKN R/L20CA(70)	★	
 5°	BU183 R/L(30)	★		MSYP04 R/L(24)	★	★	MSYN4 R/L(38)	★	★	SSYP R/L- 8CA(30)	★	★	CSYP R/L 8CA(30)	★		CSYE R/L 8CA(30)	★		PSYN R/L10CA(38)	★	
	BU184 R/L(38)	★								SSYP R/L-10CA(38)	★	★	CSYP R/L10CA(38)	★		CSYE R/L10CA(38)	★		PSYN R/L12CA(50)	★	★
	BU185 R/L(48)	★											CSYP R/L12CA(50)	★		CSYE R/L12CA(50)	★		PSYN R/L16CA(55)	★	★
													CSYP R/L16CA(55)			CSYE R/L16CA(55)			PSYN R/L20CA(70)	★	
 0°	BU194 R/L(30)		★																		
	BU195 R/L(38)		★																		
Expansion  5° 5°							MCLN4 R/L(38)	★	★	SXLP R 8CA(30)	★	—							PCLN R/L12CA(50)	★	★
										SXLP R 10CA(38)	★	—							PCLN R/L16CA(55)	★	★
										SCLC R/L 10CA(56)	★	★							PCLN R/L20CA(70)	★	★
Expansion  0° 10°							MCFN4 R/L(38)	★	★	SXFP R 8CA(30)	★	—									
										SXFP R 10CA(38)	★	—									
										SCFC R/L 10CA(56)	★	★									
 10° 0°							MCGN4 R/L(38)	★	★												
 3°							MDJN4 R/L(38)	★	★												
New  30°										SDAC R/L 10CA(56)	★	★									
New  25°										SDBC R/L 10CA(56)	★	★									

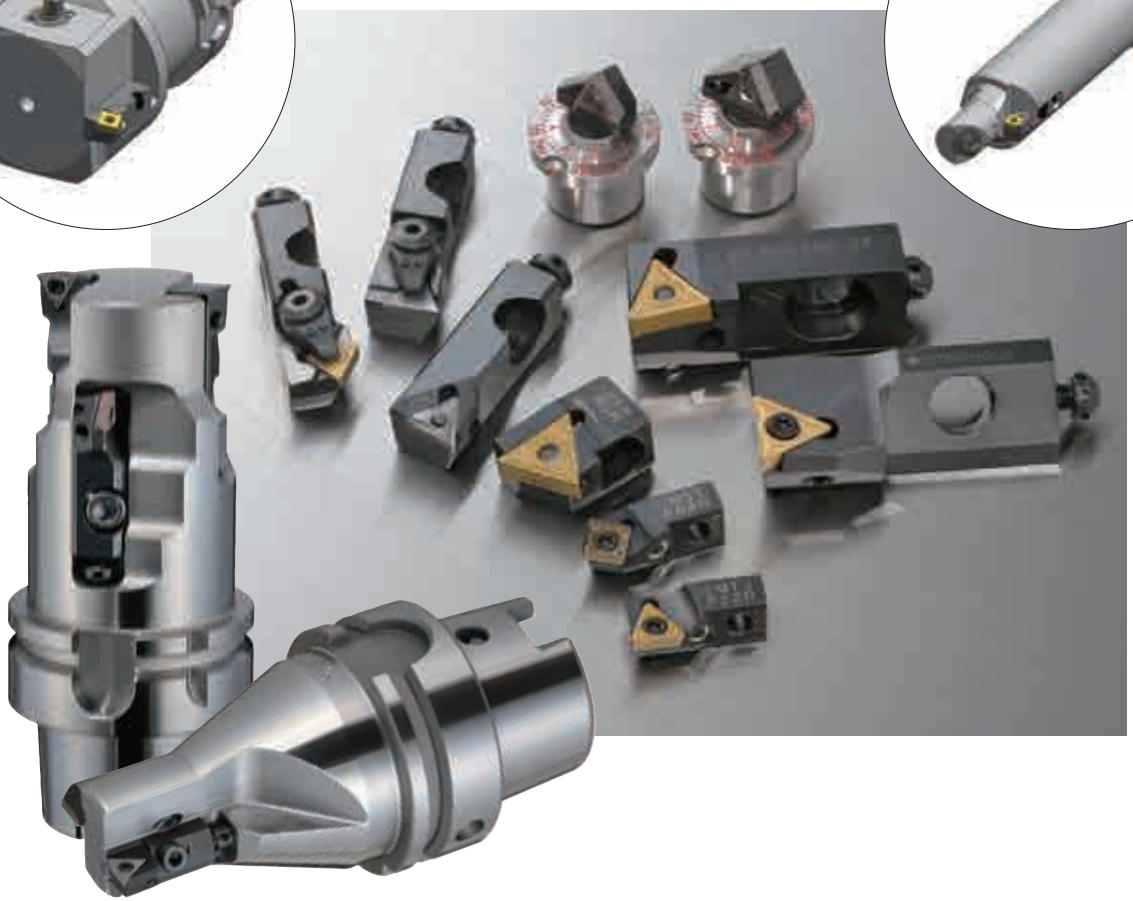
*Inserts and wrenches are not included with Cartridge Units.

★ Worldwide Warehouse Item

Boring Quill / Carbide Line Boring Bar

This section introduces an overview of the series.
Please inquire with Sumitomo Engineering for more details on these products.

Indexable Cartridges and Boring Quills



Carbide Line Boring Bar

Carbide Line Bar Equipped with Cartridges

Milling Cutters H

H1 to H262

Milling Cutter Selection Guide H2
Selection Guide for Modular Tools H7
Selection Guide for Cast Iron High-feed and Milling Cutters (Special Purpose) ... H8
Indexable Endmill Selection Guide H9
Grades for Milling H12
Cutter Identification Table H14
Insert Identification Table H15

Face Milling	For General Steel, Cast Iron, Exotic Alloy and Non-Ferrous Metal	WGX	H18
	For General Steel, Cast Iron, Exotic Alloy and Non-Ferrous Metal	DGC	H32
	For High-efficiency Cast Iron / Cast Steel Milling	DNX(F) / DNH, DNHS	H44
Shoulder Milling	For High-precision Milling of Steel, Cast Iron, Stainless Steel and Non-Ferrous Metal	WEZ	H50
	For High-precision Milling of Steel, Cast Iron, Stainless Steel and Non-Ferrous Metal	WEX	H77
	For High-efficiency Deep-Step Shoulder Milling	WRX	H92
	For Titanium Alloys	WSE	H98
	For High-feed Milling of Steel, Die Steel, Cast Iron, Stainless Steel and Non-Ferrous Metal	WFX	H101
	For General Steel and Cast Iron	DFC	H114
	For High-efficiency Milling of Steel, Cast Iron and Stainless Steel	TSX	H126
	For Steel, Cast Iron and Stainless Steel	PWS(F) / PWSR	H151
High Feed	For High Feed Machining of Steel, Exotic Alloy, Stainless Steel, and Cast Iron	DMS	H154
	For High-speed, High-efficiency Milling of Steel, Die Steel, Cast Iron, Stainless Steel and Non-Ferrous Metal	WFXH	H164
	For High Feed Machining of Steel, Cast Iron and Stainless Steel	MSX	H170
Multi-Purpose		WMM	H175
Radius	For Stainless Steel and Exotic Alloy	RSE	H178
	For Steel, Die Steel, Cast Iron, Stainless Steel and Exotic Alloy	RSX	H182
	For Steel, Die Steel, Cast Iron, Stainless Steel and Non-Ferrous Metal	WRCX	H193
R / 3D Profiling	For Roughing	WBMR	H200
	For Finishing	WBMF	H203
Groove / T-Slot	For Groove Milling of Steel and Cast Iron	TGC	H205
	T-Slot Endmill	TSE	H208
Chamfering	For Chamfering	WFXC	H209
Non-ferrous Metal	For High-speed, High-efficiency Milling of Aluminum Alloy and Non-Ferrous Metal	ALNEX ANX	H213
	For High-efficiency Milling of Aluminum Alloy and Non-Ferrous Metal	HF	H221
	For High-speed Milling of Aluminum Alloy and Non-Ferrous Metal	RF	H227
	For Small Diameter Milling of Aluminum Alloy and Non-Ferrous Metal	SRF	H229
	For High-speed, High-efficiency Milling for Non-Ferrous Metal	WAX	H231
High-speed Cast Iron	For High-speed Finishing of Cast Iron	CBN BN Finish Mill EASY (FMU / FMU-E)	H236
	For High-speed, High-efficiency Milling of Cast Iron	Cutter RM for High-speed Milling of CBN Cast Iron	H237

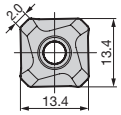
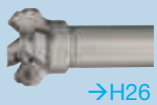
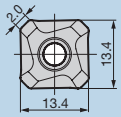
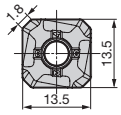
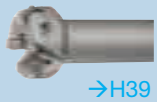
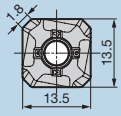
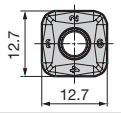
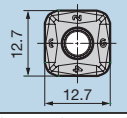
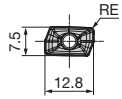
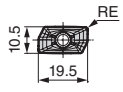
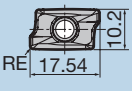
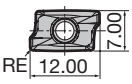
H Special Purpose Cutters ···H238

H Discontinued Milling Cutters ···H253

Stock Markings and Symbols	
	●: Standard stocked item
	★: Worldwide Warehouse Item
	▲: Limited Avaibility Item, made to order, or discontinued (please confirm stock availability).
	Blank: Made-to-order item
	— mark: Not available

Indexable Milling Selection Guide

◎: 1st Recommendation ○: Suitable X: Unsuitable Blank: Not Recommended

Applications	Lead Angle / Maximum Depth of Cut	Cutting Edge Dia. (in. / mm)	Shank Dia. (mm)	Series (Page)	Milling Cutter (inch / metric)	Insert Cat. No. / Diagram (Typical)	Rake Angle Axial	Rake Angle Radial	Application: General-purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Chamfering	Drilling	Profiling	Profile Finishing	Work Material P: General Steel / Carbon Steel / Alloy Steel	P: Tempered Steel / Die Steel	M: Stainless Steel	K: Cast Iron / Ductile Cast Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy / Heat-Resistant Alloy	H: Hardened Steel 45 to 55 HRC
Face Milling	.236" 45° *	ø2.000" to ø10.00" ø40 to ø250 mm	–	WGX →H23	WGX40000R WGXM40000R WGXF40000R WGX13000R(S) WGXM13000R(S) WGXF13000R(S)	SEMT13T3AGSR–G 	20° to 22°	–20° to –24°	◎	◎									◎	◎	◎	◎	◎	◎	○	
Face Milling	.236" 45° *	ø2.000" to ø2.500" ø32 to ø63 mm	ø1.25" ø32	WGX–EW  →H26	WGX40000EW WGX13000EW	SEMT13T3AGSR–G 	20° to 22°	–20° to –24°	◎	◎									◎	◎	◎	◎	◎	◎	○	
Face Milling	.236" 45° * .118" 45° *	ø2.000" to ø10.000" ø40 to ø250 mm	–	DGC →H36	DGC40000R DGCM40000R DGCF40000R DGC13000R(S) DGCM13000R(S) DGCF13000R(S)	SNMT13T6ANER–G 	–5°	–10°	◎	○									◎	◎	◎	◎	◎	◎	○	
Face Milling	.236" 45° * .118" 45° *	ø2.000" to ø2.500" ø40 to ø63 mm	ø1.25" ø32	DGC–EW  →H39	DGC40000EW DGC13000EW	SNMT13T6ANER–G 	–5°	–10°	◎	○									◎	◎	◎	◎	◎	◎	○	
Face Milling	.315" 25°	ø3.000" to ø8.000" ø80 to ø250 mm	–	DNX →H46	DNX40000 DNXF40000 DNX12000 DNXF12000	SNMT1205ZNEN 	–5°	–6°	○										○			◎				
Face Milling	.118" 66° .197" 66°	ø80 to ø160 mm	–	DNH(S) →H48	DNH12000 DNHS12000	SNMT1205ZNEN 	–5°	–6°			○								○			◎				
Shoulder Milling / Semi-Shoulder Milling	.394" 90°	ø1.5 - ø2.5" ø40 - ø100 mm	–	WEZ →H56	WEZ20000R WEZ11000R(S)	(For 20000 / 11000 Type) AOMT11T302PEER-G 	14° to 15°	–7° to –11°	◎	◎		◎	◎	◎					◎	◎	◎	◎	◎	◎	◎	
Shoulder Milling / Semi-Shoulder Milling	.591" 90°	ø2.00 - ø6.00" ø40 - ø160 mm	–		WEZ30000R WEZ17000R(S)		–10° to –15°	–4° to –9°																		
Shoulder Milling / Semi-Shoulder Milling	.394" 90°	ø0.5 - ø1.25" ø14 - ø80mm	ø16 to ø32	WEZ–E →H58	WEZ20000EW / EMW WEZ20000ELC WEZ11000E WEZ11000EL	(For 20000 / 11000 Type) AOMT11T302PEER-G (For 30000 / 17000 Type) AOMT170502PEER-G 	6° to 15°	–7° to –18°	◎	◎		◎	◎	◎					◎	◎	◎	◎	◎	◎	◎	
Shoulder Milling / Semi-Shoulder Milling	.591" 90°	ø1.00 - ø2.00" ø25 - ø80mm	ø25 to ø42		WEZ30000EW / EMW WEZ30000ELC WEZ17000E WEZ17000EL		6° to 15°	–6° to –12°																		
Shoulder Milling / Semi-Shoulder Milling	.236" 90°	ø32 to ø63mm	–	WEX–F/R →H83	WEX1000F	(For 3000 Type) AXMT170508PEER–G 	9° to 17°	7° to 17°																		
Shoulder Milling / Semi-Shoulder Milling	.394" 90°	ø1.50 - ø2.50" ø40 - ø63mm	–		WEX20000R WEX2000F		23° to 25°	16° to 18°	○	○		◎	◎	○					◎	◎	◎	◎	◎	◎	◎	
Shoulder Milling / Semi-Shoulder Milling	.551" 90°	ø2.00 - ø8.00" ø40 - ø125mm	–		WEX3000F WEX30000R WEXF3000R	see H3 for AXMT11	19° to 24°	12° to 15°																		
	.236" 90°	ø32 to ø63mm	ø10 to ø20	WEX–E	WEX1000E WEX1000EL	(For 2000 Type) AXMT123504PEER–G 	9° to 17°	7° to 17°																		
	.394" 90°	ø0.500" to ø1.250" ø14 to ø63mm	ø.75 - ø1.25" ø16 - ø32mm		WEX20000EW/EMW WEX20000ELC WEX2000E/EL		14° to 25°	10° to 18°	○	○		◎	◎	○					◎	◎	◎	◎	◎	◎	◎	
	.551" 90°	ø1.000" to ø2.000" ø25 to ø63mm	ø1.0 - ø1.25" ø20 - ø42mm	→H87	WEX30000EW/EMW WEX30000ELC WEX3000E(–C) WEX3000ES(–C) WEX3000EL		16° to 24°	8° to 15°																		

*Use a chamfering tool for chamfering operations.

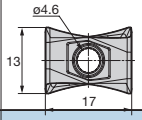
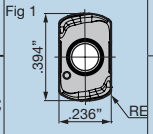
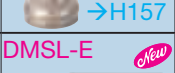
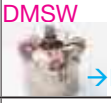
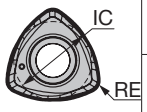
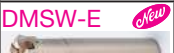
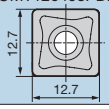
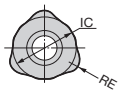
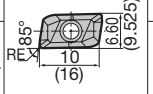
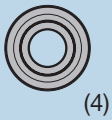
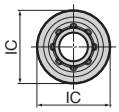
Indexable Milling Selection Guide

◎: 1st Recommendation ○: Suitable X: Unsuitable Blank: Not Recommended

Applications	Lead Angle / Maximum Depth of Cut	Cutting Edge Dia. (in. / mm)	Shank Dia. (mm)	Series (Page)	Model (inch / metric)	Insert Cat. No. / Diagram (Typical)	Rake Angle Axial	Rake Angle Radial	Application: Face Milling General-purpose	Face Milling Finishing	Face Milling High Feed	Shoulder Milling	Slot Milling	Ramping	Chamfering	Drilling	Profiling	Profile Finishing	Work Material P: General Steel / Carbon Steel / Alloy Steel	P: Tempered Steel / Die Steel	M: Stainless Steel	K: Cast Iron / Ductile Cast Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy / Heat-Resistant Alloy	H: Hardened Steel 45 to 55 HRC
	.709" to 1.417" 90°	ø40 to ø50	–	WRX–R →H94	WRX20000RS	(For 3000 Type) AXMT170508PEER–G	24°	16° to 17°	○			◎	◎	○					◎	◎	◎	◎	◎	◎	◎	
	.866" to 1.575" 90°	ø2.5" to ø3.0" ø50 to ø100	–		WRX30000R WRX3000RS	RE 17.54 / 10.2	22° 24°	13° 15°																		
	.709" to 1.417" 90°	ø1.000" to ø1.500" ø20 to ø40	ø1.0 - ø1.25" ø20 - ø42	WRX–E →H96	WRX20000E WRX2000E	(For 2000 Type) AXMT123504PEER–G	16° to 24°	13° to 16°	○			◎	◎	○					◎	◎	◎	◎	◎	◎	◎	
	1.06-2.09" 90°	ø2.000" ø40 to ø50	ø1.25" ø32 - ø42		WRX30000E WRX3000E	RE 12.00 / 7.00	20° to 22°	12° to 13°																		
	15mm 90°	ø50 to ø63	–	WSE New →H98	WSE16000RS	(2)	8° to 14°	-9° to -6°	○			◎	○	◎							◎				◎	
	15mm 90°	ø32	ø32	WSE-E New →H100	WSE16000E		8°	-9°																		
	.236" 90°	ø40 to ø100	–	WFX →H104	WFX08000R(S) WFXM08000R(S) WFXF08000R(S)	(For 08000 Type) SOMT080304PZER	12°	–6°	○	◎		◎	○						◎	◎	◎	◎	◎	◎	○	
	.394" 90°	ø2.000" to ø8.000" ø50 to ø250	–		WFX40000R WFXF40000R WFXX40000R WFX12000R(S) WFXF12000R(S)	8.0 / 8.0 (See below 40000/ 12000 Type)	8°	–8°																		
	.236" 90°	ø20 to ø63	ø16 to ø32	WFX–E →H111	WFX08000E WFXM08000E	(For 40000/ 12000 Type) SOMT120408PDER	12°	–6°	○	◎		◎	○						◎	◎	◎	◎	◎	◎	○	
	.394" 90°	ø40 to ø80	ø32		WFX12000E WFXF12000E	12.7 / 12.7	8°	–8°																		
	.236" 90°	ø2.000" to ø8.000" ø50 to ø160	–	DFC →H119	DFC20000R DFCM20000R DFCF20000R DFC09000R(S) DFCM09000R(S) DFCF09000R(S)	XNMU060608PNER–G	–5°	–9°	◎	○		◎	○						◎	◎	○	◎			○	
	.236" 90°	ø1.000" to ø2.500" ø25 to ø80mm	ø1.0 - 1.25" ø25 - ø42 mm	DFC–E →H125	DFC20000EW DFCM2000EW DFC09000E DFCM09000E	11.3 / 11.2	–5°	–9°																		
	.315" 90°	ø1.5"to ø2.5" ø40 to ø80	–	TSX →H131	TSX30000R TSXF30000R TSX08000R(S) TSXF08000R(S)		–6°	–20°	◎	◎		◎	○						◎	◎	◎	◎	◎	◎	◎	
	.472" 90°	ø1.5" to ø6.0"	–		TSX40000R TSXF40000R			–23° to –15°																		
		ø1.5" to ø4.0" ø40 to ø315mm	–		TSX13000R(S) TSXM13000R(S) TSXF13000R(S)																					
	.315" 90°	ø0.625" to ø1.5" ø16 to ø80mm	ø.625 - ø1.25" ø16 - ø32mm	TSX–E →H138	TSX30000EW TSX08000E	(For 08000 Type) LNEX080404PNER–G	–6° to –3°	–36° to –20°	◎	◎		◎	○						◎	◎	◎	◎	◎	◎	◎	
		ø0.750" to ø1.5" ø20 to ø80mm	ø.750 - ø1.25" ø20 - ø32mm		TSXF30000EW TSXF08000E	9.3 / 8.6																				
	.472" 90°	ø1.0" to ø1.5" ø25 to ø80mm	ø1.0 - ø1.25" ø25 - ø32mm		TSX40000EW TSXF40000EW			–31° to –15°																		
		ø32 to ø80mm	ø1.0"		TSX13000E TSXM13000E TSXF13000E	(For 13000 Type) LNEX130604PNER–L																				
		ø1.25" to ø1.5" ø40 to ø80mm	ø32 mm			12.6 / 13																				
	1.614" to 2.362" 90°	ø32 to ø63mm	–	TSXR →H142	TSXR08000RS		–6° to –3°	–20° to –15°	○			◎							◎	◎	◎	◎	◎	◎	◎	
	1.614" to 2.362" 90°	ø40 to ø125mm			TSXR13000RS			–23° to –15°																		
	.827" to 1.575" 90°	ø20 to ø40mm	ø20 to ø32mm	TSXR–E →H146	TSXR08000E		–6° to –3°	–33° to –18°	○			◎							◎	◎	◎	◎	◎	◎	◎	
	1.614" to 2.362" 90°	ø40 to ø50mm	ø32 to ø42mm		TSXR13000E			–23° to –18°																		

Indexable Milling Selection Guide

◎: 1st Recommendation ○: Suitable X: Unsuitable Blank: Not Recommended

Applications	Lead Angle / Maximum Depth of Cut	Cutting Edge Dia. (in. / mm))	Shank Dia. (mm)	Series (Page)	Model (inch / metric)	Insert Cat. No. / Diagram (Typical)	Rake Angle Axial	Rake Angle Radial	Application: General-purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Chamfering	Drilling	Profiling	Profile Finishing	Work Material P: General Steel / Carbon Steel / Alloy Steel	P: Tempered Steel / Die Steel	M: Stainless Steel	K: Cast Iron / Ductile Cast Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy / Heat-Resistant Alloy	H: Hardened Steel 45 to 55 HRC
Roughing	.630" 90°	ø3.0 - 10.0" ø80 - ø250 mm	–	PWS →H152	PWS4000 PWSF4000	LNMX170808PNSR–G 	–6°	–15°	○		◎	◎							◎	○	○	○				
High Feed	.0591 73°	ø1.500" to ø2.500" ø40 to ø50mm	–	DMSL New →H157	DMSL20000 DMSL06000	Fig 1 	-8°	-8° to -12.5°			◎	○	○	○					◎	◎	○	◎			○	○
High Feed	.0591 73°	ø.6250" to ø1.250" ø16 to ø35mm	ø16 to ø32	DMSL-E New  →H158	DMSL20000EW DMSL20000ELC DMSL06000E		-8°	-12.5° to -16.5°			◎	○	○	○					◎	◎	○	◎			○	○
High Feed	.1181 75°	ø2.000" to ø4.000" ø50 to ø160mm	–	DMSW New  →H160	DMSW20000 DMSW06000		-6°	-7° to -10°			◎	○	○	○					◎	◎	○	◎			○	○
High Feed	.1181 75°	ø1.500" to ø2.000" ø35 to ø63mm	ø3 to ø42 mm	DMSW-E New  →H161	DMSW20000EW DMSW20000ELC DMSW06000E		-6°	-10° to -13°			◎	○	○	○					◎	◎	○	◎			○	○
High Feed	0.059" 75°	ø40 to ø63mm	–	WFXH →H167	WFXH08000RS	(For 12000 Type) SOMT120408PDER 	–6°	6°			◎	○		○					◎	◎	◎	◎	◎	◎	○	
High Feed	0.098" 75°	ø50 to ø63mm	–		WFXH12000RS		–6°	6°																		
High Feed	.059" to .098" 70°	ø1.500" to ø6.000" ø40 to ø100	–	MSX–R →H172	MSX30000R MSX40000R MSX50000R MSX08000R MSX12000R MSX14000R	WDMT0603ZDTR (IC=6.35) WDMT0804ZDTR (IC=8.5) WDMT1204ZDTR (IC=12) 	8°	–3° to –8°			◎	○		○					◎	◎	◎	◎				○
High Feed	.039" to .098" 70°	ø0.750" to ø1.500" ø16 to ø63mm	ø16 to ø42 mm	MSX–E →H173	MSX20000EW/ELC MSX30000EW/ELC MSX40000EW/ELC MSX06000E MSX08000E MSX12000E		8°	–3° to –8°			◎	○		○					◎	◎	◎	◎				○
Multi-Purpose	.669 - 1.378" 90°	ø1.000" to ø1.50" ø20 to ø30mm	ø1.0 - ø1.25" ø20 - ø25 mm	WMM →H176	WMM10000M WMM2000E/EL WMM2000ELH	APMT103504PDER APMT160508PDER 	7° to 11°	15° to 16°	◎			◎	◎	◎		◎			◎	◎	◎	◎	◎	◎	◎	
Multi-Purpose	1.534" 90°	ø1.500" ø32 to ø40mm	ø1.25 ø32mm		WMM16000M WMM3000E/EL WMM3000ELH		7° to 11°	17° to 19°																		
Radius	5mm 4-cornered / 1.4mm 8-cornered	ø40 to ø50	–	RSE →H180	RSE10000RS	 (4)	4°	-5°	○		○			○			○				◎				◎	
Radius	6mm 4-cornered / 1.7mm 8-cornered	ø40 to ø80			RSE12000R(S)		4°	-5°	○		○			○			○				◎				◎	
Radius	.197"	ø2.000" ø40 to ø52	–	RSX →H185	RSX30000 RSX10000 RSXF10000	RDET0803M0EN (IC=8) RDET10T3M0EN (IC=10) RDET1204M0EN (IC=12) 	10°	–5°	◎		○	◎	○	◎			◎		◎	◎	◎	◎			◎	
Radius	.236"	ø2.000" ~6.000" ø40 to ø100			RSX40000 RSX12000 RSXF12000		10°	–5°																		
Radius	.315"	ø2.500" ~6.000" ø63 to ø160			RSX50000 RSX16000 RSXF16000		10°	–5°																		
Radius	0.394"	ø80 to ø160			RSX20000 RSXF20000		10°	–5°																		

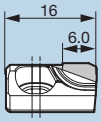
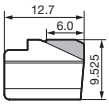
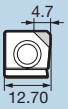
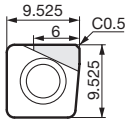
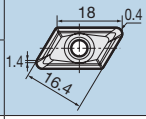
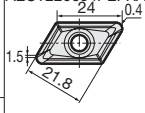
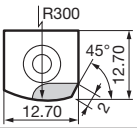
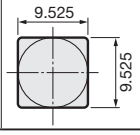
Indexable Milling Selection Guide

◎: 1st Recommendation ○: Suitable X: Unsuitable Blank: Not Recommended

Applications	Lead Angle / Maximum Depth of Cut	Cutting Edge Dia. (in. / mm)	Shank Dia. (mm)	Series (Page)	Model (inch / metric)	Insert Cat. No. / Diagram (Typical)	Rake Angle Axial	Rake Angle Radial	Application: General-purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Chamfering	Drilling	Profiling	Profile Finishing	Work Material P: General Steel / Carbon Steel / Alloy Steel	P: Tempered Steel / Die Steel	M: Stainless Steel	K: Cast Iron / Ductile Cast Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy / Heat-Resistant Alloy	H: Hardened Steel 45 to 55 HRC
Radius	.157"	ø20 to ø25	ø20 - ø25mm	RSX–ES	RSX08000ES RSXF08000ES	(For 10000 Type) RDET10T3M0EN	10°	–8°																		
Radius	.197"	ø1.000" to ø1.500" ø25 to ø32	ø1.25" ø25 - ø32mm	RSX–ES	RSX30000EW RSX30000ELC RSX10000ES RSXF10000ES	IC / IC	10°	–5°	◎		○	◎	○	◎			◎		◎	◎	◎	◎			◎	
Radius	.236"	ø1.250" to ø1.500" ø32mm	ø32	RSX–ES →H191	RSX40000EW RSX40000ELC RSX12000ES RSXF12000ES		10°	–5°																		
Radius	.236"	ø2.000"	–	WRCX	WRCX30000	QPMT120440PPEN (IC=12) QPMT160660PPEN (IC=16) QPMT200670PPEN (IC=20)	–3°	0°	◎		○	◎	○	◎			◎		◎	◎	◎	◎			○	○
Radius	.236"	ø2.000" ~ø4.000" ø40 to ø80mm	–	WRCX	WRCX40000 WRCX16000 WRCXF16000	RE / IC / IC / 90°	–3°	0°	◎		○	◎	○	◎			◎		◎	◎	◎	◎			○	○
Radius	.315"	ø3.000" ~ø6.000" ø63 to ø100mm	–	WRCX	WRCX60000 WRCX16000 WRCXF16000		–3°	0°	◎		○	◎	○	◎			◎		◎	◎	◎	◎		◎	○	○
Radius	0.394"	ø4.000" ~ø6.000" ø125 to ø160mm	–	WRCX →H194	WRCX80000 WRCX20000		–3°	0°	◎		○	◎	○	◎			◎		◎	◎	◎	◎			○	○
Radius	.157"	ø20 to ø25mm	ø20 to ø25	WRCX–E	WRCX08000E	QPMT080330PPEN (IC=8) QPMT10T335PPEN (IC=10) QPMT160660PPEN (IC=16)	–3°	0°																		
Radius	.197"	ø1.000" to ø1.500" ø25 to ø32	ø1.000 - ø1.500" ø25 - ø32mm	WRCX–E	WRCX30000E WRCX30000E WRCX10000E	RE / IC / IC / 90°	–3°	0°	◎		○	◎	○	◎			◎		◎	◎	◎	◎		◎	○	○
Radius	.315"	ø1.250" to ø1.500" ø40 to ø50	ø1.000 - ø1.500" ø32 mm	WRCX–E →H198	WRCX40000E WRCX40000E WRCX16000E		–3°	0°																		
R / 3D Profiling	.787" to 1.693"	ø0.750" to ø2.000" R10 (ø20) to R25 (ø50)	ø25 to ø50.8	WBMR →H201	WBMR WBMR2000 WBMR2000L	ZNMT1804100–C 10 / 9.76 / 18.00	–10°	-					◎				◎		◎	◎	◎	◎			○	○
R / 3D Profiling	.0039" to .016"	ø0.500" to ø1.250" R5 (ø10) to R15 (ø30)	ø16 to ø32	WBMF →H204	WBMF WBMF1000	ZPGU1551050 RE±0.015 / 9 / 15.6	0°	-					◎				◎	◎	◎	◎	◎	◎				○
Side / T-Slot	17 to 24.6mm 90°	ø100 to ø200	–	TGC →H207 Standard Disc Shape	TGC13000	TGCX130704PNEN-G (4)	10°	-11.5° to -9.5	○			○	◎						◎	◎	○	◎				
Side / T-Slot	.354" to .866" 90°	ø21 to ø50	ø25 to ø32	TSE →H208	TSE	CPMT060204N–US RE / 6.35	0°	0°					○						○	○	○					
Chamfering	45°	ø8 to ø16	ø10 to ø16	WFXC–E	WFXC08000E	(For 12000 Type) SOMT120308PDER 12.7 / 12.7	0°	0°							◎				◎	◎	◎	◎	◎	◎	○	
Chamfering	45°	ø25 to ø32	ø25 to ø32	WFXC–E →H210	WFXC12000E																					

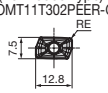
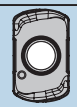
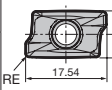
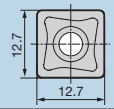
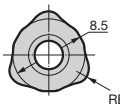
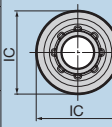
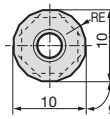
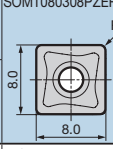
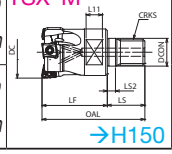
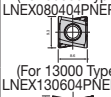
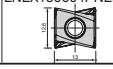
Indexable Milling Selection Guide

◎: Best ○: Suitable X: Unsuitable Blank: Not Recommended

Applications	Lead Angle / Maximum Depth of Cut	Cutting Edge Dia. (in / mm)	Shank Dia. (mm)	Series (Page)	Model (inch / metric)	Insert Cat. No. / Diagram (Typical)	Rake Angle Axial	Rake Angle Radial	Application: General-purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Chamfering	Drilling	Profiling	Profile Finishing	Work Material P: General Steel / Carbon Steel / Alloy Steel	P: Tempered Steel / Die Steel	M: Stainless Steel	K: Cast Iron / Ductile Cast Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy / Heat-Resistant Alloy	H: Hardened Steel 45 to 55 HRC
Non-ferrous Metal	.118" 90°	ø40 to ø125	–	ANX →H215	ANXS16000R(S)	ANB1600R–L 	5°	5°	○	◎	◎	◎											◎	◎		
		ø80 to ø160			ANXA16000R(S)		5°	5°																		
		ø32 to ø40	ø20		ANXS16002E		5°	–2° to 0°																		
	.118" 90°	ø2.500" ~6.000" ø80 to ø125	–	HF →H223	HFMH40000 HFM12000 HFF12000	NF–LDEN12T3ZDFR 	10°	4°	◎	◎	○	○							X	X	X	X	○	◎		X
	.118" 90°	ø3.000" ~6.000" ø80 to ø125	–		HFFH40000 HFFH12000																					
	.118" 90°	ø80 to ø125	–		HFFH12000R–BBT30																					
	.118" 90°	ø80 to ø200	–	RF →H228	RF4000	NF–SNEW1204ADFR 	10°	4°	◎	◎	○	○							X	X	X	X	○	◎		X
	.197" 90°	ø30 to ø63	–	SRF →H230	SRF	NF–SNEW09T3ADTR 	6°	–2° to 4°	◎	◎	○	○							X	X	X	X	○	◎		X
			ø20		SRF–ST																					
	.63 - .71" 90°	ø2.000" to ø5.000"	–	WAX →H232	WAX30000 WAX40000	(For 3000 Type) AECT160404PEFRA 	19° to 25°	6°	○			◎	◎	◎			◎		X	X	X	X	○	◎		X
	.866" to .945" 90°	ø50 to ø125	–		WAX3000 WAX4000																					
	.63 - .71" 90°	ø.750" to ø1.500" ø20 to ø40mm	ø.750"-ø1.500" ø20 - ø32 mm	WAX–E →H234	WAX30000EW WAX30000ELC WAX3000E WAX3000EL	(For 4000 Type) AECT220604PEFRA 	19° to 25°	6°	○			◎	◎	◎			◎		X	X	X	X	○	◎		X
	.866" to .945" 90°	ø1.000" to ø1.500" ø25 to ø40mm	ø.750"-ø1.500" ø25 - ø32 mm		WAX40000EW WAX40000ELC WAX4000E WAX4000EL																					
High-speed Cast Iron	.019" 90°	ø37 to ø200	–	FMU →H236	FMU FMU–E	SNEW1203ADTR 	8°	2°		◎									X	X	X	◎ (FC)	X	X	X	X
	.118" 15°	ø80 to ø160	–	RM →H237	RM	SNGN0903 	–5° 45'	–6° 45'	○	◎									X	X	X	◎ (FC)	X	X	X	X

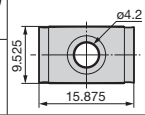
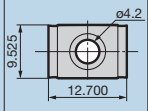
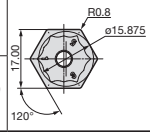
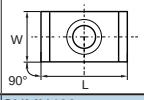
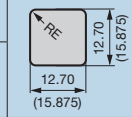
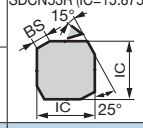
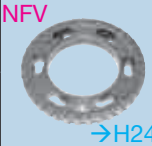
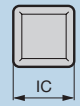
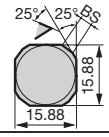
Selection Guide for Modular Tools

◎: Best ○: Suitable X: Unsuitable Blank: Not Recommended

Applications	Lead Angle / Maximum Depth of Cut	Cutting Edge Dia. (in / mm)	Shank Dia. (mm)	Series (Page)	Model (inch / metric)	Insert Cat. No. / Diagram (Typical)	Rake Angle Axial	Rake Angle Radial	Application: General-purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Chamfering	Drilling	Profiling	Profile Finishing	Work Material P: General Steel / Carbon Steel / Alloy Steel	P: Tempered Steel / Die Steel	M: Stainless Steel	K: Cast Iron / Ductile Cast Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy / Heat-Resistant Alloy	H: Hardened Steel 45 to 55 HRC
Shoulder Milling	.394" 90°	ø0.750-ø1.500" ø20-ø40mm	ø18 to ø32 mm	WEZ–M Modular →H69	WEZ20000M WEZ11000M	(For 20000 Type) AOMT11T302PEER-G 	14° to 15°	–7° to –11°	○	◎		◎	◎	○					◎	◎	◎	◎	◎	◎	◎	
	.591" 90°	ø1.00-ø1.500" ø25-ø40mm	ø18 to ø32 mm		WEZ30000M WEZ17000M	(For 30000 Type) AOMT170502PEER-G	–10° to –15°	–4° to –9°																	
	.236" 90°	ø20 to ø40 mm	ø18 to ø32 mm	WFX–M Modular →H113	WFX08000M	SOMT080304PZER–G	12°	–6°	○	◎		◎	◎						◎	◎	◎	◎	◎	◎	○	
	1.5mm 17°	ø8.4 to ø34.3	–	DMSL–M Modular →H159	DMSL06000M		-8°	-12.5° to -16.5°			◎	○	○	○					◎	◎	○	◎			○	○
	.394" 90°	ø0.750" to ø1.500" ø16 to ø40mm	ø15 to ø32 mm	WEX–M Modular →H91	WEX20000M WEX2000M	(For 3000 Type) AXMT170504PEER–G 	14° to 25°	10° to 18°	○			◎	◎	○					◎	◎	◎	◎	◎	◎	◎	
	.551" 90°	ø1.000" to ø1.500" ø25 to ø40mm	ø23 to ø32 mm		WEX30000M WEX3000M		16° to 24°	8° to 15°																		
High Feed	0.059" 75°	ø25 to ø32 mm	ø23 to ø32 mm	WFXH–M Modular →H169	WFXH08000M	(For 12000 Type) SOMT120308PDER 	6°	–6°			◎	○	○	○					◎	◎	◎	◎	◎	◎	○	
	0.098" 75°	ø40 mm	ø28 to ø32 mm		WFXH12000M		6°	–6°																		
	.039" 70°	ø0.750" to ø1.000" ø16 to ø25mm	ø15 to ø25	MSX–M Modular →H174	MSX20000M MSX06000M	(For 08000 Type) WDMT0804ZDTR 	8°	–3° to –6°			◎	○	○	○					◎	◎	◎	◎				○
	.059" 70°	ø1.000-ø1.250" ø25 to ø35mm	ø23-ø32 mm		MSX30000M MSX08000M																					
	.079" 70°	ø32-ø40 mm	ø28-ø32 mm		MSX12000M																					
Radius	.157"	ø20-ø32 mm	ø18-ø32 mm	RSX–M Modular →H192	RSX08000M	RDET0803M0EN (IC=8) RDET10T3M0EN (IC=10) RDET1204M0EN (IC=12) 	10°	–8°																			
	.197"	ø1.000" to ø1.250" ø25 to ø32mm	ø23 to ø32 mm		RSX30000M RSX10000M RSXF10000M		10°	–5°	◎			○	○	○	◎			◎				◎			◎	
	.236"	ø1.250" to ø1.500" ø32 to ø40mm	ø28 to ø32 mm		RSX40000M RSX12000M RSXF12000M		10°	–5°																		
	.157"	ø20-ø25 mm	ø18 to ø25	WRCX–M Modular →H199	WRCX08000M	(For 10000 Type) QPMT10T335PPEN 	–3°	0°	◎			○	○	○	◎			◎		◎	◎	◎	◎		◎	○	○
	.197"	ø25-ø32 mm	ø23 to ø32		WRCX10000M																					
	.236"	ø40 mm	ø28 to ø32		WRCX12000M																					
Chamfering	45°	ø16 mm	ø15-ø16 mm	WFXC–M Modular →H212	WFXC08000M	(For 08000 Type) SOMT080308PZER–G 	0°	0°							◎				◎	◎	◎	◎	◎	◎	○	
		ø25 to ø32 mm	ø23-ø32 mm		WFXC12000M		0°	0°																		
Tangential	.315" 90°	ø0.750" to ø1.500"	ø18 to ø32 mm	TSX–M  →H150	TSXF30000M	(For 08000 Type) LNEX080404PNER–G 	–6° to –3°	–36° to –20°	◎	◎		◎	○						◎	◎	◎	◎	◎	◎	◎	
	.472" 90°	ø1.000" to ø1.500"	ø23 to ø32 mm		TSX40000M	(For 13000 Type) LNEX130604PNER–L 		–31° to –15°																		

Selection Guide for Cast Iron High-feed and Milling Cutters (Special Purpose)

◎: Best ○: Suitable X: Unsuitable Blank: Not Recommended

Applications	Lead Angle / Maximum Depth of Cut	Cutting Edge Dia. (in / mm)	Shank Dia. (mm)	Series (Page)	Model (inch / metric)	Insert Cat. No. / Diagram (Typical)	Rake Angle Axial	Rake Angle Radial	Application: General-purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Chamfering	Drilling	Profiling	Profile Finishing	Work Material P: General Steel / Carbon Steel / Alloy Steel	P: Tempered Steel / Die Steel	M: Stainless Steel	K: Cast Iron / Ductile Cast Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy / Heat-Resistant Alloy	H: Hardened Steel
High Feed Cast Iron Machining	1 mm, 89°~89°30'	ø80 to ø315	–	GFX →H240	GFX(C)13000	(For 16000 Type) LNGX160516PNFN–W 	–5°	–8°		◎	◎								X	X	X	◎	X	X	X	X
					GFX16000																					
High Feed Cast Iron Machining	.394" 90°	ø80 to ø160	–	GFS →H242	GFS13000	LNGX130508PNFN–W 	–3°	–11°		◎	◎	○							X	X	X	◎	X	X	X	X
High Feed Cast Iron Machining	.236" 30°	ø80 to ø315	–	GRHN →H243	GRHNF17000	HNEF100608DNEN–G 	–6°	–6.5° to –5°			◎								X	X	X	◎	X	X	X	X
					GRHNM17000		–6°	–6.5° to –5°																		
Cast Iron Machining		ø3.000" to ø8.000"	-	GFV	GFV5000	LNGX16 	–5°	–8°	◎	◎									X	X	X	◎	X	X	X	X
Milling Cutters (Special Purpose)	.216" 45° *	ø100 to ø450	–	NRV →H247	NRV4000	SNMN433 SNC535 	–5°	–6°			◎								X	X	X	◎	X	X	X	X
	.335" 45° *		–		NRV5000																					
	.275" 25°	ø100 to ø450	–	DPV →H248	DPV4000	SDCN42R (IC=12.70) SDCN53R (IC=15.875) 	10°	5°		○	◎								X	X	X	◎	X	X	X	X
	.295" 25°	ø100 to ø450	–		DPV5000		10°	5°																		
	.019" 90°	ø100 to ø450	–	NFV  →H249	NFV4000	SNEF43W (IC=12.70) SNEF53W (IC=15.875) 	–5°	–6°		◎	◎								X	X	X	◎	X	X	X	X
	.019" 90°	ø100 to ø450	–		NFV5000		–5°	–6°		◎	◎								X	X	X	◎	X		X	X
	.394" 25°	ø200 to ø450	–	APV →H250	APV5000	SDC53R 	18°	–2°		◎	◎								X	X	X		◎	○		X

*Use a chamfering tool for chamfering operations.

Indexable Endmill Selection Guide

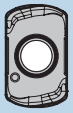
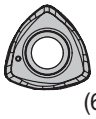
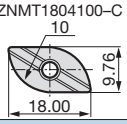
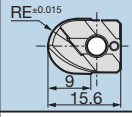
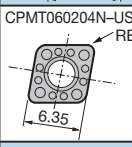
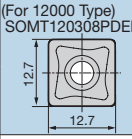
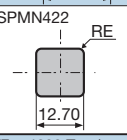
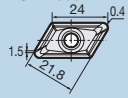
◎: Best ○: Suitable X: Unsuitable Blank: Not Recommended

Applications	Lead Angle / Maximum Depth of Cut	Cutting Edge Dia. (in / mm)	Shank Dia. (mm)	Series (inch / metric) (Page)	Model	Insert Cat. No. / Diagram (Typical)	Rake Angle Axial	Rake Angle Radial	Application: General-purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Chamfering	Drilling	Profiling	Profile Finishing	Work Material P: General Steel / Carbon Steel / Alloy Steel	P: Tempered Steel / Die Steel	M: Stainless Steel	K: Cast Iron / Ductile Cast Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy / Heat-Resistant Alloy	H: Hardened Steel
Face Milling	.236" 90°	ø1.000" to ø2.500" ø25 to ø80mm	ø1.0 - 1.25" ø25 - ø42 mm	DFC–E →H111	DFC20000EW DFCM2000EW DFC09000E DFCM09000E	XNMU060608PNER–G (11.3, 11.2)	–5°	–9°	◎	○		◎	○						◎	◎	○	◎			○	
Shoulder Milling	.394" 90°	ø0.5 - ø1.25" ø14 - ø80mm	ø16 to ø32	WEZ–E →H58	WEZ11000E WEZ11000EL	AOMT11T302PEER–G RE (7.5, 12.8)	6° to 15°	–7° to –18°	◎	◎		◎	◎	◎					◎	◎	◎	◎	◎	◎	◎	
	.591" 90°	ø1.00 - ø2.00" ø25 - ø80mm	ø25 to ø42		WEZ17000E WEZ17000EL		6° to 15°	–6° to –12°																		
	.236" 90°	ø20 to ø63	ø16 to ø32	WFX–E →H111	WFX08000E WFXM08000E	(For 12000 Type) SOMT120408PDER (12.7, 12.7)	12°	–6°	○	◎		◎	○						◎	◎	◎	◎	◎	◎		
	.394" 90°	ø40 to ø80	ø32		WFX12000E WFXF12000E		8°	–8°																		
	.315" 90°	ø0.625" to ø1.5" ø16 to ø80mm ø0.750" to ø1.5" ø20 to ø80mm	ø0.625 - ø1.25" ø16 - ø32mm ø0.750 - ø1.25" ø20 - ø32mm	TSX–E →H138	TSX30000EW TSXF30000EW TSX08000E TSXF08000E	(For 08000 Type) LNEX080404PNER–G (9.3, 8.6)	–6° to –3°	–36° to –20°	◎	◎		◎	○						◎	◎	◎	◎	◎	◎	◎	
	.473" 90°	ø1.0" to ø1.5" ø25 to ø80mm ø32 to ø80mm ø1.25" to ø1.5" ø40 to ø80mm	ø1.0 - ø1.25" ø25 - ø32mm ø1.0" ø32 mm		TSX40000EW TSXF40000EW TSX13000E TSXM13000E TSXF13000E	(For 13000 Type) LNEX130604PNER–L (12.6, 13)		–31° to –15°																		
	.827" to 1.575" 90°	ø20 to ø40mm	ø20 to ø32mm	TSXR–E →H146	TSXR08000E		–6° to –3°	–33° to –18°	○			◎							◎	◎	◎	◎	◎	◎	◎	
	1.614" to 2.362" 90°	ø40 to ø50mm	ø32 to ø42mm		TSXR13000E			–23° to –18°																		
	.236" 90°	ø32 to ø63mm	ø10 to ø20	WEX–E →H90	WEX1000E WEX1000EL	(For 2000 Type) AXMT123504PEER–G (7.00, RE 12.00)	9° to 17°	7° to 17°	○	○		◎	◎	○					◎	◎	◎	◎	◎	◎	◎	
	.394" 90°	ø0.500" to ø1.250" ø14 to ø63mm	ø.75 - ø1.25" ø16 - ø32mm		WEX20000EW/EMW WEX20000ELC WEX2000E/EL		14° to 25°	10° to 18°																		
	.551" 90°	ø1.000" to ø2.000" ø25 to ø63mm	ø1.0 - ø1.25" ø20 - ø42mm		WEX30000EW/EMW WEX30000ELC WEX3000E(–C) WEX3000ES(–C) WEX3000EL		16° to 24°	8° to 15°																		
	.709" to 1.417" 90°	ø1.000" to ø1.500" ø20 to ø40	ø1.0 - ø1.25" ø20 - ø42	WRX–E →H96	WRX20000E WRX2000E	(For 2000 Type) AXMT123504PEER–G (7.00, RE 12.00)	16° to 24°	13° to 16°	○			◎	◎	○					◎	◎	◎	◎	◎	◎	◎	
	1.06-2.09" 90°	ø2.000" ø40 to ø50	ø1.25" ø32 - ø42		WRX30000E WRX3000E		20° - 22°	12° - 13°																		
High Feed	.039" to .098" 70°	ø0.750" to ø1.500" ø16 to ø63mm	ø16 to ø42	MSX–E →H173	MSX20000EW/ELC MSX30000EW/ELC MSX40000EW/ELC MSX06000E MSX08000E MSX12000E	WDMT0603ZDTR (IC=6.35) WDMT0804ZDTR (IC=8.5) WDMT1204ZDTR (IC=12) (IC, RE)	8°	–3° to –8°			◎	○	○	○					◎	◎	◎	◎				○
Radius	.157"	ø20 to ø25mm	ø20 - ø25mm	RSX–ES →H191	RSX08000ES RSXF08000ES	RDET0803M0EN (IC=8) RDET10T3M0EN (IC=10) RDET1204M0EN (IC=12) (IC)	10°	–8°																		
	.197"	ø1.000" to ø1.500" ø25 to ø32mm	ø1.25" ø25 - ø32mm		RSX30000EW RSX30000ELC RSX10000ES RSXF10000ES		10°	–5°	◎		○	◎	○	◎				◎	◎	◎	◎	◎			◎	
	.236"	ø1.250" to ø1.500" ø32mm	ø32		RSX40000EW RSX40000ELC RSX12000ES RSXF12000ES		10°	–5°																		

*Use a chamfering tool for chamfering operations.

Indexable Endmill Selection Guide

◎: Best ○: Suitable X: Unsuitable Blank: Not Recommended

Applications	Lead Angle / Maximum Depth of Cut	Cutting Edge Dia. (in. / mm)	Shank Dia. (mm)	Series (Page)	Model (inch / metric)	Insert Cat. No. / Diagram (Typical)	Rake Angle Axial	Rake Angle Radial	Face Milling: General-purpose	Face Milling: Finishing	Face Milling: High Feed	Shoulder Milling	Slot Milling	Ramping	Chamfering	Drilling	Profiling	Profile Finishing	Work Material P: General Steel / Carbon Steel / Alloy Steel	P: Tempered Steel / Die Steel	M: Stainless Steel	K: Cast Iron / Ductile Cast Iron	N: Non-ferrous Metal	N: Aluminum Alloy	S: Ti Alloy / Heat-Resistant Alloy	H: Hardened Steel 45 to 55 HRC
High Feed	.0591 / 73°	ø.6250" to ø1.250" ø16 to ø35mm	ø16 to ø32	DMSL-E New →H158	DMSL06000E(L)	 (4)	-8°	-12.5° to -16.5°			◎	○	○	○					◎	◎	○	◎			○	○
High Feed	.1181 / 75°	ø1.500" to ø2.000" ø35 to ø63mm	ø3 to ø42 mm	DMSW-E New →H161	DMSW08000E(L)	 (6)	-6°	-10° to -13°			◎	○	○	○					◎	◎	○	◎				○
Radius	.157"	ø20 to ø25mm	ø20 to ø25	WRCX–E →H194	WRCX08000E	QPMT080330PPEN (IC=8) QPMT10T335PPEN (IC=10) QPMT160660PPEN (IC=16)	–3°	0°	◎		○	◎	○	◎			◎		◎	◎	◎	◎		◎	○	○
Radius	.197"	ø1.000" to ø1.500" ø25 to ø32	ø1.000 - ø1.500" ø25 - ø32mm		WRCX30000E WRCX30000E WRCX10000E		–3°	0°																		
Radius	.315"	ø1.250" to ø1.500" ø40 to ø50	ø1.000 - ø1.500" ø32 mm		WRCX40000E WRCX40000E WRCX16000E		–3°	0°																		
R / 3D Profiling	.787" to 1.693"	ø0.750" to ø2.000" R10 (ø20) to R25 (ø50)	ø25 to ø50.8	WBMR →H201	WBMR WBMR2000 WBMR2000L	ZNMT1804100–C 	–10°	-					◎				◎		◎	◎	◎	◎			○	○
R / 3D Profiling	.0039" to .016"	ø0.500" to ø1.250" R5 (ø10) to R15 (ø30)	ø16 to ø32	WBMF →H203	WBMF WBMF1000	ZPGU1551050 	0°	-					◎				◎	◎	◎	◎	◎	◎				○
T-Slot	.354" to .866" / 90°	ø21 to ø50	ø25 to ø32	TSE →H208	TSE	CPMT060204N–US 	0°	0°					○						○	○	○					
Chamfering	45°	ø8 to ø16	ø10 to ø16	WFXC–E	WFXC08000E	(For 12000 Type) SOMT120308PDER 	0°	0°							◎				◎	◎	◎	◎	◎	◎	○	
Chamfering	45°	ø25 to ø32	ø25 to ø32	→H210	WFXC12000E																					
Chamfering	45°	ø7 to ø35	ø32	SMC →H262	SMC	SPMN422 	0°	0°							◎				○	○	○	○				
Non-ferrous Metal	.63 - .71" / 90°	ø.750" to ø1.500" ø20 to ø40mm	ø.750"- ø1.500" ø20 - ø32 mm	WAX–E →H234	WAX30000EW WAX30000ELC WAX3000E WAX3000EL	(For 4000 Type) AECT220604PEFRA 	19° to 25°	6°	○			◎	◎	◎			◎		X	X	X	X	○	◎		X
Non-ferrous Metal	.866" to .945" / 90°	ø1.000" to ø1.500" ø25 to ø40mm	ø.750"- ø1.500" ø25 - ø32 mm		WAX40000EW WAX40000ELC WAX4000E WAX4000EL																					

MEMO

Grades for Milling

Work Material	P General Steel (Carbon Steel, Alloy Steel), Mild Steel						M Stainless Steel						K Cast Iron				
Classification	Wear Resistance ← → Fracture Resistance						Wear Resistance ← → Fracture Resistance						Wear Resistance ← → Fracture Resistance				
	—	P01	P10	P20	P30	P40	—	M01	M10	M20	M30	M40	—	K01	K10	K20	K30
Coated Carbide (A26)			ACU2500						ACU2500						ACU2500		
								ACM100									
		ACP2000							New ACS2500					ACK2000			
										New ACS3000							
				ACP3000											ACK3000		
									ACM200								
			ACP100										ACK100				
											ACM300						
				ACP200											ACK200		
								ACK300									
					ACP300				ACP300							ACK300	
Cermet (A29)			T2500A						T2500A								
			T250A						T250A								
				T4500A							T4500A						
Cemented Carbide (A30)				A30N								A30N					
Uncoated CBN / Coated CBN (A32)															G10E		
														New BN7125			
																BNC8115	
																BNS8125	

Work Material	S Exotic Alloy						H Hardened Steel					N Non-Ferrous Metal				
Classification	Wear Resistance ← → Fracture Resistance						Wear Resistance ← → Fracture Resistance					Wear Resistance ← → Fracture Resistance				
	—	S01	S10	S20	S30	S40	—	H01	H10	H20	H30	—	N01	N10	N20	N30
Coated Carbide (A26)			ACU2500													
			New ACS2500													
				New ACS3000												
		ACM100														
			ACM200													
					ACM300											
		ACK300												DL2000		
Cemented Carbide (A30)				EH520												
															H1	
															H20	
Uncoated CBN (A32)								BN2000	BN350							
PCD (A34)												DA1000				

: 1st Recommended Grade / : 2nd Recommended Grade : CVD Coating, : PVD Coating, Blank: Uncoated

Grades for Milling / Characteristic Values

CVD

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating Type	Coating Thickness (μm)	Features	Old Grades
P Steel	**ACP100**	89.3	3.1	Super FF Coat	6	· For high-speed machining of steel · Grade emphasizing wear resistance for high-speed machining	AC230
	ACP2000	89.5	3.2	Absotech	10	· For high-speed machining of steel · Stable long tool life with high-speed machining is realized by adopting a tough carbide substrate and a new coating with excellent thermal crack resistance	ACP100
M Stainless Steel	**ACM200**	89.8	3.4	Super FF Coat	6	· For machining high-hardness stainless steel · Adopts newly developed high-strength cemented carbide with excellent wear resistance and thermal resistance, realizing outstanding stability when machining hardened stainless steel	AC230
K Cast Iron	**ACK100**	92.0	2.4	Super FF Coat	6	· For high-speed cast iron milling · Adopts a high-hardness substrate as a grade with high wear resistance	—
	ACK200	91.7	2.5	Super FF Coat	6	· For high-speed cast iron milling · Adopts a tough carbide substrate as a grade with excellent wear resistance and thermal crack resistance	AC211
	ACK2000	91.7	3.1	Absotech	10	· For high-speed cast iron milling · Stable long tool life with high-speed machining is realized by adopting a tough carbide substrate and a new coating with excellent thermal resistance	ACK100 ACK200

PVD

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating Type	Coating Thickness (μm)	Features	Old Grades
P Steel	**ACU2500**	91.6	3.8	Absotech	3	· General-purpose grade supporting steel, stainless steel, and cast iron machining · Adopts a carbide substrate with excellent fracture resistance and wear resistance, plus a new coating with excellent wear resistance and chipping resistance, providing stable long tool life with various work material grades	—
	ACP200	89.5	3.2	Super ZX Coat	3	· Our 1st recommended grade for steel applications · General-purpose grade with an excellent balance of wear and fracture resistance · Also suitable for machining stainless steel	ACZ330
	ACP300	89.3	3.1	Super ZX Coat	3	· For interrupted machining of steel · Tough grade with an emphasis on fracture resistance · Also suitable for interrupted machining of stainless steel	ACZ350
	ACP3000	89.5	3.2	Absotech	3	· Our 1st recommended grade for interrupted or unstable work holding conditions for milling steel · Carbide substrate with excellent thermal crack resistance, plus a new coating with excellent wear resistance and chipping resistance, realizes stable long tool life over a wide range of cutting conditions	ACP200 ACP300
M Stainless Steel	**ACM100**	91.4	3.3	Super ZX Coat	3	· For high-speed machining of stainless steel · Adopts high-hardness micro-grain carbide substrate and super multi-layered coating to realize outstanding wear resistance	ACZ310
	ACM300	89.8	3.4	Super ZX Coat	3	· Our 1st recommended grade for milling stainless steel · Adopts high-strength carbide substrate and super multi-layered coating for next-level wear resistance and fracture resistance	—
S Exotic Alloy	New **ACS2500**	90.8	4.2	ABSOTECH	3	· First recommendation for titanium alloy applications · Carbide substrate with excellent wear and adhesion resistance, coupled with a chipping-resistant coating, balances excellent wear and fracture resistance	ACZ310
	New **ACS3000**	89.8	3.4	ABSOTECH	3	· Suitable for a wide range of exotic alloy machining applications · Realizes superb stability due to a high-toughness carbide substrate with a highly chipping-resistant coating	—
K Cast Iron	**ACK300**	91.4	3.3	Super ZX Coat	3	· General-purpose grade with an excellent balance of wear and fracture resistance	ACZ310
	ACK3000	91.7	3.1	Absotech	3	· Our 1st recommended grade for milling cast iron · Adopts a high thermal conductivity carbide substrate and a new coating with excellent wear resistance and chipping resistance, realizing stable long tool life over a wide range of cast iron machining operations	ACK300
N Non-Ferrous Metal	**DL1000**	92.9	2.1	AURORA Coat (DLC)	0.5	· For milling non-ferrous metal, utilizing DLC coat with a low coefficient of friction and excellent adhesion resistance	—
	DL2000	91.6	3.8	AURORA Coat (DLC)	0.5	· For milling non-ferrous metal, utilizing DLC coat with a low coefficient of friction and excellent adhesion resistance	—

Cermet

Work Material	Grade	Hardness (HRA)	TRS (GPa)	Coating Type	Coating Thickness (μm)	Features	Old Grades
P Steel	**T1500A**	92.0	2.2	—	—	· For finishing of steel and stainless steel · Excellent balance of wear and fracture resistance, achieving excellent machined surface quality over a wide range of cutting conditions	T1200A
	T250A	91.4	2.1	—	—	· For finishing of steel and stainless steel · Tough grade with enhanced crack spread resistance	—
M Stainless Steel	**T2500A**	91.8	2.4	—	—	· For finishing of steel and stainless steel · Fine, uniform grain structure greatly improves toughness, realizing long tool life and excellent surface finishes	T250A
	T4500A	91.0	2.3	—	—	· For finishing of steel and stainless steel · Tough grade with excellent fracture resistance and reduced thermal cracking	—

CBN

Classification	Grade	Binder	Carbon Content (%)	Grain Size (μm)	Hardness HV (GPa)	TRS (GPa)	Main Coating Components	Coating Thickness (μm)	Features
K Cast Iron	**BN7125**	Co Compound	90 to 95	2	41 to 44	1.9 to 2.0	-	-	General-purpose grade with excellent wear resistance, fracture resistance, and thermal shock resistance, suitable for machining of cast iron and exotic alloys
	BNS800	Al Alloy	85 to 90	8	39 to 42	0.9 to 1.1	—	—	Grade with 100% solid CBN structure and excellent thermal shock resistance.
	BN7000	Co Compound	90 to 95	2	41 to 44	1.8 to 1.9	—	—	Grade exhibiting wear and fracture resistance in cutting of cast iron and exotic alloys.
	BN500	TiC	65 to 70	6	32 to 34	1.0 to 1.1	—	—	Grade optimized for cast iron cutting. Provides superior wear and fracture resistance.
H Hardened Steel	**BN350**	TiN	60 to 65	1	33 to 35	1.5 to 1.6	—	—	Grade with ultimate cutting edge strength, suitable for heavy interrupted cutting.

Polycrystalline Diamond (PCD)

Classification	Grade	Binder	Carbon Content (%)	Grain Size (μm)	Hardness HK (GPa)	TRS (GPa)	Features
N Non-Ferrous Metal	**DA1000**	Co	90 to 95	up to 0.5	50 to 60	≈ 2.60	High-density sintered material made of ultra-fine grain diamond that demonstrates optimum wear and fracture resistance and excellent edge sharpness.

Carbide A30 Ceramics A36

Cutter Identification Table

Standard Type

DFC (F) 2 2000 R (S)

(1) (2) (3) (4) (5) (6)

- (1) Cutter Series — Refer to Table 1
- (2) Additional Symbols — Refer to Table 2
- (3) Insert Inscribed Circle Size — Refer to Table 3
- (4) Cutter Diameter — Refer to Table 4
- (5) Feed Direction — Refer to Table 5
- (6) Mounting — Refer to Table 6

Table 1: (1) Cutter Series

Series Code
DFC
DGC
TSX
WGX
WGC
UFO
FPG
EHG
DNX
APG
WRCX
MSX
PWC
PWS
WFX
WEX
WEZ
WRX

(Table 2) (2) Additional Symbols

Fine-Pitch Indication	
M	Fine pitch
F	Extra Fine Pitch

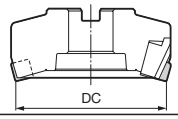
Table 3 (3) Insert Inscribed Circle Size

Inch	IC Dimensions (mm)
3	9.525
4	12.70
5	15.875
6	20.0
Millimeter	**IC Dimensions (mm)**
12	12.7
13	13.5
14	14.0
16	16.0
20	20.0

Inscribed Circle Example

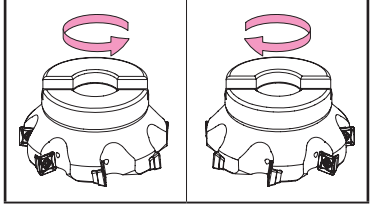
(Table 4) (4) Cutter Diameter

inch & mm



(Table 5) (5) Feed Direction

Left Hand (L)	Right Hand (R)



(Table 6) (6) Mounting

Bore Size Dimension	
S	Metric

High Feed Cutter Type

DPV (Z) 4 100 (Q) R

(1) (7) (3) (4) (8) (5)

(1) Cutter Series
DPV
GRV
GSV
GFX
GFS
NRV
NFV
APV

(7) 2-Piece Set Indication
Z

(3) (4) (5)
Same as above

(8) Quick Change Type
Q

Insert Identification Table

(Ex.) **S E M T 13 T3 A G S N-H**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Insert Shape	(2) Relief Angle	(3) Tolerance	(4) Insert Hole	(5) Cutting Edge Length	(6) Thickness	(7) Cutting Edge Angle	(8) Wiper Edge Relief Angle	(9) Edge Treatment	(10) Feed Direction	(11) Additional Information
Refer to Table 1	Refer to Table 2	Refer to Table 3	Refer to Table 4	Refer to Table 5	Refer to Table 6	Refer to Table 7	Refer to Table 8	Refer to Table 9	Refer to Table 10	Refer to Table 11

Table 1: (1) Insert Shape

Symbol	Insert Shape	Angle
A	Parallelogram Type	85°
H	Trigon Type	120°
L	Rectangular Type	90°
O	Octagonal Type	135°
P	Pentagonal Type	108°
R	Round Type	-
S	Square Type	90°
T	Triangular Type	60°
Q	Special	-
X	Special	-

Table 2: (2) Relief Angle

Symbol	Relief Angle
N	0°
A	3°
B	5°
C	7°
P	11°
D	15°
E	20°
F	25°
G	30°
O	Special

Table 3: (3) Tolerance (mm)

Symbol	Inscribed Circle (mm)	Thickness (mm)
A	±0.025	±0.025
C	±0.025	±0.025
E	±0.025	±0.025
K	±0.05 to ±0.15	±0.025
M	±0.05 to ±0.15	±0.13

Table 4: (4) Insert Hole

Symbol	Shape (Cross Section)
W	
M	
R	
N	
T	

Table 5: (5) Cutting Edge Length

Shape	Cutting Edge Length (L)
S	
T	
R	
H	
A	
O	

Table 6: (6) Thickness

Symbol	Thickness (mm)
02	2.38
03	3.18
T3	3.97
04	4.76
06	6.35

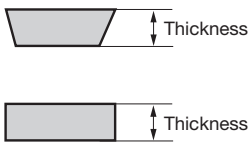


Table 7: (7) Cutting Edge Angle

Symbol	Cutting edge angle
A	45°
D	60°
E	75°
F	85°
H	87°
P	90°
Z	Special

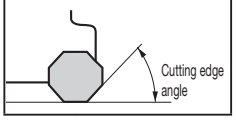


Table 8 (8) Wiper Edge Relief Angle

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z	Special

Table 9: (9) Edge Treatment

Symbol	Shape
F	Sharp Edge
E	Round Honing
T	Negative Land
S	Negative Land + Round Honing

Table 10 (10) Feed Direction

Symbol	Feed Direction
N	No
R	Right Hand
L	Left Hand

Table 11 (11) Additional Information (Ex.)

Symbol	Code Description
A	Sharp Edge
H	Strong Edge
W	Large Edge Treatment
S	For WBMR Insert Main Blade

* Exceptions

The above table does not apply to the following insert codes: SPCH42TR, SPCH42R, SPCH53TR, SPCH53R, SDKN42MT, SDKN42M, SDKN53MT, SDKN53M, SEKN42MT, SEKN42M, SEKN53MT and SEKN53M.

For example,

- although "H" and "K" indicate precision tolerances, the main cutting edges have general precision.
- "M" in this instance represents the Neutral Hand insert.
- "T" in this instance represents negative land edge treatment.
- "R" indicates the feed direction (right hand).

Modular Tools

■ Features

● 12 indexable modular head available!

WEZ	**DMSL**	**RSX**
WEZR	**DMSW**	**WRCX**
WEX	**WFXH**	**WFXC**
WFX	**MSX**	**ANXS**

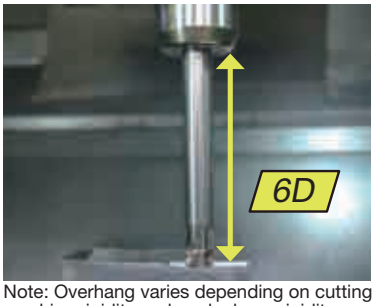
● In addition to carbide arbors and steel arbors, the lineup of integrated BBT types enables a variety of combinations

● General-purpose grade applicable to any work material
Introducing the new grade ACU2500, which is applicable to a wide variety of processes and work materials such as steel, stainless steel and cast iron.

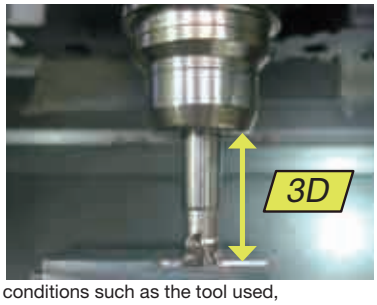
Suitable for milling with ***long overhangs*** *when combined with carbide or steel arbors*

When combined with BBT integrated arbors, ***high load milling*** *is supported*

Modular + Carbide Arbor



Standard Type (Integrated Arbor)



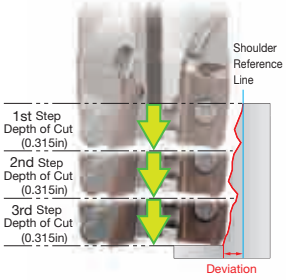
Note: Overhang varies depending on cutting conditions such as the tool used, machine rigidity and work clamp rigidity.

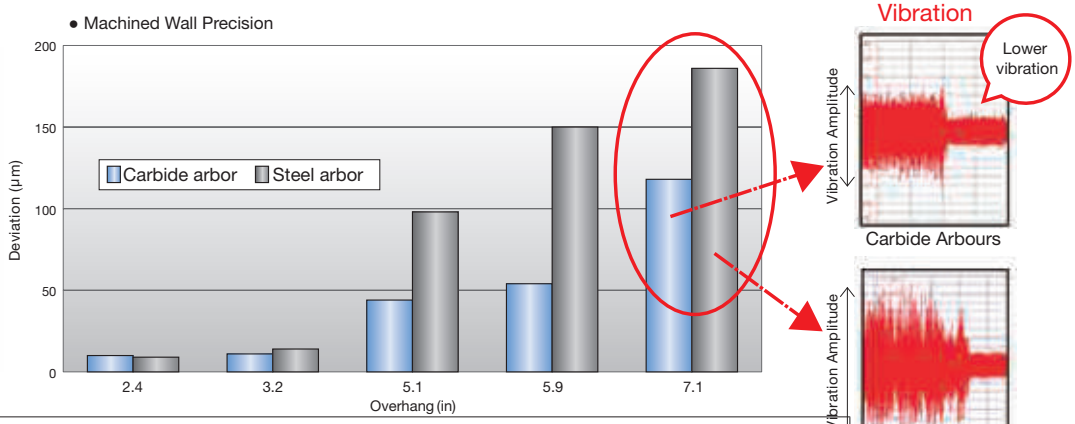
■ Screw Size and Mounting Cutter Size

Screw **CRKS**	Applicable Cutter Size (DC)
M8	*ø16, ø18*
M10	*ø20, ø22*
M12	*ø24, ø28*
M16	*ø30, ø32, ø35, ø40*

■ Cutting Performance

● Carbide arbors achieve greater precision and stable milling compared to steel arbors

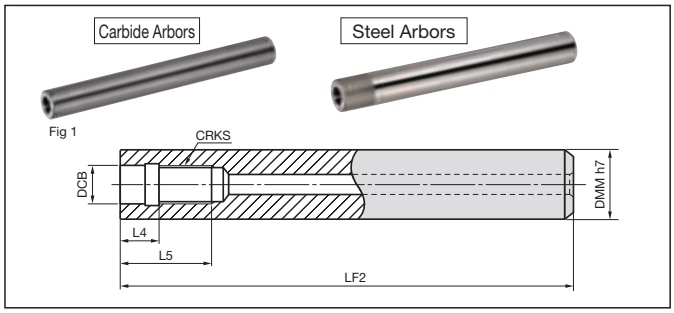




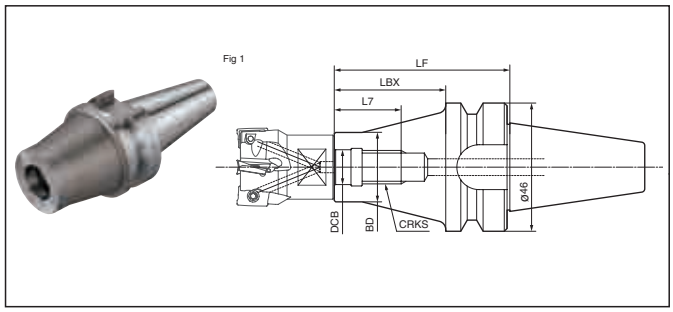
Work Material : 1050
Tool : WEX2025M12Z4 (ø25 x 4-flute)
Cutting Conditions: v_c = 328 SFM f_z = 0.004in/t a_e = 3.15in x 3 times a_p = 0.08in Machine: Machining center BT50

Modular Tools

Modular Tooling - Arbors (Carbide Arbors/Steel Arbors)



BBT Integrated Type - Modular Tooling Arbors



Steel Arbor

Dimensions (mm)

	Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF*	Fig
Inch	MA0625M08L475S	●	M8	0.335	0.625	4.750	0.393	0.708	5.734	1
	MA0750M10L600S	●	M10	0.413	0.750	6.000	0.393	0.787	7.181	1
	MA1000M12L800S	●	M12	0.492	1.000	8.000	0.393	0.866	9.378	1
	MA1000M16L800S	●	M16	0.669	1.000	8.000	0.393	0.944	9.575	1
	MA1250M16L800S	●	M16	0.669	1.250	8.000	0.393	0.944	9.575	1
Metric	MA16M08L120S	★	M8	8.5	16	120	10	18	145	1
	MA20M10L150S	★	M10	10.5	20	150	10	20	180	1
	MA25M12L200S	★	M12	12.5	25	200	10	22	235	1
	MA32M16L200S	★	M16	17.0	32	200	10	24	240	1

BBT Integrated Arbor

Dimensions (mm)

Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	O.D. BD	Body Overhang L6	Length LBX	Thread Depth L7	Overhang LF*	Coolant Hole	Fig
BBT30-M8-50	★	M8	8.5	15.9	73	50	18	98	Yes	1
BBT30-M10-45	★	M10	10.5	19.9	68	45	20	98	Yes	1
BBT30-M12-40	★	M12	12.5	24.9	63	40	22	98	Yes	1
BBT30-M16-35	★	M16	17	31.9	58	35	24	98	Yes	1

*Overhang length for LF is with head mounted.
Can also be used with BT30 spindle machines.

Carbide Arbor

Dimensions (mm)

Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF*	Fig
MA15M08L120C	★	M8	8.5	15	120	10	18	145	1
MA15M08L160C	★	M8	8.5	15	160	10	18	185	1
MA16M08L120C	★	M8	8.5	16	120	10	18	145	1
MA16M08L160C	★	M8	8.5	16	160	10	18	185	1
MA18M10L150C	★	M10	10.5	18	150	10	20	180	1
MA18M10L200C	★	M10	10.5	18	200	10	20	230	1
MA20M10L150C	★	M10	10.5	20	150	10	20	180	1
MA20M10L200C	★	M10	10.5	20	200	10	20	230	1
MA23M12L200C	★	M12	12.5	23	200	10	22	235	1
MA23M12L250C	★	M12	12.5	23	250	10	22	285	1
MA25M12L200C	★	M12	12.5	25	200	10	22	235	1
MA25M12L250C	★	M12	12.5	25	250	10	22	285	1
MA28M16L200C	★	M16	17.0	28	200	10	24	240	1
MA28M16L300C	★	M16	17.0	28	300	10	24	340	1
MA32M16L200C	★	M16	17.0	32	200	10	24	240	1
MA32M16L300C	★	M16	17.0	32	300	10	24	340	1

Identification Code

MA 15 M8 L120 C

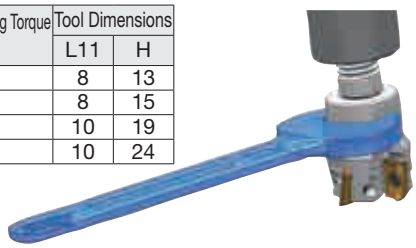
Cutter Series	Shank Dia. .625"	Mounting Screw Size	Arbor Overall Length	Grade C: Carbide S: Steel

Recommended Tightening Torque (N·m)

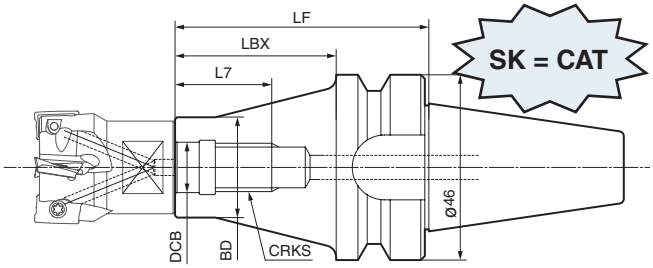
*Take care when tightening the head.

- When mounting the head to an arbor, follow the standard tightening torque in the table below.
- Check the mounting screw diameter for the head and arbor beforehand.

Screw Size	Regulated Tightening Torque (N·m)	Tool Dimensions L11	H
M8	23	8	13
M10	46	8	15
M12	80	10	19
M16	90	10	24



Modular Tools - Modular Tool Adapters



Modular Adapters - SK40

Catalog Number	Stock	Dimension (mm) CRKS	DCB	DMM	BD	LF	L7	LBX
SMA-M8-69-SK40	★	M8	8.5	13.8	23	69	12	49.9
SMA-M8-94-SK40	★	M8	8.5	13.8	25	94	12	74.9
SMA-M8-119-SK40	★	M8	8.5	13.8	30	119	12	99.9
SMA-M10-69-SK40	★	M8	8.5	18.0	25	69	12	49.9
SMA-M10-94-SK40	★	M10	10.5	18.0	30	94	12	74.9
SMA-M10-119-SK40	★	M10	10.5	18.0	35	119	12	99.9
SMA-M10-169-SK40	★	M10	10.5	18.0	45	169	12	149.9
SMA-M12-69-SK40	★	M10	12.5	21.0	30	69	12	49.9
SMA-M12-94-SK40	★	M12	12.5	21.0	35	94	12	74.9
SMA-M12-119-SK40	★	M12	12.5	21.0	38	119	12	99.9
SMA-M12-169-SK40	★	M12	12.5	21.0	48	169	12	149.9
SMA-M16-69-SK40	★	M12	17.0	29.0	34	69	12	49.9
SMA-M16-94-SK40	★	M16	17.0	29.0	35	94	12	74.9
SMA-M16-119-SK40	★	M16	17.0	29.0	40	119	12	99.9
SMA-M16-169-SK40	★	M16	17.0	29.0	48	169	12	149.9

Note: The above holders require an M16 thread retention knob

Modular Adapters - SK50

Catalog Number	Stock	Dimension (mm) CRKS	DCB	DMM	BD	LF	L7	LBX
SMA-M8-69-SK50	★	M8	8.5	13.8	23	69	12	49.9
SMA-M8-119-SK50	★	M8	8.5	13.8	30	119	12	74.9
SMA-M8-169-SK50	★	M8	8.5	13.8	45	169	12	99.9
SMA-M10-69-SK50	★	M10	10.5	18.0	25	69	12	49.9
SMA-M10-119-SK50	★	M10	10.5	18.0	35	119	12	99.9
SMA-M10-169-SK50	★	M10	10.5	18.0	45	169	12	149.9
SMA-M12-69-SK50	★	M12	12.5	21.0	30	69	12	49.9
SMA-M12-119-SK50	★	M12	12.5	21.0	38	119	12	99.9
SMA-M12-169-SK50	★	M12	12.5	21.0	52	169	12	149.9
SMA-M16-69-SK50	★	M16	17.0	29.0	34	69	12	49.9
SMA-M16-119-SK50	★	M16	17.0	29.0	40	119	12	99.9
SMA-M16-169-SK50	★	M16	17.0	29.0	48	169	12	149.9

Note: The above holders require an M24 thread retention knob

General Features

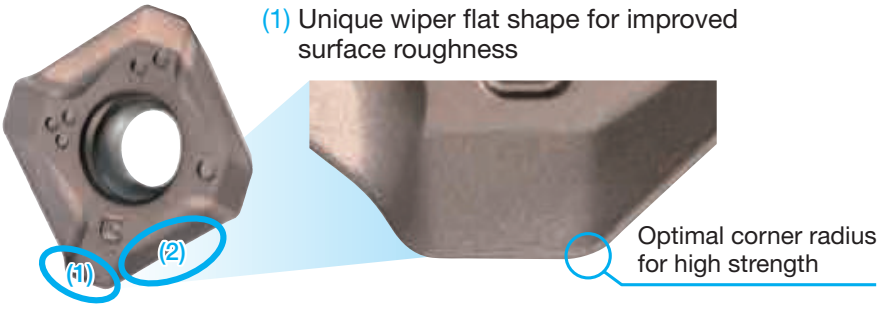
- WGX Series employs a unique chipbreaker design to provide lower cutting force and higher-quality surface finish than conventional cutters.
- Lineup of insert grades and chipbreakers has been significantly expanded. The ACM grades (Series) can be utilized for stainless steels and exotic alloys. Now available: ACU2500/Absotech coating universal grade for a wide range of materials.

Features

- Reduced Cutting Force
  - High-rake chipbreaker designed for use with the WGX Series achieves low cutting force
- High Quality
  - Improved runout precision and unique wiper flat shape ensure excellent surface finish quality
  - Additional edge chamfer reduces burrs and edge chipping (only applies to FG chipbreaker)
- Wide Ranging Product Lineup
  - A wide selection of grades along with 4 types of chipbreakers and wiper inserts are available.
  - Can be used for a wide variety of machining applications.

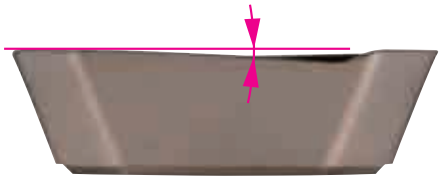
Insert Shape Features

- General-purpose G Chipbreaker

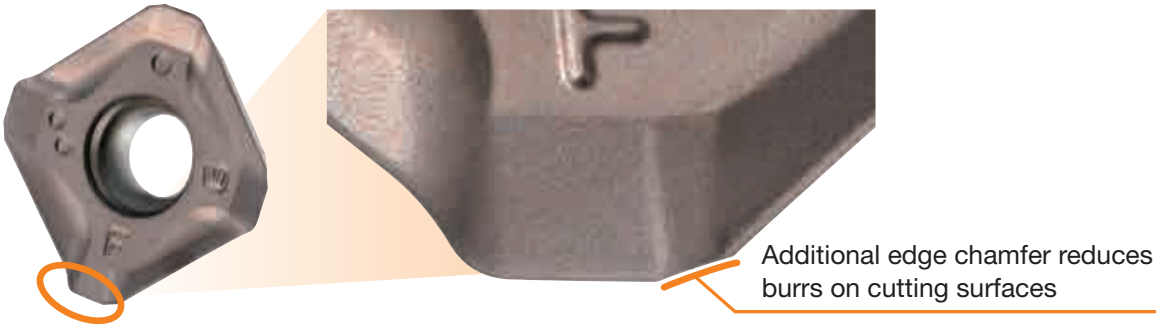


(1) Unique wiper flat shape for improved surface roughness

(2) Large rake angle and cutting edge rake angle for improved sharpness



- FG Chipbreaker with Low-Burr Design



■ Product Range

WGX - R(S)
Standard Pitch

WGXM - R(S)
Fine Pitch

WGXF - R(S)
Extra Fine Pitch

WGX - EW
Endmill

Type		Cat. No.	Description	Diameter (Inch)									Diameter (*mm*)									
				ø2.0	ø2.5	ø3.0	ø4.0	ø4.0*	ø5.0	ø6.0	ø8.0	ø10.0	*ø32*	*ø40*	*ø50*	*ø63*	*ø80*	*ø100*	*ø125*	*ø160*	*ø200*	*ø250*
Inch	Shellmill	**WGX40000R**	Standard Pitch	3	4	4	5	5	6	7	8	10										
Inch	Shellmill	**WGXM40000R**	Fine Pitch	4	5	6	7	7	8	10	12											
Inch	Shellmill	**WGXF40000R**	Extra Fine Pitch	5	6	8	10	10	12	16	20											
Inch	Shank	**WGX40000EW**	Endmill	4	5																	
Metric	Shellmill	**WGX13000R** Inch Arbor	Standard Pitch														4	5	6	7	8	10
Metric	Shellmill	**WGX13000RS**	Standard Pitch											3	3	4	4	5	6	7	8	10
Metric	Shellmill	**WGXM13000R** Inch Arbor	Fine Pitch														6	7	8	10	12	14
Metric	Shellmill	**WGXM13000RS**	Fine Pitch												4	5	6	7	8	10	12	14
Metric	Shellmill	**WGXF13000R** Inch Arbor	Extra Fine Pitch														8	10	12	16	20	24
Metric	Shellmill	**WGXF13000RS**	Extra Fine Pitch												5	6	8	10	12	16	20	24
Metric	Shank	**WGX13000EW**	Endmill										3	3	4	5						

● Numbers inside are number of teeth - Inch Arbor - Sizes of ø6.000" and 125mm and below have coolant holes, *: 4.000" cutter diameter with 1.500" arbor diameter

■ Precautions when Using Wiper Inserts with Holes

· When mounting the wiper insert, attach it as shown in Fig 1. When mounted as shown in Fig 2, normal machined surface roughness cannot be obtained.

Fig 1

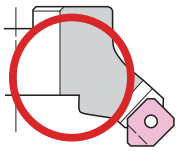
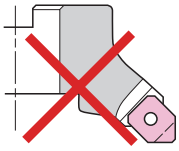
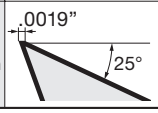
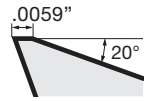
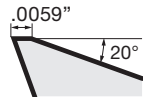
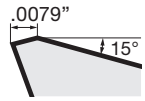


Fig 2

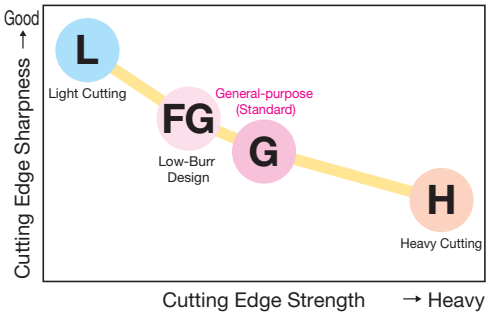


· The wiper insert has a single corner specification.
· For milling with wiper inserts, see "The Basics of Milling, Milling Edition" in Chapter N of the General Catalog.

■ Chipbreaker Selection

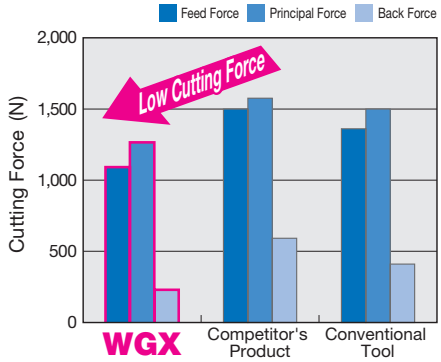
Part Material	P M K S N	P M K S			P K
Applications	Light Cutting	General-purpose/ Burr Prevention	General-purpose	Heavy Cutting	Surface Finish Emphasised
Features	Low Cutting Force	Standard / With Chamfer	Standard	High Strength	Wiper
Chipbreaker	L	FG	G	H	W
Chipbreaker					
Cutting Edge Cross Section					

■ Chipbreaker Selection Guide



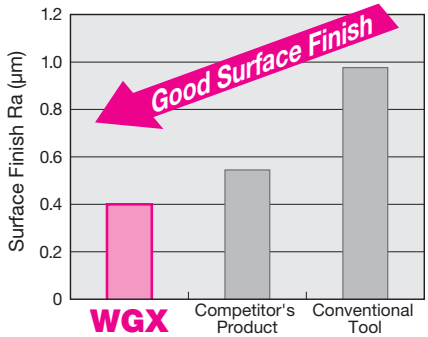
■ General-purpose G Chipbreaker

● Comparison of Cutting Force



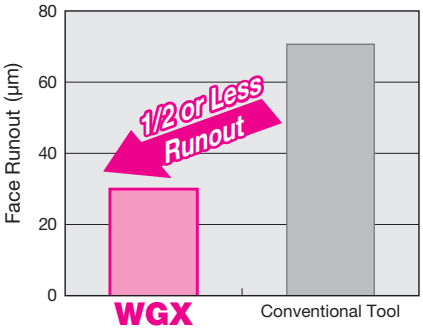
Part Material: 1050 Steel, Tool: ø4.000”
Cutting Conditions: v_C=660 SFM, f_Z=0.008 IPT, a_p=0.12”

● Surface Finish Comparison



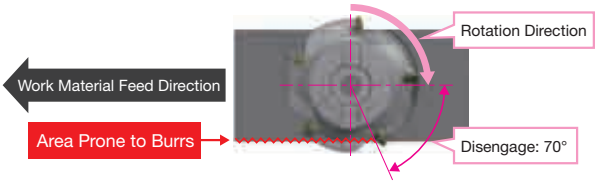
Part Material: 1050 Steel, Tool: ø4.000”
Cutting Conditions: v_C=660 SFM, f_Z=0.008 IPT, a_p=0.12”

● Runout with Insert Attached

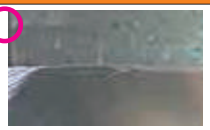
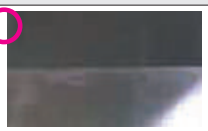
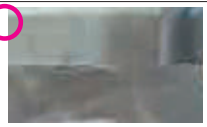
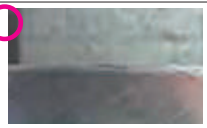
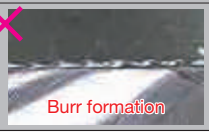


Tool: WGXM44000R
Number of Teeth: 7

■ FG Chipbreaker with Low-Burr Design



● Machined Surface Comparison

Work Material	FG Type	G Type	Conventional Tool	Competitor's Product
1050	○ 	○	○ 	×
304	○ 	○	×	×
4140	○ 	×	×	× 

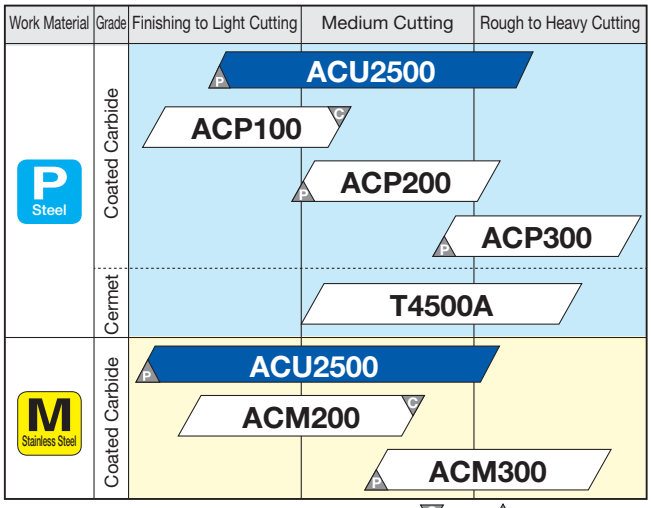
Machine:
Machining Center BT50

Tool: WGXM44000R

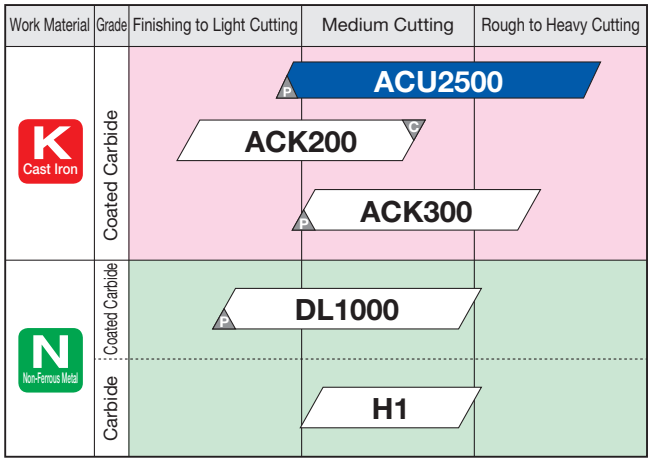
Insert Grade: ACP200

Cutting Conditions:
v_C=660 SFM,
f_Z=0.008 IPT,
a_p=0.12”,
a_e=3.15”
Dry

■ Grade Application Range



The letters "C" and "P" at the end of each grade indicate the coating type. C : CVD, P : PVD, Blank: Uncoated



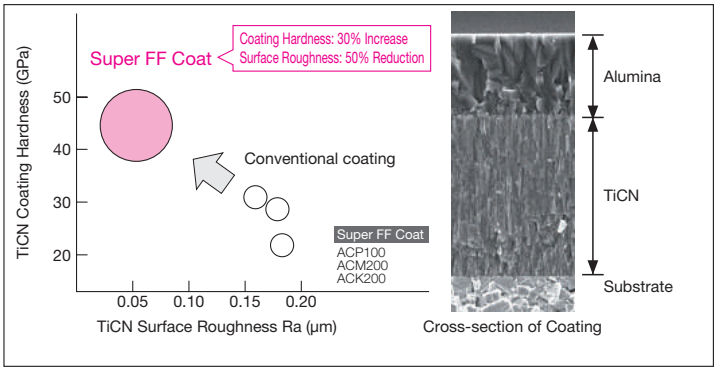
■ Coating Features

C Super FF Coat (CVD: Chemical Vapor Deposition)

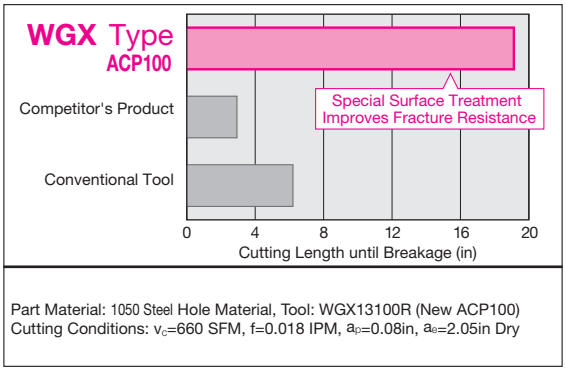
Provides excellent wear resistance and high reliability thanks to our coating stress control technology and the ultra-fine crystal grain coating layer of the Super FF Coat achieved through our proprietary CVD process technology.

- ▶ Achieves excellent chipping resistance with smooth coating and our coating stress control technology.
- ▶ High-speed, high-efficiency machining at a level more than 1.5 times higher than conventional tools is possible with a high hardness coating layer.
- ▶ Achieves more than double the tool life of conventional tools under the same cutting conditions.

Characteristics of the Coating Layer



Fracture Resistance

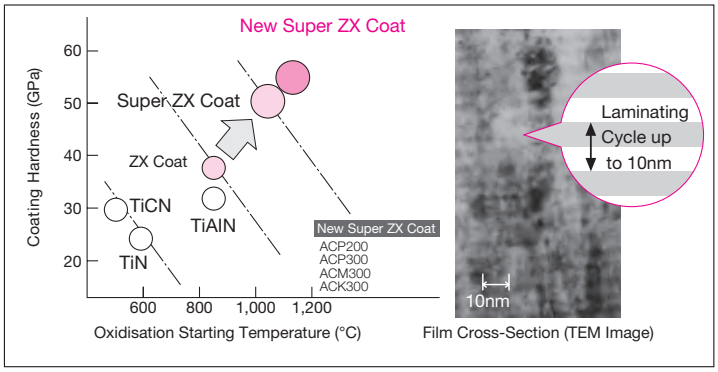


P New Super ZX Coat (PVD: Physical Vapor Deposition)

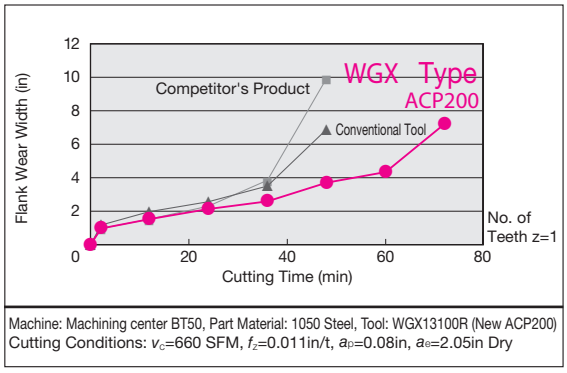
Employs our super multi-layered New Super ZX Coat, which utilizes our proprietary thin-layer coating technology and advanced nanotechnology. The coating consists of thousands of alternating, nanometer-thin (1 nanometer=1 billionth of a meter) layers.

- ▶ Compared to conventional tools, the coating hardness has been increased by 40% and the oxidization starting temperature has been increased by 200°C.
- ▶ Enables more than 1.5 times the machining speed and efficiency of conventional tools.
- ▶ Achieves more than double the tool life of conventional tools under the same cutting conditions.

Characteristics of the Coating Layer



Wear Resistance



WGX Recommended Cutting Conditions - Inch

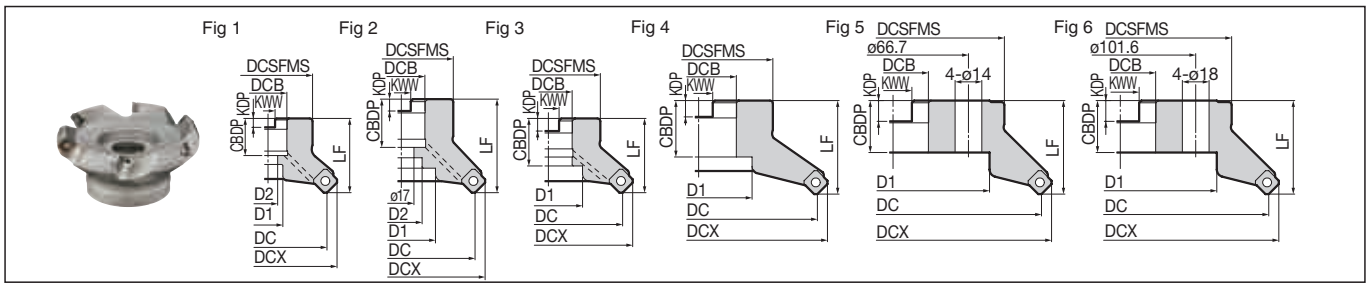
	Material	Hardness	Grade	Cutting Speed v_c (SFM) - Depth of Cut			Feed Rate (IPT)
				.002" -.050"	.050" - .125"	.125" & over	
P	Low and Medium Carbon Steels	<250 Bhn	ACU2500	935 - 1,410	885 - 1,335	750 - 1,250	.006 - .015
			ACP100	775 - 1300	725 - 1250	675 - 1200	.006 - .015
			ACP200	725 - 1200	675 - 1150	600 - 1125	.006 - .015
			ACP300	675 - 1075	650 - 1025	525 - 925	.006 - .015
	Medium Carbon Alloy Steels	<250 Bhn	ACU2500	590 - 1,030	560 - 975	475 - 825	.006 - .015
			ACP100	600 - 975	575 - 950	550 - 900	.006 - .015
			ACP200	550 - 900	525 - 900	500 - 875	.006 - .015
			ACP300	525 - 875	500 - 825	475 - 800	.006 - .015
	Medium-High Carbon Steels	<250 Bhn	ACU2500	475 - 830	460 - 800	440 - 760	.006 - .015
			ACP100	600 - 975	575 - 950	550 - 900	.006 - .015
			ACP200	575 - 950	550 - 925	500 - 875	.006 - .015
			ACP300	550 - 925	525 - 900	525 - 850	.006 - .015
	Free Machining Steels and Alloys	<250 Bhn	ACU2500	560 - 960	525 - 920	500 - 880	.006 - .015
			ACP100	775 - 1300	700 - 1250	675 - 1200	.006 - .015
			ACP200	750 - 1275	675 - 1225	650 - 1150	.006 - .015
			ACP300	675 - 1075	650 - 1050	650 - 1025	.006 - .015
	Tool Steels	<250 Bhn	ACU2500	475 - 830	460 - 800	430 - 750	.006 - .012
			ACP100	475 - 820	450 - 790	425 - 750	.006 - .012
			ACP200	450 - 800	435 - 775	400 - 725	.006 - .012
			ACP300	435 - 785	425 - 760	400 - 715	.006 - .012
		Bhn 220 - 350	ACU2500	440 - 780	425 - 750	400 - 700	.004 - .012
			ACP100	425 - 775	400 - 735	400 - 700	.004 - .012
			ACP200	415 - 750	400 - 725	375 - 690	.004 - .012
			ACP300	405 - 700	410 -690	375 - 680	.004 - .012
		>33 Hrc	ACU2500	340 - 670	325 - 650	325 - 590	.004 - .012
			ACP100	325 - 650	300 - 630	300 - 590	.004 - .012
			ACP200	315 - 640	300 - 625	300 - 580	.004 - .012
M	Martensitic and Ferritic Stainless Steels	<250 Bhn	ACU2500	380 - 630	360 - 620	340 - 600	.004 - .012
			ACM300	535 - 850	520 - 820	275 - 800	.004 - .012
			ACM300	525 - 825	515 - 800	250 - 775	.004 - .012
		>250 Bhn	ACU2500	345 - 560	330 - 550	300 - 520	.004 - .012
			ACM200	350 - 800	325 - 775	300 -750	.004 - .012
			ACM300	300 - 750	275 - 725	250 - 700	.004 - .012
	Austenitic and Precipitation Hardending Stainless Steels	<250 Bhn >250Bhn	ACU2500	410 - 685	400 - 650	375 - 600	.004 -.012
			ACM300	500 - 740	475 - 720	450 - 675	.004 -.012
			ACM200	250 - 705	225 - 705	200 - 700	.004 -.012
K	Grey Cast Iron	>250 Bhn	ACU2500	525 - 860	475 - 805	475 - 775	.004 - .012
			ACK200	600 - 950	525 - 825	490 - 800	.004 - .012
			ACK300	500 - 850	475 - 775	450 - 750	.004 - .012
		<250 Bhn	ACU2500	625 - 960	575 - 905	575 - 875	.004 - .015
			ACK200	700 - 1050	625 - 925	590 - 900	.004 - .015
			ACK300	600 - 950	575 - 875	550 - 850	.004 - .015
	Ductile Iron	>250 Bhn	ACU2500	550 - 825	500 - 775	450 - 750	.004 - .012
			ACK200	600 - 925	550 - 875	490 - 800	.004 - .012
			ACK300	550 - 825	500 - 775	450 - 750	.004 - .012
S	Exotic Alloys: Inconel, Hastalloy, Waspalloy, etc.	>300Bhn	ACU2500	100 - 220	100 - 200	100 - 180	.004 - .010
			ACM200	125 - 250	110 - 250	95 - 200	.004 - .010
			ACM300	100 - 160	70 - 150	60 - 135	.004 - .010
N	Non-Ferrous Material		H1 / DL1000	1000 - 4000	1000 - 4000	1000 - 4000	.006 - .015

WGX Shellmill Inch

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	–20° to –24°
	Axial	20° to 22°

.236" 45°



Shellmill Body (Standard)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs)	Fig
Inch	**WGX42000R**	●	2.000	2.461	1.500	1.750	**.750**	.312	.190	.750	.609	.406	3	.9	1
	WGX42500R	●	2.500	3.008	1.750	1.750	**1.000**	.375	.220	.750	.797	.531	4	1.3	1
	WGX43000R	●	3.000	3.504	2.250	1.750	**1.000**	.375	.220	.750	.787	.531	4	2.2	1
	WGX44000R	●	4.000	4.500	2.870	2.000	**1.250**	.500	.280	.750	1.000	1.000	5	3.5	2
	WGX44000R-1.50	●	4.000	4.500	3.750	2.500	**1.500**	.625	.380	1.000	2.000	1.181	5	4.5	2
	WGX45000R	●	5.000	5.496	3.750	2.500	**1.500**	.625	.380	1.000	2.000	0.781	6	7.2	1
	WGX46000R	●	6.000	6.496	4.380	2.500	**1.500**	.625	.380	1.060	2.000	—	7	9.5	4
	WGX48000R	●	8.000	8.496	5.906	2.500	**2.500**	1.000	.560	1.594	5.118	—	8	15.6	6
	WGX410000R	●	10.000	10.492	7.480	2.756	**2.500**	1.000	.531	1.575	6.299	—	10	23.5	6

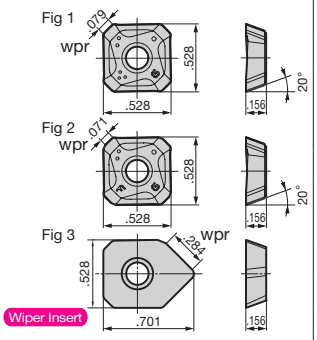
Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter. * Sizes ø6.000" and above do not have coolant holes. ● USA stocked item

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	K P M S		P M	P M	K		M S	M S		N	P
	Roughing	K P M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A
SEET13T3AGFR-L										●	●	
SEET13T3AGSR-L		●	●	●	●	●	●	●	●			●
SEET13T3AGSR-G		●	●	●	●	●	●	●	●			●
SEMT13T3AGSR-L		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-G		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-H		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-FG		★	●	●	●	●	●	●	●			
XEEW13T3AGER-AWR		★		●			●					●

Cat. No.	Applications	Wiper Facet Length wpr	Fig
SEET13T3AGFR-L	Light Cutting (For Non-Ferrous Metals)	—	1
SEET13T3AGSR-L	Light Cutting	—	1
SEET13T3AGSR-G	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-L	Light Cutting	—	1
SEMT13T3AGSR-G	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-H	Heavy Cutting	—	1
SEMT13T3AGSR-FG	Low-burr design	.071" / *1.8*	2
XEEW13T3AGER-AWR	Wiper Insert	.284" / *7.2*	3

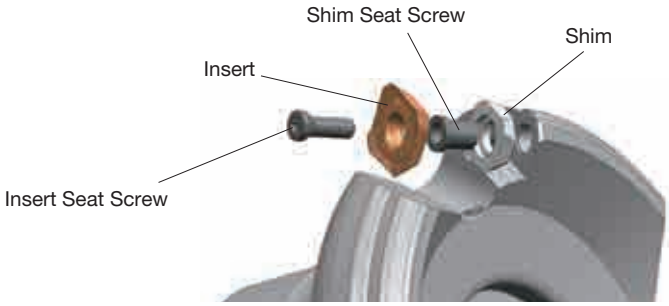


The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.

Identification Code

WGX 4 2000 R

Cutter Series | Insert Series | Cutter Dia. 2.000" | Feed Direction



Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"

See Page H22 for Cutting Condition Recommendations

Note The cutting conditions are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)	Anti-seize Cream
WGCS13R	BW0507F	BFTX03512IP	N·m 3.0	TRDR15IP	LH035	SUMI-P

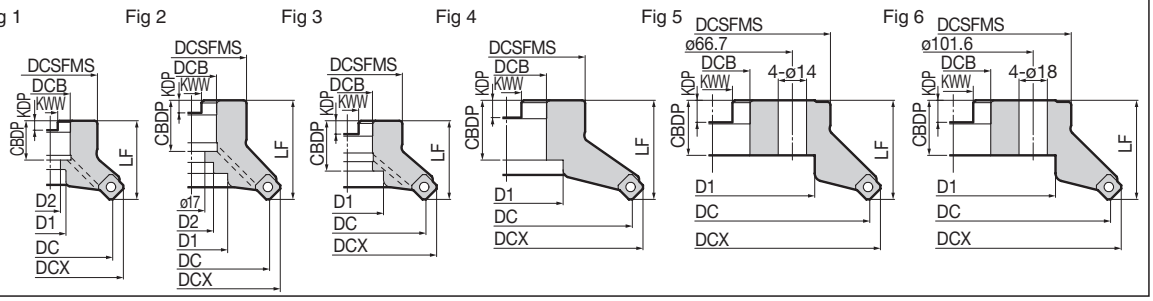
N·m Recommended Tightening Torque (N·m)

WGXM Shellmill Inch

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	–20° to –24°
	Axial	20° to 22°

.236" 45°



Shellmill Body (Fine Pitch)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Inch	**WGXM42000R**	●	2.000	2.461	1.500	1.750	**.750**	.312	.190	.750	.609	.406	4	0.9	1
	WGXM42500R	●	2.500	3.008	1.750	1.750	**1.000**	.375	.220	.750	.797	.531	5	1.9	1
	WGXM43000R	●	3.000	3.504	2.250	1.750	**1.000**	.375	.220	.750	.787	.531	6	3.1	1
	WGXM44000R	●	4.000	4.500	2.870	2.000	**1.250**	.500	.280	.750	1.000	1.000	7	4.8	2
	WGXM44000R-1.50	●	4.000	4.500	3.750	2.500	**1.500**	.625	.380	1.000	2.000	1.181	7	5.5	2
	WGXM45000R	●	5.000	5.496	3.750	2.500	**1.500**	.625	.380	1.000	2.000	0.781	8	7.2	1
	WGXM46000R	●	6.000	6.496	4.380	2.500	**1.500**	0.625	.380	1.060	2.000	—	10	9.5	4
	WGXM48000R	●	8.000	8.496	5.906	2.500	**2.500**	1.000	.560	1.594	5.118	—	12	15.6	6

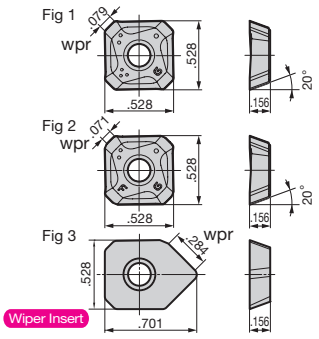
Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter. * Sizes ø6.000" and above do not have coolant holes. ● USA stocked item

Insert

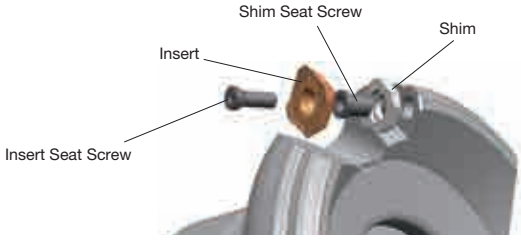
Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M/S		K/N	N	
	General-purpose	P/K/M/S		P/M	P/M	K		M/S	M/S		N	P
	Roughing	P/K/M/S		P/M	P/M		K		M/S			

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Applications	Wiper Facet Length wpr	Fig
SEET13T3AGFR-L									●	●		Light Cutting (For Non-Ferrous Metals)	—	1
SEET13T3AGSR-L	●	●	●	●	●	●	●	●			●	Light Cutting	—	1
SEET13T3AGSR-G	●	●	●	●	●	●	●	●			●	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-L	●	●	●	●	●	●	●	●				Light Cutting	—	1
SEMT13T3AGSR-G	●	●	●	●	●	●	●	●				General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-H	●	●	●	●	●	●	●	●				Heavy Cutting	—	1
SEMT13T3AGSR-FG	★	●	●	●	●	●	●	●				Low-burr design	.071" / *1.8*	2
XEEW13T3AGER-AWR	★		●			●					●	Wiper Insert	.284" / *7.2*	3



The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.



Identification Code

WGX M 4 2000 R

WGX	M	4	2000	R
Cutter Series	Fine Pitch	Insert Series	Cutter Dia. 2.000"	Feed Direction

Parts

Recommended Tightening Torque (N·m)

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)	Anti-seize Cream
WGCS13R	BW0507F	BFTX03512IP	3.0	TRDR15IP	LH035	SUMI-P

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"

See Page H22 for Cutting Condition Recommendations

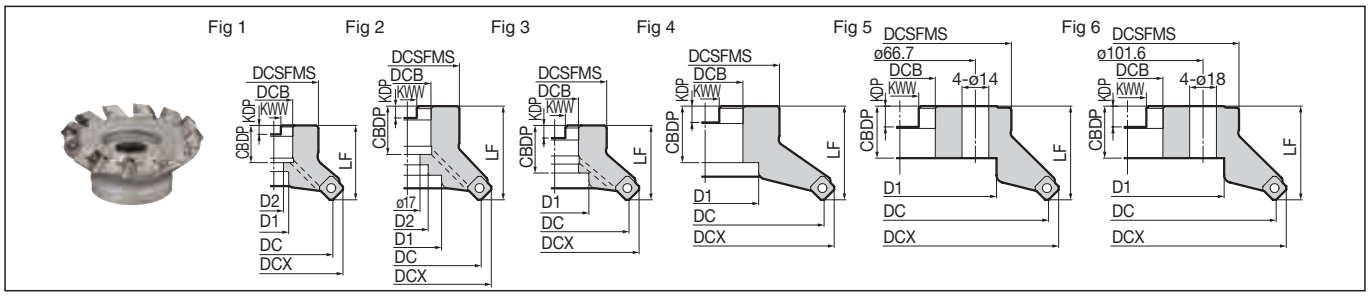
Note The cutting conditions are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WGXF Shellmill Inch

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	–20° to –24°
	Axial	20° to 22°

.236" 45°



Shellmill Body (Extra Fine Pitch)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs)	Fig
Inch	**WGXF42000R**	●	2.000	2.461	1.500	1.750	**0.750**	.312	.190	.750	.609	.406	5	0.9	1
	WGXF42500R	●	2.500	3.008	1.750	1.750	**1.000**	.375	.220	.750	.797	.531	6	1.5	1
	WGXF43000R	●	3.000	3.504	2.250	1.750	**1.000**	.375	.220	.750	.787	.531	8	3.1	1
	WGXF44000R	●	4.000	4.500	2.870	2.000	**1.250**	.500	.280	.750	1.000	1.000	10	4.7	2
	WGXF44000R-1.50	●	4.000	4.500	3.750	2.500	**1.500**	.625	.380	1.000	2.000	1.181	10	6.5	2
	WGXF45000R	●	5.000	5.496	3.750	2.500	**1.500**	.625	.380	1.000	2.000	0.781	12	8.2	1
	WGXF46000R	●	6.000	6.496	4.380	2.500	**1.500**	.625	.380	1.060	2.000	—	16	10.5	4
	WGXF48000R	●	8.000	8.496	5.906	2.500	**2.500**	1.000	.560	1.594	5.118	—	20	15.2	6

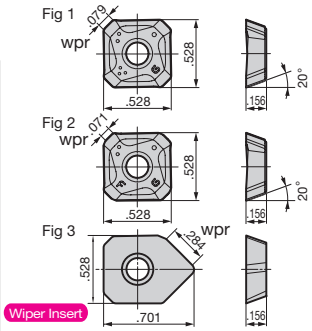
Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter. * Sizes ø6.000" and above do not have coolant holes. ● USA stocked item

Insert

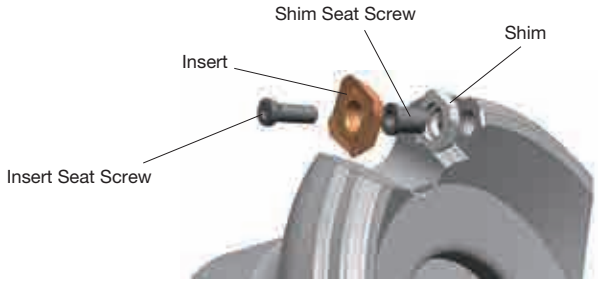
Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	K P M S		P M	P M	K		M S	M S		N	P
	Roughing	K P M S		P M	P M		K		M S			

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Applications	Wiper Facet Length wpr	Fig
SEET13T3AGFR-L									●	●		Light Cutting (For Non-Ferrous Metals)	—	1
SEET13T3AGSR-L	●	●	●	●	●	●	●	●			●	Light Cutting	—	1
SEET13T3AGSR-G	●	●	●	●	●	●	●	●			●	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-L	●	●	●	●	●	●	●	●				Light Cutting	—	1
SEMT13T3AGSR-G	●	●	●	●	●	●	●	●				General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-H	●	●	●	●	●	●	●	●				Heavy Cutting	—	1
SEMT13T3AGSR-FG	★	●	●	●	●	●	●	●				Low-burr design	.071" / *1.8*	2
XEEW13T3AGER-AWR	★		●			●					●	Wiper Insert	.284" / *7.2*	3



The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.



Identification Code - Inch

WGX F 4 2000 R

WGX	F	4	2000	R
Cutter Series	Extra Fine Pitch	Insert Series	Cutter Dia. 2.000"	Feed Direction

Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)	Anti-seize Cream
WGCS13R	BW0507F	BFTX03512IP	N·m 3.0	TRDR15IP	LH035	SUMI-P

N·m Recommended Tightening Torque (N·m)

See Page H22 for Cutting Condition Recommendations

Note The cutting conditions are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

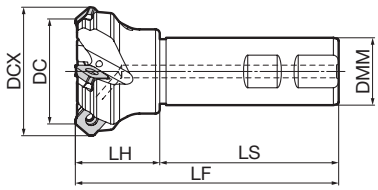
WGX Endmill Inch

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	–20° to –24°
	Axial	20° to 22°

.236" 45°

Fig 1



Body (Shank Endmill)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Fig
Inch	**WGX42000EW**	●	**2.000**	2.461	1.250	1.591	2.379	3.970	4	1
	WGX42500EW	●	**2.500**	3.008	1.250	1.591	2.379	3.970	5	1

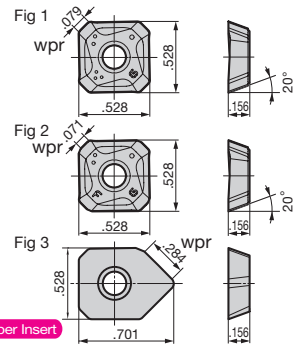
Inserts are sold separately. ø32 mm size does not have seats. ● USA stocked item

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	K S M		P M	P M	K		M S	M S		N	P
	Roughing	K S M		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A
SEET13T3AGFR-L										●	●	
SEET13T3AGSR-L		●	●	●	●	●	●	●	●			●
SEET13T3AGSR-G		●	●	●	●	●	●	●	●			●
SEMT13T3AGSR-L		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-G		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-H		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-FG		★	●	●	●	●	●	●	●			
XEEW13T3AGER-AWR		★		●			●					●

Cat. No.	Applications	Wiper Facet Length wpr	Fig
SEET13T3AGFR-L	Light Cutting (For Non-Ferrous Metals)	—	1
SEET13T3AGSR-L	Light Cutting	—	1
SEET13T3AGSR-G	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-L	Light Cutting	—	1
SEMT13T3AGSR-G	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-H	Heavy Cutting	—	1
SEMT13T3AGSR-FG	Low-burr design	.071" / *1.8*	2
XEEW13T3AGER-AWR	Wiper Insert	.284" / *7.2*	3

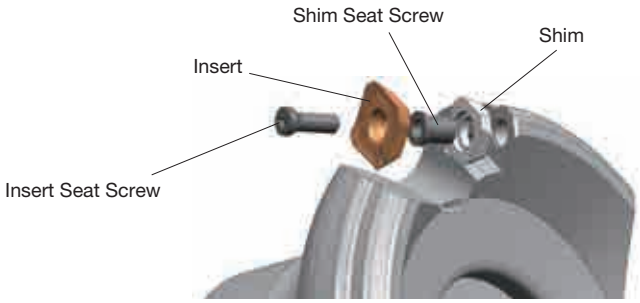


The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.

Identification Code - Inch

WGX 4 2000 EW

Cutter Series | Insert Series | Cutter Dia. | Endmill Type



See Page H22 for Cutting Condition Recommendations

Note The cutting conditions are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Parts

Applicable Cutter	Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)	Anti-seize Cream
Other than those below WGX13000EW	WGCS13R	BW0507F	BFTX03512IP	N·m 3.0	TRDR15IP	LH035	SUMI-P
WGX13032EW	—	—	BFTX03512IP	N·m 3.0	TRDR15IP	-	SUMI-P

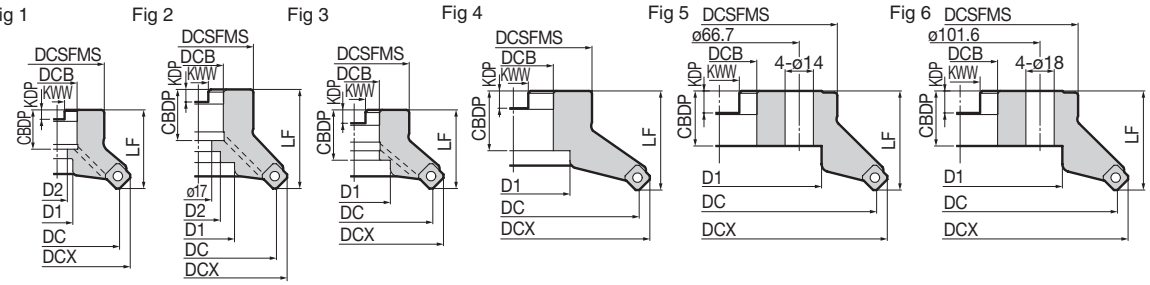
N·m Recommended Tightening Torque (N·m)

WGX Shellmill Metric

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	–20° to –24°
	Axial	20° to 22°

6mm 45° | .236" 45°



Body (Standard Shellmill)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WGX13040RS**	★	40	52	32	40	**16**	8.4	5.6	18	14	9	3	0.3	1
	WGX13050RS	★	50	62	40	40	**22**	10.4	6.3	20	18	11	3	0.4	1
	WGX13063RS	★	63	76	50	40	**22**	10.4	6.3	20	18	11	4	0.6	1
	WGX13080RS	★	*80	93	55	50	**27**	12.4	7	25	20	13.5	4	1.2	1
	WGX13100RS	★	100	113	70	50	**32**	14.4	8.5	32	46	—	5	1.6	3
	WGX13125RS	★	125	138	80	63	**40**	16.4	9.5	29	52	29	6	2.8	1
	WGX13160RS	★	160	173	130	63	**40**	16.4	9.5	29	88	—	7	4.5	5
	WGX13200RS	★	200	213	150	63	**60**	25.7	14	35	130	—	8	7.1	6
	WGX13250RS	★	250	263	190	63	**60**	25.7	14	35	160	—	10	11.2	6
	WGX13080R	★	*80	93	60	50	**25.4**	9.5	6	25	20	13	4	1.2	1
	WGX13100R	★	*100	113	70	63	**31.75**	12.7	8	32.5	46	28	5	2.3	2
	WGX13125R	★	125	138	80	63	**38.1**	15.9	10	35.5	55	30	6	2.9	1
	WGX13160R	★	160	173	100	63	**50.8**	19.1	11	38	72	—	7	4.5	4
	WGX13200R	★	200	213	150	63	**47.625**	25.4	14	35	130	—	8	7.1	6
	WGX13250R	★	250	263	190	63	**47.625**	25.4	14	35	150	—	10	11.2	6

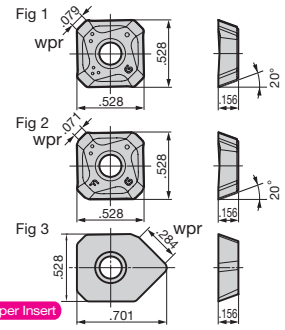
Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter. * Sizes *ø160 mm* and above do not have coolant holes.
For securing the *ø80mm* and *ø100mm* cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt *(ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).*

Insert

Dimensions (inch "/ *mm*)

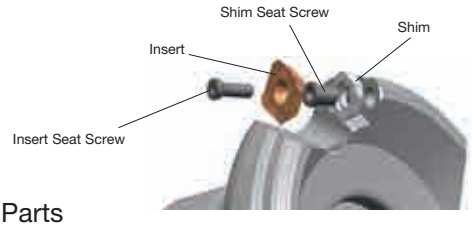
Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	K P M S		P M	P M	K		M S	M S		N	P
	Roughing	K P M S		P M	P M		K		M S			

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Applications	Wiper Facet Length wpr	Fig
SEET13T3AGFR-L									●	●		Light Cutting (For Non-Ferrous Metals)	—	1
SEET13T3AGSR-L	●	●	●	●	●	●	●	●			●	Light Cutting	—	1
SEET13T3AGSR-G	●	●	●	●	●	●	●	●			●	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-L	●	●	●	●	●	●	●	●				Light Cutting	—	1
SEMT13T3AGSR-G	●	●	●	●	●	●	●	●				General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-H	●	●	●	●	●	●	●	●				Heavy Cutting	—	1
SEMT13T3AGSR-FG	★	●	●	●	●	●	●	●				Low-burr design	.071" / *1.8*	2
XEEW13T3AGER-AWR	★		●			●					●	Wiper Insert	.284" / *7.2*	3



The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.

●: USA Stocked Item
★: Worldwide Warehouse Item
Blank: Made-to-order item



Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)	Anti-seize Cream
WGCS13R	BW0507F	BFTX03512IP	N·m 3.0	TRDR15IP	LH035	SUMI-P

N·m Recommended Tightening Torque (N·m)

Identification Code

WGX 13 040 R S

Cutter Series | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

See Page H22 for Cutting Condition Recommendations

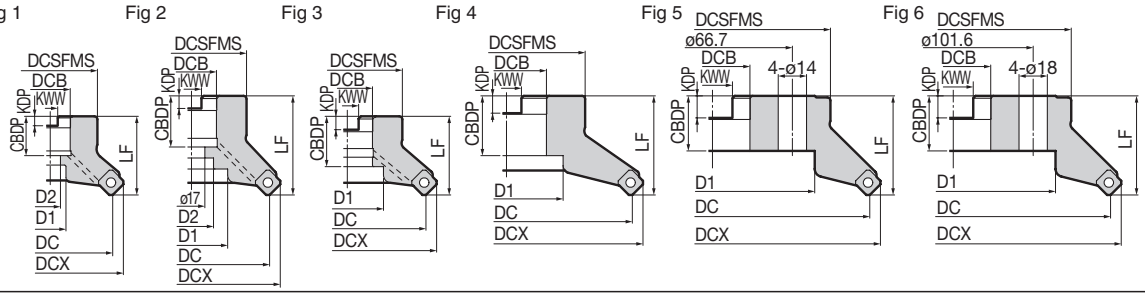
Note The cutting conditions are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WGXM Shellmill Metric

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	–20° to –24°
	Axial	20° to 22°

6mm 45° | .236" 45°



Body (Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WGXM13050RS**	★	50	62	40	40	**22**	10.4	6.3	20	18	11	4	0.4	1
	WGXM13063RS	★	63	77	50	40	**22**	10.4	6.3	20	18	11	5	0.6	1
	WGXM13080RS	★	*80	94	55	50	**27**	12.4	7	25	20	13.5	6	1.1	1
	WGXM13100RS	★	100	114	70	50	**32**	14.4	8.5	32	46	—	7	1.6	3
	WGXM13125RS	★	125	139	80	63	**40**	16.4	9.5	29	52	29	8	2.8	1
	WGXM13160RS	★	160	174	130	63	**40**	16.4	9.5	29	88	—	10	4.5	5
	WGXM13200RS	★	200	214	150	63	**60**	25.7	14	35	130	—	12	7.0	6
	WGXM13250RS	★	250	264	190	63	**60**	25.7	14	35	160	—	14	11.1	6
	WGXM13080R	★	*80	94	60	50	**25.4**	9.5	6	25	20	13	6	1.1	1
	WGXM13100R	★	*100	114	70	63	**31.75**	12.7	8	32.5	46	28	7	2.2	2
	WGXM13125R	★	125	139	80	63	**38.1**	15.9	10	35.5	55	30	8	2.9	1
	WGXM13160R	★	160	174	100	63	**50.8**	19.1	11	38	72	—	10	4.5	4
	WGXM13200R	★	200	214	150	63	**47.625**	25.4	14	35	130	—	12	7.0	6
	WGXM13250R	★	250	264	190	63	**47.625**	25.4	14	35	150	—	14	11.1	6

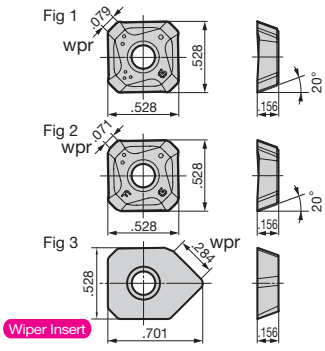
Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter. * Sizes *ø160 mm* and above do not have coolant holes.
For securing the *ø80mm and ø100mm* cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (*ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm*).

Insert

Dimensions (inch "/ *mm*)

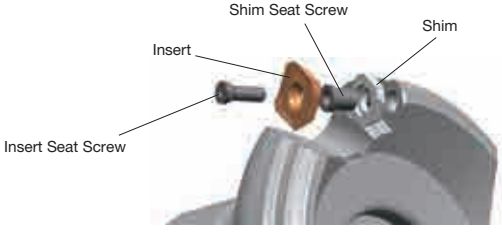
Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	P S		P M	P M	K		M S	M S		N	P
	Roughing	P S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A
SEET13T3AGFR-L										●	●	
SEET13T3AGSR-L		●	●	●	●	●	●	●	●			●
SEET13T3AGSR-G		●	●	●	●	●	●	●	●			●
SEMT13T3AGSR-L		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-G		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-H		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-FG		★	●	●	●	●	●	●	●			
XEEW13T3AGER-AWR		★		●			●					●

Cat. No.	Applications	Wiper Facet Length wpr	Fig
SEET13T3AGFR-L	Light Cutting (For Non-Ferrous Metals)	—	1
SEET13T3AGSR-L	Light Cutting	—	1
SEET13T3AGSR-G	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-L	Light Cutting	—	1
SEMT13T3AGSR-G	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-H	Heavy Cutting	—	1
SEMT13T3AGSR-FG	Low-burr design	.071" / *1.8*	2
XEEW13T3AGER-AWR	Wiper Insert	.284" / *7.2*	3



The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.

●: USA Stocked Item
★: Worldwide Warehouse Item
Blank: Made-to-order item



Identification Code

WGX M 13 050 R S

Cutter Series	Fine Pitch	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

See Page H22 for Cutting Condition Recommendations

Note The cutting conditions are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)	Anti-seize Cream
WGCS13R	BW0507F	BFTX03512IP	N·m 3.0	TRDR15IP	LH035	SUMI-P

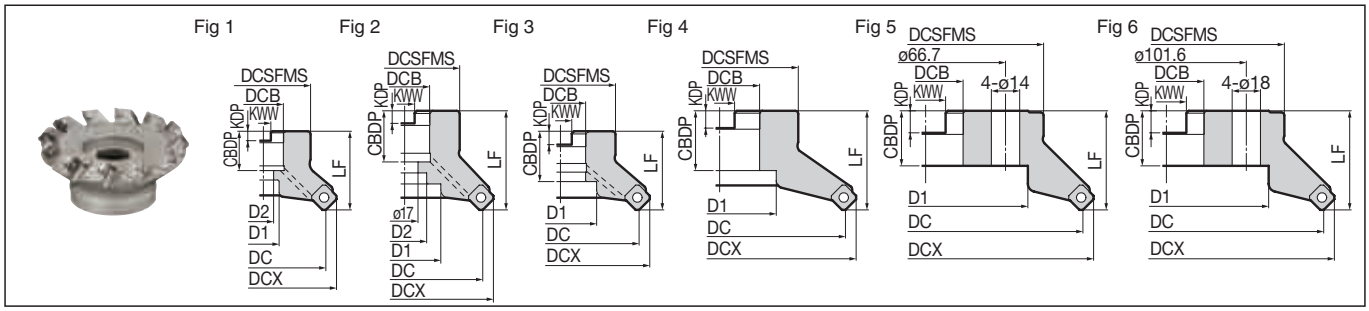
N·m Recommended Tightening Torque (N·m)

WGXF Shellmill Metric

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	–20° to –24°
	Axial	20° to 22°

6mm 45° | .236" 45°



Body (Extra Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WGXF13050RS**	★	50	62	40	40	**22**	10.4	6.3	20	18	11	5	0.4	1
	WGXF13063RS	★	63	77	50	40	**22**	10.4	6.3	20	18	11	6	0.6	1
	WGXF13080RS	★	*80	94	55	50	**27**	12.4	7	25	20	13.5	8	1.1	1
	WGXF13100RS	★	100	114	70	50	**32**	14.4	8.5	32	46	—	10	1.5	3
	WGXF13125RS	★	125	139	80	63	**40**	16.4	9.5	29	52	29	12	2.7	1
	WGXF13160RS	★	160	174	130	63	**40**	16.4	9.5	29	88	—	16	4.5	5
	WGXF13200RS	★	200	214	150	63	**60**	25.7	14	35	130	—	20	6.9	6
	WGXF13250RS	★	250	264	190	63	**60**	25.7	14	35	160	—	24	11.0	6
	WGXF13080R	★	*80	94	60	50	**25.4**	9.5	6	25	20	13	8	1.1	1
	WGXF13100R	★	*100	114	70	63	**31.75**	12.7	8	32.5	46	28	10	2.1	2
	WGXF13125R	★	125	139	80	63	**38.1**	15.9	10	35.5	55	30	12	2.8	1
	WGXF13160R	★	160	174	100	63	**50.8**	19.1	11	38	72	—	16	4.5	4
	WGXF13200R	★	200	214	150	63	**47.625**	25.4	14	35	130	—	20	6.9	6
	WGXF13250R	★	250	264	190	63	**47.625**	25.4	14	35	150	—	24	11.0	6

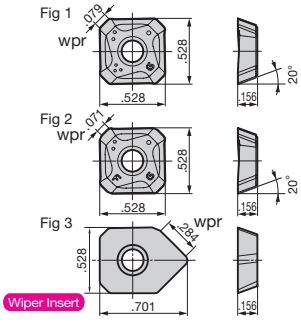
Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter. * Sizes *ø160 mm* and above do not have coolant holes.
For securing the *ø80mm and ø100mm* cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (*ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm*).

Insert

Dimensions (inch "/ *mm*)

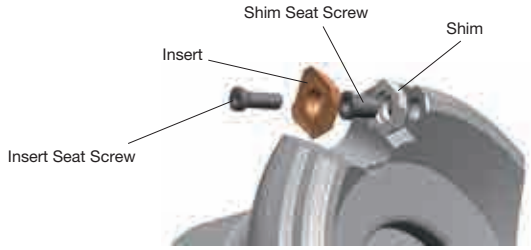
Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	K P M S		P M	P M	K		M S	M S		N	P
	Roughing	K P M S		P M	P M		K		M S			

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Applications	Wiper Facet Length wpr	Fig
SEET13T3AGFR-L									●	●		Light Cutting (For Non-Ferrous Metals)	—	1
SEET13T3AGSR-L	●	●	●	●	●	●	●	●			●	Light Cutting	—	1
SEET13T3AGSR-G	●	●	●	●	●	●	●	●			●	General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-L	●	●	●	●	●	●	●	●				Light Cutting	–	1
SEMT13T3AGSR-G	●	●	●	●	●	●	●	●				General-purpose	.079" / *2.0*	1
SEMT13T3AGSR-H	●	●	●	●	●	●	●	●				Heavy Cutting	–	1
SEMT13T3AGSR-FG	★	●	●	●	●	●	●	●				Low-burr design	.071" / *1.8*	2
XEEW13T3AGER-AWR	★		●			●					●	Wiper Insert	.284" / *7.2*	3



The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.

● : USA Stocked Item
★: Worldwide Warehouse Item
Blank: Made-to-order item



Identification Code

WGX	F	13	050	R	S
Cutter Series	Extra Fine Pitch	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)	Anti-seize Cream
WGCS13R	BW0507F	BFTX03512IP	N·m 3.0	TRDR15IP	LH035	SUMI-P

See Page H22 for Cutting Condition Recommendations

Note The cutting conditions are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

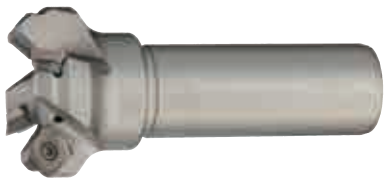
WGX Endmill Metric

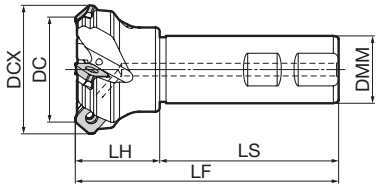
P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	–20° to –24°
	Axial	20° to 22°

6mm 45° | .236" 45°

Fig 1





Body (Endmill)

Dimensions (*mm*)

	Cat. No.	Stock	Diameter DC	Max. Diameter DCX	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Fig
Metric	**WGX13032EW**	★	*32*	*44*	*32*	*40*	*85*	*125*	3	*1*
	WGX13040EW	★	*40*	*52*	*32*	*40*	*85*	*125*	3	*1*
	WGX13050EW	★	*50*	*62*	*32*	*40*	*85*	*125*	4	*1*
	WGX13063EW	★	*63*	*76*	*32*	*40*	*85*	*125*	5	*1*

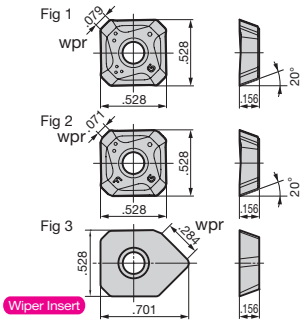
Inserts are sold separately. *ø32 mm* size does not have seats.

Insert

Dimensions (inch "/ *mm*)

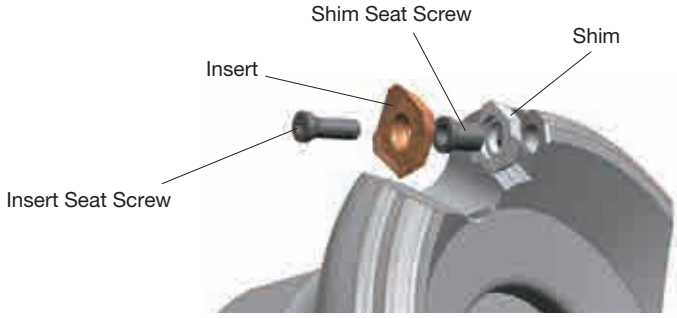
Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	P M S		P M	P M	K		M S	M S		N	P
	Roughing	P M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A
SEET13T3AGFR-L										●	●	
SEET13T3AGSR-L		●	●	●	●	●	●	●	●			●
SEET13T3AGSR-G		●	●	●	●	●	●	●	●			●
SEMT13T3AGSR-L		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-G		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-H		●	●	●	●	●	●	●	●			
SEMT13T3AGSR-FG		★	●	●	●	●	●	●	●			
XEEW13T3AGER-AWR		★		●			●					●

Applications	Wiper Facet Length wpr	Fig
Light Cutting (For Non-Ferrous Metals)	—	1
Light Cutting	—	1
General-purpose	.079" / *2.0*	1
Light Cutting	—	1
General-purpose	.079" / *2.0*	1
Heavy Cutting	—	1
Low-burr design	.071" / *1.8*	2
Wiper Insert	.284" / *7.2*	3



The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.

●: USA Stocked Item
★: Worldwide Warehouse Item
Blank: Made-to-order item



Identification Code

WGX 13 032 EW

Cutter Series | Insert Size | Cutter Dia. | Endmill Type

See Page H22 for Cutting Condition Recommendations

Note The cutting conditions are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Parts

Applicable Cutter	Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)	Anti-seize Cream
Other than those below WGX13000EW	WGCS13R	BW0507F	BFTX03512IP	N·m 3.0	TRDR15IP	LH035	SUMI-P
WGX13032EW	–	–	BFTX03512IP	N·m 3.0	TRDR15IP	–	SUMI-P

N·m Recommended Tightening Torque (N·m)

■ Application Examples

Cr-Mo Steel SAE4130 Block Material	Sumitomo	Competitor
Tool	WGX13125R	—
Grade	ACP200	—
Chipbreaker	G	—
Cutter Dia. (Inch)	5.000	5.000
Number of Teeth	6	6
v_c(SFM)	720	720
v_f(Inch/min)	33	33
f_z(IPT)	.0098	.0098
a_p(Inch)	.079	.0098
a_e(Inch)	5.00	5.00
Coolant	Dry	Dry
Results	Surface roughness was significantly improved. Cutting force was reduced. Stable cutting can be performed with a low cutting load.	

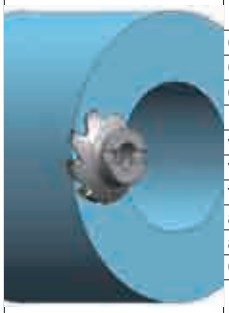
Carbon Steel 1050 Machine Component	Sumitomo	Competitor
M/C BT30		
Tool	WGX13063RS	—
Grade	ACP200	—
Chipbreaker	L	—
Cutter Dia. (Inch)	2.500	2.500
Number of Teeth	4	4
v_c(SFM)	990	990
v_f(Inch/min)	24	24
f_z(IPT)	.0039	.0039
a_p(Inch)	.1575	.1575
a_e(Inch)	.394 to 1.575	.394 to .787
Coolant	Dry	Dry
Results	Stable cutting was achieved with low-rigidity machines. Machining was also possible with radial depth of cut 1.18" to 1.57".	

Low-rigidity Machine

General Structural Steel A283D A529 Gr.D Machine Component	Sumitomo	Conventional
Tool	WGX13125R	—
Grade	ACP200	—
Chipbreaker	FG	—
Cutter Dia. (Inch)	5.000	5.000
Number of Teeth	6	6
v_c(SFM)	660	660
v_f(Inch/min)	24	24
f_z(IPT)	.0079	.0079
a_p(Inch)	.0394	.0394
a_e(Inch)	4.000	4.000
Coolant	Wet	Wet
Results	Reduces chatter and exit burrs.	

Cr-Mo 4140 Steel Machine Component	Sumitomo	Competitor
Tool	WGX13080R	—
Grade	ACP200	—
Chipbreaker	H	—
Cutter Dia. (Inch)	3.000	3.000
Number of Teeth	4	4
v_c(SFM)	660	660
v_f(Inch/min)	19	19
f_z(IPT)	.0059	.0059
a_p(Inch)	.1181	.1181
a_e(Inch)	—	—
Coolant	Dry	Dry
Results	In heavy interrupted cutting, this tool achieved a longer tool life with good surface roughness.	

Pipe Steel Gr.65 Pipe	Sumitomo	Conventional
Tool	WGXM13125R	—
Grade	ACP200	—
Chipbreaker	G	—
Cutter Dia. (Inch)	5.000	5.000
Number of Teeth	8	8
v_c(SFM)	990	990
v_f(Inch/min)	29	29
f_z(IPT)	.0047	.0047
a_p(Inch)	.1575	.1575
a_e(Inch)	4.000	4.000
Coolant	Wet	Wet
Results	Tool life improved by more than 1.4 times per corner.	



309S Liquid Level Gauge Component	Sumitomo	Conventional
Tool	WGX13160R	Single-Sided, 4 Corners
Grade	ACU2500	—
Chipbreaker	G	—
Cutter Dia. (Inch)	6.000	6.000
Number of Teeth	7	7
v_c(SFM)	660	660
v_f(Inch/min)	13	13
f_z(IPT)	.0051	.0051
a_p(Inch)	.0591	.0591
a_e(Inch)	—	—
Coolant	Dry	Dry
Results	Tool life extension of 300% achieved.	

304 Stainless Steel Machine Component	Sumitomo	Competitor
Cutting Distance: 3.75m		
Tool	WGX13100RS	—
Grade	ACM300	—
Chipbreaker	G	—
Cutter Dia. (Inch)	4.000	4.000
Number of Teeth	5	5
v_c(SFM)	500	500
v_f(Inch/min)	14	14
f_z(IPT)	.0059	.0059
a_p(Inch)	.0787	.0787
a_e(Inch)	.7874	.7874
Coolant	Dry	Dry
Results	High hardness and the superior oxidation resistance of PVD coating provides at least double the tool life.	

WGX Series

Competitor's Product

17-4ph Stainless Steel Machine Component	Sumitomo	Competitor
Cutting Distance: 7.5m		
Tool	WGX13100RS	—
Grade	ACM200	—
Chipbreaker	G	—
Cutter Dia. (Inch)	4.000	4.000
Number of Teeth	5	5
v_c(SFM)	500	500
v_f(Inch/min)	9.5	9.5
f_z(IPT)	.0039	.0039
a_p(Inch)	.0394	.0394
a_e(Inch)	2.953	2.953
Coolant	Dry	Dry
Results	The high wear resistance of CVD coating provides at least double the tool life.	

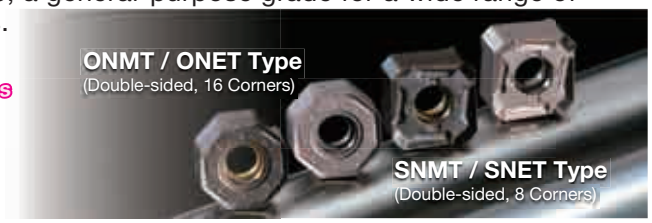
WGX Series

Competitor's Product

The DGC Type insert lineup includes double-sided SNMT/SNET and ONMT/ONET types. Up to 16 corners can be used for improved economy.

■ General Features

Sumi Dual Mill DGC Type employs double-sided inserts with up to 16 corners for excellent economy. This is a general-purpose cutter featuring high cutting edge strength for high efficiency milling and a low-burr chipbreaker design that provides high machined surface quality. DGC also offers ACU2500, a general-purpose grade for a wide range of materials.

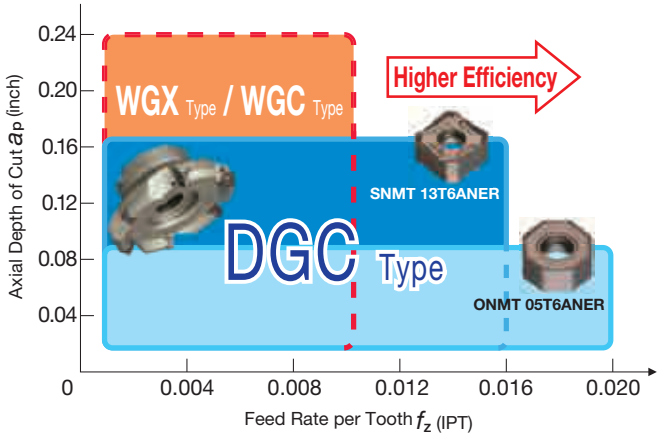


■ Features

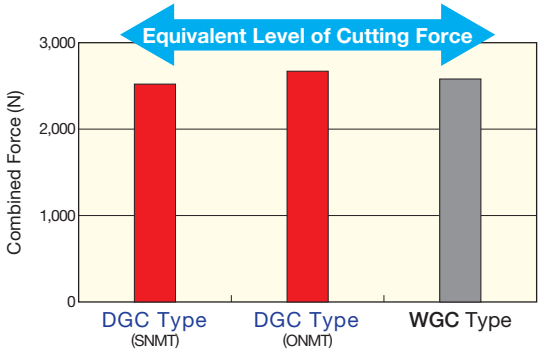
● Same cutting performance as single-sided inserts plus superior economy

Achieves levels of cutting edge sharpness and machined surface quality equivalent to single-sided cutters at a maximum depth of cut of a_p = 0.12".

● Recommended Cutting Conditions for **General Steel**



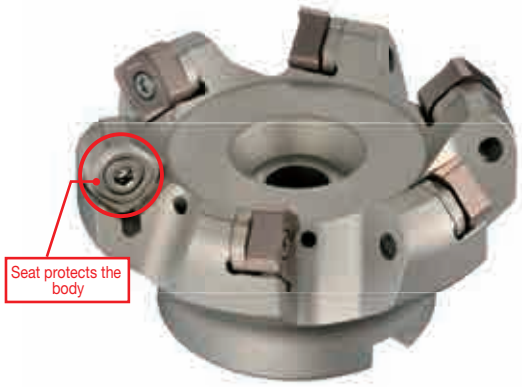
● Comparison of Cutting Force



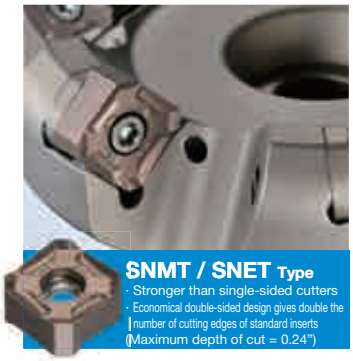
Work Material: 4130 Structural Steel Tool: ø4.000"
Cutting Conditions: V_c = 650 SFM, f_z = 0.012 IPR, a_p = 0.12", a_e = 3.35"

● Common Body Features

Two types of inserts can be used with a single body depending on the milling application, to help reduce tool costs.



Use two types of insert for different applications



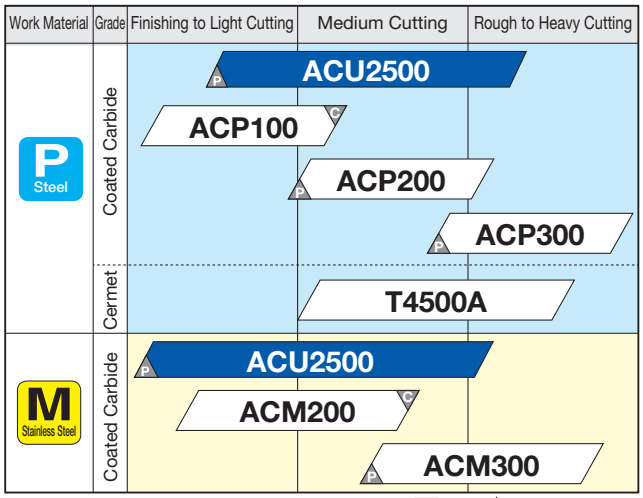
SNMT / SNET Type
- Stronger than single-sided cutters
- Economical double-sided design gives double the number of cutting edges of standard inserts (Maximum depth of cut = 0.24")

ONMT / ONET Type
- More economical double-sided design with 16 corners (Maximum depth of cut = 0.12")

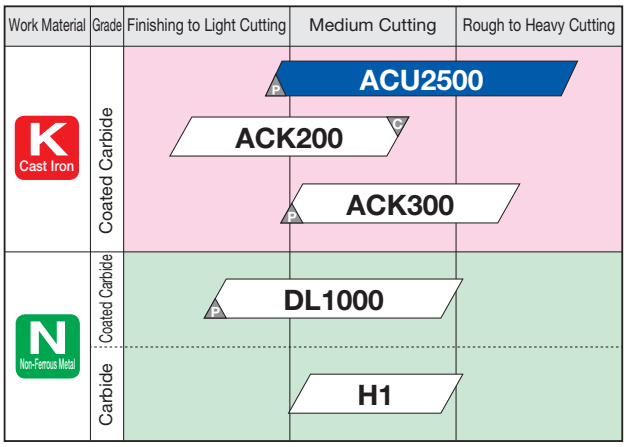
● Choose a tool to suit your application from a comprehensive lineup

Cutter Diameter: ø2.000" to ø10.000" ø40mm to ø250mm No. of Teeth: 3 to 10 Mounting: Metric/Inch	Cutter Diameter: ø2.000" to ø8.000" ø50mm to ø250mm No. of Teeth: 4 to 14 Mounting: Metric/Inch	Cutter Diameter: ø2.000" to ø8.000" ø50mm to ø250mm No. of Teeth: 5 to 18 Mounting: Metric/Inch	Cutter Diameter: ø2.000" to ø2.500" ø40mm to ø63mm No. of Teeth: 3 to 5 Mounting: Metric/Inch
DGC40000R DGC13000R(S) Standard Pitch	DGCM40000R DGCM13000R(S) Fine Pitch	DGCF40000R DGCF13000R(S) Extra Fine Pitch	DGC 40000EW DGC 13000EW Endmill Type

■ Grade Application Range



The letters "C" and "P" at the end of each grade indicate the coating type. C: CVD, P: PVD, Blank: Uncoated



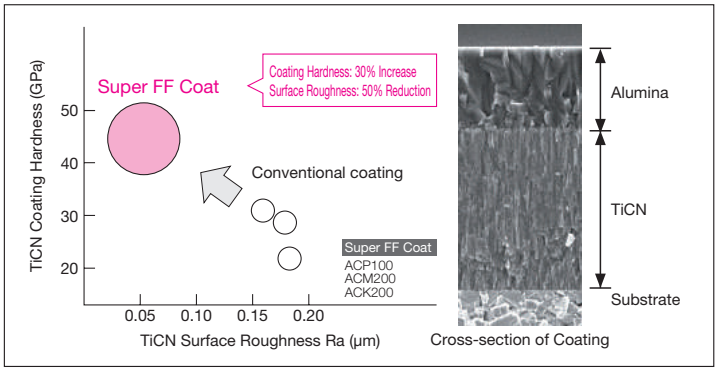
■ Coating Features

C Super FF Coat (CVD: Chemical Vapor Deposition)

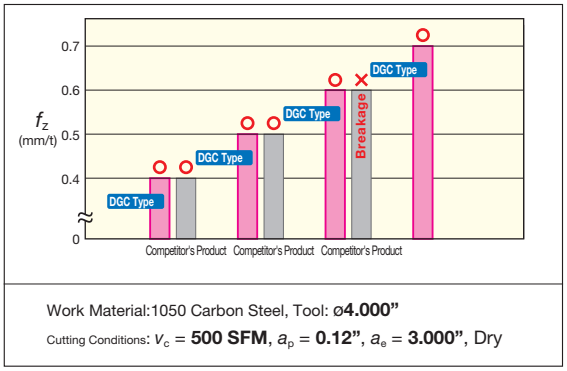
Provides excellent wear resistance and high reliability thanks to our coating stress control technology and the ultra-fine crystal grain coating layer of the Super FF Coat achieved through our proprietary CVD process technology

- ▶ Achieves excellent chipping resistance with smooth coating and our coating stress control technology
- ▶ High-speed, high-efficiency machining at a level more than 1.5 times higher than conventional tools is possible with a high hardness coating layer
- ▶ Achieves more than double the tool life of conventional tools under the same cutting conditions

Characteristics of the Coating Layer



Fracture Resistance

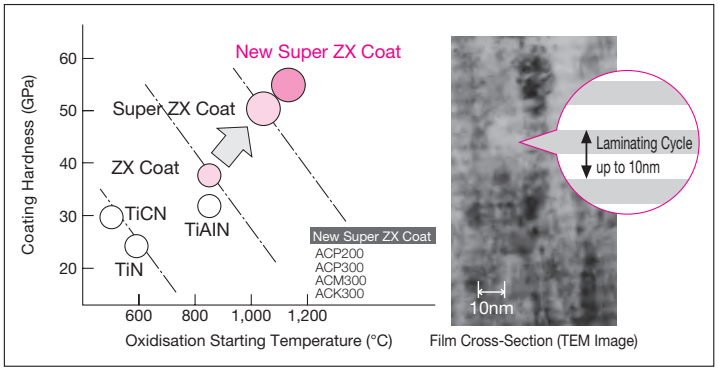


P New Super ZX Coat (PVD: Physical Vapor Deposition)

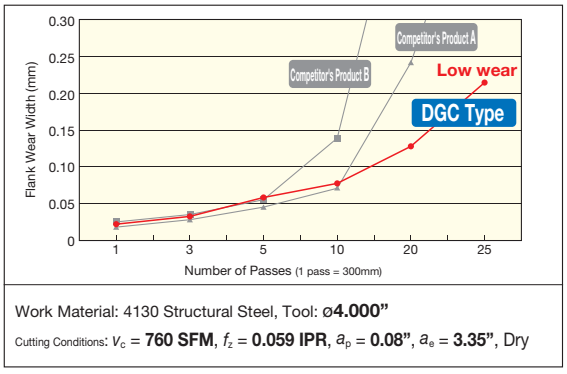
Employs our super multi-layered New Super ZX Coat, which utilizes our proprietary thin-layer coating technology and advanced nanotechnology. The coating consists of thousands of alternating, nanometer-thin (1 nanometer = 1 billionth of a meter) layers.

- ▶ Compared to conventional tools, the coating hardness has been increased by 40% and the oxidation starting temperature has been increased by 200°C.
- ▶ Enables more than 1.5 times the machining speed and efficiency of conventional tools.
- ▶ Achieves more than double the tool life of conventional tools under the same cutting conditions

Characteristics of the Coating Layer



Wear Resistance

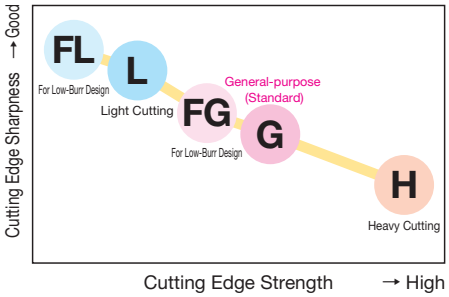


■ Chipbreaker Selection

Work Material	P M K S					N	P K
Chipbreaker	FL	L	FG	G	H	S	W
Appearance							
Cutting Edge Cross Section	30°	30°	25°	25°	25°	30°	25°
8 / 16	Not Available	30°	Not Available	23°	Not Available	Not Available	Double-Sided, 2 Corners (*)
Features	Low Resistance / With Wiper Edge	Low Resistance	Standard / With Wiper Edge	Standard	High Strength	High Rake	Wiper
Applications	Light Cutting / Burr Prevention	Light Cutting	General-purpose / Burr Prevention	General-purpose	Heavy Cutting	Non-ferrous Metal	Finishing Surface Roughness Emphasised

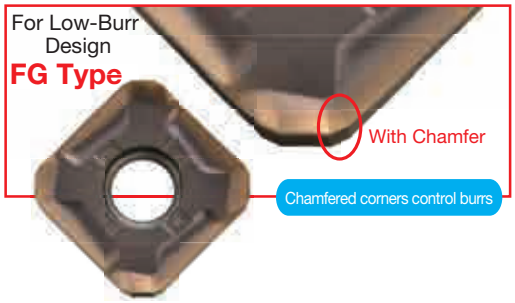
*Can only be used in conjunction with 8 corner inserts

■ Chipbreaker Selection Guide



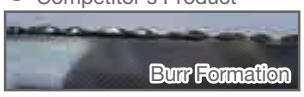
● Improved Milling Quality

· FG type chipbreakers feature a chamfered corner to minimize burrs and provide excellent milling quality.



● FG Type

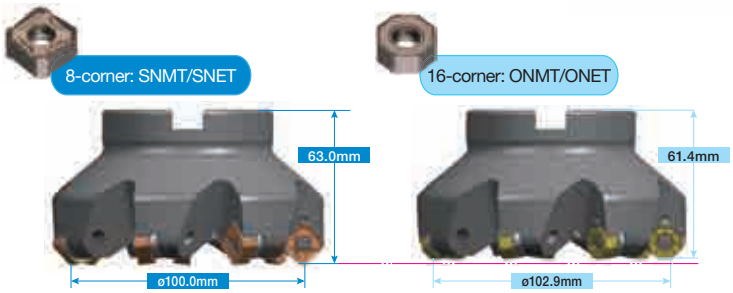
● Competitor's Product



FG type inserts with low-burr design enable high-quality milling with few burrs and minimal edge chipping

Work Material : 4135
Tool : ø100
Cutting Conditions : V_c=660 SFM, f_z =0.008 IPT
a_p=0.12in, a_e=3.35in

Cutter Diameter And Cutting Edge Height

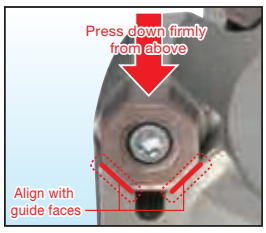


⚠ Note that while the 8-corner and 16-corner types can be used interchangeably on the same body, they have different cutter diameters, cutting edge heights and maximum cutting depths.

Body Shape (Example: With Cutter Diameter of 100mm)

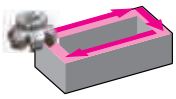
Insert	Cutter Dia. DC (mm)	Cutting Edge Height LF (mm)	Maximum Depth of Cut APMX (mm)	Maximum Depth of Cut APMX (in)
SNMT / SNET	100.0	63.0	6.0	0.236
ONMT / ONET	102.9	61.4	3.0	0.118

16-corner Mounting Method



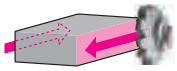
⚠ Firmly align insert with guide faces, press down in the direction of the arrow, and tighten the screw to fix the insert.

■ Application Examples



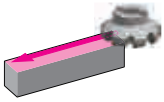
		Part/ Work Material	Machine Components / 1050
Tool	Type	DGC Type	Conventional Tool
	Body	DGC13080R (ø80)	ø80
	Insert	SNET13T6ANER-G (8 Corners)	Single-Sided Specification (4 Corners)
	Number of Teeth	6	6
	Insert Grade	ACP200	PVD Grade
Cutting Conditions	Cutting Speed (SFM)	525	525
	Feed Rate per Tooth (IPT)	0.012	0.012
	Feed Rate (IPM)	47	47
	Axial Depth of Cut (in)	0.12	0.12
	Number of Workpieces (pcs/corner)	2	2
	Dry/Wet	Wet	Wet

Can be used under the same conditions as the single-sided inserts. Improves tool economy by doubling the number of cutting edges.



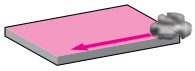
		Part/ Work Material	Machine Components / 1050
Tool	Type	DGC Type	Conventional Tool
	Body	DGC13160R (ø160)	ø160
	Insert	SNET13T6ANER-G (8 Corners)	Single-Sided Specification (8 Corners)
	Number of Teeth	10	10
	Insert Grade	ACP200	PVD Grade
Cutting Conditions	Cutting Speed (SFM)	440	440
	Feed Rate per Tooth (IPT)	0.005	0.005
	Feed Rate (IPM)	14	14
	Axial Depth of Cut (in)	0.1	0.1
	Cutting Time	287 min	287 min
	Dry/Wet	Dry	Dry

Reduces burrs and achieves higher milling quality compared to conventional tools



		Part/ Work Material	Machine Components / 1050
Tool	Type	DGC Type	Conventional Tool
	Body	DGC13125R (ø100)	ø125
	Insert	SNET13T6ANER-G (16 Corners)	Single-Sided Specification (8 Corners)
	Number of Teeth	8	8
	Insert Grade	ACM300	PVD Grade
Cutting Conditions	Cutting Speed (SFM)	525	525
	Feed Rate per Tooth (IPT)	0.01	0.01
	Feed Rate (IPM)	37	37
	Axial Depth of Cut (in)	0.1	0.1
	Cutting Time	-	-
	Dry/Wet	Dry	Dry

Reduces tool cost by doubling the number of cutting edges



		Part/ Work Material	Machine Components / 1050
Tool	Type	DGC Type	Conventional Tool
	Body	DGC13100R (ø100)	ø100
	Insert	SNET13T6ANER-G (8 Corners)	Single-Sided Specification (4 Corners)
	Number of Teeth	5	5
	Insert Grade	ACM300	PVD Grade
Cutting Conditions	Cutting Speed (SFM)	492	492
	Feed Rate per Tooth (IPT)	0.006	0.006
	Feed Rate (IPM)	14	14
	Axial Depth of Cut (in)	0.08	0.08
	Cutting Time	-	-
	Dry/Wet	Wet	Wet

Doubles the number of cutting edges and provides over 3 times longer tool life per corner compared to conventional tools.

Recommended Cutting Conditions (SNMT/SNET)

ISO	Material	Hardness	Cutting Speed Vc (SFM) Min. - Max.	Feed Rate fz (IPT) Min. - Max.	Depth of Cut ap (inch)	Insert Grade
P	General Steel	180 to 280 HB	490 - 820	.0039 - .016	< .12	ACU2500 ACP200 ACP300
	Mild Steel	≤ 180HB	590 - 1150	.0039 - .018	< .12	
	Die Steel	200 to 220 HB	490 - 660	.0059 - .014	< .12	
M	Stainless Steel	—	160 - 820	.0059 - .012	< .12	ACU2500 ACM300
K	Cast Iron	250HB	490 - 820	.0039 - .016	< .12	ACU2500 ACK200 ACK300
N	Non-Ferrous Metals	—	1640 - 3300	.0059 - .014	< .12	DL1000
S	Titanium	—	100 - 250	.003 - .0075	< .12	ACU2500 ACM300
	Exotic Alloy	—	100 - 250	.003 - .012	< .12	
		250 to 350 HB	60 - 135	.003 - .008	< .12	ACU2500 ACK300

Recommended Cutting Conditions (SNMT/SNET)

ISO	Material	Hardness	Cutting Speed Vc (SFM) Min. - Max.	Feed Rate fz (IPT) Min. - Max.	Depth of Cut ap (inch)	Insert Grade
P	General Steel	180 to 280 HB	490 - 820	.0039 - .016	< .078	ACU2500 ACP200 ACP300
	Mild Steel	≤ 180HB	590 - 1150	.0039 - .018	< .078	
	Die Steel	200 to 220 HB	490 - 660	.0059 - .014	< .078	
M	Stainless Steel	—	160 - 820	.0059 - .012	< .078	ACU2500 ACM300
K	Cast Iron	250HB	490 - 820	.0039 - .016	< .078	ACU2500 ACK200 ACK300
S	Titanium	—	100 - 250	.003 - .0075	< .078	ACU2500 ACM300
	Exotic Alloy	—	100 - 250	.003 - .012	< .078	
		250 to 350 HB	60 - 135	.003 - .008	< .078	ACU2500 ACK300

Recommended Cutting Conditions (SNMT/SNET)

ISO	Material	Hardness	Cutting Speed vc (m/min) Min. - **Optimum** - Max.	Feed Rate fz (mm/t) Min. - **Optimum** - Max.	Depth of Cut ap (mm)	Insert Grade
P	General Steel	180 to 280 HB	150-**200**-250	0.10-**0.25**-0.40	< 4	ACU2500 ACP200 ACP300
	Mild Steel	≤ 180HB	180-**250**-350	0.10-**0.30**-0.45	< 4	
	Die Steel	200 to 220 HB	100-**150**-200	0.15-**0.25**-0.35	< 4	
M	Stainless Steel	—	160-**200**-250	0.15-**0.23**-0.30	< 3	ACU2500 ACM300
K	Cast Iron	250HB	100-**200**-250	0.10-**0.25**-0.40	< 5	ACU2500 ACK200 ACK300
N	Non-Ferrous Metals	—	500-**750**-1,000	0.15-**0.23**-0.30	< 3	DL1000
S	Exotic Alloy	—	30- **50** -80	0.10-**0.20**-0.30	< 3	ACU2500 ACM200 ACM300

Recommended Cutting Conditions (ONMT/ONET)

ISO	Material	Hardness	Cutting Speed vc (m/min) Min. - **Optimum** - Max.	Feed Rate fz (mm/t) Min. - **Optimum** - Max.	Depth of Cut ap (mm)	Insert Grade
P	General Steel	180 to 280 HB	150-**200**-250	0.10-**0.30**-0.50	< 2	ACU2500 ACP200 ACP300
	Mild Steel	≤ 180HB	180-**250**-350	0.10-**0.50**-0.50	< 2	
	Die Steel	200 to 220 HB	100-**150**-200	0.15-**0.25**-0.30	< 2	
M	Stainless Steel	—	160-**200**-250	0.15-**0.23**-0.30	< 2	ACU2500 ACM300
K	Cast Iron	250HB	100-**200**-250	0.10-**0.30**-0.50	< 2	ACU2500 ACK200 ACK300
S	Exotic Alloy	—	30- **50** -80	0.10-**0.20**-0.30	< 2	ACU2500 ACM200 ACM300

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

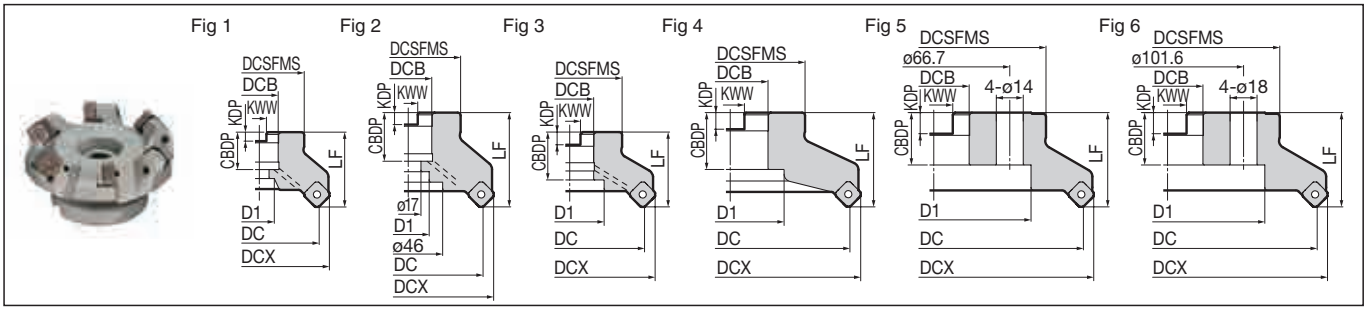
DGC Shellmill Inch

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-10°
	Axial	-5°

.236" 45° (SNMT / SNET)

.118" 45° (ONMT / ONET)



Body (Standard Type)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Number of Teeth	Weight (lbs)	Fig
Inch	DGC42000R	●	2.000 (2.114)	2.567	1.500	1.750 (1.689)	0.750	0.312	0.190	0.750	0.609	3	0.904	1
	DGC42500R	●	2.500 (2.614)	3.067	1.750	1.750 (1.689)	1.000	0.375	0.220	0.750	0.797	4	1.279	1
	DGC43000R	●	3.000 (3.114)	3.567	2.250	1.750 (1.689)	1.000	0.375	0.220	0.750	0.787	4	1.918	1
	DGC44000R	●	4.000 (4.114)	4.567	2.870	2.000 (1.939)	1.250	0.500	0.280	0.750	1.000	5	3.968	1
	DGC44000R-1.50	●	4.000 (4.114)	4.000	3.750	2.500 (2.439)	1.500	0.625	0.380	1.000	2.000	5	5.688	3
	DGC45000R	●	5.000 (5.114)	5.567	3.750	2.500 (2.439)	1.500	0.625	0.380	1.000	2.000	6	7.893	1
	DGC46000R	●	6.000 (6.114)	6.567	4.380	2.500 (2.439)	1.500	0.625	0.380	1.060	2.000	7	11.530	5
	DGC48000R	●	8.000 (8.114)	8.567	5.906	2.500 (2.439)	2.500	1.000	0.560	1.594	5.118	8	15.895	6
	DGC410000R	●	10.000 (10.114)	10.567	7.480	2.500 (2.439)	2.500	1.000	0.531	1.575	6.299	10	29.189	6

( ) indicates value for ONMT / ONET inserts.

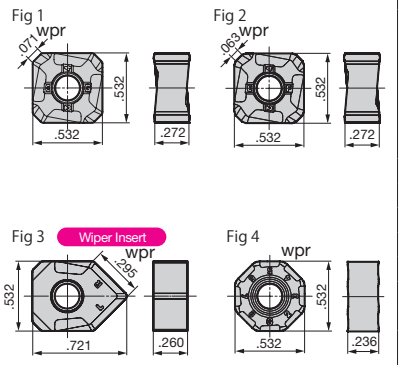
● USA stocked item

Inserts are sold separately. * Sizes ø6.000" and above do not have coolant holes.

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide		DLC	Cermet		
Process	High-speed / Light		P			K		M S		K N		N	P M		
	General-purpose	K S M		P M	P M	K		M S	M S		K S	N	P		
	Roughing			P M	P M		K		M S						
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	EH520	DL1000	T4500A	Wiper Facet Length wpr	Fig
SNMT13T6ANER-L		★	●	●	●	●	●							-	1
SNMT13T6ANER-G		●	●	●	●	●	●				●		●	.071" / *1.8*	1
SNMT13T6ANER-H		●	●	●	●	●	●							-	1
SNMT13T6ANER-FL		★	●	●	●	●	●							-	2
SNMT13T6ANER-FG		●	●	●	●	●	●							.063" / *1.6*	2
SNET13T6ANER-L								●	●					-	1
SNET13T6ANER-G								●	●					.071" / *1.8*	1
SNET13T6ANER-FL								●	●					-	2
SNET13T6ANER-FG								●	●					-	2
SNET13T6ANFR-S										●		●		.063" / *1.6*	1
XNEU13T6ANEN-W		★		●			●						●	.295" / *7.5*	3
ONMT05T6ANER-L		★	●	●	●	●	●							-	4
ONMT05T6ANER-G		●	●	●	●	●	●							.059" / *1.5*	4
ONET05T6ANER-L								●	●					-	4
ONET05T6ANER-G								●	●					.059" / *1.5*	4

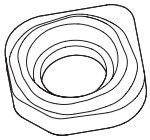


Wiper inserts can only be used in combination with 8-cornered inserts.

The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.

Refer to H2 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

● USA stocked item ★ Worldwide Warehouse item

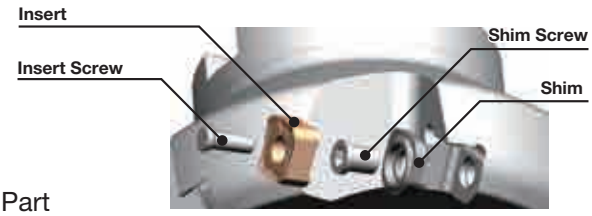


DGC Seat

Identification Code - Inch

DGC 4 2000 R

DGC	4	2000	R
Cutter Series	Insert Series	Cutter Dia. 2.000"	Feed Direction



Part

(Optional)

Shim	Shim Screw	Wrench	Insert Screw		Wrench	Anti-Seize Cream	Insert Screw (*)	
DGCS13R	BW0609F	LH040	BFTX0412IP	N·m 3.0	TRDR15IP	SUMI-P	BFTX0418IP	N·m 3.0

*Insert corners can be changed simply by loosening the screw. Only applies to ø80mm size DGC / DGCM types.

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"

N·m Recommended Tightening Torque (N·m)

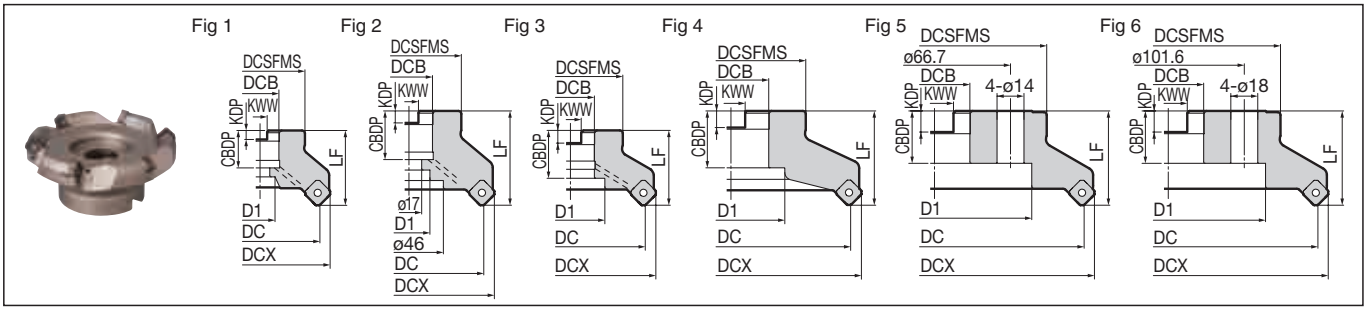
DGCM Shellmill Inch

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-10°
	Axial	-5°

.118" 45° (ONMT / ONET)

.236" 45°



Body (Fine Pitch)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Number of Teeth	Weight (kg)	Fig
Inch	**DGCM42000R**	●	2.000 (2.114)	2.567	1.500	1.750 (1.689)	0.750	0.312	0.190	0.750	0.609	4	0.794	1
	DGCM42500R	●	2.500 (2.614)	3.067	1.750	1.750 (1.689)	1.000	0.375	0.220	0.750	0.797	5	1.257	1
	DGCM43000R	●	3.000 (3.114)	3.567	2.250	1.750 (1.689)	1.000	0.375	0.220	0.750	0.787	6	1.742	1
	DGCM44000R	●	4.000 (4.114)	4.567	2.870	2.000 (1.939)	1.250	0.500	0.280	0.750	1.000	7	3.682	3
	DGCM44000R-1.50	●	4.000 (4.114)	4.000	3.750	2.500 (2.439)	1.500	0.625	0.380	1.000	2.000	7	5.401	1
	DGCM45000R	●	5.000 (5.114)	5.567	3.750	2.500 (2.439)	1.500	0.625	0.380	1.000	2.000	8	7.474	5
	DGCM46000R	●	6.000 (6.114)	6.567	4.380	2.500 (2.439)	1.500	0.625	0.380	1.060	2.000	10	10.957	6
	DGCM48000R	●	8.000 (8.114)	8.567	5.906	2.500 (2.439)	2.500	1.000	0.560	1.594	5.118	12	15.432	6

( ) indicates value for ONMT / ONET inserts.
Inserts are sold separately. * Sizes ø6.000" and above do not have coolant holes.

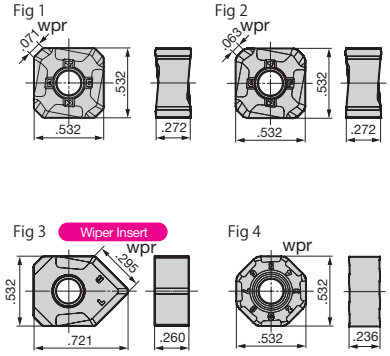
● USA stocked item

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide		DLC	Cermet
Process	High-speed / Light		P			K		M S		K N		N	P M
	General-purpose	K S M		P M	P M	K		M S	M S		K S	N	P
	Roughing			P M	P M		K		M S				
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	EH520	DL1000	T4500A
SNMT13T6ANER-L		★	●	●	●	●	●						
SNMT13T6ANER-G		●	●	●	●	●	●				●		●
SNMT13T6ANER-H		●	●	●	●	●	●						
SNMT13T6ANER-FL		★	●	●	●	●	●						
SNMT13T6ANER-FG		●	●	●	●	●	●						
SNET13T6ANER-L								●	●				
SNET13T6ANER-G								●	●				
SNET13T6ANER-FL								●	●				
SNET13T6ANER-FG								●	●				
SNET13T6ANFR-S										●		●	
XNEU13T6ANEN-W		★		●			●						●
ONM 05T6ANER-L		★	●	●	●	●	●						
ONMT05T6ANER-G		●	●	●	●	●	●						
ONET05T6ANER-L								●	●				
ONET05T6ANER-G								●	●				

Cat. No.	Wiper Facet Length wpr	Fig
SNMT13T6ANER-L	-	1
SNMT13T6ANER-G	.071" / *1.8*	1
SNMT13T6ANER-H	-	1
SNMT13T6ANER-FL	-	2
SNMT13T6ANER-FG	.063" / *1.6*	2
SNET13T6ANER-L	-	1
SNET13T6ANER-G	.071" / *1.8*	1
SNET13T6ANER-FL	-	2
SNET13T6ANER-FG	-	2
SNET13T6ANFR-S	.063" / *1.6*	1
XNEU13T6ANEN-W	.295" / *7.5*	3
ONM 05T6ANER-L	-	4
ONMT05T6ANER-G	.059" / *1.5*	4
ONET05T6ANER-L	-	4
ONET05T6ANER-G	.059" / *1.5*	4



Wiper inserts can only be used in combination with 8-cornered inserts.

The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.
Refer to H2 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

● USA stocked item ★ Worldwide Warehouse item

Identification Code

DGC M 4 2000 R

DGC	M	4	2000	R
Cutter Series	Fine Pitch	Insert Series	Cutter Dia 2.000".	Feed Direction

Part

(Optional)

Shim	Shim Screw	Wrench	Insert Screw		Wrench	Anti-Seize Cream	Insert Screw (*)	
DGCS13R	BW0609F	LH040	BFTX0412IP	N·m 3.0	TRDR15IP	SUMI-P	BFTX0418IP	N·m 3.0

*Insert corners can be changed simply by loosening the screw. Only applies to ø80mm size DGC / DGCM types.

N·m Recommended Tightening Torque (N·m)

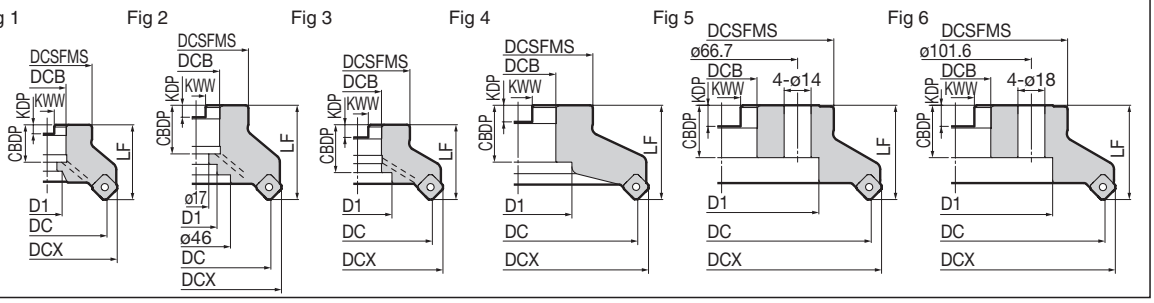
DGCF Shellmill Inch

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-10°
	Axial	-5°

.236" 45° (SNMT / SNET)

.118" 45° (ONMT / ONET)



Body (Extra Fine Pitch)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Number of Teeth	Weight (lbs)	Fig
Inch	DGCF42000R	●	2.000 (2.114)	2.567	1.500	1.750 (1.689)	0.750	0.312	0.190	0.750	0.609	5	0.838	1
	DGCF42500R	●	2.500 (2.614)	3.067	1.750	1.750 (1.689)	1.000	0.375	0.220	0.750	0.797	6	1.190	1
	DGCF43000R	●	3.000 (3.114)	3.567	2.250	1.750 (1.689)	1.000	0.375	0.220	0.750	0.787	8	1.786	1
	DGCF44000R	●	4.000 (4.114)	4.567	2.870	2.000 (1.939)	1.250	0.500	0.280	0.750	1.000	10	3.836	3
	DGCF44000R-1.50	●	4.000 (4.114)	4.000	3.750	2.500 (2.439)	1.500	0.625	0.380	1.000	2.000	10	5.534	1
	DGCF45000R	●	5.000 (5.114)	5.567	3.750	2.500 (2.439)	1.500	0.625	0.380	1.000	2.000	12	7.804	5
	DGCF46000R	●	6.000 (6.114)	6.567	4.380	2.500 (2.439)	1.500	0.625	0.380	1.060	2.000	14	11.310	6
	DGCF48000R	●	8.000 (8.114)	8.567	5.906	2.500 (2.439)	2.500	1.000	0.560	1.594	5.118	16	15.653	6

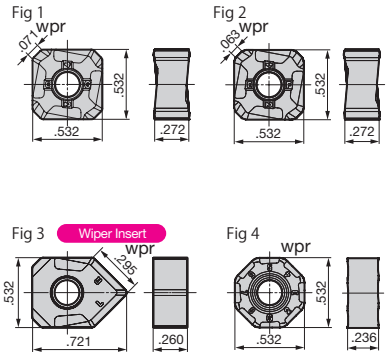
( ) indicates value for ONMT / ONET inserts.
Inserts are sold separately. * Sizes ø6.000" and above do not have coolant holes.

● USA stocked item

Insert

Dimensions (inch "/ *mm*)

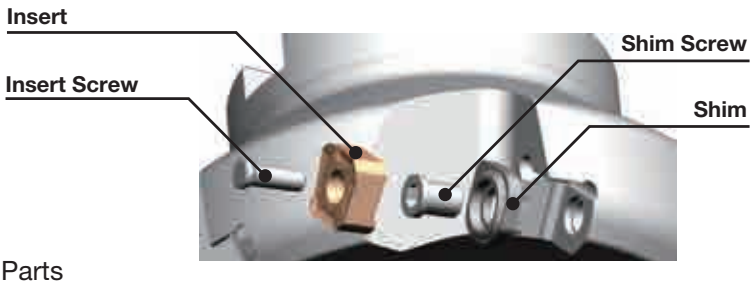
Grade		Coated Carbide								Carbide		DLC	Cermet		
Process	High-speed / Light		P			K		M S		K N		N	P M		
	General-purpose	K N S M		P M	P M	K		M S	M S		K S	N	P		
	Roughing			P M	P M		K	M S	M S						
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	EH520	DL1000	T4500A	Wiper Facet Length wpr	Fig
SNMT13T6ANER-L		★	●	●	●	●	●							-	1
SNMT13T6ANER-G		●	●	●	●	●	●				●		●	.071" / *1.8*	1
SNMT13T6ANER-H		●	●	●	●	●	●							-	1
SNMT13T6ANER-FL		★	●	●	●	●	●							-	2
SNMT13T6ANER-FG		●	●	●	●	●	●							.063" / *1.6*	2
SNET13T6ANER-L								●	●					-	1
SNET13T6ANER-G								●	●					.071" / *1.8*	1
SNET13T6ANER-FL								●	●					-	2
SNET13T6ANER-FG								●	●					-	2
SNET13T6ANFR-S										●		●		.063" / *1.6*	1
XNEU13T6ANEN-W		★		●			●						●	.295" / *7.5*	3
ONM 05T6ANER-L		★	●	●	●	●	●							-	4
ONMT05T6ANER-G		●	●	●	●	●	●							.059" / *1.5*	4
ONET05T6ANER-L								●	●					-	4
ONET05T6ANER-G								●	●					.059" / *1.5*	4



Wiper inserts can only be used in combination with 8-cornered inserts.

The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.
Refer to H2 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

● USA stocked item ★Worldwide Warehouse item



Identification Code - Inch

DGC	F	4	2000	R
Cutter Series	Extra Fine Pitch	Insert Series	Cutter Dia. 2.000"	Feed Direction

Parts

Shim	Shim Screw	Wrench	Insert Screw		Wrench	Anti-Seize Cream
DGCS13R	BW0609F	LH040	BFTX0412IP	N·m 3.0	TRDR15IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

DGC Endmill Inch

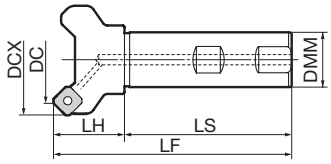
P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-10°
	Axial	-5°

.236" 45° (SNMT / SNET)

.118" 45° (ONMT / ONET)

Fig 1



Body (Shank Type)

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs)	Fig
DGC42000EW	●	2.000	2.567	1.250	1.591	2.379	3.970	4	1.54	1
DGC42500EW	●	2.500	2.567	1.250	1.591	2.379	3.970	5	2.43	1

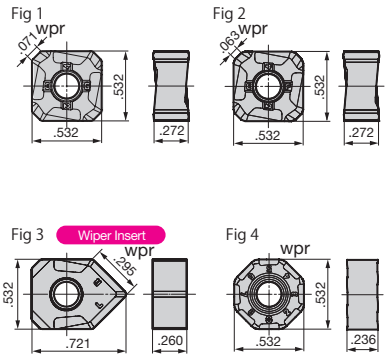
( ) indicates value for ONMT / ONET inserts.
Inserts are sold separately.

● USA stocked item

Insert

Dimensions (inch "/ *mm*)

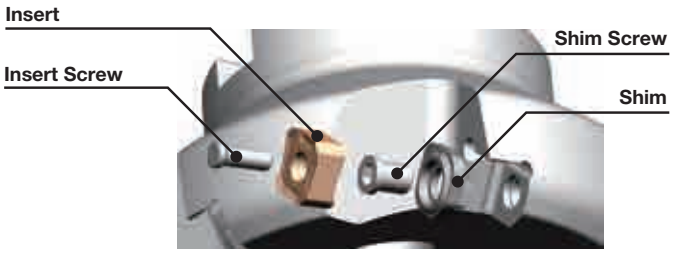
Grade		Coated Carbide								Carbide		DLC	Cermet		
Process	High-speed / Light		P			K		M S		K N		N	P M		
	General-purpose	P K S		P M	P M	K		M S	M S		K S	N	P		
	Roughing			P M	P M		K		M S						
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	EH520	DL1000	T4500A	Wiper Facet Length wpr	Fig
SNMT13T6ANER-L		★	●	●	●	●	●							-	1
SNMT13T6ANER-G		●	●	●	●	●	●				●		●	.071" / *1.8*	1
SNMT13T6ANER-H		●	●	●	●	●	●							-	1
SNMT13T6ANER-FL		★	●	●	●	●	●							-	2
SNMT13T6ANER-FG		●	●	●	●	●	●							.063" / *1.6*	2
SNET13T6ANER-L								●	●					-	1
SNET13T6ANER-G								●	●					.071" / *1.8*	1
SNET13T6ANER-FL								●	●					-	2
SNET13T6ANER-FG								●	●					-	2
SNET13T6ANFR-S										●		●		.063" / *1.6*	1
XNEU13T6ANEN-W		★		●			●						●	.295" / *7.5*	3
ONM 05T6ANER-L		★	●	●	●	●	●							-	4
ONMT05T6ANER-G		●	●	●	●	●	●							.059" / *1.5*	4
ONET05T6ANER-L								●	●					-	4
ONET05T6ANER-G								●	●					.059" / *1.5*	4



Wiper inserts can only be used in combination with 8-cornered inserts.

The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.
Refer to H2 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

● USA stocked item ★Worldwide Warehouse item



Identification Code - Inch

DGC 4 2000 EW

Cutter Series	Insert Series	Cutter Dia. 2.000"	Endmill Type

Parts

Shim	Shim Screw	Wrench	Insert Screw		Wrench	Anti-Seize Cream
DGCS13R	BW0609F	LH040	BFTX0412IP	3.0	TRDR15IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

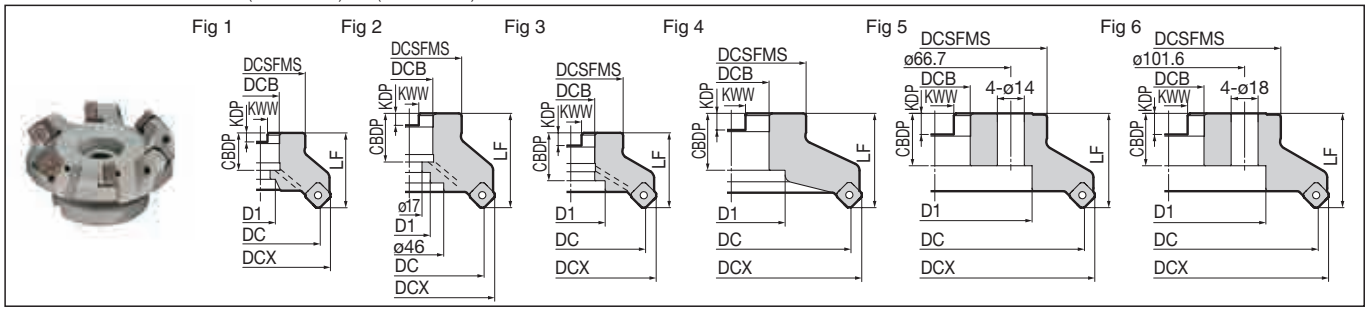
DGC Shellmill Metric

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-10°
	Axial	-5°

6mm 45° (SNMT / SNET)

3mm 45° (ONMT / ONET)



Body (Standard Shellmill)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Number of Teeth	Weight (kg)	Fig
Metric	**DGC13040RS**	★	*40(42.9)*	*54*	*36*	*40(38.44)*	*16*	*8.4*	*5.6*	*18*	*13.5*	3	*0.3*	1
	DGC13050RS	★	*50(52.9)*	*64*	*40*	*40(38.44)*	*22*	*10.4*	*6.3*	*20*	*18*	3	*0.4*	1
	DGC13063RS	★	*63(65.9)*	*77*	*50*	*40(38.44)*	*22*	*10.4*	*6.3*	*20*	*18*	4	*0.5*	1
	DGC13080RS	★	**80(82.9)*	*94*	*60*	*50(48.44)*	*27*	*12.4*	*7*	*25*	*20*	4	*1.2*	1
	DGC13100RS	★	*100(102.9)*	*114*	*70*	*50(48.44)*	*32*	*14.4*	*8.5*	*32*	*46*	5	*1.6*	3
	DGC13125RS	★	*125(127.9)*	*139*	*80*	*63(61.44)*	*40*	*16.4*	*9.5*	*29*	*52*	6	*2.8*	1
	DGC13160RS	★	*160(162.9)*	*174*	*130*	*63(61.44)*	*40*	*16.4*	*9.5*	*29*	*88*	7	*4.5*	5
	DGC13200RS	★	*200(202.9)*	*214*	*150*	*63(61.44)*	*60*	*25.7*	*14*	*35*	*130*	8	*7.1*	6
	DGC13250RS	★	*250(252.9)*	*264*	*190*	*63(61.44)*	*60*	*25.7*	*14*	*35*	*160*	10	*11.2*	6
	DGC13080R	★	**80(82.9)*	*94*	*60*	*50(48.44)*	*25.4*	*9.5*	*6*	*25*	*20*	4	*1.2*	1
	DGC13100R	★	**100(102.9)*	*114*	*70*	*63(61.44)*	*31.75*	*12.7*	*8*	*32.5*	*28*	5	*2.2*	2
	DGC13125R	★	*125(127.9)*	*139*	*80*	*63(61.44)*	*38.1*	*15.9*	*10*	*35.5*	*55*	6	*2.8*	1
	DGC13160R	★	*160(162.9)*	*174*	*100*	*63(61.44)*	*50.8*	*19.1*	*11*	*38*	*72*	7	*4.5*	4
	DGC13200R	★	*200(202.9)*	*214*	*150*	*63(61.44)*	*47.625*	*25.4*	*14*	*35*	*130*	8	*7.1*	6
	DGC13250R	★	*250(252.9)*	*264*	*190*	*63(61.44)*	*47.625*	*25.4*	*14*	*35*	*150*	10	*11.2*	6

( ) indicates value for ONMT / ONET inserts.

★ Worldwide Warehouse item

Inserts are sold separately. * Sizes ø160 mm and above do not have coolant holes.

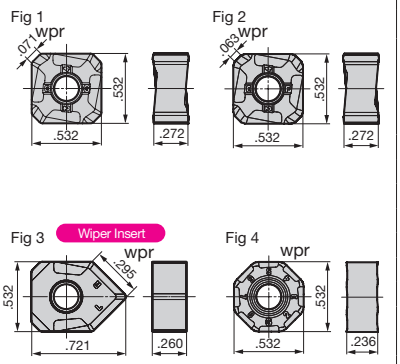
For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide		DLC	Cermet
Process	High-speed / Light		P			K		M S		K N		N	P M
	General-purpose	K M S		P M	P M	K		M S	M S		K S	N	P
	Roughing			P M	P M		K		M S				
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	EH520	DL1000	T4500A

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	EH520	DL1000	T4500A	Wiper Facet Length wpr	Fig
SNMT13T6ANER-L	★	●	●	●	●	●							-	1
SNMT13T6ANER-G	●	●	●	●	●	●				●		●	.071" / *1.8*	1
SNMT13T6ANER-H	●	●	●	●	●	●							-	1
SNMT13T6ANER-FL	★	●	●	●	●	●							-	2
SNMT13T6ANER-FG	●	●	●	●	●	●							.063" / *1.6*	2
SNET13T6ANER-L							●	●					-	1
SNET13T6ANER-G							●	●					.071" / *1.8*	1
SNET13T6ANER-FL							●	●					-	2
SNET13T6ANER-FG							●	●					-	2
SNET13T6ANFR-S									●		●		.063" / *1.6*	1
XNEU13T6ANEN-W	★		●			●						●	.295" / *7.5*	3
ONM 05T6ANER-L	★	●	●	●	●	●							-	4
ONMT05T6ANER-G	●	●	●	●	●	●							.059" / *1.5*	4
ONET05T6ANER-L							●	●					-	4
ONET05T6ANER-G							●	●					.059" / *1.5*	4

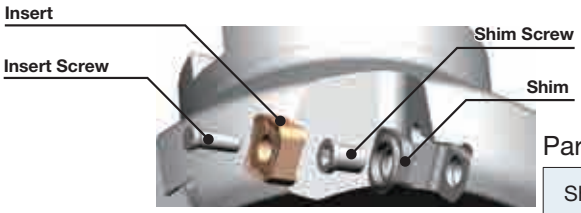


Wiper inserts can only be used in combination with 8-cornered inserts.

The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.

Refer to H2 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

● USA stocked item ★ Worldwide Warehouse item



Identification Code - Metric

DGC	13	040	R	S
Cutter Series	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

Part

(Optional)

Shim	Shim Screw	Wrench	Insert Screw		Wrench	Anti-Seize Cream	Insert Screw (*)	
DGCS13R	BW0609F	LH040	BFTX0412IP	N·m 3.0	TRDR15IP	SUMI-P	BFTX0418IP	N·m 3.0

N·m Recommended Tightening Torque (N·m)

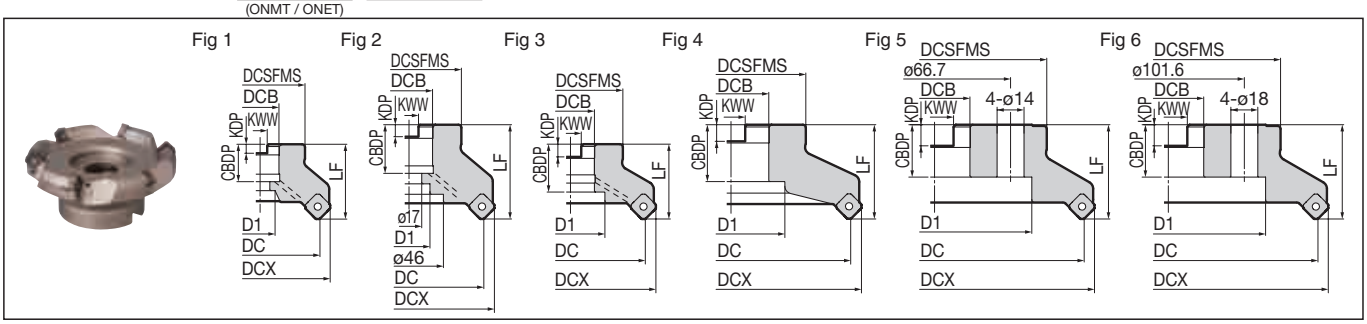
*Insert corners can be changed simply by loosening the screw. Only applies to ø80mm size DGC / DGCM.

DGCM Shellmill Metric

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-10°
	Axial	-5°

3mm 45° (ONMT / ONET) | 6mm 45°



Body (Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Number of Teeth	Weight (kg)	Fig
Metric	**DGCM13050RS**	★	*50(52.9)*	*64*	*40*	*40(38.44)*	*22*	*10.4*	*6.3*	*20*	*18*	4	*0.3*	1
	DGCM13063RS	★	*63(65.9)*	*77*	*50*	*40(38.44)*	*22*	*10.4*	*6.3*	*20*	*18*	5	*0.5*	1
	DGCM13080RS	★	**80(82.9)*	*94*	*60*	*50(48.44)*	*27*	*12.4*	*7*	*25*	*20*	6	*1.1*	1
	DGCM13100RS	★	*100(102.9)*	*114*	*70*	*50(48.44)*	*32*	*14.4*	*8.5*	*32*	*46*	7	*1.5*	3
	DGCM13125RS	★	*125(127.9)*	*139*	*80*	*63(61.44)*	*40*	*16.4*	*9.5*	*29*	*52*	8	*2.8*	1
	DGCM13160RS	★	*160(162.9)*	*174*	*130*	*63(61.44)*	*40*	*16.4*	*9.5*	*29*	*88*	10	*4.6*	5
	DGCM13200RS	★	*200(202.9)*	*214*	*150*	*63(61.44)*	*60*	*25.7*	*14*	*35*	*130*	12	*7*	6
	DGCM13250RS	★	*250(252.9)*	*264*	*190*	*63(61.44)*	*60*	*25.7*	*14*	*35*	*160*	14	*11.1*	6
	DGCM13080R	★	**80(82.9)*	*94*	*60*	*50(48.44)*	*25.4*	*9.5*	*6*	*25*	*20*	6	*1.1*	1
	DGCM13100R	★	**100(102.9)*	*114*	*70*	*63(61.44)*	*31.75*	*12.7*	*8*	*32.5*	*28*	7	*2.2*	2
	DGCM13125R	★	*125(127.9)*	*139*	*80*	*63(61.44)*	*38.1*	*15.9*	*10*	*35.5*	*55*	8	*2.8*	1
	DGCM13160R	★	*160(162.9)*	*174*	*100*	*63(61.44)*	*50.8*	*19.1*	*11*	*38*	*72*	10	*4.6*	4
	DGCM13200R	★	*200(202.9)*	*214*	*150*	*63(61.44)*	*47.625*	*25.4*	*14*	*35*	*130*	12	*7*	6
	DGCM13250R	★	*250(252.9)*	*264*	*190*	*63(61.44)*	*47.625*	*25.4*	*14*	*35*	*150*	14	*11.1*	6

( ) indicates value for ONMT / ONET inserts. Inserts are sold separately. * Sizes ø160 mm and above do not have coolant holes.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

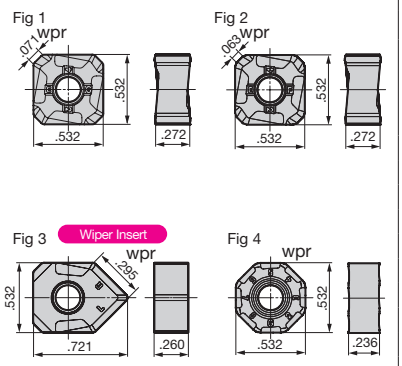
★ Worldwide Warehouse item

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide		DLC	Cermet
Process	High-speed / Light		P			K		M S		K N		N	P M
	General-purpose	P M S		P M	P M	K		M S	M S		K S	N	P
	Roughing			P M	P M		K		M S				
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	EH520	DL1000	T4500A
SNMT13T6ANER-L		★	●	●	●	●	●						
SNMT13T6ANER-G		●	●	●	●	●	●				●		●
SNMT13T6ANER-H		●	●	●	●	●	●						
SNMT13T6ANER-FL		★	●	●	●	●	●						
SNMT13T6ANER-FG		●	●	●	●	●	●						
SNET13T6ANER-L								●	●				
SNET13T6ANER-G								●	●				
SNET13T6ANER-FL								●	●				
SNET13T6ANER-FG								●	●				
SNET13T6ANFR-S										●		●	
XNEU13T6ANEN-W		★		●			●						●
ONM 05T6ANER-L		★	●	●	●	●	●						
ONMT05T6ANER-G		●	●	●	●	●	●						
ONET05T6ANER-L								●	●				
ONET05T6ANER-G								●	●				

Cat. No.	Wiper Facet Length wpr	Fig
SNMT13T6ANER-L	-	1
SNMT13T6ANER-G	.071" / *1.8*	1
SNMT13T6ANER-H	-	1
SNMT13T6ANER-FL	-	2
SNMT13T6ANER-FG	.063" / *1.6*	2
SNET13T6ANER-L	-	1
SNET13T6ANER-G	.071" / *1.8*	1
SNET13T6ANER-FL	-	2
SNET13T6ANER-FG	-	2
SNET13T6ANFR-S	.063" / *1.6*	1
XNEU13T6ANEN-W	.295" / *7.5*	3
ONM 05T6ANER-L	-	4
ONMT05T6ANER-G	.059" / *1.5*	4
ONET05T6ANER-L	-	4
ONET05T6ANER-G	.059" / *1.5*	4



Wiper inserts can only be used in combination with 8-cornered inserts.

The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.
Refer to H2 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

● USA stocked item ★ Worldwide Warehouse item

Identification Code - Metric

DGC	M	13	050	R	S
Cutter Series	Fine Pitch	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

Part (Optional)

Shim	Shim Screw	Wrench	Insert Screw		Wrench	Anti-Seize Cream	Insert Screw (*)	
DGCS13R	BW0609F	LH040	BFTX0412IP	N·m 3.0	TRDR15IP	SUMI-P	BFTX0418IP	N·m 3.0

*Insert corners can be changed simply by loosening the screw. Only applies to ø80mm size DGC / DGCM.

N·m Recommended Tightening Torque (N·m)

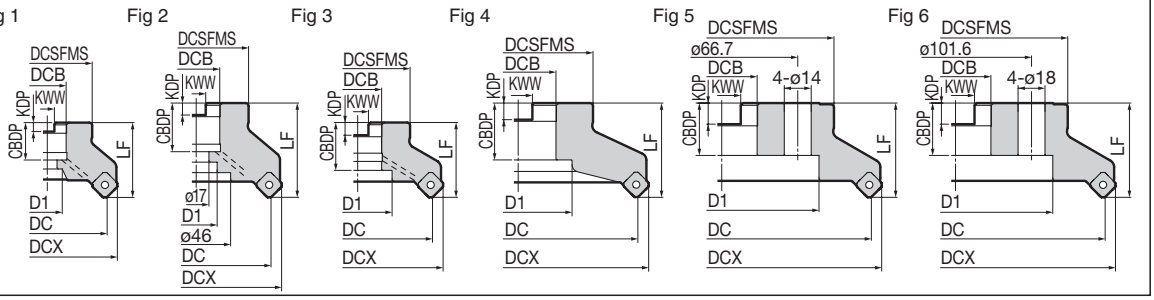
DGCF Shellmill Inch

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-10°
	Axial	-5°

6mm 45° (SNMT / SNET)

3mm 45° (ONMT / ONET)



Body (Extra Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Number of Teeth	Weight (kg)	Fig
Metric	**DGCF13050RS**	●	*50(52.9)*	*64*	*40*	*40(38.44)*	*22*	*10.4*	*6.3*	*20*	*18*	5	*0.3*	1
	DGCF13063RS	●	*63(65.9)*	*77*	*50*	*40(38.44)*	*22*	*10.4*	*6.3*	*20*	*18*	6	*0.5*	1
	DGCF13080RS	●	**80(82.9)*	*94*	*60*	*50(48.44)*	*27*	*12.4*	*7*	*25*	*20*	8	*1.1*	1
	DGCF13100RS	●	*100(102.9)*	*114*	*70*	*50(48.44)*	*32*	*14.4*	*8.5*	*32*	*46*	10	*1.4*	3
	DGCF13125RS	●	*125(127.9)*	*139*	*80*	*63(61.44)*	*40*	*16.4*	*9.5*	*29*	*52*	12	*2.7*	1
	DGCF13160RS	●	*160(162.9)*	*174*	*130*	*63(61.44)*	*40*	*16.4*	*9.5*	*29*	*88*	14	*4.4*	5
	DGCF13200RS	●	*200(202.9)*	*214*	*150*	*63(61.44)*	*60*	*25.7*	*14*	*35*	*130*	16	*6.9*	6
	DGCF13250RS	●	*250(252.9)*	*264*	*190*	*63(61.44)*	*60*	*25.7*	*14*	*35*	*160*	18	*11*	6
	DGCF13080R	●	**80(82.9)*	*94*	*60*	*50(48.44)*	*25.4*	*9.5*	*6*	*25*	*20*	8	*1.1*	1
	DGCF13100R	●	**100(102.9)*	*114*	*70*	*63(61.44)*	*31.75*	*12.7*	*8*	*32.5*	*28*	10	*2.1*	2
	DGCF13125R	●	*125(127.9)*	*139*	*80*	*63(61.44)*	*38.1*	*15.9*	*10*	*35.5*	*55*	12	*2.7*	1
	DGCF13160R	●	*160(162.9)*	*174*	*100*	*63(61.44)*	*50.8*	*19.1*	*11*	*38*	*72*	14	*4.4*	4
	DGCF13200R	●	*200(202.9)*	*214*	*150*	*63(61.44)*	*47.625*	*25.4*	*14*	*35*	*130*	16	*6.9*	6
	DGCF13250R	●	*250(252.9)*	*264*	*190*	*63(61.44)*	*47.625*	*25.4*	*14*	*35*	*150*	18	*11*	6

( ) indicates value for ONMT / ONET inserts. Inserts are sold separately. * Sizes ø160 mm and above do not have coolant holes.

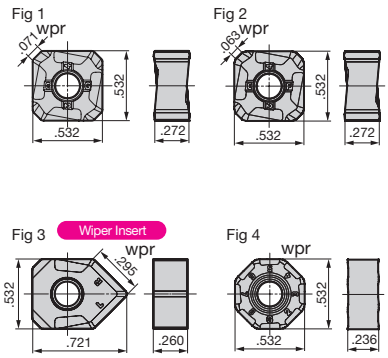
For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide		DLC	Cermet
Process	High-speed / Light		P			K		M S		K N		N	P M
	General-purpose	K N S M		P M	P M	K		M S	M S		K S	N	P
	Roughing			P M	P M		K	M S	M S				
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	EH520	DL1000	T4500A
SNMT13T6ANER-L		★	●	●	●	●	●						
SNMT13T6ANER-G		●	●	●	●	●	●				●		●
SNMT13T6ANER-H		●	●	●	●	●	●						
SNMT13T6ANER-FL		★	●	●	●	●	●						
SNMT13T6ANER-FG		●	●	●	●	●	●						
SNET13T6ANER-L								●	●				
SNET13T6ANER-G								●	●				
SNET13T6ANER-FL								●	●				
SNET13T6ANER-FG								●	●				
SNET13T6ANFR-S										●		●	
XNEU13T6ANEN-W		★		●			●						●
ONM 05T6ANER-L		★	●	●	●	●	●						
ONMT05T6ANER-G		●	●	●	●	●	●						
ONET05T6ANER-L								●	●				
ONET05T6ANER-G								●	●				

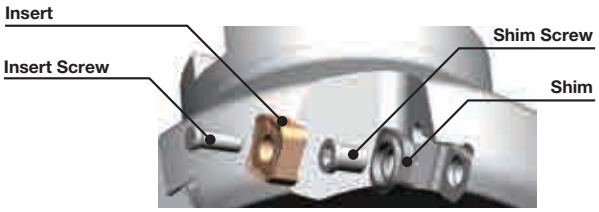
Wiper Facet Length wpr	Fig
-	1
.071" / *1.8*	1
-	1
-	2
.063" / *1.6*	2
-	1
.071" / *1.8*	1
-	2
-	2
.063" / *1.6*	1
.295" / *7.5*	3
-	4
.059" / *1.5*	4
-	4
.059" / *1.5*	4



Wiper inserts can only be used in combination with 8-cornered inserts.

The ACP100 and ACK200 may vary in color, but these variations do not affect the performance. ● USA stocked item

Refer to H2 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).



N·m Recommended Tightening Torque (N·m)

Identification Code

DGC F 13 050 R S

DGC	F	13	050	R	S
Cutter Series	Extra Fine Pitch	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

Parts

Shim	Shim Screw	Wrench	Insert Screw		Wrench	Anti-Seize Cream
DGCS13R	BW0609F	LH040	BFTX0412IP	N·m 3.0	TRDR15IP	SUMI-P

DGC Endmill Metric

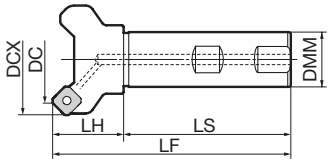
P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-10°
	Axial	-5°

6mm 45° (SNMT / SNET)

3mm 45° (ONMT / ONET)

Fig 1



Body (Shank Type)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
DGC13040EW	●	*40(42.9)*	*54*	*32*	*40(38.44)*	*85*	*125*	3	*0.7*	1
DGC13050EW	●	*50(52.9)*	*64*	*32*	*40(38.44)*	*85*	*125*	3	*0.9*	1
DGC13063EW	●	*63(65.9)*	*77*	*32*	*40(38.44)*	*85*	*125*	4	*1.1*	1

( ) indicates value for ONMT / ONET inserts.
Inserts are sold separately.

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide								Carbide		DLC	Cermet
Process	High-speed / Light		P			K		M S		K N		N	P M
	General-purpose	P M K S		P M	P M	K		M S	M S		K S	N	P
	Roughing			P M	P M		K		M S				
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	EH520	DL1000	T4500A

Cat. No.	Wiper Facet Length wpr	Fig
SNMT13T6ANER-L	-	1
SNMT13T6ANER-G	.071" / *1.8*	1
SNMT13T6ANER-H	-	1
SNMT13T6ANER-FL	-	2
SNMT13T6ANER-FG	.063" / *1.6*	2
SNET13T6ANER-L	-	1
SNET13T6ANER-G	.071" / *1.8*	1
SNET13T6ANER-FL	-	2
SNET13T6ANER-FG	-	2
SNET13T6ANFR-S	.063" / *1.6*	1
XNEU13T6ANEN-W	.295" / *7.5*	3
ONM 05T6ANER-L	-	4
ONMT05T6ANER-G	.059" / *1.5*	4
ONET05T6ANER-L	-	4
ONET05T6ANER-G	.059" / *1.5*	4

Fig 1

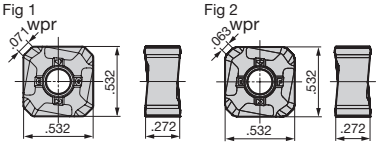


Fig 2

Fig 3

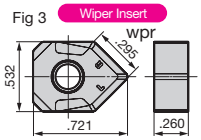
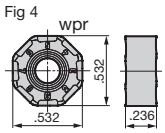


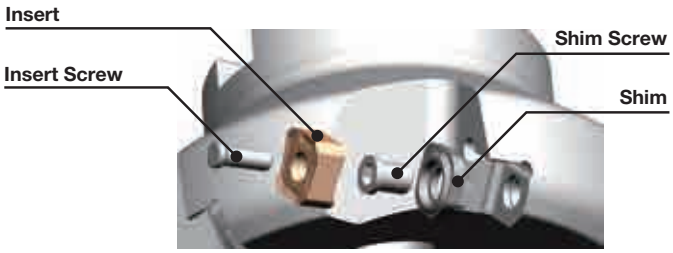
Fig 4



Wiper inserts can only be used in combination with 8-cornered inserts.

The ACP100 and ACK200 may vary in color, but these variations do not affect the performance.
Refer to H2 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

● USA stocked item



Identification Code

DGC 13 040 EW

Cutter Series | Insert Size | Cutter Dia. | Endmill Type

Parts

Shim	Shim Screw	Wrench	Insert Screw		Wrench	Anti-Seize Cream
DGCS13R	BW0609F	LH040	BFTX0412IP	3.0	TRDR15IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

DNX(F) / DNH / DNHS

High-efficiency Face Milling Cutters for Cast Iron and Cast Steel

■ Features

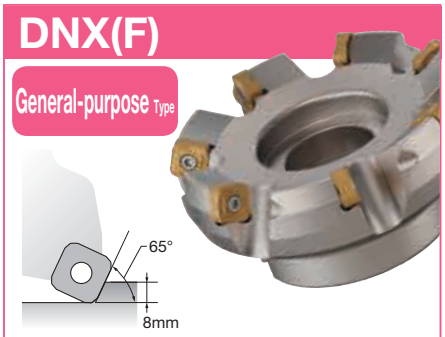
- Achieves high efficiency milling with a max. 0.31" depth of cut
- Employs negative inserts with chipbreakers that have a strong cutting edge on the double negative type body. Economical design using 8 corners
- Supports general to high-efficiency high-feed milling with three body types. Inserts can be used with all types

Negative inserts with a rake angle achieve low resistance and high feed milling

■ Product Range

DNX(F)

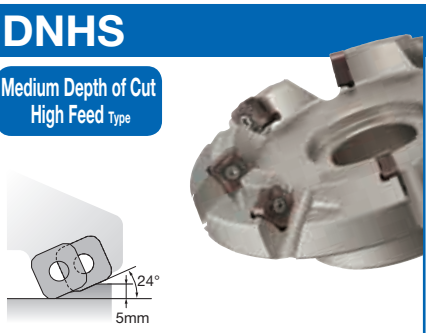
General-purpose Type



Maximum Depth of Cut		0.3"	8mm
Cutting edge angle		65°	
Cutter Dia.	DNX General-purpose type	ø3.0" to ø8.0"	ø80 to ø250mm
	DNXF General-purpose Fine-pitch Type	ø3.0" to ø8.0"	ø80 to ø160mm

DNHS

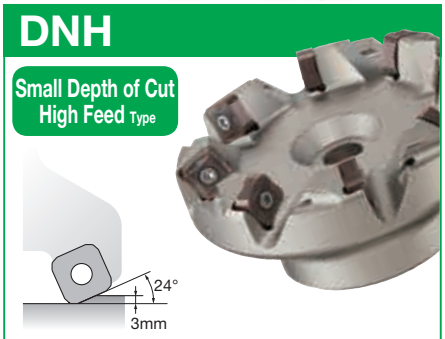
Medium Depth of Cut High Feed Type



Maximum Depth of Cut		5mm
Cutting edge angle		24°
Cutter Dia.	DNHS 12000R Medium Depth of Cut High Feed Type	ø80 to ø160mm

DNH

Small Depth of Cut High Feed Type

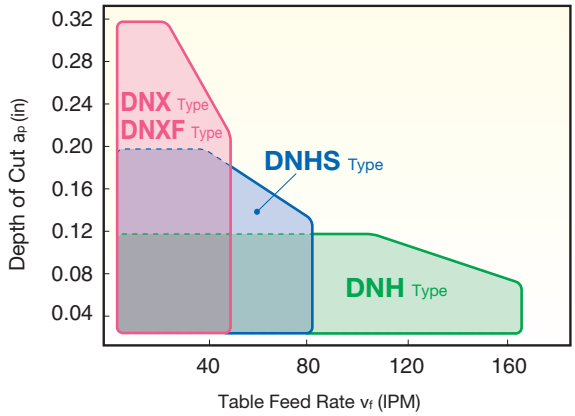


Maximum Depth of Cut		3mm
Cutting edge angle		24°
Cutter Dia.	DNH 12000R Small Depth of Cut High Feed Type	ø80 to ø160mm

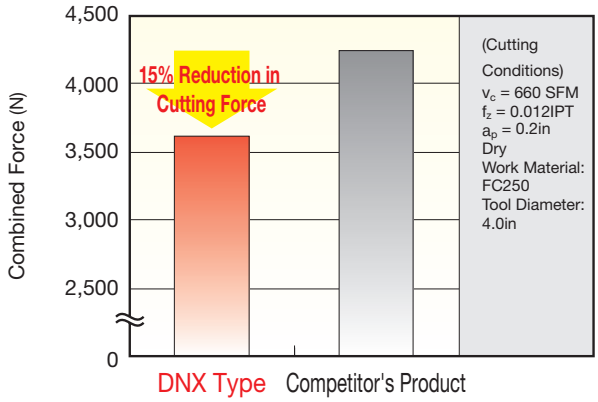
Large ← **Depth of Cut** — **Feed Rate** → Large

■ Usage Region (Cutting Cast Iron) Cut carbon steel at 20 to 30% reduction.

* The following conditions are provided as a general guide. Actual conditions will need to be adjusted according to tool overhang, machine rigidity, depth of cut and other factors.



■ Comparison of Cutting Force



■ Recommended Cutting Conditions (See page H46 for Inch Parameters)

DNX / DNXF Type

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
K	Cast Iron	250HB	150-**225**-300	0.10-**0.20**-0.30	ACK200 ACK300
	Ductile Cast Iron	250HB	150-**200**-250	0.10-**0.18**-0.25	ACK200 ACK300
P	Carbon Steel	180to 280 HB	150-**175**-200	0.10-**0.15**-0.20	ACP200
	Alloy Steel	180to 280 HB	150-**175**-200	0.10-**0.15**-0.20	ACP200

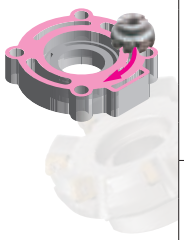
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

DNHS / DNH

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
K	Cast Iron	250HB	150-**225**-300	0.10-**0.55**-1.00	ACK200 ACK300
	Ductile Cast Iron	250HB	150-**200**-250	0.10-**0.55**-1.00	ACK200 ACK300
P	Carbon Steel	180to 280 HB	150-**175**-200	0.10-**0.45**-0.80	ACP200
	Alloy Steel	180to 280 HB	150-**175**-200	0.10-**0.35**-0.60	ACP200

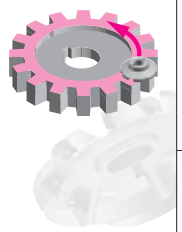
Note For DNHS Type, insert heights are alternatively placed, so the actual feed rate per tooth is double. Use with f_z = 0. 5 mm/t (actual feed rate 1.0 mm/t) as the upper limit.
The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

■ Application Examples



Part Material		Automotive Components Grey Cast Iron	
Used Equipment		Machining Center (BT30)	
Tool	Type	DNXF Type	Conventional Tool
	Body	DNXF 43000R	Cutter for C.I.
	Insert	G Type	Negative Insert
	Tool Dia. (in)	3	3
	Number of Teeth	8	8
	Insert Grade	ACK200	K Class CVD
Cutting Conditions	Cutting Speed (SFM)	656	656
	Feed Rate per Tooth (IPT)	0.0025 (v_f = 16.5 IPM)	0.0025 (v_f = 16.5 IPM)
	Axial Depth of Cut (in)	0.06	0.06
	Cutting Width (in)	2.4	2.4
	Dry/Wet	Wet	Wet

Double the tool life of conventional tools under the same conditions.



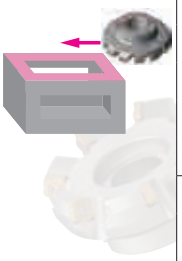
Part Material		Construction Machine Component / Cast Steel	
Used Equipment		Machining Center (BT50)	
Tool	Type	DNHS Type	Conventional Tool
	Body	DNHS 12100R	General-purpose Cutter
	Insert	H Type	Negative Insert
	Tool Dia. (mm)	100	100
	Number of Teeth	8 (4)*	7
	Insert Grade	ACP200	P Class CVD
Cutting Conditions	Cutting Speed (SFM)	560	560
	Feed Rate per Tooth (IPTt)	0.01 (v_f = 17.7 IPM)	0.003 (v_f = 11.8 IPM)
	Axial Depth of Cut (in)	0.12" to 0.16"	0.12" to 0.16"
	Cutting Width (in)	1.97	1.97
	Dry/Wet	Dry	Dry

Enables 1.5 times the efficiency of conventional tools.

*( ) indicates effective no. of teeth

Part Material		Electrical Appliance Component Grey Cast Iron	
Used Equipment		Machining Center (BT50)	
Tool	Type	DNXF Type	Conventional Tool
	Body	DNXF 44000R	Cutter for C.I.
	Insert	H Type	Negative Insert
	Tool Dia. (in)	4	4
	Number of Teeth	10	10
	Insert Grade	ACK200	K Class CVD
Cutting Conditions	Cutting Speed (SFM)	1030	1030
	Feed Rate per Tooth (IPT)	0.006 (v_f = 60 IPM)	0.004 (v_f = 43.3 IPT)
	Axial Depth of Cut (in)	0.06	0.06
	Cutting Width (in)	3	3
	Dry/Wet	Wet	Wet

1.4 times the milling efficiency and 1.3 times the tool life of conventional tools.



Part Material		Housing - Grey Cast Iron	
Used Equipment		Machining Center (BT50)	
Tool	Type	DNX Type	Conventional Tool
	Body	DNX 46000R	General-purpose Cutter
	Insert	G Type	Positive Insert
	Tool Dia. (inch)	6	6
	Number of Teeth	10	10
	Insert Grade	ACK200	K Class CVD
Cutting Conditions	Cutting Speed (SFM)	790	790
	Feed Rate per Tooth (IPT)	0.0047 (v_f = 23.5 IPM)	0.003 (v_f = 15.6 IPM)
	Axial Depth of Cut (in)	0.12	0.12
	Cutting Width (in)	5.3	5.3
	Dry/Wet	Wet	Wet

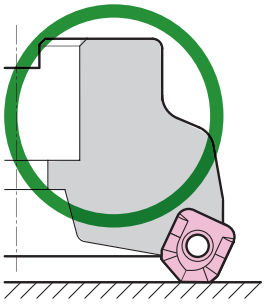
1.5 times longer tool life than conventional tools.

■ Precautions when Using Wiper Inserts with Holes

- When assembling the wiper insert, attach it as shown in Fig. 1. When attached as shown in Fig. 2, normal machined surface roughness cannot be obtained.
- Wiper inserts are single-cornered and double-sided.
- Refer to Technical Guidance page N19 in the General Catalogue for details about wiper inserts.
- Do not use with DNHS and DNH types.

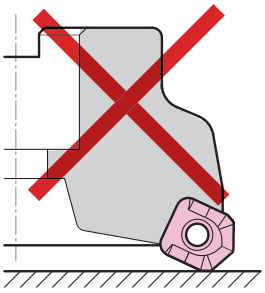
DNX(F) Type

Fig 1



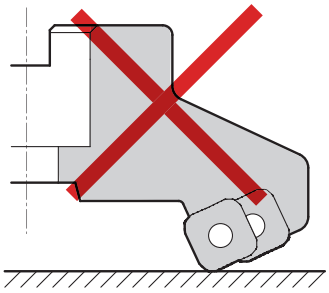
Correct Mounting

Fig 2



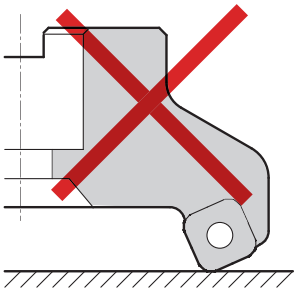
Incorrect Mounting

DNHS Type



Inappropriate

DNH Type



Inappropriate

DNX(F) Shellmill Inch

P Steel | K Cast Iron

Rake Angle		
	Radial	-6°
	Axial	-5°

Maximum Depth of Cut: .315" / 25°

Fig 1

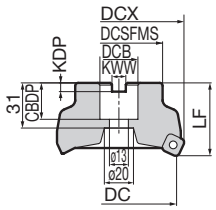


Fig 2

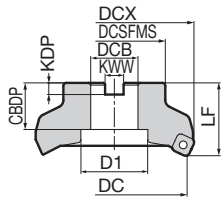


Fig 3

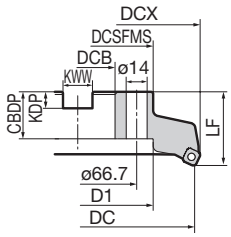
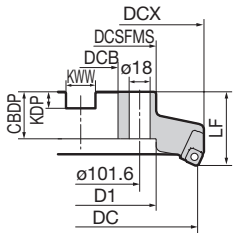


Fig 4



Body (DNX40000R) Lead Angle 25° General-purpose Type

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Bolt D1	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Effective Number of Teeth	Weight (lbs)	Fig
Inch	**DNX43000R**	●	3.000	3.303	2.250	0.797	1.750	1.000	0.375	0.220	1.020	6	6	2.65	1
	DNX44000R	●	4.000	4.315	2.870	1.000	2.000	1.250	0.500	0.280	1.020	7	7	3.53	1
	DNX44000R-1.50	●	4.000	4.303	3.750	2.000	2.500	1.500	0.625	0.380	1.000	7	7	3.53	5
	DNX45000R	●	5.000	5.303	3.750	2.000	2.500	1.500	0.625	0.380	1.060	8	8	6.17	2
	DNX46000R	●	6.000	6.303	4.380	2.000	2.500	1.500	0.625	0.380	1.060	10	10	9.70	2
	DNX48000R		8.000	8.303	5.120	5.118	2.500	2.500	1.000	0.560	1.595	12	12	18.75	4

● USA stocked item
Blank: Made-to-order item

Body (DNXF40000R) Lead Angle 25° Fine Pitch Type

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Bolt D1	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Effective Number of Teeth	Weight (lbs)	Fig
Inch	**DNXF43000R**	●	3.000	3.303	2.250	0.797	1.750	1.000	0.375	0.220	1.020	8	8	2.65	1
	DNXF44000R	●	4.000	4.315	2.870	1.000	2.000	1.250	0.500	0.280	1.020	10	10	3.53	1
	DNXF44000R-1.50	●	4.000	4.303	3.750	2.000	2.500	1.500	0.625	0.380	1.000	10	10	3.53	5
	DNXF45000R	●	5.000	5.303	3.750	2.000	2.500	1.500	0.625	0.380	1.060	11	11	6.17	2
	DNXF46000R	●	6.000	6.303	4.380	2.000	2.500	1.500	0.625	0.380	1.060	12	12	9.70	2
	DNXF48000R		8.000	8.303	5.120	5.118	2.500	2.500	1.000	0.560	1.595	14	14	18.75	4

Inserts are sold separately.

● USA stocked item
Blank: Made-to-order item

Insert

Dimensions (inch" / *mm*)

Grade		Coated Carbide				
Process	High-speed / Light	K	K			
	General-Purpose	K	K		P M	P M
	Roughing			K	P M	P M

Cat. No.	ACK100	ACK200	ACK300	ACP200	ACP300	Cutting Edge Shape	Applications	Wiper Facet Length wpr	Fig
SNMT1205ZNEN-L		●	●	●		V-shaped Blade Type	Light Cutting	.039"/ *1.0*	1
SNMT1205ZNEN-G	●	●	●	●			General-purpose	.039"/ *1.0*	1
SNMT1205ZNEN-H	●	●	●	●			Heavy Cutting	.039"/ *1.0*	1
SNMT1205ZNEN-SH	●	●	●	●	●	Straight Type	Improved Chip Control	.039"/ *1.0*	2
XNGT1205ZNEN-W		●	●			Wiper Type	Improved Surface Roughness	.197"/ *5.0*	3

Fig 1

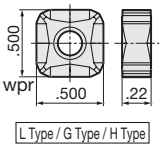


Fig 2

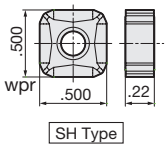
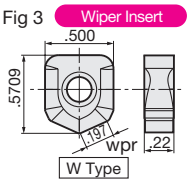
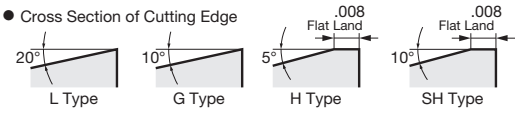


Fig 3 Wiper Insert



● Cross Section of Cutting Edge



Refer to H45 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

Recommended Cutting Conditions (see below)

Parts

Locator (*)	Cap Screw (*)	L-Wrench (*)	Insert Screw		Wrench	Anti-Seize Cream
				N·m		
DNXK12R	BX0515	LH040	BFTX0412IP	3.0	TRDR15IP	SUMI-P

* mark is included with ø8 in or larger sizes.

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"

Identification Code -Inch

DNX	F	4	3000	R
Cutter Series	Fine-Pitch Indication	Insert Series	Cutter Dia. 3.000"	Feed Direction

■ Recommended Cutting Conditions

	Cast Iron				Steel	
	Gray Cast Iron		Ductile Cast Iron		Carbon Steel	Alloy Steel
Grade	ACK200	ACK300	ACK100	ACK200	ACP200	ACP200
SFM	400 ~ 1100	400 ~ 950	350 ~ 950	350 ~ 850	350 ~ 875	350 ~ 950
IPT	.004 ~ .014	.004 ~ .014	.004 ~ .012	.004 ~ .012	.004 ~ .010	.004 ~ .010
Max. D.O.C.	~ 0.314	~ 0.314	~ 0.314	~ 0.314	~ 0.314	~ 0.314

N·m Recommended Tightening Torque (N·m)

DNX(F) Shellmill Metric

P Steel | K Cast Iron

Rake Angle		
	Radial	-6°
	Axial	-5°

Maximum Depth of Cut: .315" / 25°

Fig 1

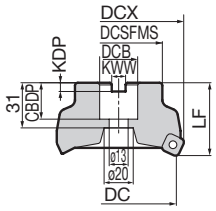


Fig 2

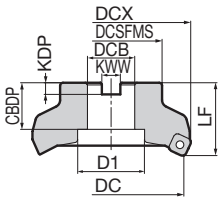


Fig 3

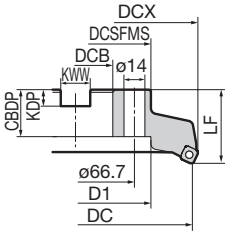
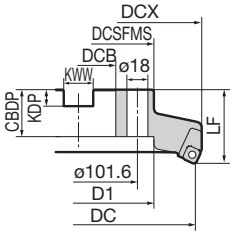


Fig 4



Body (DNX 12000R) Lead Angle 25° General-purpose Type

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Bolt D1	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Effective Number of Teeth	Weight (kg)	Fig
Metric	**DNX12080RS**	★	*80	88	60	13.5	50	27	12.4	7	25	6	6	1.2	1
	DNX12100RS	★	100	108	80	46	50	32	14.4	8.5	29	7	7	1.6	2
	DNX12125RS	★	125	133	80	56	63	40	16.4	9.5	29	8	8	2.8	2
	DNX12160RS	★	160	168	100	88	63	40	16.4	9.5	29	10	10	4.4	3
	DNX12080R	★	*80	88	60	13	50	25.4	9.5	6	25	6	6	1.2	1
	DNX12100R	★	100	108	70	46	50	31.75	12.7	8	32	7	7	1.6	2
	DNX12125R	★	125	133	80	56	63	38.1	15.9	10	38	8	8	2.8	2
	DNX12160R	★	160	168	100	72	63	50.8	19.1	11	38	10	10	4.4	2

★ Worldwide Warehouse item

Body (DNXF 12000R) Lead Angle 25° Fine Pitch Type

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Bolt D1	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Effective Number of Teeth	Weight (kg)	Fig
Metric	**DNXF12080RS**	★	*80	88	60	13.5	50	27	12.4	7	25	8	8	1.2	1
	DNXF12100RS	★	100	108	80	46	50	32	14.4	8.5	29	10	10	1.6	2
	DNXF12125RS	★	125	133	80	56	63	40	16.4	9.5	29	11	11	2.7	2
	DNXF12160RS	★	160	168	100	88	63	40	16.4	9.5	29	12	12	4.4	3
	DNXF12080R	★	*80	88	60	13	50	25.4	9.5	6	25	8	8	1.2	1
	DNXF12100R	★	100	108	70	46	50	31.75	12.7	8	32	10	10	1.6	2
	DNXF12125R	★	125	133	80	56	63	38.1	15.9	10	38	11	11	2.7	2
	DNXF12160R	★	160	168	100	72	63	50.8	19.1	11	38	12	12	4.4	2

Cutters with sizes of 200 mm or above come with locators. Inserts are sold separately.

For securing the ø80mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (M12 x 30 to 35mm).

★ Worldwide Warehouse item

Insert

Dimensions (inch" / *mm*)

Grade		Coated Carbide				
Process	High-speed / Light	K	K			
	General-Purpose	K	K		P M	P M
	Roughing			K	P M	P M

Cat. No.	ACK100	ACK200	ACK300	ACP200	ACP300	Cutting Edge Shape	Applications	Wiper Facet Length wpr	Fig
SNMT1205ZNEN-L		●	●	●		V-shaped Blade Type	Light Cutting	.039"/ *1.0*	1
SNMT1205ZNEN-G	●	●	●	●			General-purpose	.039"/ *1.0*	1
SNMT1205ZNEN-H	●	●	●	●			Heavy Cutting	.039"/ *1.0*	1
SNMT1205ZNEN-SH	●	●	●	●	●	Straight Type	Improved Chip Control	.039"/ *1.0*	2
XNGT1205ZNEN-W		●	●			Wiper Type	Improved Surface Roughness	.197"/ *5.0*	3

Fig 1

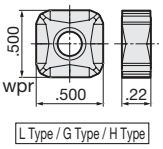


Fig 2

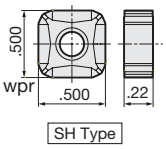
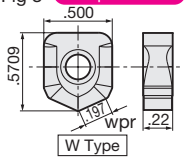
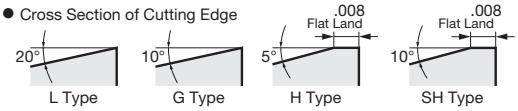


Fig 3 Wiper Insert



● Cross Section of Cutting Edge



Refer to H45 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

● USA stocked item

Parts

Locator (*)	Cap Screw (*)	L-Wrench (*)	Insert Screw		Wrench	Anti-Seize Cream
				N·m		
DNXK12R	BX0515	LH040	BFTX0412IP	3.0	TRDR15IP	SUMI-P

* mark is included with ø200 mm or larger sizes.

Identification Code - Metric

DNX F 12 080 R S

DNX	F	12	080	R	S
Cutter Series	Fine-Pitch Indication	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

N·m Recommended Tightening Torque (N·m)

DNH(S) Shellmill Metric

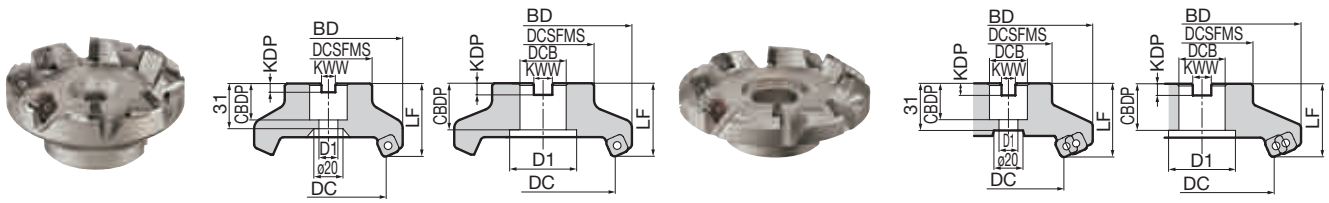
P Steel | K Cast Iron

Rake Angle		
	Radial	-6°
	Axial	-5°

Maximum Depth of Cut .118" 66° (DNH Type)

Maximum Depth of Cut .197" 66° (DNHS Type)

Fig 1 Fig 2 Fig 3 Fig 4



Body (DNH 12000R) Lead Angle 66° Shallow Depth of Cut High Feed Type

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	O.D. BD	Boss DCSFMS	Bolt D1	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Effective Number of Teeth	Weight (kg)	Fig
Metric	**DNH12080R**	★	*80	104	60	13	50	25.4	9.5	6	25	6	6	1.5	1
	DNH12100R	★	100	124	70	46	50	31.75	12.7	8	32	7	7	1.9	2
	DNH12125R	★	125	149	80	56	63	38.1	15.9	10	38	8	8	3.2	2
	DNH12160R	★	160	184	100	72	63	50.8	19.1	11	38	10	10	5.1	2

Body (DNHS 12000R) Lead Angle 66° Medium Depth of Cut High Feed Type

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	O.D. BD	Boss DCSFMS	Bolt D1	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Effective Number of Teeth	Weight (kg)	Fig
Metric	**DNHS12080R**	★	*80	116	60	13	50	25.4	9.5	6	25	6	3	1.7	3
	DNHS12100R	★	100	136	70	46	50	31.75	12.7	8	32	8	4	2.3	4
	DNHS12125R	★	125	161	80	56	63	38.1	15.9	10	38	10	5	3.2	4
	DNHS12160R	★	160	196	100	72	63	50.8	19.1	11	38	12	6	6.2	4

Inserts are sold separately.

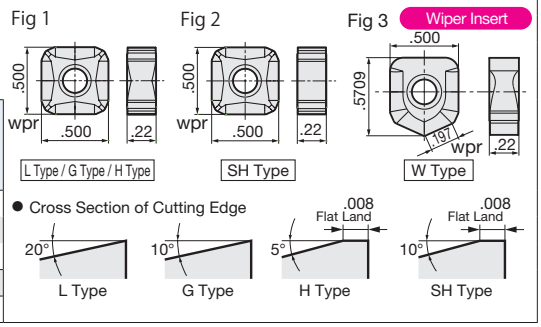
For securing the ø80mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (M12 x 30 to 35mm).

Insert

Dimensions (inch " / *mm*)

Grade		Coated Carbide				
Process	High-speed / Light	K	K			
	General-Purpose	K	K		P M	P M
	Roughing			K	P M	P M

Cat. No.	ACK100	ACK200	ACK300	ACP200	ACP300	Cutting Edge Shape	Applications	Wiper Facet Length wpr	Fig
SNMT1205ZNEN-L		●	●	●		V-shaped Blade Type	Light Cutting	.039"/ *1.0*	1
SNMT1205ZNEN-G	●	●	●	●			General-purpose	.039"/ *1.0*	1
SNMT1205ZNEN-H	●	●	●	●			Heavy Cutting	.039"/ *1.0*	1
SNMT1205ZNEN-SH	●	●	●	●	●	Straight Type	Improved Chip Control	.039"/ *1.0*	2
XNGT1205ZNEN-W		●	●			Wiper Type	Improved Surface Roughness	.197"/ *5.0*	3



Refer to H45 (Precautions when Using Wiper Inserts With Holes) (Mounting Precautions).

Parts

Locator (*)	Cap Screw (*)	L-Wrench (*)	Insert Screw		Wrench	Anti-seizure Cream
DNXK12R	BX0515	LH040	BFTX0412IP	3.0	TRDR15IP	SUMI-P

* mark is included with ø200 mm or larger sizes.

N·m Recommended Tightening Torque (N·m)

MEMO

■ Features

• Supports Wide Range of Machining Operations

Applicable to various machining applications, the cutter lineup includes diameters of .500” -6.000” inch bodies (ø14 to ø160mm metric bodies), enabling large ramping angles.

• Excellent Machining Quality

A combination of optimized cutting edge design and high-precision molding technology result in superb wall surface accuracy and surface finish quality.

• Outstanding Sharpness with Low Resistance

Reduces machining noise and suppresses burrs. Lineup includes ground inserts with a focus on sharpness.

• ACU2500 General-purpose Grade for a Wide Range of Materials

Introducing the new grade ACU2500, supports machining in a wide range of applications and materials.

• WEZR - Repeater Milling

Introducing WEZR, High-efficiency shoulder milling of deep steps. Inserts for WEZR are arranged in multiple steps forming a long cutting edge, to enable high-efficiency shoulder milling of deep steps.

■ Product Range (Body)

Type	Type	Diameters in Stock (inch)										
		ø0.500”	ø0.625”	ø0.750”	ø1.000”	ø1.250”	ø1.500”	ø2.000”	ø2.500”	ø3.000”	ø4.000”	ø6.000”
Shell Mills	WEZ20000R						6	7	8			
Shell Mills	WEZ30000R							5	6	5 7	6 8	8
Endmills	WEZ20000EW	1	2*	2 3*	3 4*	5*						
Endmills	WEZ20000EMW		2	2 3	3							
Endmills	WEZ20000ELC		2*	2 3*	3 4*	3						
Endmills	WEZ30000EW				2*	3*	4	5				
Endmills	WEZ30000EMW				2	3						
Endmills	WEZ30000ELC				2*	3*	3 4					

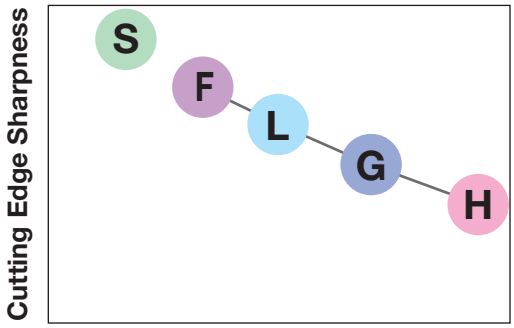
Type	Type	Diameters in Stock (mm)																
		ø14	ø16	ø18	ø20	ø22	ø25	ø28	ø30	ø32	ø35	ø40	ø50	ø63	ø80	ø100	ø125	ø160
Shells	WEZ 11000RS											4 6	5 7	6 8	7 10	9 12		
Shells	WEZ 11000R Inch														7 10	9 12		
Shells	WEZ 17000RS											3 4	3 5	4 6	4 7	5 8	6 9 11	8 10 12
Shells	WEZ 17000R Inch														4 7	5 8	6 9 11	8 10 12
With Shank	WEZ 11000E	1	2*	2	2* 3*	3	2 3* 4*	4	4	2 3 4 5*	5	2 4 6	5 7	8	10			
With Shank	WEZ 11000EL	1	2*	2	2*	2	2* 3	2	2	2* 3	2 3	2	3					
With Shank	WEZ 17000E						2*	2	3	2 3*	3	3 4	3* 5*	4* 6*	7			
With Shank	WEZ 17000EL						2	2	2	2* 3	2	2 3 4	3* 5*	4* 6*				

● Numbers inside are effective number of teeth *mark: Different-diameter shanks in stock Inch Inch Arbor

WEZ Series

■ Chipbreaker Lineup

Work Material		P M K S H N				
Chipbreaker		L	G	H	F	S
Cutting Edge Cross Section	11 Type	Not Available	28°	20°	28°	28°
	17 Type	28°	20°	10°	28°	28°
Applications		Light Cutting Low-rigidity Milling	Main Chipbreaker General-purpose to Interrupted Milling	Heavy Cutting Heavy interrupted machining Hardened Steel	Light Cutting Medium Finishing Low-burr design	For Non-Ferrous Metals

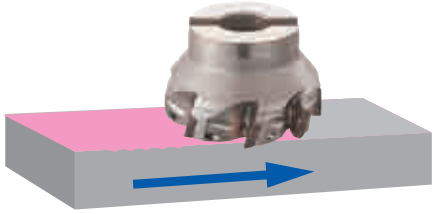


■ Product Range - WEZ Inserts

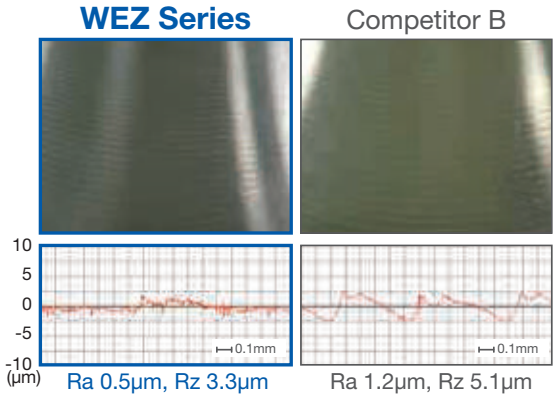
Type			Nose Radius (inch / *mm*)													
			.008 / *0.2*	.016 / *0.4*	.020 / *0.5*	.031 / *0.8*	.039 / *1.0*	.047 / *1.2*	.063 / *1.6*	.079 / *2.0*	.094 / *2.4*	.118 / *3.0*	.126 / *3.2*	.157 / *4.0*	.197 / *5.0*	.252 / *6.4*
11 Type	M Class	AOMT11T3○○PEER-G	●	●		●	●	●	●	●	●	●	●			
		AOMT11T3○○PEER-H		●		●		●	●							
	E Class	AOET11T3○○PEER-F	●	●	●	●	●	●	●	●	●	●	●			
		AOET11T3○○PEFR-S	●	●	●	●	●	●	●	●	●	●	●			
17 Type	M Class	AOMT1705○○PEER-L	●	●		●		●	●							
		AOMT1705○○PEER-G	●	●		●	●	●	●	●	●	●	●	●	●	●
		AOMT1705○○PEER-H		●		●		●	●							
	E Class	AOET1705○○PEER-F	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		AOET 1705○○PEFR-S	●	●	●	●	●	●	●	●	●	●	●	●	●	●

●: Standard stock

■ Outstanding Surface Quality



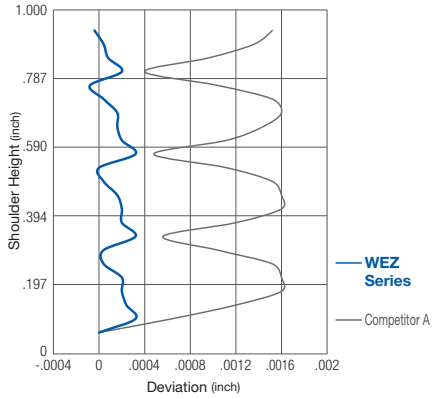
Machine: Vertical Machining Center BT50,
Part Material: 4140 Steel
Tool: WEZ 17100RS08 (ø100, 8 flutes)
Insert: AOMT 170508PEER-G (ACU2500)
Cutting conditions: v_c = 820 SFM, f_z = .006 IPT,
a_p = .079", a_e = 3.35" Dry

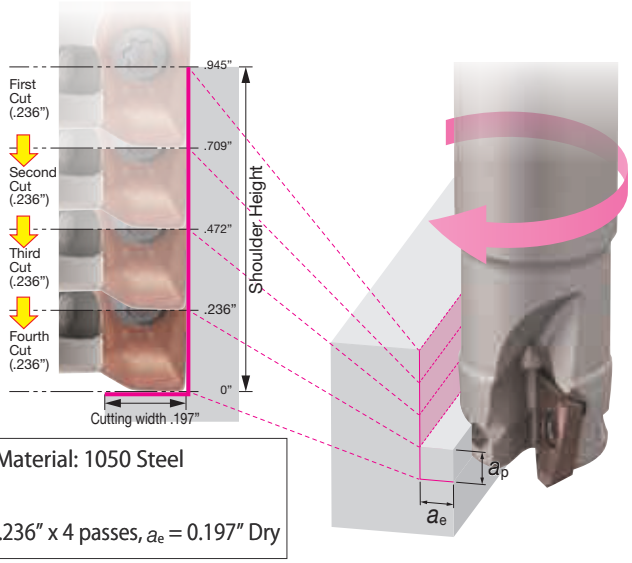


■ Insert Size Comparison

AO□T17 Type AO□T11 Type

■ Excellent Squareness

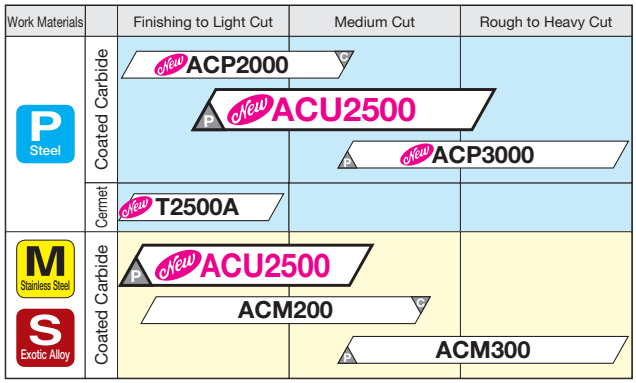


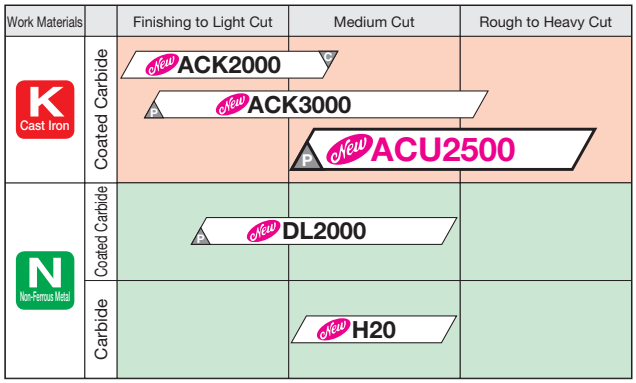


Machine: Vertical Machining Center BT40, Part Material: 1050 Steel
Tool: WEZ 11020E03 (ø20, 3 flutes)
Insert: AOMT 11T308PEER-G (ACU2500)
Cutting conditions: v_c = 500 SFM, f_z = .006 IPT, a_p = .236" x 4 passes, a_e = 0.197" Dry

■ Insert Grades Selection Guide

The WEZ Series debuts with brand new inserts grades: ACP2000, ACP3000, ACK2000, ACK3000, DL2000, H20, T2500A & ACU2500.
Highlighted by the newly developed general-purpose **ACU2500 Grade,** suitable for a wide range of materials.
Enhanced lineup of coatings in addition to carbide and cermet for milling steel, stainless steel, cast iron, exotic materials, and aluminum alloy.



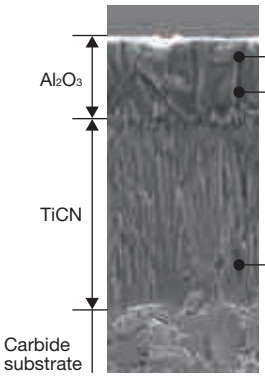


The letters "C" and "P" at the end of each grade indicate the coating type. C: CVD P: PVD

■ Coating Features

New Absotech™ (absolute technology) coating technology for absolute stability

ABSOTECH CVD



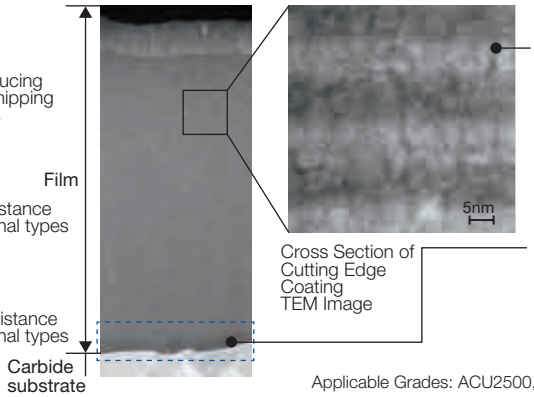
Special Surface Treatment
Suppresses thermal cracking by introducing high compressive stress, resulting in chipping resistance more than twice as good as conventional types

Crystal Orientation Control Al_2O_3
By controlling the growth direction, Al2O3 is reinforced for crater wear resistance more than twice as good as conventional types

High Hardness TiCN
Increased TiCN hardness by using a C-rich composition for flank wear resistance more than twice as good as conventional types

Applicable Grades: ACP2000, ACK2000

ABSOTECH PVD



Cross Section of Cutting Edge Coating TEM Image

New Super Multi-Layered Composition
Higher hardness and twice the conventional wear resistance due to a fine crystal structure AlTiCrBN-based nano-layered coating

High Adhesion Strength
Significantly improved coating adhesion Chipping resistance more than twice as good as conventional types

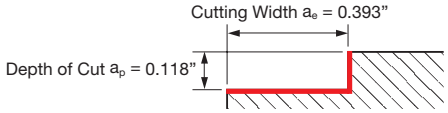
Applicable Grades: ACU2500, ACP3000, ACK3000

Work Materials	Grades	Coating Thickness (μm)	Features
P Steel, M Stainless Steel, K Cast Iron, S Exotic Allo	ACU2500	3	General-purpose grade for steel, stainless steel, and cast iron Adopts a carbide substrate with excellent fracture resistance and wear resistance, plus a new coating with excellent wear resistance and chipping resistance, realizing stable long tool life with various work materials.
P Steel	ACP2000	10	Stable long tool life in high-speed machining is acheived with a new coating and a tough carbide substrate with excellent thermal crack resistance.
	ACP3000	3	Adopts a very tough carbide substrate, plus a new coating with excellent wear resistance and chipping resistance, results in stable long tool life for wet machining of steel.
	T2500A	—	Thanks to the excellent thermal crack resistance conferred by high thermal conductivity and the improved toughness due to the finer and more uniform structure. This cermet grade produces high levels of fracture resistance and wear resistance.
M Stainless Steel, S Exotic Alloy	ACM200	6	Manages superb stability in machining of high-hardness stainless steel, due to a high-strength carbide substrate and highly wear-resistant coating.
	ACM300	3	Executes superb stability in machining of stainless steel, due to a high-strength carbide substrate and highly chipping-resistant coating.
K Cast Iron	ACK2000	10	Stable long tool life with high-speed machining of cast iron is attained by adopting a new coating with excellent thermal resistance and a tough carbide substrate.
	ACK3000	3	Utilizes a carbide substrate with excellent wear resistance, in addition to a new coating with excellent wear resistance and chipping resistance, resulting in stable long tool life in dry machining of cast iron.
N Non-Ferrous Metal	DL2000	0.5	DLC coating grade for non-ferrous metal machining with a low coefficient of friction and excellent adhesion resistance.
	H20	—	Uncoated grade for non-ferrous metal machining with excellent wear resistance and fracture resistance.

■ Recommended Cutting Conditions

WEZ11 Type

Tool: WEZ11020E03, Insert: AO□T11T3



Cutting Conditions: Depth of Cut a_p = 0.118", Cutting Width a_e = 0.393", Dry

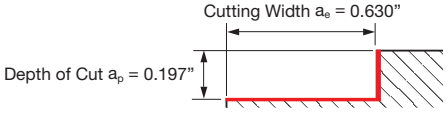
ISO Classification	Part Material	Work Material Hardness (HB)	Chipbreaker	Grade								
				ACU2500	ACP2000	ACP3000	T2500A	ACK2000	ACK3000	ACM200	ACM300	DL2000
				Feed Rate per Tooth f_z (IPT) Min. - Max.								
				0.003 - 0.008	0.003 - 0.008	0.003 - 0.008	0.003 - 0.007	0.003 - 0.008	0.003 - 0.008	0.003 - 0.008	0.003 - 0.008	0.004 - 0.014
				Cutting Speed v_c (SFM) Min. - Max.								
P	Steel, Carbon Steel 1015	125	G	885 - 1,335	985 - 1,450	820 - 1,265	755 - 1,190					
	1045	190	G	560 - 975	660 - 1085	500 - 905	430 - 830					
	1045 Hardened	250	G	460 - 800	525 - 885	400 - 725	345 - 670					
	High Carbon Steel	270	G	360 - 635	430 - 705	330 - 600	280 - 545					
	High Carbon Steel, Hardened	300	G	230 - 400	265 - 440	200 - 360	165 - 325					
	Low-alloy Steel 4140, 8620	180	G	525 - 920	625 - 1015	460 - 850	400 - 775					
	4140, 8620 Hardened	275	G	310 - 550	360 - 600	265 - 500	230 - 450					
	4140, 8620 Hardened	300	G	280 - 475	330 - 550	250 - 450	215 - 415					
	4140, 8620 Hardened	350	G	200 - 365	230 - 400	165 - 325	150 - 310					
	High Alloy Steel, D2, H13, A2	200	G	460 - 800	525 - 885	400 - 740						
	D2, H13, A2 Hardened	325	G	180 - 310	200 - 365	165 - 290						
M	Stainless Steel 430 & others (Martensitic / Ferritic)	200	G	360 - 620						460 - 685	300 - 505	
	Stainless Steel 403 & Others (Martensitic Hardened)	240	G	330 - 550						410 - 620	265 - 450	
	304/316 Stainless Steel (Austenitic)	180	G	400 - 650						500 - 725	330 - 550	
K	Cast Iron		G	500 - 905				820 - 1,265	560 - 975			
	Ductile Cast Iron		G	300 - 550				500 - 760	330 - 580			
S	Exotic Alloy Heat-resistant Alloy		G	100 - 200						115 - 220	85 - 180	
	Ti Alloy		G	200 - 365						230 - 400	165 - 325	
N	Aluminum Alloy Si less than 12.6%		S									1,640 - 3,610
	Aluminum Alloy Si more than 12.6%		S									560 - 905
	Copper Alloy		S									985 - 1,265

- The recommended cutting conditions may not be practical depending on the operating conditions (e.g. machine, work material shape, clamping system).
- For groove milling, adjust the feed rate to around 70% of the above values.

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work material rigidity, depth of cut and other factors.

WEZ17 Type

Tool: WEZ17032E03, Insert: AO□T1705



Cutting Conditions: Depth of Cut a_p = 0.197", Cutting Width a_e = 0.630", Dry

ISO Classification	Part Material	Work Material Hardness (HB)	Chipbreaker	Grade								
				ACU2500	ACP2000	ACP3000	T2500A	ACK2000	ACK3000	ACM200	ACM300	DL2000
				Feed Rate per Tooth f_z (IPT) Min. - Max.								
				0.004 - 0.012	0.004 - 0.012	0.004 - 0.012	0.004 - 0.008	0.004 - 0.012	0.004 - 0.012	0.004 - 0.012	0.004 - 0.012	0.004 - 0.014
				Cutting Speed v_c (SFM) Min. - Max.								
P	Steel, Carbon Steel 1015	125	G	935 - 1,410	1,035 - 1,520	870 - 1,335	790 - 1,245					
	1045	190	G	590 - 1,030	690 - 1,140	525 - 960	445 - 865					
	1045 Hardened	250	G	475 - 830	560 - 920	430 - 775	360 - 705					
	High Carbon Steel	270	G	380 - 670	445 - 740	330 - 615	300 - 560					
	High Carbon Steel, Hardened	300	G	230 - 420	280 - 455	215 - 380	180 - 350					
	Low-alloy Steel 4140, 8620	180	G	560 - 960	660 - 1,065	495 - 905	430 - 815					
	4140, 8620 Hardened	275	G	330 - 560	380 - 635	280 - 525	250 - 490					
	4140, 8620 Hardened	300	G	300 - 505	345 - 560	250 - 470	215 - 430					
	4140, 8620 Hardened	350	G	215 - 360	250 - 420	180 - 345	165 - 310					
	High Alloy Steel, D2, H13, A2	200	G	475 - 830	560 - 920	430 - 775						
	D2, H13, A2 Hardened	325	G	180 - 325	215 - 360	165 - 310						
M	Stainless Steel 430 & others (Martensitic / Ferritic)	200	G	380 - 630						475 - 705	330 - 525	
	Stainless Steel 403 & Others (Martensitic Hardened)	240	G	345 - 560						430 - 635	280 - 470	
	304/316 Stainless Steel (Austenitic)	180	G	410 - 685						525 - 760	345 - 580	
K	Cast Iron		G	525 - 960				870 - 1,335	590 - 1,030			
	Ductile Cast Iron		G	315 - 580				525 - 800	345 - 620			
S	Exotic Alloy Heat-resistant Alloy		G	100 - 220						115 - 220	85 - 180	
	Ti Alloy		G	200 - 380						250 - 420	165 - 350	
N	Aluminum Alloy Si less than 12.6%		S									1,640 - 3,610
	Aluminum Alloy Si more than 12.6%		S									560 - 905
	Copper Alloy		S									985 - 1,265

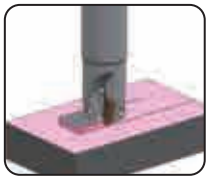
- The recommended cutting conditions may not be practical depending on the operating conditions (e.g. machine, work material shape, clamping system).
- For groove milling, adjust the feed rate to around 70% of the above values.

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work material rigidity, depth of cut and other factors.

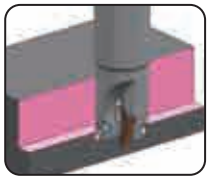
■ Wide Range of Applications

- Supports Ramping/Helical Milling/Plunge Cutting

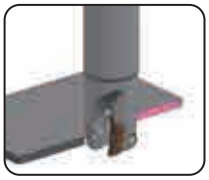
Face Milling



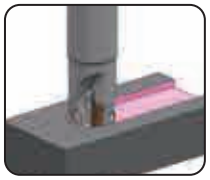
Shoulder Milling



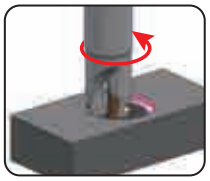
Side Milling



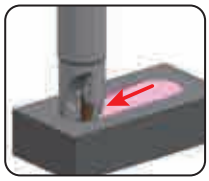
Slot Milling



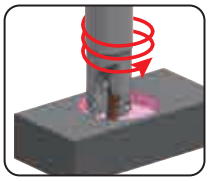
Hole Expansion Drilling



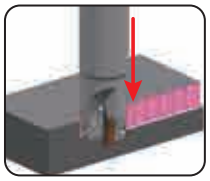
Ramping



Helical Milling

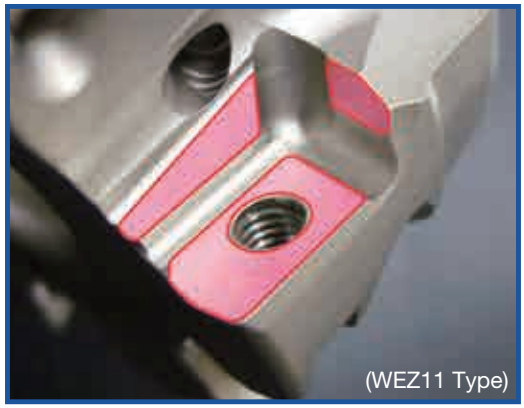


Plunge Cutting



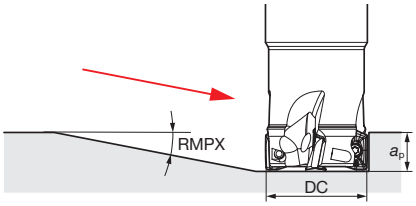
■ Optimized Body Design

- Stable Insert Clamping

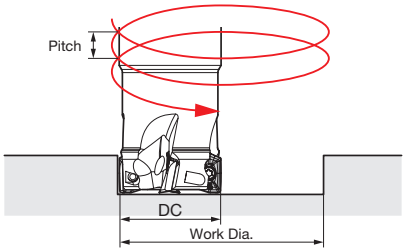


■ Ramping / Helical Milling Upper Limits

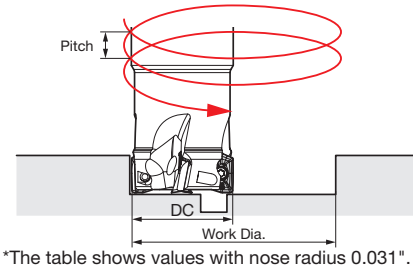
Ramping



Machining From Solid



Machining with prepared hole



*The table shows values with nose radius 0.031".

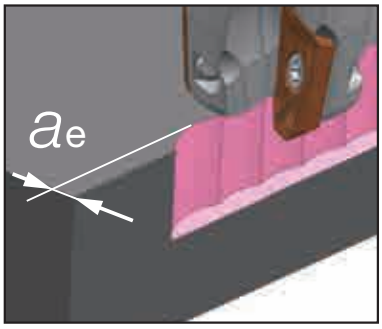
WEZ11

Tool Dia. DC	Max. Ramping Angle RMPX (°)	Machining From Solid				Machining with prepared hole	
		Max. Machining Dia. (inch)	Maximum Pitch	Min. Machining Dia. (inch)	Maximum Pitch	Min. Machining Dia. (inch)	Maximum Pitch
0.500"	6.5	0.892''	0.141''	0.772''	0.092''	0.710''	0.062''
0.625"	10.5	1.142''	0.300''	1.014''	0.220''	0.805''	0.057''
0.750"	7.1	1.392''	0.245''	1.258''	0.186''	1.030''	0.052''
1.000"	4.0	1.892''	0.186''	1.754''	0.149''	1.523''	0.050''
1.250"	2.7	2.392''	0.157''	2.251''	0.130''	2.021''	0.048''
1.500"	1.9	2.892''	0.138''	2.749''	0.116''	2.520''	0.046''
2.000"	1.2	3.892''	0.117''	3.747''	0.101''	3.520''	0.043''
2.250"	0.9	4.892''	0.109''	4.746''	0.096''	4.520''	0.044''

WEZ17

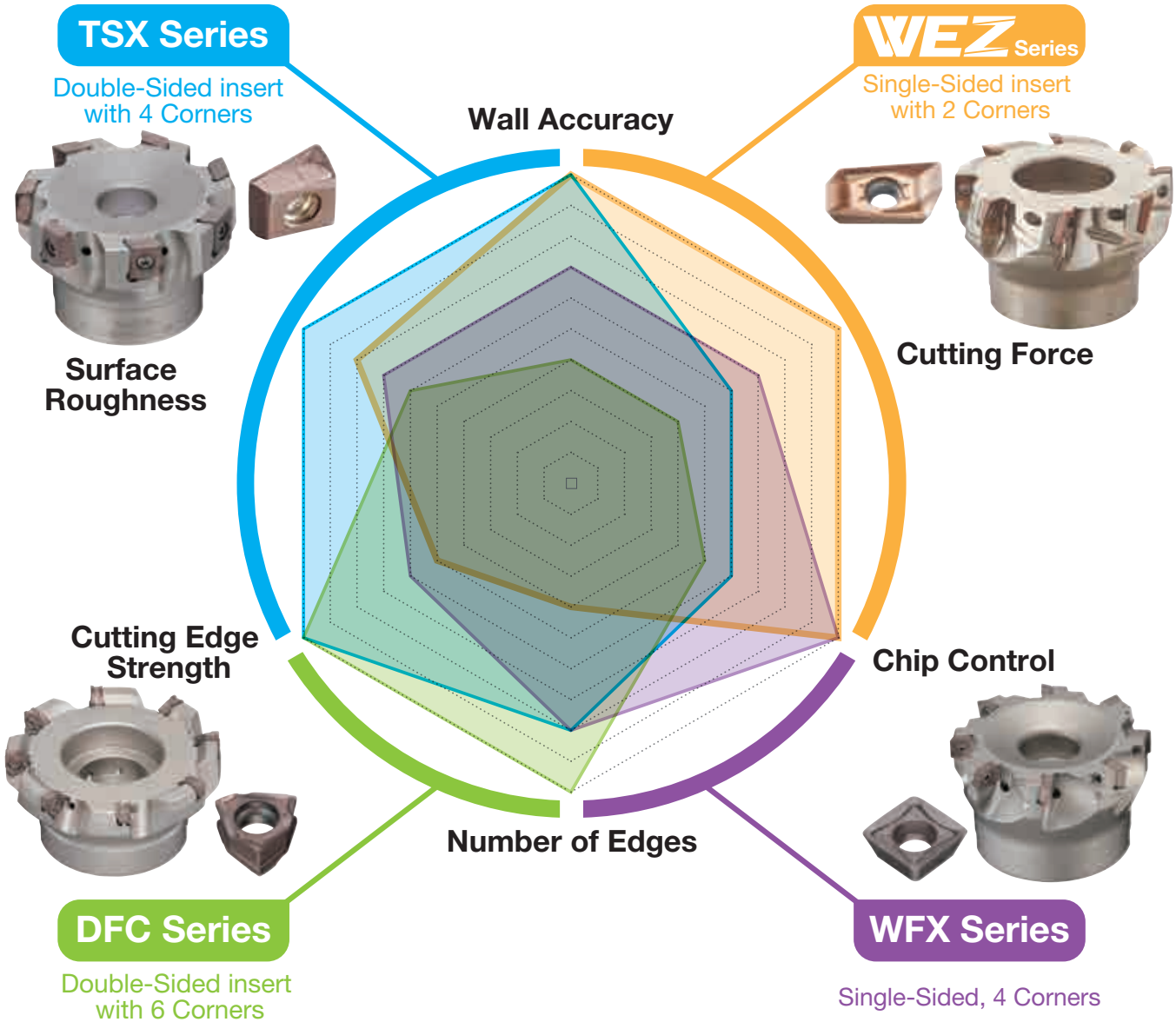
Tool Dia. DC	Max. Ramping Angle RMPX (°)	Machining From Solid				Machining with prepared hole	
		Max. Machining Dia. (inch)	Maximum Pitch	Min. Machining Dia. (inch)	Maximum Pitch	Min. Machining Dia. (inch)	Maximum Pitch
1.000"	10.0	1.892''	0.488''	1.605''	0.316''	1.293''	0.068''
1.250"	6.0	2.392''	0.367''	2.101''	0.256''	1.792''	0.067''
1.500"	4.2	2.892''	0.308''	2.599''	0.225''	2.292''	0.065''
2.000"	2.5	3.892''	0.246''	3.596''	0.191''	3.293''	0.062''
2.500"	1.7	4.892''	0.211''	4.595''	0.170''	4.293''	0.059''

■ Plunge Cutting Upper Limit



	Max. a_e (inch)
WEZ11 Type	0.118"
WEZ17 Type	0.197"

■ Shoulder Milling Tool Selection Guide



★★★: Top Recommendation

	Surface finish	Shoulder accuracy	Cutting resistance	Chip control	Number of corners	Cutting edge strength
WEZ Series	★★★	★★★	★★★	★★★	★	★½
TSX Series	★★★	★★★	★★	★½	★★	★★★
DFC Series	★½	★	★	★½	★★★	★★★
WFX Series	★½	★★	★★	★★★	★★	★★

More details on TSX / DFC / WFX Milling Cutters at www.sumicarbide.com

WEZ Shellmill - *11mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-7° to -11°
	Axial	14° to 15°

.394" 90°

Fig 1

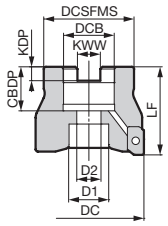


Fig 2

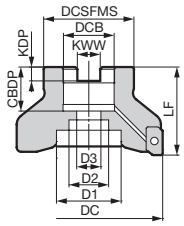
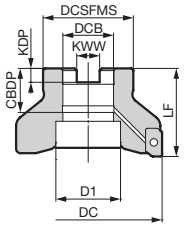


Fig 3



Body (Shellmill)

Dimensions (inch/ *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lbs/ *kg*)	Fig
Inch	**WEZ21500R06**	●	1.500	1.339	1.750	.750	.312	.190	.750	.609	.406	-	6	.441	1
	WEZ22000R07	●	2.000	1.500	1.750	.750	.312	.190	.750	.609	.406	-	7	.816	1
	WEZ22500R08	●	2.500	1.750	1.750	1.000	.375	.220	.750	.797	.531	-	8	1.213	1
Metric	**WEZ11040RS04**	★	*40*	*33*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	-	4	*.21*	1
	WEZ11040RS06	★	*40*	*33*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	-	6	*.20*	1
	WEZ11050RS05	★	*50*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	5	*.32*	1
	WEZ11050RS07	★	*50*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	7	*.31*	1
	WEZ11063RS06	★	*63*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	6	*.58*	1
	WEZ11063RS08	★	*63*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	8	*.57*	1
	WEZ11080RS07	★	*·80*	*55*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	-	7	*1.08*	1
	WEZ11080RS10	★	*·80*	*55*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	-	10	*1.07*	1
	WEZ11100RS09	★	*100*	*70*	*50*	*32*	*14.4*	*8*	*32*	*46*	-	-	9	*1.57*	3
	WEZ11100RS12	★	*100*	*70*	*50*	*32*	*14.4*	*8*	*32*	*46*	-	-	12	*1.56*	3
	WEZ11080R07	★	*·80*	*55*	*50*	*25.4*	*9.5*	*6*	*25*	*20*	*14*	-	7	*1.09*	1
	WEZ11080R10	★	*·80*	*55*	*50*	*25.4*	*9.5*	*6*	*25*	*20*	*14*	-	10	*1.08*	1
	WEZ11100R09	★	*·100*	*70*	*63*	*31.75*	*12.7*	*8*	*32*	*46*	*27*	*18*	9	*2.12*	2
	WEZ11100R12	★	*·100*	*70*	*63*	*31.75*	*12.7*	*8*	*32*	*46*	*27*	*18*	12	*2.10*	2

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Identification Code - Inch

WEZ **2** **2000** **R** **05**

Cutter Series | Insert Size | Cutter Dia. 2.000" | Feed Direction | Number of Teeth

Identification Code - Metric

WEZ **11** **050** **R** **S** **07**

Cutter Series | Insert Size | Cutter Dia. | Feed Direction | Metric Bore | Number of Teeth

Parts

Applicable Cutter		Torx Screw		Integrated Wrench	Anti-seizure Paste
Inch	Metric		N·m		
WEZ20000 Series	WEZ11000 Series	BFTX0306IP	1.5	TRDR08IP	SUMI-P

Applicable Cutter	Coolant Through Bolts
WEZ21500R06	BFXH 3/8 X 1
WEZ22000R07	BFXH 3/8 X 1
WEZ22500R08	BFXH 1/2 X 11/4

N·m Recommended Tightening Torque (N·m) ● : USA stocked item ★: worldwide warehouse item

WEZ Shellmill - *17mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-4° to -9°
	Axial	10° to 15°

.591" 90°

Fig 1

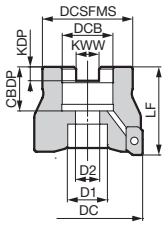


Fig 2

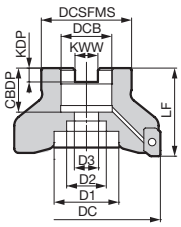


Fig 3

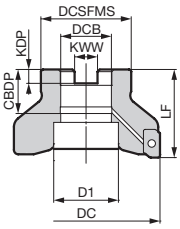


Fig 4

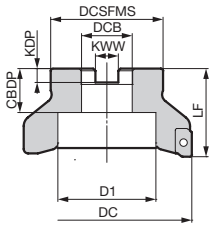
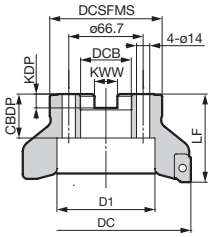


Fig 5



Body (Shellmill)

Dimensions (inch/ *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**WEZ32000R05**	●	2.000	1.500	1.750	.750	.312	.190	.750	.609	.406	-	5	.728	1
	WEZ32500R06	●	2.500	1.750	1.750	1.000	.375	.220	.750	.797	.531	-	6	1.124	1
	WEZ33000R05	●	3.000	2.250	1.750	1.000	.375	.220	.750	.797	.531	-	5	1.940	1
	WEZ33000R07	●	3.000	2.250	1.750	1.000	.375	.220	.750	.797	.531	-	7	1.918	1
	WEZ34000R06	●	4.000	3.543	2.500	1.500	.625	.380	1.000	2.000	1.181	0.781	6	4.982	3
	WEZ34000R08	●	4.000	3.543	2.500	1.500	.625	.380	1.000	2.000	1.181	0.781	8	5.115	3
	WEZ36000R08	●	6.000	4.380	2.500	1.500	.625	.380	1.000	2.000	1.181	0.781	8	11.861	5
Metric	**WEZ17040RS03**	★	*40*	*33*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	-	3	*.19*	1
	WEZ17040RS04	★	*40*	*33*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	-	4	*.16*	1
	WEZ17050RS03	★	*50*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	3	*.30*	1
	WEZ17050RS05	★	*50*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	5	*.26*	1
	WEZ17063RS04	★	*63*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	4	*.54*	1
	WEZ17063RS06	★	*63*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	6	*.51*	1
	WEZ17080RS04	★	**80*	*55*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	-	4	*1.10*	1
	WEZ17080RS07	★	**80*	*55*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	-	7	*1.05*	1
	WEZ17100RS05	★	*100*	*70*	*50*	*32*	*14.4*	*8*	*32*	*46*	-	-	5	*1.58*	3
	WEZ17100RS08	★	*100*	*70*	*50*	*32*	*14.4*	*8*	*32*	*46*	-	-	8	*1.57*	3
	WEZ17125RS06	★	*125*	*80*	*63*	*40*	*16.4*	*9*	*29*	*52*	*29*	-	6	*3.04*	1
	WEZ17125RS09	★	*125*	*80*	*63*	*40*	*16.4*	*9*	*29*	*52*	*29*	-	9	*3.07*	1
	WEZ17125RS11	★	*125*	*80*	*63*	*40*	*16.4*	*9*	*29*	*52*	*29*	-	11	*3.02*	1
	WEZ17160RS08	★	*160*	*130*	*63*	*40*	*16.4*	*9*	*29*	*90*	-	-	8	*5.24*	5
	WEZ17160RS10	★	*160*	*130*	*63*	*40*	*16.4*	*9*	*29*	*90*	-	-	10	*5.31*	5
	WEZ17160RS12	★	*160*	*130*	*63*	*40*	*16.4*	*9*	*29*	*90*	-	-	12	*5.26*	5
	WEZ17080R04	★	**80*	*55*	*50*	*25.4*	*9.5*	*6*	*25*	*20*	*14*	-	4	*1.10*	1
	WEZ17080R07	★	**80*	*55*	*50*	*25.4*	*9.5*	*6*	*25*	*20*	*14*	-	7	*1.06*	1
	WEZ17100R05	★	**100*	*70*	*63*	*31.75*	*12.7*	*8*	*32*	*46*	*27*	*18*	5	*2.08*	2
	WEZ17100R08	★	**100*	*70*	*63*	*31.75*	*12.7*	*8*	*32*	*46*	*27*	*18*	8	*2.07*	2
	WEZ17125R06	★	*125*	*80*	*63*	*38.1*	*15.9*	*10*	*35.5*	*55*	*30*	-	6	*3.09*	1
	WEZ17125R09	★	*125*	*80*	*63*	*38.1*	*15.9*	*10*	*35.5*	*55*	*30*	-	9	*3.11*	1
	WEZ17125R11	★	*125*	*80*	*63*	*38.1*	*15.9*	*10*	*35.5*	*55*	*30*	-	11	*3.06*	1
	WEZ17160R08	★	*160*	*100*	*63*	*50.8*	*19.1*	*11*	*38*	*72*	-	-	8	*5.04*	4
	WEZ17160R10	★	*160*	*100*	*63*	*50.8*	*19.1*	*11*	*38*	*72*	-	-	10	*5.09*	4
	WEZ17160R12	★	*160*	*100*	*63*	*50.8*	*19.1*	*11*	*38*	*72*	-	-	12	*5.04*	4

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Identification Code - Inch

WEZ 3 2000 R 05

Cutter Series | Insert Size | Cutter Dia. | Feed Direction | Number of Teeth

Identification Code - Metric

WEZ 17 100 R S 05

Cutter Series | Insert Size | Cutter Dia. | Feed Direction | Metric | Number of Teeth

Parts - Inch

Applicable Cutter	Coolant Through Bolt	Torx Screw	N·m	Integrated Wrench	Detachable Wrench Handle Grip	Detachable Wrench Bit	Anti-seize Paste
WEZ32000R05	BFXH 3/8 X 1	BFTX0409IP	3.0	—	HPS1015	TRB15IP	SUMI-P
WEZ32500R06	BFXH 1/2 X 11/4						
WEZ33000R05	BFXH 1/2 X 11/4						
WEZ33000R07	BFXH 1/2 X 11/4						
WEZ34000R06	BFXH 3/4 X 2						
WEZ34000R08	BFXH 3/4 X 2						
WEZ36000R08	—			TRDR15IP	—		

Parts - Metric

Applicable Cutter	Torx Screw	N·m	Integrated Wrench	Detachable Wrench Handle Grip	Detachable Wrench Bit	Anti-seize Paste
WEZ17100R(S)05	BFTX0409IP	3.0	—	HPS1015	TRB15IP	SUMI-P
WEZ17100R(S)08						
WEZ17125R(S)06						
WEZ17125R(S)09						
WEZ17125R(S)11						
WEZ17160R(S)08			TRDR15IP	—	—	
WEZ17160R(S)10						
WEZ17160R(S)12						

N·m Recommended Tightening Torque (N·m) ● USA stocked item ★: worldwide warehouse item

WEZ Endmill - *11mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-7° to -18°
	Axial	6° to 15°

.394" 90°

Fig 1

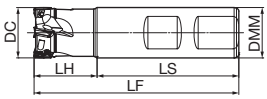


Fig 2

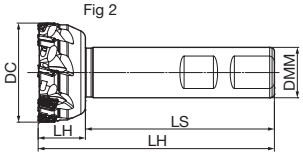


Fig 3

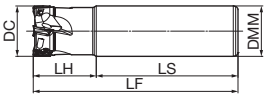
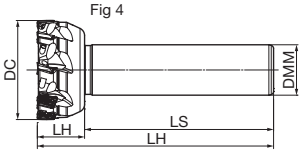


Fig 4



Body (Endmill - Weldon)

Dimensions (inch/ *mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**WEZ20500EW01**	●	.500	.625	1.312	1.906	3.218	1	.198	1
	WEZ20625EW02-0.500	●	.625	.500	1.142	1.781	2.923	2	.132	2
	WEZ20625EW02	●	.625	.625	1.312	1.906	3.218	2	.220	1
	WEZ20625EMW02	●	.625	.625	2.312	1.906	4.218	2	.287	1
	WEZ20750EW02-0.625	●	.750	.625	1.142	1.906	3.048	2	.198	2
	WEZ20750EW02	●	.750	.750	1.533	2.030	3.563	2	.331	1
	WEZ20750EMW02	●	.750	.750	2.533	2.030	4.563	2	.419	1
	WEZ20750EW03-0.625	●	.750	.625	1.142	1.906	3.048	3	.198	2
	WEZ20750EW03	●	.750	.750	1.533	2.030	3.563	3	.331	1
	WEZ20750EMW03	●	.750	.750	2.533	2.030	4.563	3	.419	1
	WEZ21000EW03-0.750	●	1.000	.750	1.918	2.030	3.947	3	.419	2
	WEZ21000EW03	●	1.000	1.000	1.666	2.281	3.947	3	.397	1
	WEZ21000EMW03	●	1.000	1.000	2.666	2.281	4.947	3	.882	1
	WEZ21000EW04-0.750	●	1.000	.750	1.918	2.030	3.947	4	.419	2
	WEZ21000EW04	●	1.000	1.000	1.666	2.281	3.947	4	.705	1
	WEZ21250EW05-1.000	●	1.250	1.000	2.060	2.281	4.341	5	.838	2
	WEZ21250EW05	●	1.250	1.250	2.060	2.281	4.341	5	1.257	1
Metric	**WEZ11014E01**	★	*14*	*16*	*25*	*55*	*80*	1	*.10*	3
	WEZ11016E02	★	*16*	*16*	*25*	*75*	*100*	2	*.13*	3
	WEZ11016E02-12	★	*16*	*12*	*25*	*75*	*100*	2	*.07*	4
	WEZ11018E02	★	*18*	*16*	*25*	*75*	*100*	2	*.13*	4
	WEZ11020E02	★	*20*	*20*	*30*	*80*	*110*	2	*.23*	3
	WEZ11020E02-16	★	*20*	*16*	*30*	*80*	*110*	2	*.15*	4
	WEZ11020E03	★	*20*	*20*	*30*	*80*	*110*	3	*.22*	3
	WEZ11020E03-16	★	*20*	*16*	*30*	*80*	*110*	3	*.14*	4
	WEZ11022E03	★	*22*	*20*	*30*	*80*	*110*	3	*.23*	3
	WEZ11025E02	★	*25*	*25*	*35*	*85*	*120*	2	*.40*	3
	WEZ11025E03	★	*25*	*25*	*35*	*85*	*120*	3	*.40*	3
	WEZ11025E03-20	★	*25*	*20*	*35*	*85*	*120*	3	*.26*	4
	WEZ11025E04	★	*25*	*25*	*35*	*85*	*120*	4	*.39*	4
	WEZ11025E04-20	★	*25*	*20*	*35*	*85*	*120*	4	*.26*	4
	WEZ11028E04	★	*28*	*25*	*35*	*85*	*120*	4	*.41*	3
	WEZ11030E04	★	*30*	*25*	*40*	*90*	*130*	4	*.46*	3
	WEZ11032E02	★	*32*	*32*	*40*	*90*	*130*	2	*.74*	3
	WEZ11032E03	★	*32*	*32*	*40*	*90*	*130*	3	*.73*	3
	WEZ11032E04	★	*32*	*32*	*40*	*90*	*130*	4	*.73*	4
	WEZ11032E05	★	*32*	*32*	*40*	*90*	*130*	5	*.72*	4
	WEZ11032E05-25	★	*32*	*25*	*40*	*90*	*130*	5	*.46*	4
	WEZ11035E05	★	*35*	*32*	*40*	*90*	*130*	5	*.75*	4
	WEZ11040E02	★	*40*	*32*	*30*	*120*	*150*	2	*.96*	4
	WEZ11040E04	★	*40*	*32*	*30*	*120*	*150*	4	*.94*	4
	WEZ11040E06	★	*40*	*32*	*30*	*120*	*150*	6	*.93*	4
	WEZ11050E05	★	*50*	*32*	*30*	*120*	*150*	5	*1.04*	4
	WEZ11050E07	★	*50*	*32*	*30*	*120*	*150*	7	*1.04*	4
	WEZ11063E08	★	*63*	*32*	*30*	*120*	*150*	8	*1.24*	4
	WEZ11080E10	★	*80*	*32*	*30*	*120*	*150*	10	*1.52*	4

Parts - Inch

Applicable Cutters	Torx Screw	N·m	Integrated Wrench	Anti-seize Paste
WEZ20500EW01 WEZ20625EW02-0.500 WEZ20625EW02 WEZ20625EMW02	BFTX0305IP	2.0	TRDR08IP	SUMI-P
WEZ20750EW02-0.625 WEZ20750EW02 WEZ20750EMW02 WEZ20750EW03-0.625 WEZ20750EW03 WEZ20750EMW03 WEZ21000EW03-0.750 WEZ21000EW03 WEZ21000EMW03 WEZ21000EW04-0.750 WEZ21000EW04 WEZ21250EW05 WEZ21250EW05-1.000	BFTX0306IP	1.5		

N·m Recommended Tightening Torque (N·m)

● : USA stocked item

★ : worldwide warehouse item

Parts - Metric

Inserts are sold separately.

Applicable Cutters	Torx Screw	N·m	Integrated Wrench	Anti-seize Paste
WEZ11032E03 WEZ11032E04 WEZ11032E05(-25) WEZ11035E05 WEZ11040E02 WEZ11040E04 WEZ11040E06 WEZ11050E05 WEZ11050E07 WEZ11063E08 WEZ11080E10	BFTX0306IP	1.5	TRDR08IP	SUMI-P

Identification Code - Inch

WEZ 2 1000 EW 02 - 0.750

WEZ	2	1000	EW	02	0.750
Cutter Series	Insert Size	Cutter Dia. 1.000"	Weldon Shank	Number of Teeth	Shank Dia. 0.750"

Identification Code - Metric

WEZ 11 025 E 02 -22

WEZ	11	025	E	02	-22
Cutter Series	Insert Size	Cutter Dia.	With Shank	Number of Teeth	Shank Dia.

WEZ Endmill - *11mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-7° to -18°
	Axial	6° to 15°

.394" 90°

Fig 1

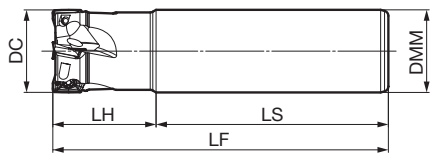
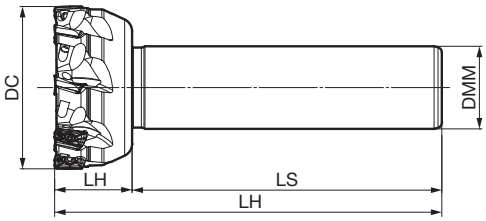


Fig 2



Body (Endmill - Cylindrical)

Dimensions (inch/ *mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs / kg)	Fig
Inch	**WEZ20625ELC02-0.500**	●	.625	.500	.945	7.055	8.000	2	.331	2
	WEZ20625ELC02	●	.625	.625	2.624	5.376	8.000	2	.551	1
	WEZ20750ELC02-0.625	●	.750	.625	1.142	6.858	8.000	2	.573	2
	WEZ20750ELC02	●	.750	.750	3.067	4.933	8.000	2	.794	1
	WEZ20750ELC03-0.625	●	.750	.625	1.142	6.858	8.000	3	.573	2
	WEZ20750ELC03	●	.750	.750	3.067	4.933	8.000	3	.794	1
	WEZ21000ELC03-0.750	●	1.000	.750	1.339	6.661	8.000	3	.882	2
	WEZ21000ELC03	●	1.000	1.000	3.332	6.669	10.000	3	1.896	1
	WEZ21000ELC04-0.750	●	1.000	.750	1.339	6.661	8.000	4	.882	2
	WEZ21000ELC04	●	1.000	1.000	3.332	6.669	10.000	4	1.874	1
	WEZ21250ELC03-1.000	●	1.250	1.000	1.535	6.465	8.000	3	1.742	2
	WEZ21250ELC03	●	1.250	1.250	4.120	5.880	10.000	3	3.064	1
Metric	**WEZ11014EL01**	★	*14*	*16*	*25*	*95*	*120*	1	*.16*	1
	WEZ11016EL02	★	*16*	*16*	*25*	*120*	*145*	2	*.19*	1
	WEZ11016EL02-14	★	*16*	*14*	*25*	*120*	*145*	2	*.15*	2
	WEZ11018EL02	★	*18*	*16*	*25*	*120*	*145*	2	*.20*	2
	WEZ11020EL02	★	*20*	*20*	*40*	*110*	*150*	2	*.31*	1
	WEZ11020EL02-18	★	*20*	*18*	*25*	*125*	*150*	2	*.26*	2
	WEZ11022EL02	★	*22*	*20*	*30*	*120*	*150*	2	*.32*	2
	WEZ11025EL02	★	*25*	*25*	*50*	*120*	*170*	2	*.57*	1
	WEZ11025EL02-22	★	*25*	*22*	*30*	*140*	*170*	2	*.46*	2
	WEZ11025EL03	★	*25*	*25*	*50*	*120*	*170*	3	*.57*	1
	WEZ11028EL02	★	*28*	*25*	*30*	*140*	*170*	2	*.60*	2
	WEZ11030EL02	★	*30*	*25*	*30*	*140*	*170*	2	*.62*	2
	WEZ11032EL02	★	*32*	*32*	*60*	*110*	*170*	2	*.97*	1
	WEZ11032EL02-30	★	*32*	*30*	*30*	*140*	*170*	2	*.88*	2
	WEZ11032EL03	★	*32*	*32*	*60*	*110*	*170*	3	*.96*	1
	WEZ11035EL02	★	*35*	*32*	*30*	*140*	*170*	2	*1.02*	2
	WEZ11035EL03	★	*35*	*32*	*30*	*140*	*170*	3	*1.00*	2
	WEZ11040EL02	★	*40*	*32*	*30*	*140*	*170*	2	*1.08*	2
	WEZ11050EL03	★	*50*	*32*	*30*	*140*	*170*	3	*1.19*	2

Inserts are sold separately.

● USA stocked item ★: worldwide warehouse item

Parts- Inch

Applicable Cutter	Torx Screw	N·m	Integrated Wrench	Anti-seize Cream
WEZ20625ELC02-0.500	BFTX0305IP	2.0	TRDR08IP	SUMI-P
WEZ20625ELC02				
WEZ20750ELC02-0.625	BFTX0306IP	1.5		
WEZ20750ELC02				
WEZ20750ELC03-0.625				
WEZ20750ELC03				
WEZ21000ELC03-0.750				
WEZ21000ELC03				
WEZ21000ELC04-0.750				
WEZ21000ELC04				
WEZ21250ELC03-1.000				
WEZ21250ELC03				

N·m Recommended Tightening Torque (N·m)

Identification Code - Inch

WEZ Cutter Series | **2** Insert Size | **1000** Cutter Dia. 1.000" | **ELC** Cylindrical Shank | **02** Number of Teeth | **- 0.750** Shank Dia. 0.750"

Parts - Metric

Applicable Cutter	Torx Screw	N·m	Integrated Wrench	Anti-seize Paste
WEZ11014EL01	BFTX0305IP	2.0	TRDR08IP	SUMI-P
WEZ11016EL02(-14)				
WEZ11018EL02				
WEZ11020EL02(-18)	BFTX0306IP	1.5		
WEZ11022EL02				
WEZ11025EL02(-22)				
WEZ11025EL03				
WEZ11028EL02				
WEZ11030EL02				
WEZ11032EL02(-30)				
WEZ11032EL03				
WEZ11035EL02				
WEZ11035EL03				
WEZ11040EL02				
WEZ11050EL03				

Identification Code - Metric

WEZ Cutter Series | **11** Insert Size | **025** Cutter Dia. | **E** With Shank | **L** Long Type | **02** Number of Teeth | **-22** Shank Dia.

WEZ Endmill - *17mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-6° to -12°
	Axial	6° to 15°

.591" 90°

Fig 1

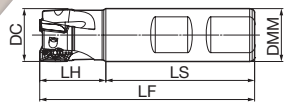


Fig 2

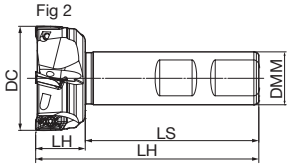


Fig 3

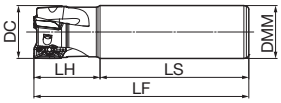
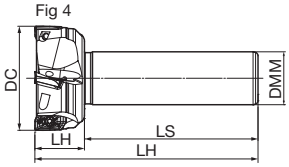


Fig 4



Body (Endmill - Weldon)

Dimensions (inch/ *mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**WEZ31000EW02-0.750**	●	1.000	.750	1.666	2.281	3.947	2	.397	2
	WEZ31000EW02	●	1.000	1.000	1.666	2.281	3.947	2	.683	1
	WEZ31000EMW02	●	1.000	1.000	2.666	2.281	4.947	2	.860	1
	WEZ31000ELW02	●	1.000	1.000	4.060	2.281	6.341	2	1.100	1
	WEZ31250EW03-1.000	●	1.250	1.000	2.060	2.281	4.341	3	.816	2
	WEZ31250EW03	●	1.250	1.250	2.060	2.281	4.341	3	1.190	1
	WEZ31250EMW03	●	1.250	1.250	3.000	2.281	5.281	3	1.477	1
	WEZ31500EW04	●	1.500	1.250	2.060	2.281	4.341	4	1.411	1
	WEZ32000EW05	●	2.000	1.250	2.060	2.281	4.341	5	2.050	1
Metric	**WEZ17025E02**	★	*25*	*25*	*35*	*85*	*120*	2	*.38*	3
	WEZ17025E02-20	★	*25*	*20*	*35*	*85*	*120*	2	*.25*	4
	WEZ17028E02	★	*28*	*25*	*35*	*85*	*120*	2	*.40*	4
	WEZ17030E03	★	*30*	*25*	*40*	*90*	*130*	3	*.43*	4
	WEZ17032E02	★	*32*	*32*	*40*	*90*	*130*	2	*.71*	3
	WEZ17032E03	★	*32*	*32*	*40*	*90*	*130*	3	*.69*	3
	WEZ17032E03-25	★	*32*	*25*	*40*	*90*	*130*	3	*.44*	4
	WEZ17035E03	★	*35*	*32*	*40*	*90*	*130*	3	*.72*	4
	WEZ17040E03	★	*40*	*32*	*30*	*105*	*135*	3	*.81*	4
	WEZ17040E04	★	*40*	*32*	*30*	*105*	*135*	4	*.79*	4
	WEZ17050E03	★	*50*	*32*	*30*	*105*	*135*	3	*.93*	4
	WEZ17050E03-42	★	*50*	*42*	*30*	*105*	*135*	3	*1.41*	4
	WEZ17050E05	★	*50*	*32*	*30*	*105*	*135*	5	*.89*	4
	WEZ17050E05-42	★	*50*	*42*	*30*	*105*	*135*	5	*1.37*	4
	WEZ17063E04	★	*63*	*32*	*30*	*105*	*135*	4	*1.10*	4
	WEZ17063E04-42	★	*63*	*42*	*30*	*105*	*135*	4	*1.58*	4
	WEZ17063E06	★	*63*	*32*	*30*	*105*	*135*	6	*1.08*	4
	WEZ17063E06-42	★	*63*	*42*	*30*	*105*	*135*	6	*1.56*	4
	WEZ17080E07	★	*80*	*32*	*30*	*105*	*135*	7	*1.39*	4

Inserts are sold separately.

● USA stocked item ★: worldwide warehouse item

Identification Code - Inch

WEZ 3 1000 **EW** 02 - 0.750

Cutter Series | Insert Size | Cutter Dia. 1.000" | Weldon Shank | Number of Teeth | Shank Dia. 0.750"

Identification Code - Metric

WEZ 17 032 **E** **L** 02 -30

Cutter Series | Insert Size | Cutter Dia. | With Shank | Long Type | Number of Teeth | Shank Dia.

Parts - Inch

Applicable Cutter	Torx Screw	N·m	Integrated Wrench	Anti-seize Paste
WEZ31000EW02-0.750	BFTX0407IP	3.0	TRDR15IP	SUMI-P
WEZ31000EW02				
WEZ31000EMW02				
WEZ31250EW03-1.000	BFTX0409IP			
WEZ31250EW03				
WEZ31250EMW03				
WEZ31500EW04				
WEZ32000EW05				

N·m Recommended Tightening Torque (N·m)

Parts - Metric

Applicable Cutter	Torx Screw	N·m	Integrated Wrench	Anti-seize Paste
WEZ17025E02(-20)	BFTX0407IP	3.0	TRDR15IP	SUMI-P
WEZ17028E02				
WEZ17030E03				
WEZ17032E02	BFTX0409IP			
WEZ17032E03(-25)				
WEZ17035E03				
WEZ17040E03				
WEZ17040E04				
WEZ17050E03(-42)				
WEZ17050E05(-42)				
WEZ17063E04(-42)				
WEZ17063E06(-42)				
WEZ17080E07				

WEZ Endmill - *17mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-6° to -12°
	Axial	6° to 15°

.591" 90°

Fig 1

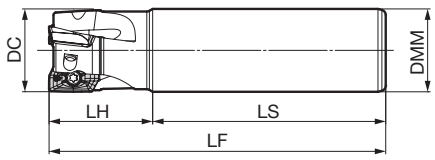
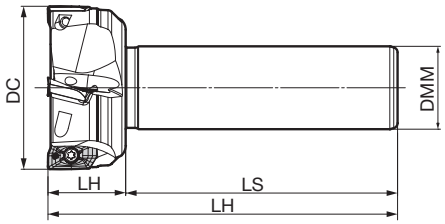


Fig 2



Body (Endmill - Cylindrical)

Dimensions (inch/ *mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**WEZ31000ELC02-0.750**	●	1.000	.750	1.339	6.661	8.000	2	.882	2
	WEZ31000ELC02	●	1.000	1.000	2.666	7.334	10.000	2	1.896	1
	WEZ31250ELC03-1.000	●	1.250	1.000	1.535	8.465	10.000	3	1.984	2
	WEZ31250ELC03	●	1.250	1.250	3.000	7.000	10.000	3	3.042	1
	WEZ31500ELC03	●	1.500	1.250	1.535	8.465	10.000	3	3.285	1
	WEZ31500ELC04	●	1.500	1.250	1.535	8.465	10.000	4	3.219	1
Metric	**WEZ17025EL02**	★	*25*	*25*	*50*	*120*	*170*	2	*.55*	1
	WEZ17028EL02	★	*28*	*25*	*50*	*120*	*170*	2	*.57*	2
	WEZ17030EL02	★	*30*	*25*	*50*	*120*	*170*	2	*.59*	2
	WEZ17032EL02	★	*32*	*32*	*60*	*110*	*170*	2	*.94*	1
	WEZ17032EL02-30	★	*32*	*30*	*50*	*120*	*170*	2	*.85*	2
	WEZ17032EL03	★	*32*	*32*	*60*	*110*	*170*	3	*.92*	1
	WEZ17035EL02	★	*35*	*32*	*50*	*120*	*170*	2	*.98*	2
	WEZ17040EL02	★	*40*	*32*	*50*	*120*	*170*	2	*1.09*	2
	WEZ17040EL03	★	*40*	*32*	*50*	*120*	*170*	3	*1.08*	2
	WEZ17040EL04	★	*40*	*32*	*50*	*120*	*170*	4	*1.05*	2
	WEZ17050EL03	★	*50*	*32*	*50*	*120*	*170*	3	*1.29*	2
	WEZ17050EL03-42	★	*50*	*42*	*50*	*120*	*170*	3	*1.83*	2
	WEZ17050EL05	★	*50*	*32*	*50*	*120*	*170*	5	*1.25*	2
	WEZ17050EL05-42	★	*50*	*42*	*50*	*120*	*170*	5	*1.79*	2
	WEZ17063EL04	★	*63*	*32*	*50*	*120*	*170*	4	*1.61*	2
	WEZ17063EL04-42	★	*63*	*42*	*50*	*120*	*170*	4	*2.16*	2
	WEZ17063EL06	★	*63*	*32*	*50*	*120*	*170*	6	*1.58*	2
	WEZ17063EL06-42	★	*63*	*42*	*50*	*120*	*170*	6	*2.13*	2

Inserts are sold separately.

● : USA stocked item ★ : worldwide warehouse item

Identification Code - Inch

WEZ 3 **1000** **ELC** **02** - **0.750**

- WEZ: Cutter Series
- 3: Insert Size
- 1000: Cutter Dia. 1.000"
- ELC: Cylindrical Shank
- 02: Number of Teeth
- 0.750: Shank Dia. 0.750"

Identification Code - Metric

WEZ **17** **032** **E** **L** **02** **-30**

- WEZ: Cutter Series
- 17: Insert Size
- 032: Cutter Dia.
- E: With Shank
- L: Long Type
- 02: Number of Teeth
- -30: Shank Dia.

Parts - Inch

Applicable Cutter	Torx Screw	N·m	Integrated Wrench	Anti-seize Paste
WEZ31000ELC02-0.750 WEZ31000ELC02	BFTX0407IP	3.0	TRDR15IP	SUMI-P
WEZ31250ELC03-1.000 WEZ31250ELC03 WEZ31500ELC03 WEZ31500ELC04	BFTX0409IP			

N·m Recommended Tightening Torque (N·m)

Parts - Metric

Applicable Cutter	Torx Screw	N·m	Integrated Wrench	Anti-seize Paste
WEZ17025EL02 WEZ17028EL02 WEZ17030EL02	BFTX0407IP	3.0	TRDR15IP	SUMI-P
WEZ17032EL02(-30) WEZ17032EL03 WEZ17035EL02 WEZ17040EL02 WEZ17040EL03 WEZ17040EL04 WEZ17050EL03(-42) WEZ17050EL05(-42) WEZ17063EL04(-42) WEZ17063EL06(-42)	BFTX0409IP			

WEZR Repeater Milling Cutter

■ WEZR Repeater Milling Features

- **High-efficiency shoulder milling of deep steps**

  Inserts for WEZ are arranged in multiple steps forming a long cutting edge, to enable high-efficiency shoulder milling of deep steps

- **Excellent chatter resistance**

  Sharp inserts and irregular pitched body helps to control chatter and vibration

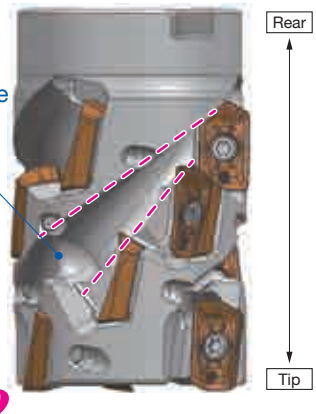
- **Support for all types of applications**

  A lineup of grades specific to each work material, as well as the general-purpose ACU2500 grade, which is applicable to most materials (steel, stainless steel and cast iron)

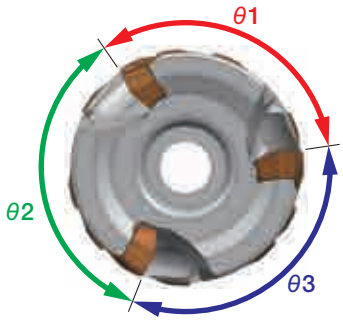
■ Body Features

- Flute shape ensures both rigidity and excellent chip evacuation performance

The chip pocket is larger toward the tip and the body is thicker toward the rear, for excellent chip evacuation and rigidity



- Irregular pitched body suppresses chattering



$\theta 1 \neq \theta 2 \neq \theta 3$

Irregular pitch is used to improve chatter resistance

■ Product Range - WEZR Repeater New

	Type	Cat. No.	Diameter (Inch)						Diameter (*mm*)								
			ø1.000	ø1.250	ø1.500	ø2.000	ø2.500	ø3.000	*ø20*	*ø25*	*ø30*	*ø32*	*ø35*	*ø40*	*ø50*	*ø63*	*ø80*
Inch	Shell	**WEZR30000R**				3	4	5									
Inch	Shank	**WEZR20000EW**	2	3	3												
Metric	Shell	**WEZR11000RS**												4	4		
Metric	Shell	**WEZR17000RS**													2 3 4	3 4 5	5
Metric	Shank	**WEZR11000E**							1 2	2	2	2 3	3	3 4			
Metric	Shank	**WEZR17000E**												2 3	2 3		
Metric	Modular	**WEZR11000M**										3					
Metric	Modular	**WEZR17000M**												3			

● Numbers inside are effective number of teeth

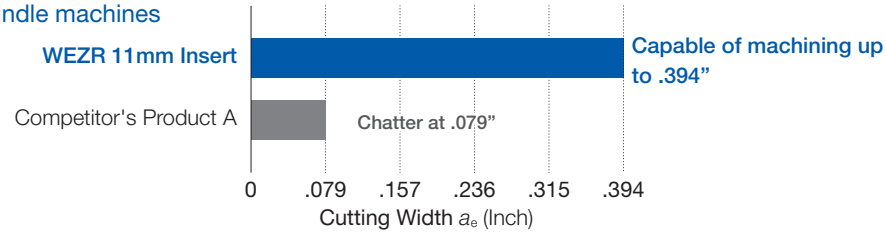
WEZR Repeater Milling Cutter

■ Cutting Performance

- Sharp inserts and irregular pitched body help provide low chatter resistance

Capable of stable machining with BT40 spindle machines

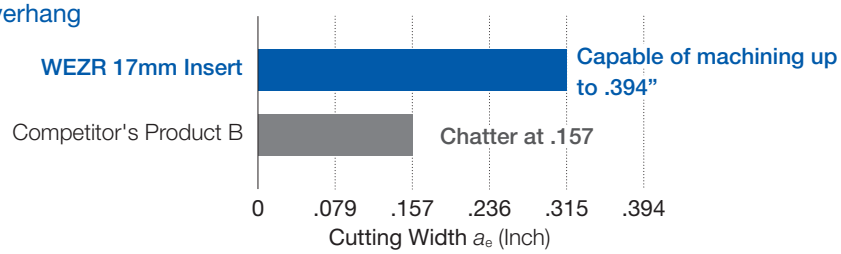
Vertical Machining Center BT40



Machine: Vertical Machining Center BT40, Part Material: 1050 Steel, Overhang amount: 2.36”
Tool: WEZR11032E3632Z03 (ø32*mm*, 3-tooth 4-step)
Insert: AOMT11T308PEER-G-ACU2500
Cutting Conditions: v_c = 500 SFM, f_z = .0039 IPR, a_p= 1.18”, Dry

Capable of stable machining with a long overhang

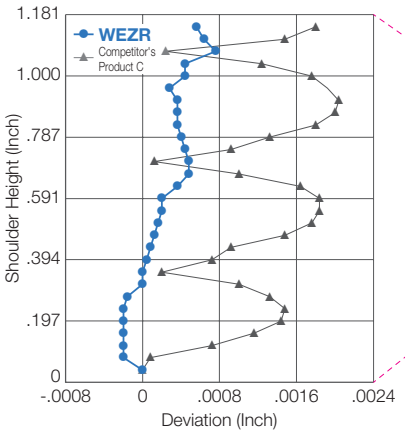
Vertical Machining Center BT50

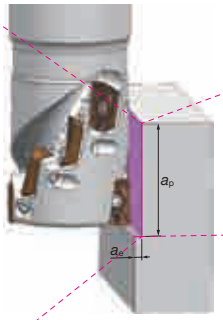


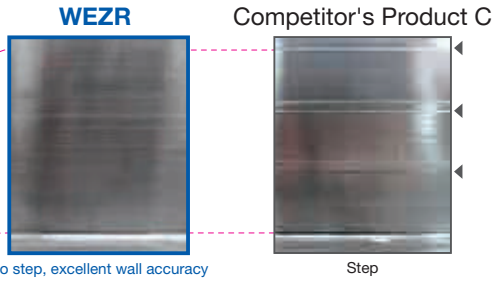
Machine: Vertical Machining Center BT50, Part Material: 4140 Steel, Overhang amount: 9.25”
Tool: WEZR 17063RS5727Z04 (*ø63mm*, 4-tooth 4-stage)
Insert: AOMT 170508PEER-G(ACU2500)
Cutting Conditions: v_c = 492 SFM, f_z = .006 IPT, a_p= 1.97”, Dry

■ Cutting Performance

Optimized cutting edge shape and high-precision molding technology help achieve excellent wall accuracy.







Machine: Vertical Machining Center BT50, Part Material: 4135 Steel, Overhang amount: 2.363”
Tool: WEZR11032E3632Z02 (ø32, 2-tooth 4-steps)
Insert: AOMT11T308PEER-G-ACU2500
Cutting Conditions: v_c = 530 SFM, f_z = .0059 IPR, a_p= 1.181”, a_e= .079”, Dry

■ Application Range Recommendation

Cutting parameters such as A_p (depth of cut) and A_e (width of cut) should be based on the operating conditions (e.g. Material, Machine Tool, Rigidity, Clamping)

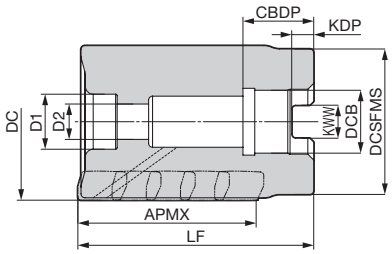
WEZR Shellmill - *11mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-11° to -9°
	Axial	14° to 15°

1.73" to 2.09" 90° | 44 to 53mm 90°

Fig 1



Body (Shellmill)

Dimensions (*mm*)

	Cat. No.	Stock	Diameter DC	Max. Depth of Cut APMX	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Total No. of Teeth	Insert Steps	Effective Number of Teeth	Weight (*kg*)	Fig
Metric	**WEZR11040RS4416Z04**	★	*40*	*44(43)*	*37*	*60(59.7)*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	20	5	4	*.27*	1
Metric	**WEZR11050RS5322Z04**	★	*50*	*53(52)*	*47*	*70(69.7)*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	24	6	4	*.57*	1

The APMX and LF dimensions in parentheses are dimensions using RE = .118"/.126", *3.0/3.2 mm* insert.
Take note of the cutter mounting size (DCB) when selecting a cutter. Inserts are sold separately.

Parts

Applicable Cutter	Flat Insert Screw		Wrench	Bolt	Anti-seize Cream
		N·m			
WEZR11040RS4416Z04	BFTX0306IP	1.5	TRDR08IP	BX0850	SUMI-P
WEZR11050RS5322Z04				BX1060	

N·m Recommended Tightening Torque (N·m) ● : USA stocked item ★: worldwide warehouse item

* Modification of the cutter body is required when mounting a corner radius 2.4 or higher insert.

Modify the C chamfering portion

WEZ11

Reworking guidelines
Corner radius = 2.4: C1
(AOMT11T324PEER)
Corner radius = 3.0: C2.5
(AOMT11T330PEER)
Corner radius = 3.2: C2.5
(AOMT11T332PEER)

Standard: R1.

WEZR Shellmill Identification Code - Metric

WEZR	11	040	R	S	44	16	Z04
Series	Insert Size	Diameter	Feed Direction	Metric Bore	Max. Depth of Cut	Mounting Hole Diameter	Effective No. of Teeth

WEZR Recommended Cutting Conditions

ISO	Material	Hardness	Chipbreaker	Cutting Speed v_C (SFM) Min. - Max.	Feed Rate f_Z (IPT) Min. - Max.	Insert Grade
P	Carbon Steel	Up to 30 HRc	G	330 - 720	.0031 - .0079	ACU2500
P	Carbon Steel	30 HRc and Above	G	265 - 435	.0031 - .0079	ACP2000
P	Alloy Steel	Up to 30 HRc	G	330 - 650	.0031 - .0079	ACP3000
M	Stainless Steel	Up to 30 HRc	G	265 - 570	.0031 - .0079	ACU2500 ACM200 ACM300
K	Cast Iron/ Ductile Cast Iron	—	G	330 - 725	.0031 - .0079	ACU2500 ACK2000 ACK3000
S	Exotic Alloy	—	G	130 - 220	.0031 - .0079	ACU2500 ACM200 ACM300
N	Aluminum Alloy	Si ≤ 12.6%	S	980 - 2,890	.0020 - .0059	DL2000
N	Aluminum Alloy	Si >12.6%	S	330 - 900	.0019 - .0059	H20*

Note
- The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.
- There may be cases where machining cannot be performed under recommended cutting conditions, depending on the machine rigidity and work rigidity.
- *For H20, use coolant to prevent adhesion.

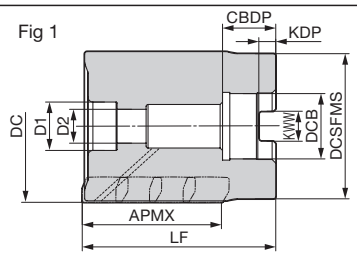
WEZR Shellmill - *17mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-8° to -6°
	Axial	7° to 15°

2.50" to 3.50" 90° | 29 to 57 mm 90°

Fig 1



Body (Shellmill)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Diameter DC	Max. Depth of Cut APMX	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Total No. of Teeth	Insert Steps	Effective Number of Teeth	Weight (lb/*kg*)	Fig
Inch	**WEZR32000R075-250Z03**	●	2.000	2.500	1.882	3.750	.750	.312	.190	.750	.609	.406	15	5	3	1.68	1
Inch	**WEZR32000R075-300Z03**	●	2.000	3.000	1.882	4.250	.750	.312	.190	.750	.609	.406	18	6	3	1.76	1
Inch	**WEZR32500R100-250Z04**	●	2.500	2.500	2.382	3.750	1.000	.375	.220	.750	.797	.531	20	5	4	2.82	1
Inch	**WEZR32500R100-300Z04**	●	2.500	3.000	2.382	4.250	1.000	.375	.220	.750	.797	.531	24	6	4	3.09	1
Inch	**WEZR33000R100-300Z05**	●	3.000	3.000	2.882	4.250	1.000	.375	.220	.750	.797	.531	30	6	5	5.07	1
Inch	**WEZR33000R100-350Z05**	●	3.000	3.500	2.882	4.750	1.000	.375	.220	.750	.797	.531	35	7	5	5.58	1
Metric	**WEZR17050RS2922Z04**	★	*50*	*29(28)*	*47*	*50(49.3)*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	8	2	4	*.35*	1
Metric	**WEZR17050RS5722Z02**	★	*50*	*57(56)*	*47*	*80(79.3)*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	8	4	2	*.70*	1
Metric	**WEZR17050RS5722Z03**	★	*50*	*57(56)*	*47*	*80(79.3)*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	12	4	3	*.59*	1
Metric	**WEZR17063RS2927Z05**	★	*63*	*29(28)*	*60*	*55(54.3)*	*27*	*12.4*	*7*	*22*	*20*	*14*	10	2	5	*.74*	1
Metric	**WEZR17063RS5727Z03**	★	*63*	*57(56)*	*60*	*80(79.3)*	*27*	*12.4*	*7*	*22*	*20*	*14*	12	4	3	*1.11*	1
Metric	**WEZR17063RS5727Z04**	★	*63*	*57(56)*	*60*	*80(79.3)*	*27*	*12.4*	*7*	*22*	*20*	*14*	16	4	4	*1.05*	1
Metric	**WEZR17080RS5627Z05**	★	*80*	*56(55)*	*70*	*80(79.3)*	*27*	*12.4*	*7*	*22*	*20*	*14*	20	4	5	*1.85*	1
Metric	**WEZR17080RS5632Z05**	★	*80*	*56(55)*	*70*	*80(79.3)*	*32*	*14.4*	*8*	*26*	*25*	*18*	20	4	5	*1.76*	1

The APMX and LF dimensions in parentheses are dimensions using RE = .197"/ .252", *5.0/6.4 mm* insert.
Take note of the cutter mounting size (DCB) when selecting a cutter. Inserts are sold separately.

Parts

	Applicable Cutter	Flat Insert Screw		Integrated Wrench	Detachable Wrench: Handle Grip	Detachable Wrench: Bit	Bolt	Anti-seize Cream
Inch	WEZR32000R075-250Z03	BFTX0409IP	3.0	—	HPS1015	TRB15IP	BFXH 3/8 X 3	SUMI-P
Inch	WEZR32000R075-300Z03						BFXH 3/8 X3 1/2	
Inch	WEZR32500R100-250Z04						BFXH 1/2 X 3 1/4	
Inch	WEZR325000R100-300Z04						BFXH 1/2 X 3 3/4	
Inch	WEZR33000R100-300Z05						BFXH 1/2 X 3 3/4	
Inch	WEZR33000R100-350Z05						BFXH 1/2 X 4 1/4	
Metric	WEZR17050RS2922Z04						BX1265	
Metric	WEZR17050RS5722Z02						BX1660	
Metric	WEZR17050RS5722Z03							
Metric	WEZR17063RS2927Z05						BX1240	
Metric	WEZR17063RS5727Z03						BX1265	
Metric	WEZR17063RS5727Z04							
Metric	WEZR17080RS5627Z05			TRDR15IP	—	—	BX1265	
Metric	WEZR17080RS5632Z05						BX1660	

* Modification of the cutter body is required when mounting a corner radius 2.4 or higher insert.

Modify the C chamfering portion
WEZ17 Type
Reworking guidelines
Corner radius = 2.4: C1 (AOMT170524PEER)
Corner radius = 3.0: C1.5 (AOMT170530PEER)
Corner radius = 3.2: C1.5 (AOMT170532PEER)
Corner radius = 4.0: C2 (AOMT170540PEER)
Corner radius = 5.0: C5 (AOMT170550PEER)
Corner radius = 6.4: C5 (AOMT170564PEER)
Standard: R1.

N·m Recommended Tightening Torque (N·m)
● : USA stocked item ★ : worldwide warehouse item

WEZR Shellmill Identification Code - Inch

WEZR 2 2000 R 075 - 250 Z03

Series	Insert Size	Diameter	Feed Direction	Mounting Hole Diameter	Max. Depth of Cut	Effective No. of Teeth

WEZR Endmill - *11mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-15° to -11°
	Axial	8 to 14°

1.75" to 2.50" 90° | 19 to 61mm 90°

Fig 1

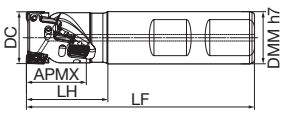


Fig 2

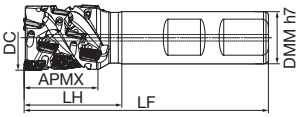


Fig 3

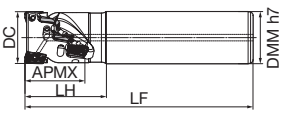
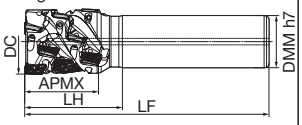


Fig 4



Body (Endmill)

Dimensions (*mm*)

Cat. No.	Stock	Diameter DC	Max. Depth of Cut APMX	Shank DMM	Head LH	Overall Length LF	Total No. of Teeth	Insert Steps	Effective No. of Teeth	Weight (lb / *kg*)	Fig
WEZR21000EW100-175Z02	●	1.000	1.750	1.000	2.250	4.531	10	5	2	.71	1
WEZR21250EW125-200Z03	●	1.250	2.000	1.250	2.500	4.781	18	6	3	1.17	1
WEZR21500EW125-250Z03	●	1.500	2.500	1.250	3.000	5.281	21	7	3	1.54	2
WEZR11020E1920Z02	★	*20*	*19(18)*	*20*	*30(29.7)*	*110(109.7)*	4	2	2	*.22*	3
WEZR11020E3620Z01	★	*20*	*36(35)*	*20*	*45(44.7)*	*125(124.7)*	4	4	1	*.24*	3
WEZR11025E2725Z02	★	*25*	*27(26)*	*25*	*40(39.7)*	*130(129.7)*	6	3	2	*.41*	3
WEZR11025E3625Z02	★	*25*	*36(35)*	*25*	*50(49.7)*	*140(139.7)*	8	4	2	*.42*	3
WEZR11030E5325Z02	★	*30*	*53(52)*	*25*	*65(64.7)*	*155(154.7)*	12	6	2	*.52*	4
WEZR11032E3632Z02	★	*32*	*36(35)*	*32*	*50(49.7)*	*140(139.7)*	8	4	2	*.74*	3
WEZR11032E3632Z03	★	*32*	*36(35)*	*32*	*50(49.7)*	*140(139.7)*	12	4	3	*.71*	3
WEZR11032E5332Z02	★	*32*	*53(52)*	*32*	*70(69.7)*	*160(159.7)*	12	6	2	*.90*	3
WEZR11035E5332Z03	★	*35*	*53(52)*	*32*	*65(64.7)*	*155(154.7)*	18	6	3	*.88*	4
WEZR11040E4432Z03	★	*40*	*44(43)*	*32*	*60(59.7)*	*150(149.7)*	15	5	3	*.87*	4
WEZR11040E4432Z04	★	*40*	*44(43)*	*32*	*60(59.7)*	*150(149.7)*	20	5	4	*.85*	4
WEZR11040E6132Z03	★	*40*	*61(60)*	*32*	*75(74.7)*	*165(164.7)*	21	7	3	*.95*	4

The APMX, LH and LF dimensions in parentheses are dimensions using RE = .118"/.126", 3.0/3.2 mm insert. Inserts are sold separately.

Parts

Flat Insert Screw		Integrated Wrench	Anti-seize Cream
	N·m		
BFTX0306IP	1.5	TRDR08IP	SUMI-P

* Modification of the cutter body is required when mounting a corner radius 2.4 or higher insert.

Modify the C chamfering portion

WEZ11

Reworking guidelines
Corner radius = 2.4: C1
(AOMT11T324PEER)
Corner radius = 3.0: C2.5
(AOMT11T330PEER)
Corner radius = 3.2: C2.5
(AOMT11T332PEER)

Standard: R1.

WEZR Endmill Identification Code - Inch

WEZR 2 1000 EW 100 - 175 Z02

Series | Insert Size | Diameter | Weldon Shank | Shank Dia. | Max. Depth of Cut | Effective No. of Teeth

WEZR Endmill Identification Code - Metric

WEZR 11 032 E 36 32 Z02

Series | Insert Size | Dia. | Shank Type | Max. Depth of Cut | Shank Dia. | Effective No. of Teeth

WEZR Endmill - *17mm* Insert

Rake Angle		
	Radial	-9° to -8°
	Axial	10° to 12°

1.14" to 3.31" 90° | 29 to 84mm 90°

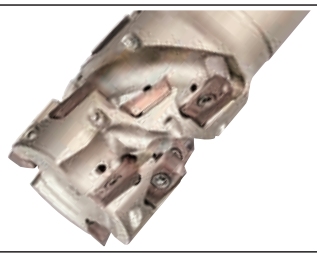
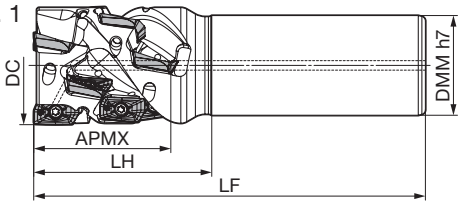


Fig. 1



Body (Endmill)

Dimensions (*mm*)

Cat. No.	Stock	Diameter DC	Max. Depth of Cut APMX	Shank DMM	Head LH	Overall Length LF	Total No. of Teeth	Insert Steps	Effective No. of Teeth	Weight (*kg*)	Fig
WEZR17040E2932Z03	★	*40*	*29(28)*	*32*	*45(44.3)*	*135(134.3)*	6	2	3	*.75*	1
WEZR17040E4332Z02	★	*40*	*43(42)*	*32*	*60(59.3)*	*150(149.3)*	6	3	2	*.86*	1
WEZR17050E5742Z03	★	*50*	*57(56)*	*42*	*75(74.3)*	*165(164.3)*	12	4	3	*1.58*	1
WEZR17050E8442Z02	★	*50*	*84(83)*	*42*	*105(104.3)*	*195(194.3)*	12	6	2	*1.94*	1

The APMX, LH and LF dimensions in parentheses are dimensions using RE = .197"/ .252", 5.0/6.4 mm insert. Inserts are sold separately.

Parts

Flat Insert Screw		Integrated Wrench	Anti-seize Cream
	N·m		
BFTX0409IP	3.0	TRDR15IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

● : USA stocked item ★: worldwide warehouse item

* Modification of the cutter body is required when mounting a corner radius 2.4 or higher insert.

Modify the C chamfering portion

WEZ17 Type

Reworking guidelines
Corner radius = 2.4: C1
(AOMT170524PEER)
Corner radius = 3.0: C1.5
(AOMT170530PEER)
Corner radius = 3.2: C1.5
(AOMT170532PEER)
Corner radius = 4.0: C2
(AOMT170540PEER)
Corner radius = 5.0: C5
(AOMT170550PEER)
Corner radius = 6.4: C5
(AOMT170564PEER)

Standard: R1.

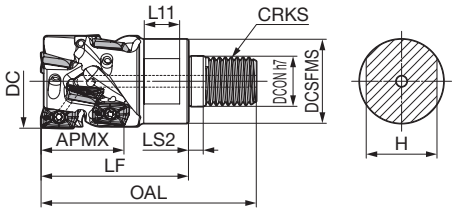
WEZR Endmill - *11 & 17mm* Insert

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-12°
	Axial	11°

1.06" 90° | 27mm 90°

Fig 1



WEZR Modular Head

Dimensions (*mm*)

Series	Cat. No.	Stock	Diameter DC	Max. Depth of Cut APMX	Boss DCSFMS	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Neck LS2	Flat L11	Width H	Total No. of Teeth	Insert Steps	Effective No. of Teeth	Weight (*kg*)	Fig
11	**WEZR11032M1627Z3**	★	*32*	*27(26)*	*28.5*	*17*	*M16*	*73(72.7)*	*50(49.7)*	*5*	*12*	*24*	9	3	3	*.21*	1
17	**WEZR17040M1629Z3**	★	*40*	*29(28)*	*28.5*	*17*	*M16*	*80(79.3)*	*57(56.3)*	*5*	*12*	*24*	6	2	3	*.29*	1

The APMX, OAL and LF dimensions in parentheses are dimensions using RE = .118"/.126", 3.0/3.2 mm insert. Inserts are sold separately.

Parts

Series	Flat Insert Screw		Integrated Wrench	Anti-seize Cream
		N·m		
11	BFTX0306IP	1.5	TRDR08IP	SUMI-P
17	BFTX0409IP	3.0	TRDR15IP	

N·m Recommended Tightening Torque (N·m)

● : USA stocked item ★ : worldwide warehouse item

* Modification of the cutter body is required when mounting a corner radius 2.4 or higher insert.

Modify the C chamfering portion

WEZ11 Type

Reworking guidelines
Corner radius = 2.4: C1
(AOMT11T324PEER)
Corner radius = 3.0: C2.5
(AOMT11T330PEER)
Corner radius = 3.2: C2.5
(AOMT11T332PEER)
Standard: R1.

■ WEZR Application Examples

Carbon Steel 1215 Machine Component		Sumitomo	Competitor's Product
Multi-tasking machine	Tool	WEZR11032E3632Z03	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*32*	*25*
	Number of Teeth	3×4 steps	2×3 steps
	v_c (SFM)	400	265
	v_f (IPM)	28	4
	f_z (IPT)	.0079	.0019
	a_p (Inch)	1.25	1.25
	a_e (Inch)	.118	.031
	Coolant	Wet	Wet
	Results	Less chatter, and efficiency increased 12x or more	

Grey Cast Iron Automotive Component		Sumitomo	Competitor's Product
Vertical Machining Center BT50	Tool	WEZR11032M1645Z3*	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	32	32
	Number of Teeth	3×5 steps	3×5 steps
	v_c (SFM)	265	265
	v_f (IPM)	19.69	19.69
	f_z (IPT)	.0079	.0079
	a_p (Inch)	1.77	1.77
	a_e (Inch)	.019 to .236	.019 to .236
	Coolant	Dry	Dry
	Results	Capable of low-chatter machining at a tool overhang amount of 7.874"	

SEC-Modular Tool

Titanium Alloy Ti-6Al-4V Aerospace Component		Sumitomo	Competitor's Product
Vertical Machining Center HSK63	Tool	WEZR11032M1618Z3*	Single-Sided, 2 Corners
	Grade	ACM300	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	32	32
	Number of Teeth	3×2 steps	3×3 steps
	v_c (SFM)	130	130
	v_f (IPM)	4.69	3.31
	f_z (IPT)	.0039	.0027
	a_p (Inch)	.5905	.5905
	a_e (Inch)	.9449	.9449
	Coolant	Wet	Wet
	Results	Capable of machining at reduced cutting force, at 1.4 times the feed rate	

SEC-Modular Tool

*Made-to-Order Product

Aluminum Alloy Automotive Component		Sumitomo	Competitor's Product
Vertical Machining Center BT30	Tool	WEZR11033E4525Z03*	H's Solid Endmills
	Grade	DL2000	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	33	32
	Number of Teeth	3×5 steps	4
	v_c (SFM)	1,600	330
	v_f (IPM)	31.50	8.82
	f_z (IPT)	.0022	.0022
	a_p (Inch)	1.000	1.000
	a_e (Inch)	.0394	.0394
	Coolant	Wet	Wet
	Results	Efficiency increased 5x or more, for reduced tool costs	

*Made-to-Order Product

Contact Sheet for Custom WEZ Milling Cutter

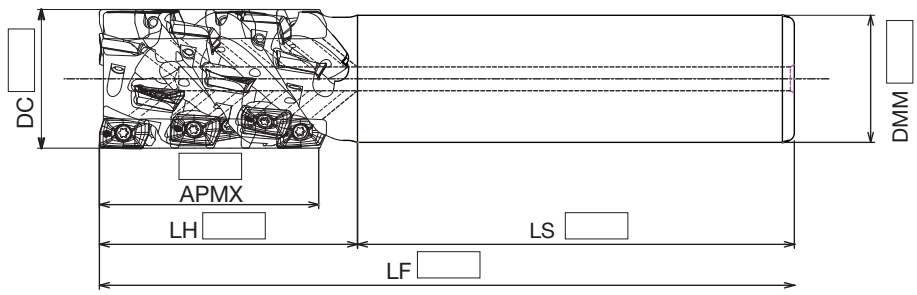
MADE TO ORDER

Fill in the ☐ with required special dimensions

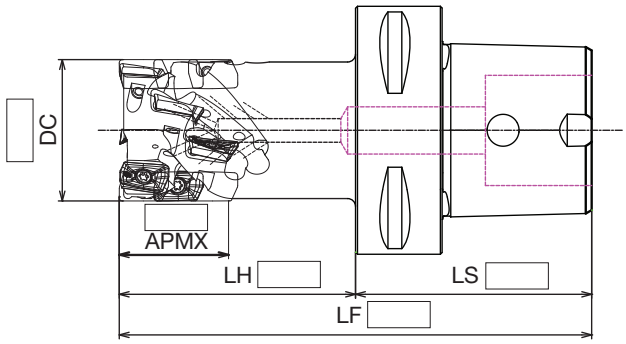
After completion, please submit to your local Sumitomo Sales Represenative or authorized distributor
Please include necessary additional information (shape, dimension, etc.)

Company Contact Information:

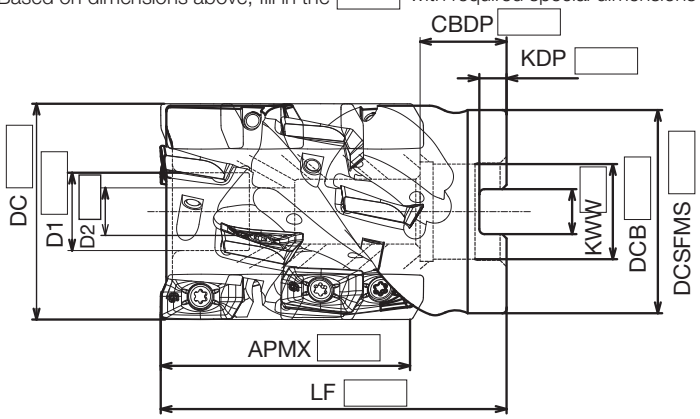
Shank Based on dimensions above, fill in the ☐ with required special dimensions



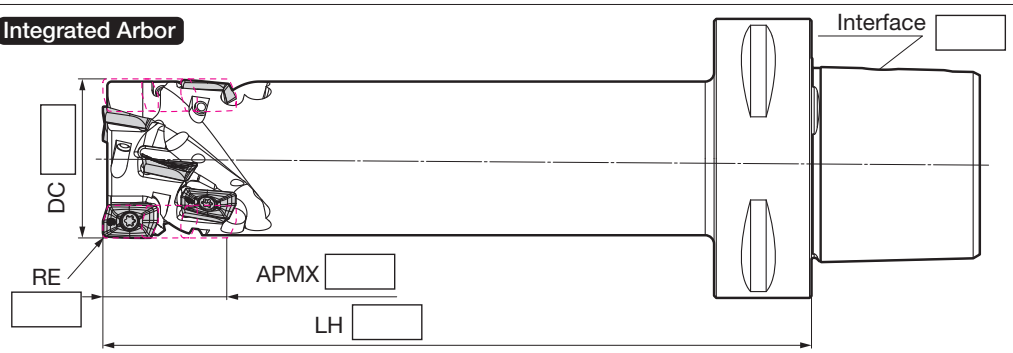
Polygon Shank Based on dimensions above, fill in the ☐ with required special dimensions



Shell Mill Based on dimensions above, fill in the ☐ with required special dimensions



Integrated Arbor



WEZ Modular - *11 & 17mm* Insert

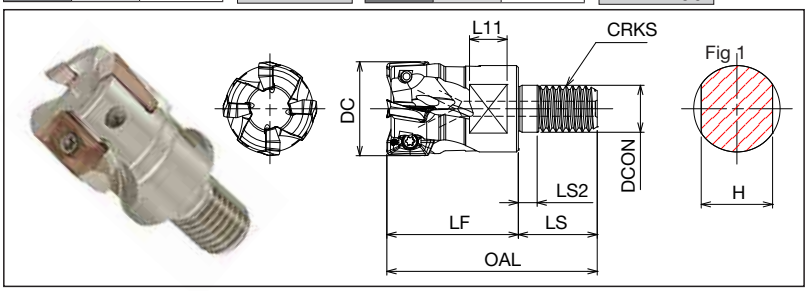
P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

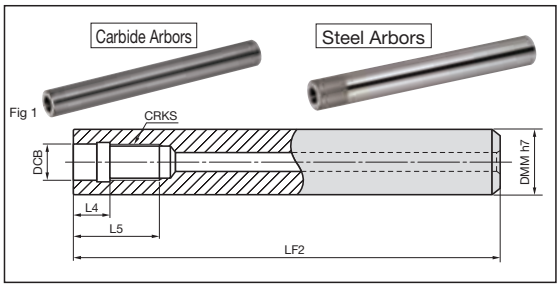
Rake Angle		
Radial	-7° to -18°	
Axial	6° to 15°	

.394" 90°

Rake Angle		
Radial	-6° to -12°	
Axial	6° to 15°	

.591" 90°





WEZ Modular Head - *11mm* Insert

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Mounting Diameter DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	# of Teeth	Weight lbs / kg	Fig
Inch	**WEZ20750M10Z3**	●	.750	.413	M10	1.929	1.181	.197	.748	.315	.591	3	.088	1
	WEZ21000M12Z4	●	1.000	.492	M12	2.205	1.378	.197	.827	.394	.748	4	.198	1
	WEZ21250M16Z5	●	1.250	.669	M16	2.480	1.575	.197	.906	.394	.945	5	.419	1
	WEZ21500M16Z6	●	1.500	.669	M16	2.480	1.575	.197	.906	.394	.945	6	.507	1
Metric	**WEZ11016M08Z2**	★	*16*	*8.5*	M8	*42*	*25*	*5*	*17*	*8*	*13*	2	*0.03*	1
	WEZ11018M08Z2	★	*18*	*8.5*	M8	*42*	*25*	*5*	*17*	*8*	*13*	2	*0.03*	1
	WEZ11020M10Z2	★	*20*	*10.5*	M10	*49*	*30*	*5*	*19*	*8*	*15*	2	*0.06*	1
	WEZ11020M10Z3	★	*20*	*10.5*	M10	*49*	*30*	*5*	*19*	*8*	*15*	3	*0.05*	1
	WEZ11022M10Z3	★	*22*	*10.5*	M10	*49*	*30*	*5*	*19*	*8*	*15*	3	*0.06*	1
	WEZ11025M12Z2	★	*25*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	2	*0.11*	1
	WEZ11025M12Z3	★	*25*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	3	*0.10*	1
	WEZ11025M12Z4	★	*25*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	4	*0.10*	1
	WEZ11026M12Z4	★	*26*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	4	*0.10*	1
	WEZ11026M12Z5	★	*26*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	5	*0.09*	1
	WEZ11028M12Z4	★	*28*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	4	*0.11*	1
	WEZ11028M12Z5	★	*28*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	5	*0.10*	1
	WEZ11030M16Z2	★	*30*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	2	*0.20*	1
	WEZ11030M16Z4	★	*30*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	4	*0.19*	1
	WEZ11030M16Z5	★	*30*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	5	*0.17*	1
	WEZ11032M16Z2	★	*32*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	2	*0.22*	1
	WEZ11032M16Z3	★	*32*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	3	*0.20*	1
	WEZ11032M16Z4	★	*32*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	4	*0.20*	1
	WEZ11032M16Z5	★	*32*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	5	*0.19*	1
	WEZ11035M16Z2	★	*35*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	2	*0.24*	1
	WEZ11035M16Z5	★	*35*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	5	*0.22*	1
	WEZ11040M16Z2	★	*40*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	2	*0.28*	1
	WEZ11040M16Z4	★	*40*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	4	*0.26*	1
	WEZ11040M16Z5	★	*40*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	5	*0.26*	1
	WEZ11040M16Z6	★	*40*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	6	*0.25*	1

WEZ Modular Head - *17mm* Insert

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Mounting Diameter DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	# of Teeth	Weight lbs / kg	Fig
Inch	**WEZ31000M12Z2**	●	1.000	.492	M12	2.205	1.378	.197	.827	.394	.748	2	.176	1
	WEZ31250M16Z3	●	1.250	.669	M16	2.480	1.575	.197	.906	.394	.945	3	.353	1
	WEZ31500M16Z4	●	1.500	.669	M16	2.480	1.575	.197	.906	.394	.945	4	.419	1
Metric	**WEZ17025M12Z2**	★	*25*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	2	*0.08*	1
	WEZ17025M12Z3	★	*25*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	3	*0.07*	1
	WEZ17028M12Z2	★	*28*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	2	*0.10*	1
	WEZ17030M16Z2	★	*30*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	2	*0.17*	1
	WEZ17030M16Z3	★	*30*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	3	*0.15*	1
	WEZ17032M16Z2	★	*32*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	2	*0.19*	1
	WEZ17032M16Z3	★	*32*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	3	*0.16*	1
	WEZ17032M16Z4	★	*32*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	4	*0.14*	1
	WEZ17035M16Z2	★	*35*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	2	*0.21*	1
	WEZ17035M16Z3	★	*35*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	3	*0.19*	1
	WEZ17040M16Z2	★	*40*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	2	*0.25*	1
	WEZ17040M16Z3	★	*40*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	3	*0.23*	1
	WEZ17040M16Z4	★	*40*	*17*	M16	*63*	*40*	*5*	*23*	*10*	*24*	4	*0.21*	1

Inserts are sold separately.

Identification Code - Inch

WEZ 2 1000 M12 Z4

Cutter Series | Insert Size | Dia. 1.000" | Mounting Screw Size | Number of Teeth

Identification Code - Metric

WEZ 11 016 M08 Z2

Cutter Series | Insert Size | Dia. | Mounting Screw Size | Number of Teeth

Parts - 11mm Insert

Applicable Cutter		Torx Screw		Integrated Wrench	Anti-seize Cream
Inch	Metric				
WEZ20000 Series	WEZ11000 Series	BFTX0306IP	1.5	TRDR08IP	SUMI-P

Parts 17mm Insert - Inch

Applicable Cutter	Torx Screw		Integrated Wrench	Anti-seize Cream
WEZ31000M12Z2	BFTX0407IP	3.0	TRDR15IP	SUMI-P
WEZ31250M16Z3	BFTX0409IP			
WEZ31500M16Z4				

Steel Arbor

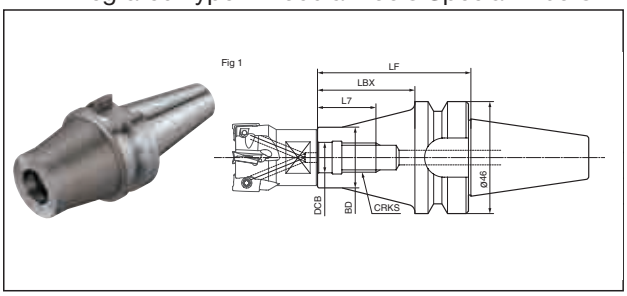
	Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF*	Fig
Inch	**MA0625M08L475S**	●	**M8**	0.335	0.625	4.750	0.393	0.708	5.734	1
	MA0750M10L600S	●	**M10**	0.413	0.750	6.000	0.393	0.787	7.181	1
	MA1000M12L800S	●	**M12**	0.492	1.000	8.000	0.393	0.866	9.378	1
	MA1000M16L800S	●	**M16**	0.669	1.000	8.000	0.393	0.944	9.575	1
	MA1250M16L800S	●	**M16**	0.669	1.250	8.000	0.393	0.944	9.575	1
Metric	**MA16M08L120S**	★	**M8**	*8.5*	*16*	*120*	*10*	*18*	*145*	1
	MA20M10L150S	★	**M10**	*10.5*	*20*	*150*	*10*	*20*	*180*	1
	MA25M12L200S	★	**M12**	*12.5*	*25*	*200*	*10*	*22*	*235*	1
	MA32M16L200S	★	**M16**	*17.0*	*32*	*200*	*10*	*24*	*240*	1

Carbide Arbor

Dimensions (*mm*)

	Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF*	Fig
Metric	**MA15M08L120C**	★	**M8**	*8.5*	*15*	*120*	*10*	*18*	*145*	1
	MA15M08L160C	★	**M8**	*8.5*	*15*	*160*	*10*	*18*	*185*	1
	MA16M08L120C	★	**M8**	*8.5*	*16*	*120*	*10*	*18*	*145*	1
	MA16M08L160C	★	**M8**	*8.5*	*16*	*160*	*10*	*18*	*185*	1
	MA18M10L150C	★	**M1**	*10.5*	*18*	*150*	*10*	*20*	*180*	1
	MA18M10L200C	★	**M10**	*10.5*	*18*	*200*	*10*	*20*	*230*	1
	MA20M10L150C	★	**M10**	*10.5*	*20*	*150*	*10*	*20*	*180*	1
	MA20M10L200C	★	**M10**	*10.5*	*20*	*200*	*10*	*20*	*230*	1
	MA23M12L200C	★	**M12**	*12.5*	*23*	*200*	*10*	*22*	*235*	1
	MA23M12L250C	★	**M12**	*12.5*	*23*	*250*	*10*	*22*	*285*	1
	MA25M12L200C	★	**M12**	*12.5*	*25*	*200*	*10*	*22*	*235*	1
	MA25M12L250C	★	**M12**	*12.5*	*25*	*250*	*10*	*22*	*285*	1
	MA28M16L200C	★	**M16**	*17.0*	*28*	*200*	*10*	*24*	*240*	1
	MA28M16L300C	★	**M16**	*17.0*	*28*	*300*	*10*	*24*	*340*	1
	MA32M16L200C	★	**M16**	*17.0*	*32*	*200*	*10*	*24*	*240*	1
	MA32M16L300C	★	**M16**	*17.0*	*32*	*300*	*10*	*24*	*340*	1

BBT Integrated Type - Modular Tools Special Arbors



BBT Integrated Arbor

Dimensions (*mm*)

Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	O.D. BD	Body Overhang L6	Length LBX	Thread Depth L7	Overhang LF*	Coolant Hole	Fig
BBT30-M8-50	★	**M8**	*8.5*	*15.9*	*73*	*50*	*18*	*98*	Yes	1
BBT30-M10-45	★	**M10**	*10.5*	*19.9*	*68*	*45*	*20*	*98*	Yes	1
BBT30-M12-40	★	**M12**	*12.5*	*24.9*	*63*	*40*	*22*	*98*	Yes	1
BBT30-M16-35	★	**M16**	*17*	*31.9*	*58*	*35*	*24*	*98*	Yes	1

*Overhang length for LF is with head mounted.
Can also be used with BT30 spindle machines.

Identification Code - Carbide Arbor

MA 15 M08 L120 C

Cutter Series | Shank Dia. | Mounting Screw Size | Arbor Overall Length | Grade C: Carbide S: Steel

N·m Recommended Tightening Torque (N·m) ● : USA stocked item ★: worldwide warehouse item

WEZ - AOMT / AOET *11mm & 17mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

	Grade	Coated Carbide							Carbide	DLC	Cermet			
	Process: High-speed / Light		P		K		M/S			N	P			
	Process: General-purpose	P/M/S		P		K	M/S	M/S	N	N				
	Process: Roughing	P/M/S		P		K		M/S						
	Cat. No.	ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACM200	ACM300	H20	DL2000	T2500A	Nose Radius RE (Dimensions (inch" / mm))	Wiper Facet Length wpr	Fig
11mm Insert	AOMT11T302PEER-G	●		●		●	●	●	—	—	●	.008" / 0.2	.118" / 3.0	1
	AOMT11T304PEER-G	●	●	●	●	●	●	●	—	—	●	.016" / 0.4	.110" / 2.8	1
	AOMT11T305PEER-G	●					●	●	—	—		.020" / 0.5	.106" / 2.7	1
	AOMT11T308PEER-G	●	●	●	●	●	●	●	—	—	●	.031" / 0.8	.091" / 2.3	1
	AOMT11T310PEER-G	●					●	●	—	—		.039" / 1.0	.083" / 2.1	1
	AOMT11T312PEER-G	●		●		●	●	●	—	—		.047" / 1.2	.079" / 2.0	1
	AOMT11T316PEER-G	●		●		●	●	●	—	—		.063" / 1.6	.067" / 1.7	1
	AOMT11T320PEER-G	●		●		●	●	●	—	—		.079" / 2.0	.051" / 1.3	1
	AOMT11T324PEER-G	●					●	●	—	—		.094" / 2.4	.035" / 0.9	1
	AOMT11T330PEER-G	●		●		●	●	●	—	—		.118" / 3.0	.024" / 0.6	2
	AOMT11T332PEER-G	●					●	●	—	—		.126" / 3.2	.024" / 0.6	2
	AOMT11T304PEER-H	●	●	●	●	●	●	●	—	—	—	.016" / 0.4	.110" / 2.8	1
	AOMT11T308PEER-H	●	●	●	●	●	●	●	—	—	—	.031" / 0.8	.091" / 2.3	1
	AOMT11T312PEER-H	●					●	●	—	—	—	.047" / 1.2	.079" / 2.0	1
	AOMT11T316PEER-H	●					●	●	—	—	—	.063" / 1.6	.067" / 1.7	1
	AOET11T302PEER-F	●	—		—		—		—	—	—	.008" / 0.2	.118" / 3.0	1
	AOET11T304PEER-F	●	—		—		—		—	—	—	.016" / 0.4	.110" / 2.8	1
	AOET11T305PEER-F	●	—		—		—		—	—	—	.020" / 0.5	.106" / 2.7	1
	AOET11T308PEER-F	●	—		—		—		—	—	—	.031" / 0.8	.091" / 2.3	1
	AOET11T310PEER-F	●	—		—		—		—	—	—	.039" / 1.0	.083" / 2.1	1
	AOET11T312PEER-F	●	—		—		—		—	—	—	.047" / 1.2	.079" / 2.0	1
	AOET11T316PEER-F	●	—		—		—		—	—	—	.063" / 1.6	.067" / 1.7	1
	AOET11T320PEER-F	●	—		—		—		—	—	—	.079" / 2.0	.051" / 1.3	1
	AOET11T324PEER-F	●	—		—		—		—	—	—	.094" / 2.4	.035" / 0.9	1
	AOET11T330PEER-F	●	—		—		—		—	—	—	.118" / 3.0	.024" / 0.6	2
	AOET11T332PEER-F	●	—		—		—		—	—	—	.126" / 3.2	.024" / 0.6	2
	AOET11T302PEFR-S	—	—	—	—	—	—	—	●	●	—	.008" / 0.2	.118" / 3.0	1
	AOET11T304PEFR-S	—	—	—	—	—	—	—	●	●	—	.016" / 0.4	.110" / 2.8	1
	AOET11T305PEFR-S	—	—	—	—	—	—	—	●	●	—	.020" / 0.5	.106" / 2.7	1
	AOET11T308PEFR-S	—	—	—	—	—	—	—	●	●	—	.031" / 0.8	.091" / 2.3	1
	AOET11T310PEFR-S	—	—	—	—	—	—	—	●	●	—	.039" / 1.0	.083" / 2.1	1
	AOET11T312PEFR-S	—	—	—	—	—	—	—	●	●	—	.047" / 1.2	.079" / 2.0	1
	AOET11T316PEFR-S	—	—	—	—	—	—	—	●	●	—	.063" / 1.6	.067" / 1.7	1
	AOET11T320PEFR-S	—	—	—	—	—	—	—	●	●	—	.079" / 2.0	.051" / 1.3	1
	AOET11T324PEFR-S	—	—	—	—	—	—	—	●	●	—	.094" / 2.4	.035" / 0.9	1
	AOET11T330PEFR-S	—	—	—	—	—	—	—	●	●	—	.118" / 3.0	.024" / 0.6	2
	AOET11T332PEFR-S	—	—	—	—	—	—	—	●	●	—	.126" / 3.2	.024" / 0.6	2
17mm Insert	AOMT170502PEER-L	●	—		—		●	●	—	—		.008" / 0.2	.193" / 4.9	3
	AOMT170504PEER-L	●	—	●	—	●	●	●	—	—	●	.016" / 0.4	.185" / 4.7	3
	AOMT170508PEER-L	●	—	●	—	●	●	●	—	—	●	.031" / 0.8	.169" / 4.3	3
	AOMT170512PEER-L	●	—		—		●	●	—	—		.047" / 1.2	.154" / 3.9	3
	AOMT170516PEER-L	●	—		—		●	●	—	—		.063" / 1.6	.138" / 3.5	3
	AOMT170502PEER-G	●		●		●	●	●	—	—		.008" / 0.2	.193" / 4.9	3
	AOMT170504PEER-G	●	●	●	●	●	●	●	—	—	●	.016" / 0.4	.185" / 4.7	3
	AOMT170505PEER-G	●					●	●	—	—		.020" / 0.5	.181" / 4.6	3
	AOMT170508PEER-G	●	●	●	●	●	●	●	—	—	●	.031" / 0.8	.169" / 4.3	3
	AOMT170510PEER-G	●					●	●	—	—		.039" / 1.0	.161" / 4.1	3
	AOMT170512PEER-G	●		●			●	●	—	—		.047" / 1.2	.154" / 3.9	3
	AOMT170516PEER-G	●		●		●	●	●	—	—		.063" / 1.6	.138" / 3.5	3
	AOMT170520PEER-G	●		●		●	●	●	—	—		.079" / 2.0	.122" / 3.1	3
	AOMT170524PEER-G	●					●	●	—	—		.094" / 2.4	.106" / 2.7	3
	AOMT170530PEER-G	●		●		●	●	●	—	—		.118" / 3.0	.079" / 2.0	3
	AOMT170532PEER-G	●		●			●	●	—	—		.126" / 3.2	.071" / 1.8	3
	AOMT170540PEER-G	●		●		●	●	●	—	—		.157" / 4.0	.039" / 1.0	3
	AOMT170550PEER-G	●		●		●	●	●	—	—		.197" / 5.0	.020" / 0.5	4
	AOMT170564PEER-G	●					●	●	—	—		.252" / 6.4	.020" / 0.5	4
	AOMT170504PEER-H	●	●	●	●	●	●	●	—	—	—	.016" / 0.4	.185" / 4.7	3
	AOMT170508PEER-H	●	●	●	●	●	●	●	—	—	—	.031" / 0.8	.169" / 4.3	3
	AOMT170512PEER-H	●					●	●	—	—	—	.047" / 1.2	.154" / 3.9	3
	AOMT170516PEER-H	●					●	●	—	—	—	.063" / 1.6	.138" / 3.5	3
	AOET170502PEER-F	●	—		—		—		—	—	—	.008" / 0.2	.193" / 4.9	3
	AOET170504PEER-F	●	—		—		—		—	—	—	.016" / 0.4	.185" / 4.7	3
	AOET170505PEER-F	●	—		—		—		—	—	—	.020" / 0.5	.181" / 4.6	3
	AOET170508PEER-F	●	—		—		—		—	—	—	.031" / 0.8	.169" / 4.3	3
	AOET170510PEER-F	●	—		—		—		—	—	—	.039" / 1.0	.161" / 4.1	3
	AOET170512PEER-F	●	—		—		—		—	—	—	.047" / 1.2	.154" / 3.9	3
	AOET170516PEER-F	●	—		—		—		—	—	—	.063" / 1.6	.138" / 3.5	3
	AOET170520PEER-F	●	—		—		—		—	—	—	.079" / 2.0	.122" / 3.1	3
	AOET170524PEER-F	●	—		—		—		—	—	—	.094" / 2.4	.106" / 2.7	3
	AOET170530PEER-F	●	—		—		—		—	—	—	.118" / 3.0	.079" / 2.0	3
	AOET170532PEER-F	●	—		—		—		—	—	—	.126" / 3.2	.071" / 1.8	3
	AOET170540PEER-F	●	—		—		—		—	—	—	.157" / 4.0	.039" / 1.0	3
	AOET170550PEER-F	●	—		—		—		—	—	—	.197" / 5.0	.020" / 0.5	4
	AOET170564PEER-F	●	—		—		—		—	—	—	.252" / 6.4	.020" / 0.5	4
	AOET170502PEFR-S	—	—	—	—	—	—	—	●	●	—	.008" / 0.2	.193" / 4.9	3
	AOET170504PEFR-S	—	—	—	—	—	—	—	●	●	—	.016" / 0.4	.185" / 4.7	3
	AOET170505PEFR-S	—	—	—	—	—	—	—	●	●	—	.020" / 0.5	.181" / 4.6	3
	AOET170508PEFR-S	—	—	—	—	—	—	—	●	●	—	.031" / 0.8	.169" / 4.3	3
	AOET170510PEFR-S	—	—	—	—	—	—	—	●	●	—	.039" / 1.0	.161" / 4.1	3
	AOET170512PEFR-S	—	—	—	—	—	—	—	●	●	—	.047" / 1.2	.154" / 3.9	3
	AOET170516PEFR-S	—	—	—	—	—	—	—	●	●	—	.063" / 1.6	.138" / 3.5	3
	AOET170520PEFR-S	—	—	—	—	—	—	—	●	●	—	.079" / 2.0	.122" / 3.1	3
	AOET170524PEFR-S	—	—	—	—	—	—	—	●	●	—	.094" / 2.4	.106" / 2.7	3
	AOET170530PEFR-S	—	—	—	—	—	—	—	●	●	—	.118" / 3.0	.079" / 2.0	3
	AOET170532PEFR-S	—	—	—	—	—	—	—	●	●	—	.126" / 3.2	.071" / 1.8	3
	AOET170540PEFR-S	—	—	—	—	—	—	—	●	●	—	.157" / 4.0	.039" / 1.0	3
	AOET170550PEFR-S	—	—	—	—	—	—	—	●	●	—	.197" / 5.0	.020" / 0.5	4
	AOET170564PEFR-S	—	—	—	—	—	—	—	●	●	—	.252" / 6.4	.020" / 0.5	4

-L: Low Cutting Force
-G: General-purpose
-H: Strong Edge
-F: Medium Finishing
-S: Non-ferrous metals

Fig 1

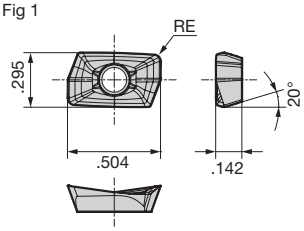
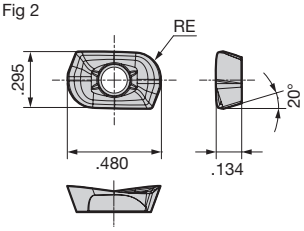


Fig 2



Precautions for Mounting Inserts

(1) Clean the mounting seat surface and contact parts.
(2) While pressing the insert solidly against the seat surface,tighten the screws with the included wrench.
(3) Apply Anti-seize Paste to the screws and tighten at the recommended torque.
(4) After tightening, check that there are no gaps on the seat surface.

Fig 3

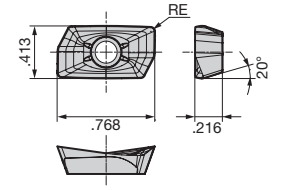
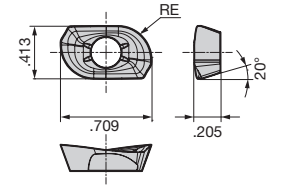


Fig 4



*When mounting inserts with nose radius of 3.0 or above, modification of the body is required.

Modify this edge.

Reworking guidelines
Nose radius = 3.0: C1
(AOMT11T330PEER)
Nose radius = 3.2: C1
(AOMT11T332PEER)
Standard: R1.

Modify this edge.

Reworking guidelines
Nose radius = 3.0: C1
(AOMT170530PEER)
Nose radius = 3.2: C1
(AOMT170532PEER)
Nose radius = 4.0: C2
(AOMT170540PEER)
Nose radius = 5.0: C5
(AOMT170550PEER)
Nose radius = 6.4: C5
(AOMT170564PEER)
Standard: R1.

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Small Endmill Milling Cutter for Medical and Lathe (Small Machining)

■ Features & Benefits

✓ **Version for multi-tasking machines now available**
Short shank type ideal for low-rigidity multi-tasking machines

✓ **Superb machining quality**
Shank design ideal for ER collets now has higher rigidity thanks to face contact effect, promotes excellent shoulder accuracy and finished surface quality

✓ **Abundant insert lineup**
Supports various machining with ground chipbreakers with excellent cutting edge sharpness, various nose radii, and dedicated work material grades

■ Body Product Range

Type	Type	Diameters in Stock (*mm*)				
		ø14	ø16	ø20	ø25	ø32
Lathe	**WEZ110000ES**	1	2	3	4	
	WEZ170000ES				2	3

● Numbers inside are number of teeth

WEZ11 type

Rake Angle		
	Radial	-14° to -18°
	Axial	6° to 10°

.394" 90°

WEZ17 type

Rake Angle		
	Radial	-10° to -12°
	Axial	6° to 8°

.591" 90°

■ WEZ Lathe (Small Machining) Style - 11mm & 17mm Insert

Fig 1

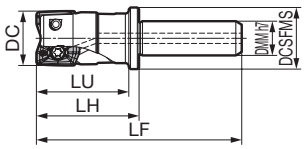
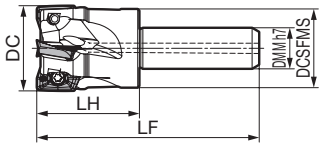


Fig 2



■ Body (Short Shank)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Shank DMM	Head LH	Neck LU	Overall Length LF	Number of Teeth	Weight (kg)	Fig
11 mm	**WEZ11014ES01-12**	●	*14*	*18*	*12*	*30(29.7)*	*27*	*65(64.7)*	1	0.05	1
	WEZ11016ES02-10	●	*16*	*18*	*10*	*25(24.7)*	*22*	*55(54.7)*	2	0.04	1
	WEZ11016ES02-12	●	*16*	*18*	*12*	*30(29.7)*	*27*	*65(64.7)*	2	0.05	1
	WEZ11020ES03-10	●	*20*	*18*	*10*	*25(24.7)*	—	*55(54.7)*	3	0.04	2
	WEZ11020ES03-12	●	*20*	*18*	*12*	*30(29.7)*	—	*65(64.7)*	3	0.06	2
	WEZ11020ES03-16	●	*20*	*23*	*16*	*30(29.7)*	*27*	*70(69.7)*	3	0.10	1
	WEZ11025ES04-12	●	*25*	*23*	*12*	*30(29.7)*	—	*65(64.7)*	4	0.09	2
	WEZ11025ES04-16	●	*25*	*23*	*16*	*30(29.7)*	—	*70(69.7)*	4	0.12	2
17 mm	**WEZ17025ES02-16**	●	**25**	23	16	30(29.3)	—	70(69.3)	2	0.11	1
	WEZ17032ES03-16	●	**32**	27	16	30(29.3)	—	70(69.3)	3	0.14	1

The LH and LF dimensions in parentheses are dimensions (for 11mm) using RE = 3.0/3.2 insert. When using RE = 3.0/3.2 inserts, the maximum depth of cut is 9.5. (For 17mm) RE = 5.0/6.4 insert. When using RE = 5.0/6.4 inserts, the maximum depth of cut is 14.5.
Inserts are sold separately.

● : USA stocked item

Identification Code - Metric

WEZ	11	020	E	S	03	-12
Cutter Series	Insert Size	Cutter Dia.	With Shank	Short Shank	Number of Teeth	Shank Diameter

■ Spare Parts

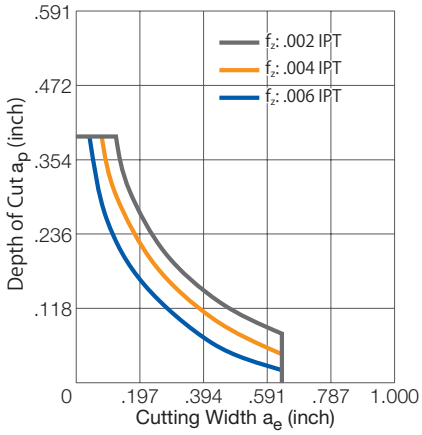
Applicable Cutter	Screw		Integrated Wrench	Anit-Seize Paste
WEZ11014ES01-12	BFTX0305IP	1.5	TRDR08IP	SUMI-P
WEZ11016ES02-10				
WEZ11016ES02-12				
WEZ11020ES03-10	BFTX0306IP			
WEZ11020ES03-12				
WEZ11020ES03-16				
WEZ11025ES04-12				
WEZ11025ES04-16				
WEZ17025ES02-16	BFTX0407IP	3.0	TRDR15IP	
WEZ17032ES03-16	BFTX0409IP			

Small Endmill Milling Cutter for Medical and Lathe (Small Machining)

■Feed Rate Recommendations

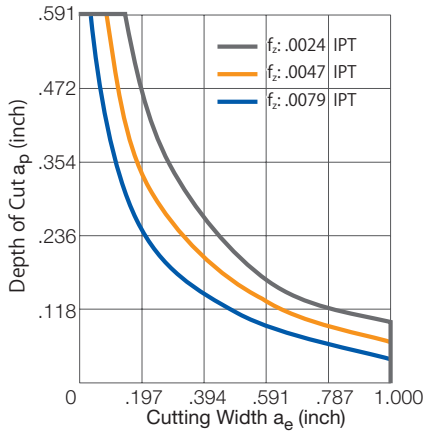
WEZ11

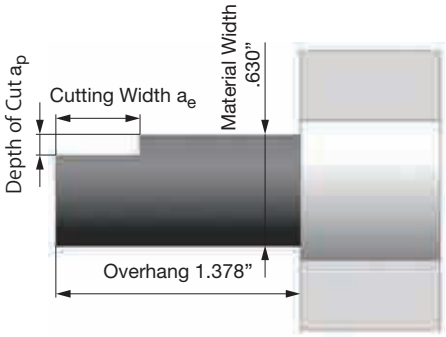
Tool: WEZ11016ES02-10
Insert: AOET11T3 ○○ PEER-F



WEZ17

Tool: WEZ17025ES02-16
Insert: AOET1705 ○○ PEER-F

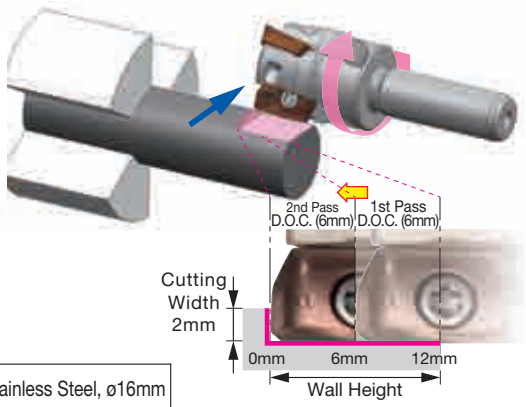


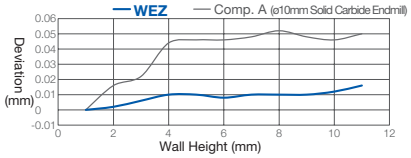


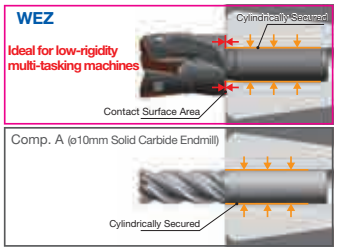
For cutting conditions by part material, see page H53. When using G type chipbreakers, set the efficiency to 80%. The recommended cutting conditions may not be practical depending on the operating conditions (e.g. machine, work material shape, clamping system).

■ Excellent Squareness

✓ WEZ presents a significant cost advantage when compared against solid carbide endmills.

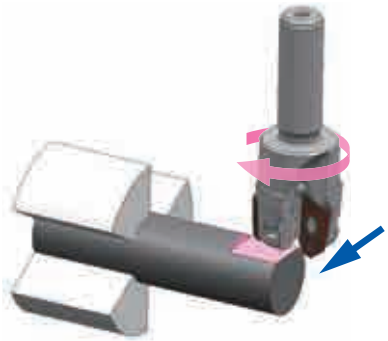




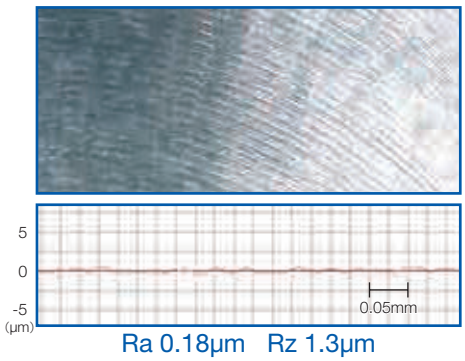


Machine: Multi-axis NC Lathe Part Material: 304 Stainless Steel, ø16mm
Tool: WEZ11020ES03-10 (ø20mm, 3 flutes)
Insert: AOET11T308PEER-F-ACU2500
Cutting Conditions: v_c = 330 SFM, f_z = .003 IPT,
a_p =.236" x 2 passes, a_e = .079"

■ Surface Quality

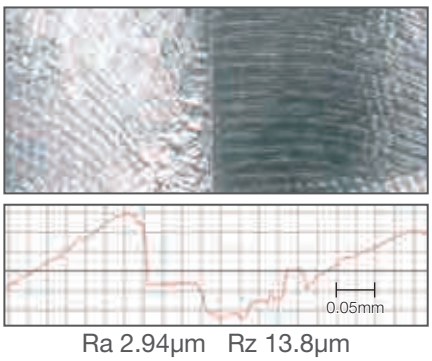


WEZ



Ra 0.18µm Rz 1.3µm

Competitor B (ø10 Solid Carbide Endmill)



Ra 2.94µm Rz 13.8µm

Machine: Compound NC Lathe Work Material: 304 Stainless Steel, ø16mm Round
Tool: WEZ11020ES03-10 (ø20mm, 3 flutes)
Insert: AOET11T308PEER-F (ACU2500)
Cutting Conditions: WEZ type, vc = 330 SFM, f_z = .002 IPT, a_p = .079", a_e = .472" Wet
Competitor's Product B: vc = 330 SFM, fz = .002 IPT, ap = .079, "ae = .236" x 2 Passes, Wet (Carbide Solid Endmill)

Larger tool diameter than carbide solid endmills enables reduced number of passes for high-efficiency machining!

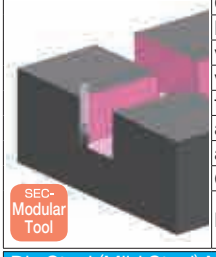
Good shoulder accuracy and machined surface quality which can eliminate a finishing pass.

■ WEZ Application Examples

1050 Steel Machine Component		Sumitomo	Competitor's Product
Vertical Machining Center BT50	Tool	WEZ17032E03	Single-Sided 2 Corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter Dia. (*mm*)	*32*	*32*
	Number of Teeth	3	3
	v_c (SFM)	246	246
	v_f (IPM)	8.86	8.86
	f_z (IPT)	.004	.004
	a_p (inch)	.157	.157
	a_e (inch)	.866	.866
	Coolant	Wet	Wet
	Results	Cutting edge wear reduced drastically at same number of parts which increased tool life.	

1040 Steel Hub		Sumitomo	Competitor's Product
Vertical Machining Center BT40	Tool	WEZ17025E02	Double-sided, 4 Corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter Dia. (*mm*)	*25*	*25*
	Number of Teeth	2	2
	v_c (SFM)	394	394
	v_f (IPM)	11.81	11.81
	f_z (IPT)	.0026	.0026
	a_p (inch)	.354	.354
	a_e (inch)	.197	.197
	Coolant	Wet	Wet
	Results	WEZ promoted stability with reduced cutting forces and quieter sound, which also lead to tool life improvement.	

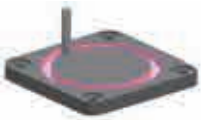
1050 Steel Machine Component		Sumitomo	Competitor's Product
5-axis Control Vertical Machining Center HSK-A100	Tool	WEZ11020M10Z3	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*20*	*20*
	Number of Teeth	3	3
	v_c (SFM)	240	240
	v_f (IPM)	157.50	157.50
	f_z (IPT)	.0079	.0079
	a_p (inch)	.02	.027
	a_e (inch)	.787	.787
	Coolant	Dry	Dry
	Results	Stability improvement with reduced chatter in slot milling with a 4.72" overhang.	



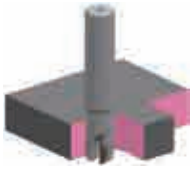
1045 Steel Machine Component		Sumitomo	Competitor's Product
Multi-tasking Machine	Tool	WEZ11025E03	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	25	25
	Number of Teeth	3	3
	v_c (SFM)	515	515
	v_f (IPM)	11.81	11.81
	f_z (IPT)	.0019	.0019
	a_p (inch)	.197	.197
	a_e (inch)	.138	.138
	Coolant	—	—
	Results	No chattering with excellent wall surface accuracy in a low rigidity fixture application	

Die Steel (Mild Steel) Mold Component		Sumitomo	Competitor's Product
Vertical Machining Center BT40	Tool	WEZ11020E03	Double-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	H	—
	Cutter Dia. (*mm*)	*20*	*20*
	Number of Teeth	3	3
	v_c (SFM)	475	630
	v_f (IPM)	4.75	118.11
	f_z (IPT)	.0059	.1378
	a_p (inch)	.236	.012
	a_e (inch)	.236	.331
	Coolant	Dry	Dry
	Results	WEZ improved efficiency by 3x in helical milling which also improved the surface quality.	

Alloy Tool Steel L6 (45HRC) Machine Component		Sumitomo	Competitor's Product
Vertical Machining Center HSK-A63	Tool	WEZ11022E03	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*22*	*22*
	Number of Teeth	3	3
	v_c (SFM)	165	100
	v_f (IPM)	8.55	5.12
	f_z (IPT)	.0039	.0039
	a_p (inch)	.118	.118
	a_e (inch)	.866	.866
	Coolant	Wet	Wet
	Results	WEZ was able to improve stable machining in 45 HRc Hardened steel	



Steel A572 Machine Component		Sumitomo	Competitor's Product
Vertical Machining Center BT50	Tool	WEZ17032EL03	Double-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*32*	*32*
	Number of Teeth	3	2
	v_c (SFM)	500	500
	v_f (IPM)	26.42	17.60
	f_z (IPT)	.0059	.0059
	a_p (inch)	.049	.049
	a_e (inch)	1.260	1.260
	Coolant	Wet	Wet
	Results	Efficiency improved 1.5x, quiet and stable machining	



1050 Steel Mold Component		Sumitomo	Competitor's Product
Ram-type Milling Machine BT40	Tool	WEZ11022E03	Double-Sided, 2 Corners
	Grade	T2500A	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*22*	*22*
	Number of Teeth	3	3
	v_c (SFM)	275	250
	v_f (IPM)	12.60	11.42
	f_z (IPT)	.0035	.0035
	a_p (inch)	.098	.098
	a_e (inch)	.394	.394
	Coolant	—	—
	Results	Improved machined surface quality and machining efficiency with cermet grades	

1045 Steel Machine Component		Sumitomo	Competitor's Product
Autolathe	Tool	WEZ11020ES03-10	Double-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*20*	*20*
	Number of Teeth	3	3
	v_c (SFM)	825	630
	v_f (IPM)	70.87	70.87
	f_z (IPT)	.0059	.0079
	a_p (inch)	.039	.039
	a_e (inch)	.394	.394
	Coolant	Wet	Wet
	Results	Surface roughness improved from Ra 4.1μm to Ra 0.7μm	

1035 Steel Machine Component		Sumitomo	Competitor's Product
Multi-tasking Machine	Tool	WEZ17032ES03-16	Round Insert (R5.0)
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*32*	*32*
	Number of Teeth	3	3
	v_c (SFM)	725	530
	v_f (IPM)	69.69	65.75
	f_z (IPT)	.0106	.0138
	a_p (inch)	.118	.118
	a_e (inch)	.472	.472
	Coolant	Wet	Wet
	Results	High-rigidity and less chattering throughout facing operation.	

■ WEZ Application Examples

304 Stainless Steel Semiconductor Device	Sumitomo	Competitor's Product
Horizontal Machining Center BT50		
Tool	WEZ17050RS05	Double-Sided, 4 Corners
Grade	ACU2500	—
Chipbreaker	G	—
Cutter Dia. (*mm*)	*50*	*50*
Number of Teeth	5	5
v_c (SFM)	265	265
v_f (IPM)	320	320
f_z (IPT)	12.60	12.60
a_p (inch)	.0079	.0079
a_e (inch)	1.575	1.575
Coolant	Wet	Wet
Results	Improved surface finish quality and reduced burrs, cutting post-processing time by 50%	

Duplex Stainless Steel Machine Component	Sumitomo	Competitor's Product
Multi-tasking Machine		
Tool	WEZ11025ES02-16*	Double-Sided, 2 Corners
Grade	ACU2500	-
Chipbreaker	F	-
Cutting Dia.(*mm*)	*25*	*25*
# of Teeth	2	2
v_c (SFM)	300	300
v_f (IPM)	12	12
f_z (IPT)	.005	.005
a_p(inch)	.059	.059
a_e(inch)	1.000	1.000
Coolant	Wet	Wet
Results * Made-to-Order Product	Eliminates burrs to extend tool life 1.6x	

304 Stainless Steel Machine Component	Sumitomo	Competitor's Product
Vertical Machining Center BT40		
Tool	WEZ11028E04	–
Grade	ACU2500	–
Chipbreaker	G	–
Cutter Dia. (*mm*)	*28*	*28*
Number of Teeth	4	4
v_c (SFM)	500	500
v_f (IPM)	53.15	53.15
f_z (IPT)	.0079	.0079
a_p (inch)	.079	.079
a_e (inch)	.394	.394
Coolant	Dry	Dry
Results	Tool life increased. Stable machining achieved.	

304 Stainless Steel Machine Component	Sumitomo	Competitor's Product
Vertical Machining Center BT30		
Tool	WEZ11020E03	Double-Sided, 2 Corners
Grade	ACU2500	—
Chipbreaker	G	—
Cutter Dia. (*mm*)	*20*	*20*
Number of Teeth	3	3
v_c (SFM)	500	500
v_f (IPM)	33.86	33.86
f_z (IPT)	.0047	.0047
a_p (inch)	.079	.079
a_e (inch)	.315	.315
Coolant	Wet	Wet
Results	WEZ promotes exceptional surface finish in applications were part fixture has low rigidity.	

304 Stainless Steel Machine Component	Sumitomo	Competitor's Product
Multi-tasking Machine		
Tool	WEZ11022E03	Double-Sided, 2 Corners
Grade	ACU2500	—
Chipbreaker	G	—
Cutter Dia. (*mm*)	*22*	*22*
Number of Teeth	3	3
v_c (SFM)	400	400
v_f (IPM)	61.50	61.50
f_z (IPT)	.012	.012
a_p (inch)	.079	.079
a_e (inch)	.866	.866
Coolant	Wet	Wet
Results	Since WEZ provided exceptional surface finish, finishing operation was removed achieving improved efficiency.	

Austenitic Stainless Steel Machine Component	Sumitomo	Competitor's Product
Vertical Machining Center BT50		
Tool	WEZ11040E04	Single-Sided, 4 Corners
Grade	ACM300	—
Chipbreaker	G	—
Cutter Dia. (*mm*)	*40*	*40*
Number of Teeth	4	4
v_c (SFM)	265	265
v_f (IPM)	10	10
f_z (IPT)	.0039	.0039
a_p (inch)	.039	.039
a_e (inch)	1.575	1.575
Coolant	—	—
Results	Improved tool life without chipping, even on mill-scale work	

Stainless Steel Machine Component	Sumitomo	Competitor's Product
Vertical Machining Center BT40		
Tool	WEZ11032E03	Double-Sided, 2 Corners
Grade	T2500A	—
Chipbreaker	G	—
Cutter Dia. (*mm*)	*32*	*32*
Number of Teeth	3	3
v_c (SFM)	510	510
v_f (IPM)	20.87	15.75
f_z (IPT)	.0047	.0035
a_p (inch)	.020	.020
a_e (inch)	.787	.787
Coolant	—	—
Results	Improved machined surface quality and machining efficiency with cermet grades	

304 Stainless Steel Machine Component	Sumitomo	Competitor's Product
Vertical Machining Center BT30		
Tool	WEZ11020E03	H's (High Speed Steel) Roughing Endmill
Grade	ACU2500	—
Chipbreaker	G	—
Cutter Dia. (*mm*)	*20*	*20*
Number of Teeth	3	4
v_c (SFM)	500	200
v_f (IPM)	33.85	13.40
f_z (IPT)	.0047	.0035
a_p (inch)	.079	.079
a_e (inch)	.315	.315
Coolant	—	—
Results	Longer tool life with reduced machining time as compared to using HSS endmills	

■ WEZ Application Examples

Ductile Cast Iron Straight Rail		Sumitomo	Competitor's Product
Vertical Machining Center BT50	Tool	WEZ17040EL03	Double-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*40*	*40*
	Number of Teeth	3	3
	v_c (SFM)	430	430
	v_f (IPM)	18.31	18.31
	f_z (IPT)	.0059	.0059
	a_p (inch)	.315	.236
	a_e (inch)	1.575	1.575
	Coolant	Dry	Dry
	Results	Reduces vibration during machining with 1.3 times the efficiency	

Ductile Cast Iron Machine Component		Sumitomo	Competitor's Product
Vertical Machining Center BT40	Tool	WEZ11050E05	Double-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	F	—
	Cutter Dia. (*mm*)	*50*	*50*
	Number of Teeth	5	5
	v_c (SFM)	520	310
	v_f (IPM)	11.81	10.63
	f_z (IPT)	.002	.003
	a_p (inch)	.047	.047
	a_e (inch)	.394	.394
	Coolant	Wet	Wet
	Results	Optimized sharpness ensured chatter control, promoted increased efficiency and improved surface finish.	

Gray Cast Iron Machine Component		Sumitomo	Competitor's Product
Vertical Machining Center BT50	Tool	WEZ17063RS06	Double-Sided, 2 Corners
	Grade	ACK3000	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*63*	*63*
	Number of Teeth	6	4
	v_c (SFM)	500	575
	v_f (IPM)	14.85	10.00
	f_z (IPT)	.003	.002
	a_p (inch)	.138	.138
	a_e (inch)	2.000	2.000
	Coolant	Wet	Wet
	Results	Efficiency improved 1.5x in helical milling Tool life doubled	

Gray Cast Iron Mounting Base Frame		Sumitomo	Competitor's Product
Vertical Machining Center BT50	Tool	WEZ11032E05	Double-Sided, 2 Corners
	Grade	ACK3000	–
	Chipbreaker	G	–
	Cutter Dia. (*mm*)	*32*	*32*
	Number of Teeth	5	4
	v_c (SFM)	722	722
	v_f (IPM)	43	43
	f_z (IPT)	.004	.004
	a_p (inch)	.079	.079
	a_e (inch)	.787	.787
	Coolant	Dry	Dry
	Results	Efficiency increased. WEZ was able to machine thin areas without chatter.	

Gray Cast Iron Machine Component		Sumitomo	Competitor's Product
Horizontal Machining Center BT50	Tool	WEZ11050RS07	Double-Sided, 2 Corners
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter Dia. (*mm*)	*50*	*50*
	Number of Teeth	7	5
	v_c (SFM)	591	591
	v_f (IPM)	31.69	31.69
	f_z (IPT)	.004	.004
	a_p (inch)	.012	.012
	a_e (inch)	.394	.394
	Coolant	Wet	Wet
	Results	WEZ provided quiet cutting pass with efficiency improvement for a finish quality with 3um parallelism and 4um flatness.	

Gray Cast Iron Table		Sumitomo	Competitor's Product
5-axis Control Vertical Machining Center HSK-A63	Tool	WEZ11040E06	–
	Grade	ACU2500	–
	Chipbreaker	G	–
	Cutter Dia. (*mm*)	*40*	*40*
	Number of Teeth	6	6
	v_c (SFM)	656	656
	v_f (IPM)	51.18	51.18
	f_z (IPT)	.005	.005
	a_p (inch)	.004	.004
	a_e (inch)	.787	.787
	Coolant	Wet	Wet
	Results	Stable machining is possible for thin workpieces or low-rigidity machines.	

Cast Steel for Welded Structure Product SCW480 Press Housing		Sumitomo	Competitor's Product
Double Column 5-axis Machining Center BT50	Tool	WEZ17160R08	Double-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*60*	*60*
	Number of Teeth	8	8
	v_c (SFM)	500	500
	v_f (IPM)	19.69	19.69
	f_z (IPT)	.008	.008
	a_p (inch)	.275	.275
	a_e (inch)	2.953	2.953
	Coolant	—	—
	Results	Reduces chipping on large workpieces, enabling stable machining	

Gray Cast Iron Railway Component		Sumitomo	Competitor's Product
Vertical Machining Center	Tool	WEZ11040M16Z6	Double-Sided, 4 Corners
	Grade	ACK3000	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*40*	*40*
	Number of Teeth	6	3
	v_c (SFM)	122	160
	v_f (IPM)	27.83	13.54
	f_z (IPT)	.016	.012
	a_p (inch)	.098 x 1 pass + 1	.059 x 2 passes + 0.5
	a_e (inch)	—	—
	Coolant	Wet	Wet
	Results	Increased cutting edge sharpness enables stable machining with efficiency improved 4.5x	

SEC-Modular Tool

■ WEZ Application Examples

Aluminum Alloy A2025 Machine Component	Sumitomo	Competitor's Product
Vertical Machining Center BT40		
Tool	WEZ17063RS04	Double-Sided, 2 Corners
Grade	H20	—
Chipbreaker	S	—
Cutting Dia.(*mm*)	*63*	*63*
# of Teeth	4	4
v_c (SFM)	3,915	3,915
v_f (IPM)	75.59	75.59
f_z (IPT)	.003	.003
a_p(inch)	.039	1
a_e(inch)	1.969	1.969
Coolant	—	—
Results	Little dimensional fluctuation was possible and precise machining was stable with WEZ	

Aluminum Alloy A5052 Machine Component	Sumitomo	—
5-axis Control Vertical Machining Center HSK-A100		
Tool	WEZ17025M12Z2	—
Grade	DL2000	—
Chipbreaker	S	—
Cutting Dia.(*mm*)	*25*	—
# of Teeth	2	—
v_c (SFM)	2,600	—
v_f (IPM)	157.50	—
f_z (IPT)	.008	—
a_p(inch)	.154	—
a_e(inch)	1.000	—
Coolant	Wet	—
Results	Stable machining with minimal chatter with an overhang of 3.94" (L/D=4)	

SEC-Modular Tool

Pure Copper (Mill-Scale) Electrical Machinery Component	Sumitomo	Competitor's Product
Vertical Machining Center BT40		
Tool	WEZ17100R05	Double-Sided, 4 Corners
Grade	DL2000	—
Chipbreaker	S	—
Cutting Dia.(*mm*)	*100*	*100*
# of Teeth	5	5
v_c (SFM)	1,040	1,040
v_f (IPM)	15.75	15.75
f_z (IPT)	.003	.003
a_p(inch)	.020	.020
a_e(inch)	3.150	3.150
Coolant	Wet	Wet
Results	Holes did not have burrs which reduced the finishing process.	

Resin Electronic Device	Sumitomo	Competitor's Product
Vertical Machining Center BT40		
Tool	WEZ11080R07	Double-Sided, 2 Corners
Grade	DL2000	—
Chipbreaker	S	—
Cutting Dia.(*mm*)	*80*	*80*
# of Teeth	7	7
v_c (SFM)	1,240	1,240
v_f (IPM)	41.34	41.34
f_z (IPT)	.004	.004
a_p(inch)	.118	.118
a_e(inch)	1.969	1.969
Coolant	Wet	Wet
Results	Improved cutting edge sharpness provides quiet machining noise.	

FRPP Resin Industrial Machine Component	Sumitomo	Competitor's Product
Horizontal Machining Center BT50		
Tool	WEZ11020E02	Double-Sided, 2 Corners
Grade	DL2000	—
Chipbreaker	S	—
Cutting Dia.(*mm*)	*20*	*20*
# of Teeth	2	3
v_c (SFM)	660	120
v_f (IPM)	25.20	8.66
f_z (IPT)	.004	.003
a_p(inch)	.197 to .354 x 3 passes	.197 to .354 x 3 passes
a_e(inch)	.037 x 1 pass	.037 x 1 pass
Coolant	—	—
Results	Minimized wall surface step which increased machining efficiency.	

Titanium Alloy Ti-6Al-4V Aerospace Component	Sumitomo	Competitor's Product
Vertical Machining Center BT50		
Tool	WEZ11063RS08	Double-Sided, 2 Corners
Grade	ACU2500	—
Chipbreaker	G	—
Cutting Dia.(*mm*)	*63*	*63*
# of Teeth	8	8
v_c (SFM)	160	160
v_f (IPM)	12.20	12.20
f_z (IPT)	.006	.006
a_p(inch)	.079	.079
a_e(inch)	1.969	1.969
Coolant	Wet	Wet
Results	No chipping, longer tool life with reduced burrs.	

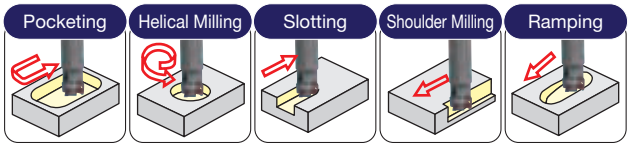
Nickel Based Alloy Inconel 718 Aerospace Component	Sumitomo	Competitor's Product
Vertical Machining Center BT50		
Tool	WEZ17032E04 (Special Component)	Double-Sided, 2 Corners
Grade	ACU2500	—
Chipbreaker	H	—
Cutting Dia.(*mm*)	*32*	*32*
# of Teeth	4	4
v_c (SFM)	100	100
v_f (IPM)	4.72	4.72
f_z (IPT)	.004	.004
a_p(inch)	.197	.197
a_e(inch)	.394	.394
Coolant	Wet	Wet
Results	50% tool life improvement	

Titanium Alloy Aerospace Component	Sumitomo	Competitor's Product
Compound Lathe		
Tool	WEZ17035E03	Double-Sided, 2 Corners
Grade	ACM300	—
Chipbreaker	L	—
Cutting Dia.(*mm*)	*35*	*35*
# of Teeth	3	3
v_c (SFM)	150	150
v_f (IPM)	—	—
f_z (IPT)	.006	.006
a_p(inch)	.118	.118
a_e(inch)	.689	.689
Coolant	Wet	Wet
Results	Tool life improved	

■ General Features

An insert with a strong cutting edge design coupled with a high rigidity body, for stable and high efficiency milling with low resistance. The improved body and insert accuracy provides high accuracy and smooth surface finish, supporting various machining with a selection of 6 types of chipbreakers and 9 milling grades.

Compatible with Wide Range of Milling

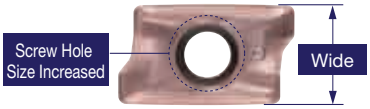


■ Features

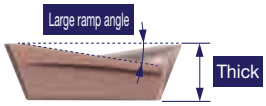
Higher Accuracy Cutting Edge with Both Sharpness and Cutting Edge Strength

Unique curved cutting edge design lowers cutting force yet improves cutting edge strength. Achieves high quality machined surface with high precision cutting edge.
Smooth deep groove milling even with low-rigidity machines

High-precision Curved Cutting Edge



High Rake Wave Cutting Edge



Coolant Holes are a Standard Feature for the Whole Series

Improved chip evacuation with air or coolant supply.

Highly Durable Body

Special surface treatment improves corrosion resistance and scratch resistance.
Increased screw size improves clamping force and durability

WEX1000 Series

Fine-pitched and high efficiency milling is possible at a small machining cost.

Wide Variety of Inserts

6 types of chipbreakers and 9 milling grades available for a wide range of applications and work materials

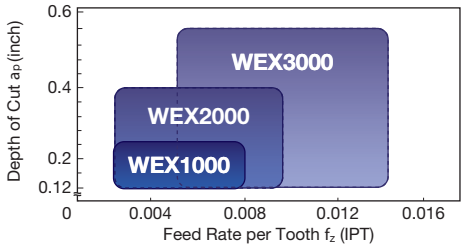
■ Product Range

	Cat. No.		Remarks	Cutter Diameters in Stock (inch) / Number of Teeth												Shape
				ø.500"	ø.625"	ø.750"	ø1.000"	ø1.250"	ø1.500"	ø2.000"	ø2.500"	ø3.000"	ø4.000"	ø6.000"	ø8.000"	
Shell Type	WEX2000R	H71	Standard Type						6	7	8					
	WEX3000R	H72	Standard Type							5	6	7	8		12	
	WEXC3000R	H72	Standard Type									5	6	8		
Shank Type	WEX2000EW	H75	Weldon Shank	1	2	3	4	5								
	WEX2000EMW	H75	Weldon Shank Medium		2	3										
	WEXC2000EW	H75	Weldon Shank			4	4									
	WEXC2000EMW	H75	Weldon Shank Medium				3									
	WEXC2000ELC	H75	Extra Long Type Cylindrical			2										
	WEX2000ELW	H75	Weldon Shank Long			3										
	WEX2000ELC	H75	Extra Long Type Cylindrical			3	4									
	WEX3000EW	H76	Weldon Shank				2	3	4	5						
	WEXC3000EMW	H76	Weldon Shank Medium						3							
	WEX3000EMW	H76	Weldon Shank Medium				2	3								
	WEX3000ELW	H76	Weldon Shank Long				2									
	WEX3000ELC	H76	Extra Long Shank/ Clyindrical				2	3	4							
Modular Type	WEX20000M	H206	Modular Type			3	4	5	6							
	WEX30000M	H207	Modular Type				2	3	4							

	Cat. No.		Remarks	Cutter Diameters in Stock (mm) / Number of Teeth																	Shape
				ø10	ø12	ø14	ø16	ø18	ø20	ø22	ø25	ø28	ø30	ø32	ø35	ø40	ø50	ø63	ø80	ø100	ø125	
Shell Type	WEX1000F	H75	Standard Type											8		10	12	14				
	WEX2000F	H76	Standard Type													6	7	8				
	WEX3000F	H77	Standard Type													4	5	6				
	WEX3000R	H77	Standard Type																4	5	6	
	WEXF3000R	H77	Fine pitch																7	8	9	
Shank Type	WEX1000E	H78	Standard Type	2	3	3	4	4	5		7											
	WEX1000EL	H78	Long Type	2	2	3	3	3	4													
	WEX2000E	H79	Standard Type			1	2	2	3	3	4	4	4	5		6	7	8				
	WEX2000EL	H79	Long Type			1	2	2	2	2	2	2	2	2		2						
	WEX3000E	H80	Standard Type								2	2	3	3	3	4	5	6				
	WEX3000ES	H80	Short Type														5	6				
	WEX3000EL	H80	Long Type								2	2	2	2	2	2						
	WEX3000E-C	H80	Coarse Pitch Type													3	3	4				
	WEX3000ES-C	H80	Short & Coarse Pitch Type														3	4				
Modular Type	WEX2000M	H213	Modular Type				2	2	3	3	4	4	4	5		6						
	WEX3000M	H214	Modular Type								2	2	3	3	3	4						

● Numbers inside are number of teeth * mark: Different-diameter shanks in stock

■ WEX Type Series Application Range (Shoulder Milling)



■ WEX1000 Number of Teeth

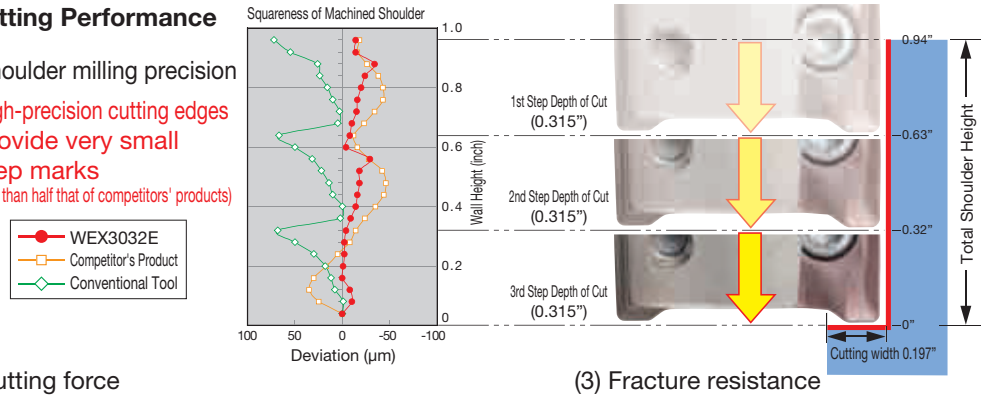
Cutter Dia.	Number of Teeth: WEX1000E Standard Type (APMX = 6.0mm)	WEX1000EL Long Type (APMX = 6.0mm)	WEX2000E Standard Type (APMX = 10.0mm)
ø10mm	2	2	—
ø12mm	3	2	—

Cutter Dia.	Number of Teeth: WEX1000E Standard Type (APMX = 6.0mm)	WEX1000EL Long Type (APMX = 6.0mm)	WEX2000E Standard Type (APMX = 10.0mm)
ø12mm	3	2	—
ø14mm	3	3	1

■ Cutting Performance

(1) Shoulder milling precision

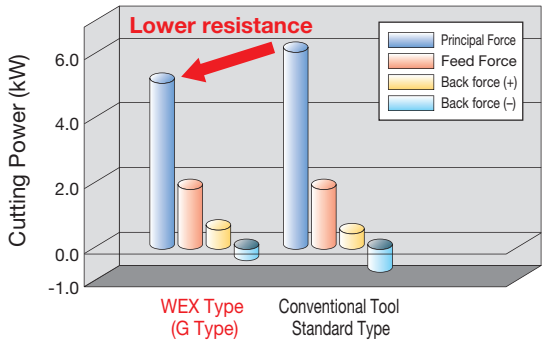
High-precision cutting edges provide very small step marks
(less than half that of competitors' products)



Cutting Conditions
Part Material: A36
Tool: WEX3032E (ø32)
Insert: AXMT170508PEER-G
Grade: ACP200
Cutting Speed: v_c=492 SFM
Feed Rate: f_z=0.006 IPT (v_f=26.57 IPM)
Cutting Width: a_e=0.197"
Depth of Cut: a_p=0.315" x 3 times
Dry

(2) Cutting force

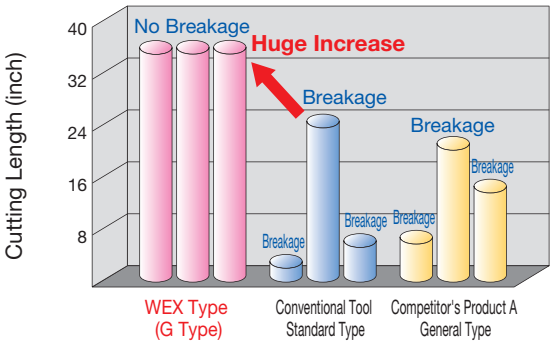
Cutting force (principal force) is approximately 15% lower than conventional tools



Cutting Conditions
Part Material: 1050
Tool: WEX3032E (ø32)
Insert: AXMT170508PEER-G
Grade: ACP200
Cutting Speed: v_c=656 SFM
Feed Rate: f_z=0.008" IPT (v_f=47 IPM)
Cutting Width: a_e=0.315"
Depth of Cut: a_p=0.40" , Dry

(3) Fracture resistance

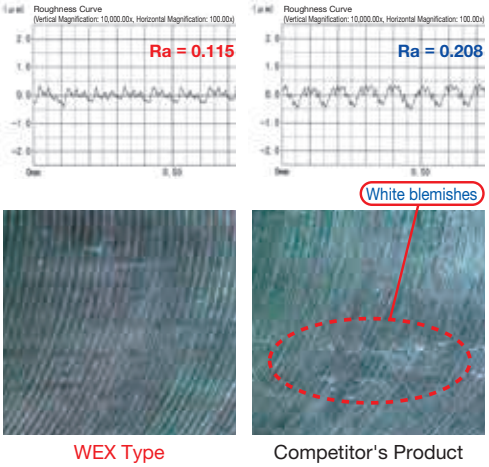
Huge increase in fracture resistance with improved cutting edge strength



Cutting Conditions
Part Material: 4140
Tool: WEX3032E (ø32)
Insert: AXMT170508PEER-G
Grade: ACP200
Cutting Speed: v_c=328 SFM
Feed Rate: f_z=0.016" IPT (v_f=49.6 IPM)
Cutting Width: a_e=0.984"
Depth of Cut: a_p=0.12, Dry

(4) Surface roughness (aluminum alloy milling)

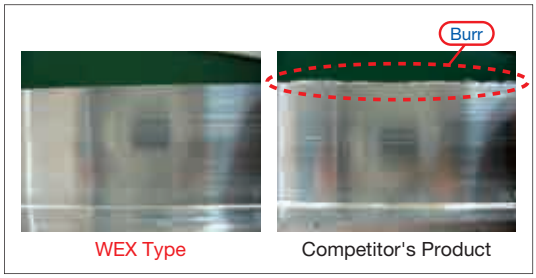
Smooth surface finish free of white blemishes



Cutting Conditions
Work Material: A5052
Tool: WEX3032E (ø32)
Insert: AXET170504PEFR-S (H1)
Cutting Speed: v_c=2,625 SFM
Feed Rate: f_z=0.004" IPT (v_f=94.5" IPM)
Cutting Width: a_e=0.63"
Depth of Cut: a_p=0.40" , Dry

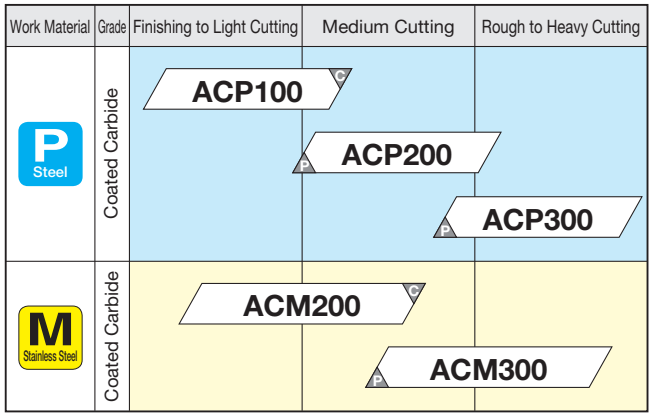
(5) Wall surface burrs (aluminum alloy milling)

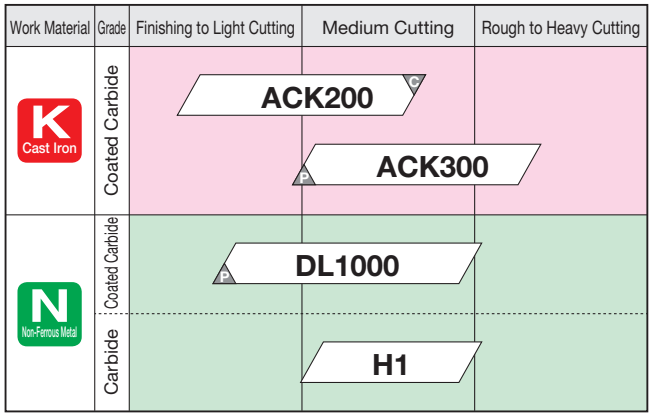
High rake edge significantly reduces burrs.



Cutting Conditions
Part Material: A5052
Tool: WEX3032E (ø32)
Insert: AXET170504PEFR-S (H1)
Cutting Speed: v_c=2,625 SFM
Feed Rate: f_z=0.004" IPT (v_f=94.5" IPM)
Cutting Width: a_e=0.197"
Depth of Cut: a_p=0.472" , Dry

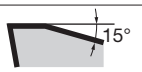
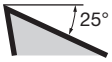
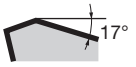
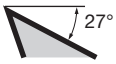
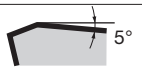
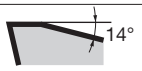
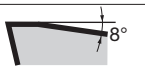
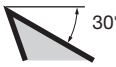
■ Grade Application Range





The letters "C" and "P" at the end of each grade indicate the coating type. C: CVD, P: PVD, Blank: Uncoated

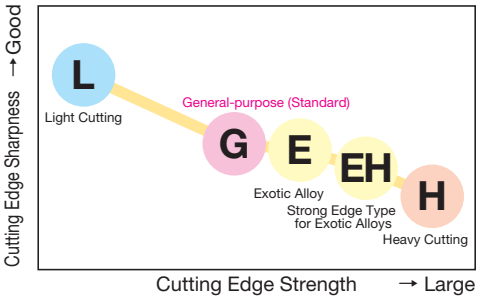
■ Chipbreaker Lineup

Work Material	P K			M S		N
	L Type	G Type	H Type	E Type	EH Type	S Type
Chipbreaker						
Features	Low Cutting Force	General-purpose Type	High Strength Type	General-Purpose Type For Exotic Alloys	Strong Edge Type For Exotic Alloys	High Rake Type
1000 Series Cross Section	25°	25°	 15°	–	–	 25°
2000 Series Cross Section	–	28°	20°	17°	 17°	 27°
3000 Series Cross Section	25°	20°	 5°	 14°	 8°	 30°
Applications	Light Cutting, Low Rigidity Milling and Reduction of Burrs	**Main Chipbreakers** General-purpose to Interrupted Milling	Roughing, Heavy Interrupted Cutting and Hardened Steel Milling	Light Cutting to General Purpose	Heavy Interrupted Machining	For Aluminum Alloy and Non-Ferrous Metal

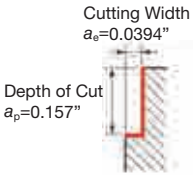
■ Recommended Cutting Conditions

ISO	Material	Hardness	Grade	Depth of Cut .002 -.050	Depth of Cut .050 - .125	Depth of Cut .125 & over	Feed per Tooth
P	Low and Medium Carbon Steels	<250 Bhn	ACP100	775-1310	725-1275	675-1225	.006-.0125
			ACP200	721-1213	675-1180	600-1125	.006-.0135
			ACP300	675-1075	650-1025	525-925	.006-.014
	Medium Carbon Alloy Steels	<250 Bhn	ACP100	600-975	575-950	550-900	.006-.0095
			ACP200	550-900	525-900	500-875	.006-.0115
			ACP300	525-875	500-825	475-800	.006-.0115
	Medium-High Carbon Steels	<250 Bhn	ACP100	600-975	575-950	550-900	.006-.011
			ACP200	575-950	550-925	500-875	.006-.012
			ACP300	575-950	550-925	500-875	.006-.012
	Free Machining Steels and Alloys	<250 Bhn	ACP100	725-1300	700-1250	675-1200	.006-.0135
			ACP200	750-1325	725-1275	675-1225	.006-.0135
			ACP300	675-1075	650-1050	650-1025	.006-.014
	Tool Steels	<250 Bhn	ACP100	475-820	450-790	425-750	.0047-.010
			ACP200	450-820	435-790	425-750	.0047-.011
			ACP300	450-820	425-790	400-725	.0047-.012
		bhn 220 - 350	ACP100	400-775	400-735	400-700	.004-.009
			ACP200	425-750	400-725	375-690	.0045-.010
			ACP300	420-700	420-695	375-685	.0047-.012
		>33 Hrc	ACP100	325-650	300-625	300-590	.003-.007
			ACP200	325-650	300-625	300-590	.0045-.0095
M	Stainless Steel: Martensitic and Ferritic	<250 Bhn	ACM300	535-850	520-830	275-820	.004-.011
		>250 Bhn	ACM200	425-740	415-720	375-675	.004-.012
	Stainless Steel: Austenitic	<250 Bhn	ACM300	325-875	300-850	275-825	.004-.012
	Stainless Steel: Precipitation Hardening	<250 Bhn	ACM200	525-850	500-825	175-675	.004-.012
K	Grey Cast Iron	>250 Bhn	ACK200	700-1050	625-925	590-900	.004-.014
			ACK300	600-950	575-875	550-850	.004-.014
		<250 Bhn	ACK200	600-950	525-825	490-800	.004-.014
			ACK300	500-850	475-775	450-750	.004-.014
	Ductile Iron	>250 Bhn	ACK200	600-925	550-875	490-800	.004-.012
			ACK300	550-825	550-825	450-750	.004-.012
S	Exotic Alloys: Inconel, Hastalloy, Waspalloy, etc.		ACK200	100-160	70-150	60-135	.003-.0075
			ACK300	100-160	70-150	60-135	.004-.0075
N	Non-Ferrous Material		H1	1500-3800	1300-3700	1200-3600	.004-.014
			DL1000	1500-4500	1475-4200	1275-4100	.004-.014

■ Chipbreaker Selection Guide



■ Recommended Cutting Conditions in Metric, please see H66 for Inch Parameters



WEX1000

Tool: WEX1012E, Insert: AX□T0602

Cutting Conditions: Depth of Cut a_p=4mm, Width of Cut a_e=1mm, Dry

ISO Classification	Work Material	Workpiece Hardness (HB)	Chipbreaker	Grade																							
				ACP100			ACP200			ACP300			ACK200			ACK300			ACM200			ACM300			DL1000		
				Feed Rate per Tooth f_z (mm/t)																							
				0.08	0.12	0.16	0.08	0.12	0.16	0.08	0.12	0.16	0.10	0.15	0.20	0.10	0.15	0.20	0.08	0.10	0.12	0.08	0.10	0.12	0.05	0.10	0.15
				Cutting Speed v_c (m/min)																							
P	Steel, Carbon Steel S15C	125	G	260	240	220	240	220	200	220	200	180															
	S45C	190	G	200	180	160	180	160	140	180	160	140															
	S45C Hardened	250	G	180	120	140	160	140	120	150	130	110															
	S75C	270	G	160	140	120	150	130	110	130	110	110															
	S75C Hardened	300	G	100	80	70	90	70	60	70	60	50															
	Low Alloy Steel (SCM, SNCM)	180	G	200	180	160	180	160	150	160	150	130															
	SCM, SNCM Hardened	275	G	130	110	90	120	100	90	100	90	80															
	SCM, SNCM Hardened	300	G	120	100	80	100	90	80	90	80	60															
	SCM, SNCM Hardened	350	G	90	80	60	80	70	60	70	60	40															
	High-alloy Steel (SKD, SKT, SKH)	200	G	180	170	160	170	160	130	150	140	120															
	SKD, SKT, SKH Hardened	325	G	100	80	60	80	60	50	60	50	30															
M	Stainless Steel SUS430 and Others (Martensitic / Ferritic)	200	E																170	150	120	140	130	110			
	SUS403 and others (Martensitic / Hardened)	240	E																140	120	100	120	100	90			
	SUS304, SUS316 (Austenitic)	180	E																180	160	140	160	140	130			
K	Cast Iron		G										240	220	200	220	200	180									
	Ductile Cast Iron		G										160	140	120	140	120	100									
S	Exotic Alloy		E																50	35		45	25				
N	For Aluminum Alloy Si ≤12.6%		S																						800	600	400
	Si >12.6%		S																						240	200	160
	Copper Alloy		S																						330	300	270

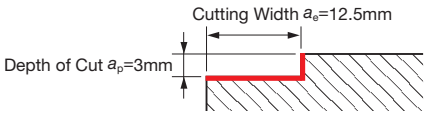
● The recommended cutting conditions may not be practical depending on the operating conditions (e.g. machine, workpiece shape, clamping system).
● For groove milling, adjust the feed rate to around 70% of the above values.

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WEX2000

Tool: WEX2025E, Insert: AX□T1235

Cutting Conditions: Depth of Cut a_p=3mm, Width of Cut a_e=12.5mm, Dry



ISO Classification	Work Material	Workpiece Hardness (HB)	Chipbreaker	Grade																							
				ACP100			ACP200			ACP300			ACK200			ACK300			ACM200			ACM300			DL1000		
				Feed Rate per Tooth f_z (mm/t)																							
				0.08	0.15	0.20	0.08	0.15	0.20	0.08	0.15	0.20	0.08	0.15	0.20	0.08	0.15	0.20	0.08	0.15	0.20	0.08	0.15	0.20	0.05	0.15	0.22
				Cutting Speed v_c (m/min)																							
P	Steel, Carbon Steel S15C	125	G	380	350	330	350	330	315	330	315	295															
	S45C	190	G	285	255	235	255	235	220	235	220	200															
	S45C Hardened	250	G	235	210	190	210	190	170	190	170	150															
	S75C	270	G	190	162	143	171	152	133	152	133	115															
	S75C Hardened	300	G	145	115	95	115	95	75	95	75	55															
	Low Alloy Steel (SCM, SNCM)	180	G	265	235	220	235	220	200	220	200	180															
	SCM, SNCM Hardened	275	G	170	145	125	150	130	115	130	115	95															
	SCM, SNCM Hardened	300	G	150	125	105	135	115	95	115	95	75															
	SCM, SNCM Hardened	350	G	125	95	75	105	85	65	85	65	45															
	High-alloy Steel (SKD, SKT, SKH)	200	G	235	210	190	210	190	170	190	170	150															
	SKD, SKT, SKH Hardened	325	G	125	95	75	95	75	55	75	55	35															
M	Stainless Steel SUS430 and Others (Martensitic / Ferritic)	200	E																175	155	125	155	140	110			
	SUS403 and others (Martensitic / Hardened)	240	EH																160	140	110	145	125	100			
	SUS304, SUS316 (Austenitic)	180	E																190	170	140	170	150	125			
K	Cast Iron		G										285	255	235	255	235	220									
	Ductile Cast Iron		G										190	160	140	160	140	125									
S	Exotic Alloy	300	E																50	40		45	35				
	(Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)	330	E																35	25		30	20				
N	For Aluminum Alloy Si ≤12.6%		S																						1000	750	500
	Si >12.6%		S																						250	200	170
	Copper Alloy		S																						350	330	300

● The recommended cutting conditions may not be practical depending on the operating conditions (e.g. machine, workpiece shape, clamping system).
● For groove milling, adjust the feed rate to around 70% of the above values.

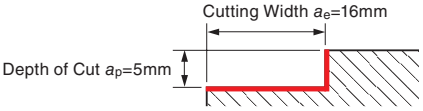
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

■ Recommended Cutting Conditions in Metric, please see H66 for Inch Parameters

WEX3000

Tool: WEX3032E Insert: AX□T1705

Cutting Conditions: Depth of Cut 5mm, Cutting Width 16mm, Dry



ISO Classification	Work Material		Work Hardness (HB)	Chipbreaker	Grades																							
					ACP100			ACP200			ACP300			ACK200			ACK300			ACM200			ACM300			DL1000		
					Feed f_z (mm/t)																							
					0.12	0.25	0.35	0.12	0.25	0.35	0.12	0.25	0.35	0.12	0.25	0.35	0.12	0.25	0.35	0.12	0.25	0.35	0.12	0.25	0.35	0.05	0.15	0.25
					Cutting Speed v_c (m/min)																							
P	Steel, Carbon Steel	S15C	125	G	400	370	350	370	350	330	350	330	310															
		S45C	190	G	300	270	250	270	250	230	250	230	210															
		S45C Hardened	250	G	250	220	200	220	200	180	200	180	160															
		S75C	270	G	200	170	150	180	160	140	160	140	120															
		S75C Hardened	300	G	150	120	100	120	100	80	100	80	60															
	Low Alloy Steel	SCM、SNCM	180	G	280	250	230	250	230	210	230	210	190															
		SCM、SNCM Hardened	275	G	180	150	130	160	140	120	140	120	100															
		SCM、SNCM Hardened	300	G	160	130	110	140	120	100	120	100	80															
		SCM、SNCM Hardened	350	G	130	100	80	110	90	70	90	70	50															
	High Alloy Steel	SKD、SKT、SKH	200	G	250	220	200	220	200	180	200	180	160															
		SKD、SKT、SKH Hardened	325	G	130	100	80	100	80	60	80	60	40															
M	Stainless Steel	SUS430 and Others (Martensitic/Ferritic)	200	E							185	165	135							185	165	135	165	150	120			
		SUS403 and Others (Martensitic, Hardened)	240	EH							170	150	120							170	150	120	150	135	110			
		SUS304、SUS316(Austenitic)	180	E							200	180	150							200	180	150	180	160	135			
K	Cast Iron			G										300	270	250	270	250	230									
	Ductile Cast Iron			G										200	170	150	170	150	130									
S	Exotic Alloy		300	E													50	30		50	30		45	25				
	(Heat Resistant Alloy, Super Alloy, Ti Alloy, etc.)		330	E													50	30		50	30		45	25				
N	Aluminum Alloy, Si ≤ 12.6%			S																						1000	750	500
	Aluminum Alloy, Si > 12.6%			S																						250	200	170
	Copper Alloy			S																						350	330	300

■ The recommended cutting conditions may not be practical under certain operating conditions (i.e., machine, work shape, clamping system).

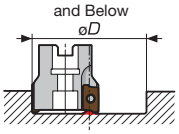
■ For groove milling, adjust feed rate to around 70% of the above values.

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth, and other factors.

■ Recommended Values for Helical Milling and Ramping

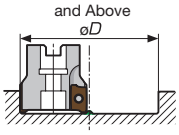
Precautions for Helical Milling

For Minimum Diameter and Below



Center uncut portion cannot be removed by traverse cutting with the same cutter

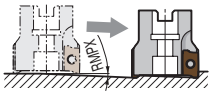
For Maximum Diameter and Above



Center uncut portion can be removed by traverse cutting with the same cutter

Precautions for Ramping

Use at the RMPX below or lower



Recommended Values for Helical Milling and Ramping

Cutter Dia. (in.) DC	WEX2000 (AX□T12···)			WEX3000 (AX□T17···)		
	Helical Milling (inch)		Ramping	Helical Milling (inch)		Ramping
	Work Dia. øD		Maximum Ramping Angle RMPX	Work Dia. øD		Maximum Ramping Angle RMPX
	Min. Diameter	Max. Diameter		Min. Diameter	Max. Diameter	
0.500	0.88	0.96	1°50'			
0.625	1.13	1.21	1°20'			
0.750	1.38	1.46	1°00'			
1.000	1.88	1.96	0°45'	1.78	1.92	1°30'
1.250	2.38	2.46	0°35'	2.28	2.42	1°00'
1.500	2.88	2.96	0°25'	2.78	2.92	0°45'
2.000	3.88	3.96	0°20'	3.78	3.92	0°30'
2.500	4.88	4.96	0°15'	4.78	4.92	0°20'
3.000				5.78	5.92	0°15'
4.000				Not Available	Not Available	Not Available
6.000				Not Available	Not Available	Not Available
8.000				Not Available	Not Available	Not Available

Recommended Values for Helical Milling and Ramping

Cutter Dia. (mm) DC	WEX1000 (AX□T06···)			WEX2000 (AX□T12···)			WEX3000 (AX□T17···)		
	Helical Milling (mm)		Ramping	Helical Milling (mm)		Ramping	Helical Milling (mm)		Ramping
	Work Dia. øD		Maximum Ramping Angle RMPX	Work Dia. øD		Maximum Ramping Angle RMPX	Work Dia. øD		Maximum Ramping Angle RMPX
	Min. Diameter	Max. Diameter		Min. Diameter	Max. Diameter		Min. Diameter	Max. Diameter	
10	16.0	18.0	2°30'						
12	20.0	22.0	1°45'						
14	24.0	26.0	1°25'	25.0	27.0	1°40'			
16	28.0	30.0	1°00'	29.0	31.0	1°20'			
18	32.0	34.0	0°45'	33.0	35.0	1°10'			
20	36.0	38.0	0°30'	37.0	39.0	1°00'			
22				41.0	43.0	0°50'			
25	46.0	48.0	0°30'	47.0	49.0	0°45'	44.5	48.0	1°30'
28				53.0	55.0	0°45'	50.5	54.0	1°10'
30				57.0	59.0	0°40'	54.5	58.0	1°10'
32	60.0	62.0	0°25'	61.0	63.0	0°35'	58.5	62.0	1°00'
35							64.5	68.0	0°50'
40	76.0	78.0	0°20'	77.0	79.0	0°25'	74.5	78.0	0°45'
50	96.0	98.0	0°15'	97.0	99.0	0°20'	94.5	98.0	0°30'
63	122.0	124.0	0°10'	123.0	125.0	0°15'	120.5	124.0	0°20'
80							154.5	158.0	0°15'
100							Unusable	Unusable	Unusable
125							Unusable	Unusable	Unusable

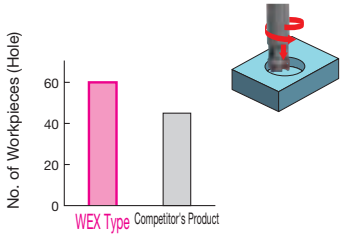
The above table shows the recommended values for 0.8mm nose radius bits.

■ Application Examples

• Machine Components 304 Stainless

WEX1000

The WEX type achieves 1.3x longer tool life for helical milling compared to competitors' products.



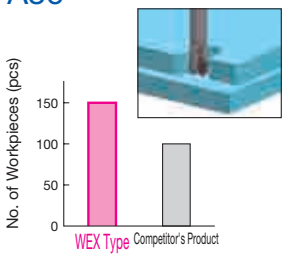
Tool: WEX1020E (ø20)
Insert: AXMT060204PDER-G
Grade: ACM300
Machine: Vertical machining centre BT30

(Cutting Conditions)
v_c=197 SFM
f_z =0.007" IPT
a_p=0.04"
Dry

• Machine Components A36

WEX1000

The WEX type has low cutting force and enables stable machining, while competitors' products have unstable power.
Achieves 1.5x longer tool life than competitors' products.



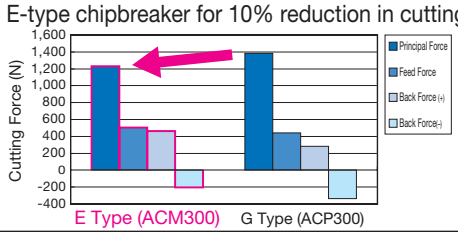
Tool: WEX1010EL (ø10)
Insert: AXMT060204PDER-L
Grade: ACP200
Machine: Vertical machining centre BT40

(Cutting Conditions)
v_c=525 SFM
f_z =0.003" IPT
a_p=0.197"
Dry

• Block Material 316 Stainless

WEX2000

Using an E-type chipbreaker for 10% reduction in cutting force.



Tool: WEX2050F (ø50)
Insert: AXMT123508PEER-E
Grade: ACM300

(Cutting Conditions)
v_c=591 SFM
f_z =0.006" IPT
a_e=0.787"
a_p=0.12" Dry

• Block Material 4140

WEX3000

Compared to competitors', the machined surface has fewer steps, enabling finishing without changing tool.

Tool: WEX3032E (ø32)
Insert: AXMT170508PEER-G
Grade: ACP200

(Cutting Conditions)
v_c=656 SFM
f_z =0.006" IPT
a_e=0.197"
a_p=0.40" x 3 Times Dry

• Die Parts, Low Carbon Steel

WEX3000

The WEX type doubles the tool life of conventional tools by performing for longer without breakage.

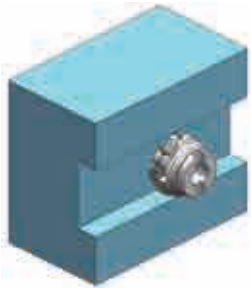
Tool: WEX3032E (ø32)
Insert: AXMT170508PEER-G
Grade: ACP100

(Cutting Conditions)
v_c=495 SFM
f_z =0.008" IPT
a_e=0.984"
a_p=0.197" Wet

• Extrusion Mold P5 Tool Steel

WEX3000

Less cutting noise than conventional tools and excellent chip evacuation for stable cutting even if the cutting conditions are doubled.
Achieves a nice glossy machined surface.



Tool: WEX3080R (ø80)
Insert: AXMT170508PEER-G
Grade: ACP200

(Cutting Conditions)
v_c=246 SFM
f_z =0.0075" IPT
a_e=3.15"
a_p=0.197" Dry

• Machine Components 304 Stainless Steel

WEX3000

Cutting Distance: 177" | Cutting Distance: 65"

WEX Type (ACM300) | WEX Type (ACP300) | Competitor's Product A | Competitor's Product B

The substrate has excellent fracture resistance and the high hardness coating enables stable machining without breakage.

Tool: WEX3032E (ø32)
Insert: AXMT170508PEER-E
Grade: ACM300

(Cutting Conditions)
v_c=492 SFM
f_z =0.006" IPT
a_e=0.40"
a_p=0.12"
Dry

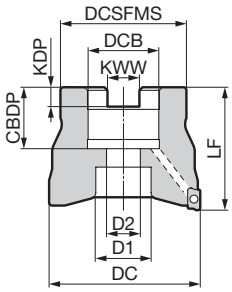
WEX Shellmill Metric Series - *6 mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	7° to 17°
	Axial	9° to 17°

6 mm 90° | .236" 90°

Fig 1



Body (Standard Type)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WEX1032F**	★	*32*	*31*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	8	*0.16*	1
	WEX1040F	★	*40*	*32*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	10	*0.21*	1
	WEX1050F	★	*50*	*38*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	12	*0.30*	1
	WEX1063F	★	*63*	*48*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	14	*0.52*	1

Inserts are sold separately. ★ Worldwide Warehouse item

Insert

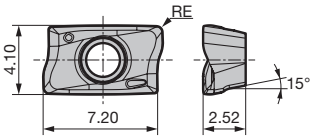
Dimensions (*mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
	General-purpose		P M	P M	K		M S	M S		N
	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Fig
AXMT060204PDER-L	★	★	★	★	★	★	★	-	-	*0.4*	1
AXMT060208PDER-L	★	★	★	★	★	★	★	-	-	*0.8*	1
AXMT060212PDER-L	★	★	★	★	★	★	★	-	-	*1.2*	1
AXMT060202PDER-G	★	★	★	★	★	★	★	-	-	*0.2*	1
AXMT060204PDER-G	★	★	★	★	★	★	★	-	-	*0.4*	1
AXMT060208PDER-G	★	★	★	★	★	★	★	-	-	*0.8*	1
AXMT060212PDER-G	★	★	★	★	★	★	★	-	-	*1.2*	1
AXMT060204PDER-H	★	★	★	★	★	★	★	-	-	*0.4*	1
AXMT060208PDER-H	★	★	★	★	★	★	★	-	-	*0.8*	1
AXMT060212PDER-H	★	★	★	★	★	★	★	-	-	*1.2*	1
AXMT060202PDFR-S	-	-	-	-	-	-	-	★	★	*0.2*	1

-L: Low Cutting Force, G: General-purpose, H: Strong Edge, S: For Aluminum Alloy. ★ Worldwide Warehouse item

Fig 1



Parts

(Sold Separately)

Flat Screw		Wrench	Anti-seizure Cream	Torque Wrench
	N·m			0.5N·m
BFTX01804IP	0.5	TRX06IP	SUMI-P	TRDR06IP05

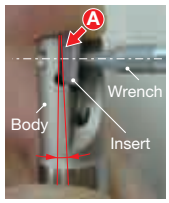
Identification Code

WEX 1 032 F

Cutter Series | Insert Size | Dia. | Metric Bore

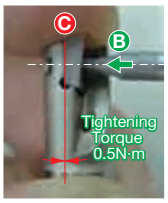
Precautions when Mounting WEX1000 Inserts

1



Press the top of the insert in the direction of A.

2



Hold down as shown in C so that there is no gap between the insert bottom and base of insert pocket, and tighten with wrench B (tightening torque 0.5N·m)

A dedicated torque wrench is optionally available (sold separately).

N·m Recommended Tightening Torque (N·m)

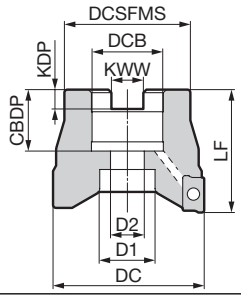
WEX Shellmill (Inch & Metric) - *12 mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	16° to 18°
	Axial	23° to 25°

10mm 90° | .236" 90°

Fig 1



Body (Standard)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs/ *kg*)	Fig
Inch	**WEX21500R**	●	1.500	1.339	1.562	0.750	0.312	0.187	0.750	0.609	0.453	6	0.42	1
Inch	**WEX22000R**	●	2.000	1.500	1.562	0.750	0.312	0.187	0.750	0.630	0.453	7	0.64	1
Inch	**WEX22500R**	●	2.500	1.750	1.562	1.000	0.375	0.218	0.750	0.797	0.531	8	1.12	1
Metric	**WEX2040F**	★	*40*	*32*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	6	*0.19*	1
Metric	**WEX2050F**	★	*50*	*40*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	7	*0.29*	1
Metric	**WEX2063F**	★	*63*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	8	*0.51*	1

Inserts are sold separately. ● USA stocked item ★ Worldwide Warehouse item

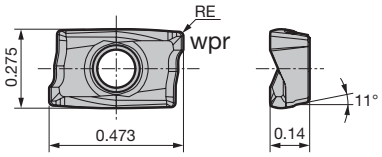
Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
Process	General-purpose		P M	P M	K		M S	M S		N
Process	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT123504PEER-G	●	●	●	●	●			-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-G	●	●	●	●	●			-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-G	●	●	●	●	●			-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123504PEER-H	●	●	●	●	●			-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-H	●	●	●	●	●			-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-H	●	●	●	●	●			-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123504PEER-E						●	●	-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-E						●	●	-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-E						●	●	-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123508PEER-EH						●	●	-	-	.032" / *0.8*	.031" / *.8*	1
AXET123502PEFR-S	-	-	-	-	-	-	-	●	●	.008" / *0.2*	-	1
AXET123504PEFR-S	-	-	-	-	-	-	-	●	●	.016" / *0.4*	-	1
AXET123508PEFR-S	-	-	-	-	-	-	-	●	●	.032" / *0.8*	-	1

Fig 1



-G: General-purpose, -H: Strong Edge, -E, -EH: Exotic Alloy, -S: Aluminum Alloy.

● USA stocked item ★ Worldwide Warehouse item

Parts

Flat Screw		Wrench	Anti-seizure Cream
	N·m		
BFTX0306IP	2.0	TRDR08IP	SUMI-P

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"

Identification Code - Inch

WEX 2 2000 R

Cutter Series | Insert Series | Dia. 2.000" | Feed Direction

Identification Code - Metric

WEX 2 040 F

Cutter Series | Insert Size | Dia. | Metric Bore

N·m Recommended Tightening Torque (N·m)

WEX Shellmill Inch - *17mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	12° to 15°
	Axial	29° to 24°

.551" 90°

Fig 1

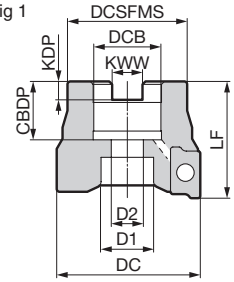
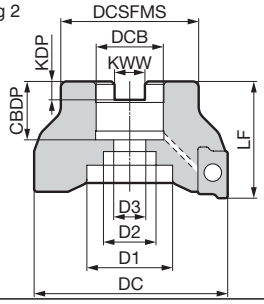


Fig 2



Body (Standard)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (kg)	Fig
Inch	**WEX32000R**	●	2.000	1.575	1.562	.750	.312	.187	.750	.709	.406	-	5	0.48	1
	WEX32500R	●	2.500	1.969	1.562	1.000	.375	.218	.750	.797	.531	-	6	0.92	1
	WEXC33000R	●	3.000	2.362	1.750	1.000	.375	.218	.750	.797	.531	-	5	1.99	1
	WEX33000R	●	3.000	2.362	1.750	1.000	.375	.218	.750	.797	.531	-	7	1.99	1
	WEXC34000R	●	4.000	2.756	2.000	1.250	.500	.281	.750	1.000	.656	-	6	3.65	1
	WEXC34000R-150	●	4.000	3.750	2.000	1.500	.625	.380	1.535	2.000	.781	.781	6	3.65	2
	WEX34000R	●	4.000	2.756	2.461	1.250	.500	.281	0.750	1.000	.656	-	8	3.65	1
	WEX34000R-150	●	4.000	3.750	2.000	1.500	.625	.380	1.535	2.000	.781	.781	8	3.65	2
	WEXC36000R	●	6.000	4.370	2.500	1.500	.625	.380	1.060	2.000	1.500	-	8	7.27	1
	WEX38000R	●	8.000	5.118	2.500	2.500	1.000	.560	1.250	5.315	2.500	-	12	13.66	1

Inserts are sold separately.

● USA stocked item

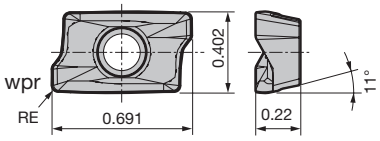
Insert

Dimensions (inch)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
	General-purpose		P M	P M	K		M S	M S		N
	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT170508PEER-L	●	●	●	●	●			-	-	.031	.087	1
AXMT170504PEER-G	●	●	●	●	●			-	-	.016	.102	1
AXMT170508PEER-G	●	●	●	●	●			-	-	.031	.087	1
AXMT170512PEER-G	●	●	●	●	●			-	-	.047	.067	1
AXMT170516PEER-G	●	●	●	●	●			-	-	.063	.059	1
AXMT170520PEER-G*	●	●	●	●	●			-	-	.079	.047	1
AXMT170530PEER-G*	●	●	●	●	●			-	-	.118	-	1
AXMT170508PEER-H	●	●	●	●	●			-	-	.031	.087	1
AXMT170512PEER-H	●	●	●	●	●			-	-	.047	.067	1
AXMT170504PEER-E						●	●	-	-	.016	.102	1
AXMT170508PEER-E						●	●	-	-	.031	.087	1
AXMT170512PEER-E						●	●	-	-	.047	.067	1
AXMT170516PEER-E						●	●	-	-	.063	.059	1
AXMT170520PEER-E*						●	●	-	-	.079	.047	1
AXMT170530PEER-E*						●	●	-	-	.118	-	1
AXMT170508PEER-EH						●	●	-	-	.031	.087	1
AXET170502PEFR-S	-	-	-	-	-	-	-	●	●	.008	-	1
AXET170504PEFR-S	-	-	-	-	-	-	-	●	●	.016	-	1
AXET170508PEFR-S	-	-	-	-	-	-	-	●	●	.031	-	1

Fig 1



-L: Low Cutting force, -G: General-purpose, -H: Strong Edge, -E, -EH: Stainless Steel & Exotic Alloy, -ES: Aluminum & Non-ferrous Alloys.

* marked inserts require modification of the cutter body.

Parts

Flat Screw		Wrench	Anti-seizure Cream
	N·m		
BFTX0409IP	3.0	TRDR15IP	SUMI-P

Identification Code

WEX 3 2000 R

Cutter Series	Insert Series	Dia. 2.000"	Feed Direction

* Modification of the cutter body is required when attaching a nose radius RE = 2.0 or 3.0 insert.

Modify this portion.

Reworking guidelines

For Nose Radius of 2.0: C1 (AXMT170520PEER)

For Nose Radius of 3.0: C1.5 (AXMT170530PEER)

Standard: C0.5.

N·m Recommended Tightening Torque (N·m)

WEX Shellmill Metric - *17mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	12° to 15°
	Axial	29° to 24°

14mm 90° | .551" 90°

Fig 1

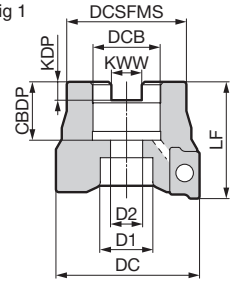
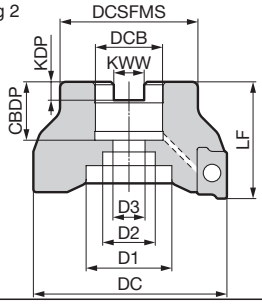


Fig 2



Body (Standard Type)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (kg)	Fig
Metric	**WEX3040F**	★	40	32	40	16	8.4	5.6	18	14	9	-	4	0.16	1
	WEX3050F	★	50	40	40	22	10.4	6.3	20	18	11	-	5	0.25	1
	WEX3063F	★	63	50	40	22	10.4	6.3	20	18	11	-	6	0.48	1
	WEX3080R	★	*80	60	50	25.4	9.5	6	25	35	26	13.5	4	1.06	2
	WEX3100R	★	*100	70	63	31.75	12.7	8	32.5	46	28	17	5	1.99	2
	WEX3125R	★	125	80	63	38.1	15.9	10	35.5	55	30	-	6	2.89	1

Body (Fine Pitch Type)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (kg)	Fig
Metric	**WEXF3080R**	★	*80	60	50	25.4	9.5	6	25	35	26	13.5	7	0.98	2
	WEXF3100R	★	*100	70	63	31.75	12.7	8	32.5	46	28	17	8	1.91	2
	WEXF3125R	★	125	80	63	38.1	15.9	10	35.5	55	30	-	9	2.80	1

Inserts are sold separately.

★: Worldwide Warehouse item

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

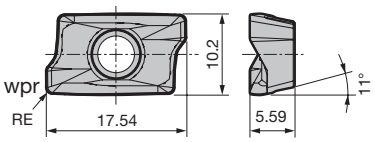
Insert

Dimensions (*mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		MS		KN	N
	General-purpose		PM	PM	K		MS	MS		N
	Roughing		PM	PM		K		MS		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT170508PEER-L	●	●	●	●	●			-	-	0.8	2.2	1
AXMT170504PEER-G	●	●	●	●	●			-	-	0.4	2.6	1
AXMT170508PEER-G	●	●	●	●	●			-	-	0.8	2.2	1
AXMT170512PEER-G	●	●	●	●	●			-	-	1.2	1.7	1
AXMT170516PEER-G	●	●	●	●	●			-	-	1.6	1.5	1
AXMT170520PEER-G*	●	●	●	●	●			-	-	2.0	1.2	1
AXMT170530PEER-G*	●	●	●	●	●			-	-	3.0	-	1
AXMT170508PEER-H	●	●	●	●	●			-	-	0.8	2.2	1
AXMT170512PEER-H	●	●	●	●	●			-	-	1.2	1.7	1
AXMT170504PEER-E						●	●	-	-	0.4	2.6	1
AXMT170508PEER-E						●	●	-	-	0.8	2.2	1
AXMT170512PEER-E						●	●	-	-	1.2	1.7	1
AXMT170516PEER-E						●	●	-	-	1.6	1.5	1
AXMT170520PEER-E*						●	●	-	-	2.0	1.2	1
AXMT170530PEER-E*						●	●	-	-	3.0	-	1
AXMT170508PEER-EH						●	●	-	-	0.8	2.2	1
AXET170502PEFR-S	-	-	-	-	-	-	-	●	●	0.2	-	1
AXET170504PEFR-S	-	-	-	-	-	-	-	●	●	0.4	-	1
AXET170508PEFR-S	-	-	-	-	-	-	-	●	●	0.8	-	1

Fig 1



-L: Low Cutting force, -G: General-purpose, -H: Strong Edge, -E, -EH: Stainless Steel & Exotic Alloy, -ES: Aluminum & Non-ferrous Alloys.

* marked inserts require modification of the cutter body.

● USA stocked item

★ Worldwide Warehouse item

Parts

Flat Screw		Wrench	Anti-seizure Cream
BFTX0409IP	3.0	TRDR15IP	SUMI-P

Identification Code-Metric

WEX 3 040 F

Cutter Series	Insert Size	Dia.	F: Metric R: Inch Bore

* Modification of the cutter body is required when attaching a nose radius RE = 2.0 or 3.0 insert.

Modify this portion.

Reworking guidelines

For Nose Radius of 2.0: C1 (AXMT170520PEER)

For Nose Radius of 3.0: C1.5 (AXMT170530PEER)

Standard: C0.5.

N·m Recommended Tightening Torque (N·m)

WEX Endmill Metric- *6 mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	7° to 17°
	Axial	9° to 17°

6mm 90° | .236" 90°

Fig 1

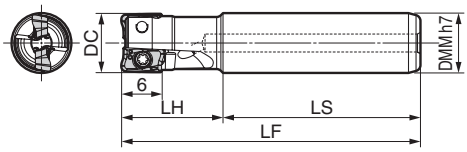
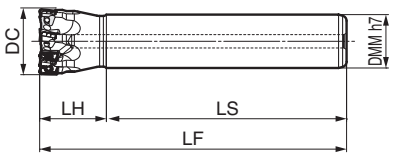


Fig 2



Body (Standard Type)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
Metric	**WEX1010E**	★	10	10	17	33	50	2	0.03	1
	WEX1012E	★	12	12	20	60	80	3	0.06	1
	WEX1014E	★	14	16	22	59	80	3	0.10	1
	WEX1016E	★	16	16	20	70	90	4	0.12	1
	WEX1018E	★	18	20	20	80	100	4	0.21	1
	WEX1020E	★	20	20	22	78	100	5	0.22	1
	WEX1025E	★	25	20	25	90	115	7	0.27	2

Inserts are sold separately.

★: Worldwide Warehouse item

Body (Long Type)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
Metric	**WEX1010EL**	★	10	8	17	83	100	2	0.03	2
	WEX1012EL	★	12	10	20	100	120	2	0.06	2
	WEX1014EL	★	14	12	20	125	145	3	0.11	2
	WEX1016EL	★	16	14	20	140	160	3	0.17	2
	WEX1018EL	★	18	16	20	160	180	3	0.25	2
	WEX1020EL	★	20	18	25	175	200	4	0.36	2

Inserts are sold separately.

Insert

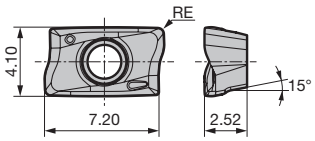
Dimensions (*mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		MS		KN	N
	General-purpose		PM	PM	K		MS	MS		N
	Roughing		PM	PM		K		MS		
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Fig
AXMT060204PDER-L	★	★	★	★	★	★	★	-	-	0.4	1
AXMT060208PDER-L	★	★	★	★	★	★	★	-	-	0.8	1
AXMT060212PDER-L	★	★	★	★	★	★	★	-	-	1.2	1
AXMT060202PDER-G	★	★	★	★	★	★	★	-	-	0.2	1
AXMT060204PDER-G	★	★	★	★	★	★	★	-	-	0.4	1
AXMT060208PDER-G	★	★	★	★	★	★	★	-	-	0.8	1
AXMT060212PDER-G	★	★	★	★	★	★	★	-	-	1.2	1
AXMT060204PDER-H	★	★	★	★	★	★	★	-	-	0.4	1
AXMT060208PDER-H	★	★	★	★	★	★	★	-	-	0.8	1
AXMT060212PDER-H	★	★	★	★	★	★	★	-	-	1.2	1
AXMT060202PDFR-S	-	-	-	-	-	-	-	★	★	0.2	1

-L: Low Cutting Force, G: General-purpose, H: Strong Edge, S: For Aluminum Alloy.

Fig 1



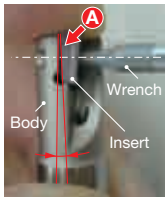
Parts

(Sold Separately)

Applicable Cutter	Flat Screw		Wrench	Anti-seizure Cream	Torque Wrench
		N·m			0.5N·m
WEX1010E(EL) to WEX1025E	BFTX01804IP	0.5	TRX06IP	SUMI-P	TRDR06IP05

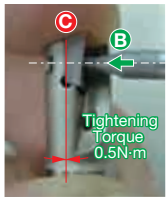
Precautions when Mounting WEX1000 Inserts

1



Press the top of the insert in the direction of A.

2



Hold down as shown in C so that there is no gap between the insert bottom and base of insert pocket, and tighten with wrench B (tightening torque 0.5N·m)

A dedicated torque wrench is optionally available (sold separately).

Identification Code

WEX 1 010 E L

WEX	1	010	E	L
Cutter Series	Insert Size	Dia.	With Shank	Long Type

WEX ENDMILL - *12 mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	10° to 18°
	Axial	14° to 25°

10mm 90° | .394" 90°

Fig 1

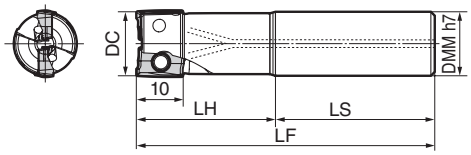
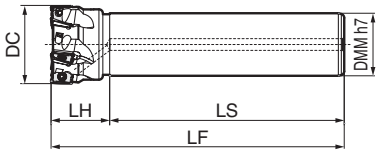


Fig 2



Inch Body (Standard & Long Type)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs)	Fig
Weldon	**WEX20500EW**	●	.500	.750	1.309	2.031	3.325	1	0.22	1
	WEX20625EW	●	.625	.625	1.312	1.906	3.218	2	0.29	1
	WEX20625EMW	●	.625	.625	1.685	1.906	3.591	2	0.31	1
	WEXC20750EW	●	.750	.750	1.530	2.031	3.561	2	0.49	1
	WEX20750EW	●	.750	.750	1.530	2.031	3.561	3	0.58	1
	WEX20750EMW	●	.750	.750	2.060	2.031	4.091	3	0.38	1
	WEX20750ELW	●	.750	.750	3.060	2.031	5.091	3	0.84	1
	WEXC21000EW	●	1.000	1.000	1.532	2.280	3.812	3	0.91	1
	WEXC21000EMW	●	1.000	1.000	2.560	2.281	4.841	4	1.54	1
	WEX21000EW	●	1.000	1.000	1.530	2.281	3.811	4	2.01	1
	WEX21250EW	●	1.250	1.250	2.250	2.281	4.531	5	2.25	1
Cylindrical	**WEXC20750ELC**	●	.750	.750	3.080	6.000	9.000	2	2.15	1
	WEX20750ELC	●	.750	.750	3.080	6.920	10.000	3	3.28	1
	WEX21000ELC	●	1.000	1.000	3.157	6.843	10.000	4	3.87	1

Inserts are sold separately. ● USA stocked item

Metric Body (Standard & Long Type)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
Standard Type	**WEX2014E**	★	*14*	*16*	*25*	*55*	*80*	1	*0.10*	1
	WEX2016E	★	*16*	*16*	*25*	*75*	*100*	2	*0.13*	1
	WEX2018E	★	*18*	*16*	*25*	*75*	*100*	2	*0.14*	2
	WEX2020E	★	*20*	*20*	*30*	*80*	*110*	3	*0.22*	1
	WEX2022E	★	*22*	*20*	*30*	*80*	*110*	3	*0.23*	2
	WEX2025E	★	*25*	*25*	*35*	*85*	*120*	4	*0.38*	1
	WEX2028E	★	*28*	*25*	*35*	*85*	*120*	4	*0.39*	2
	WEX2030E	★	*30*	*25*	*35*	*85*	*120*	4	*0.40*	2
	WEX2032E	★	*32*	*32*	*40*	*90*	*130*	5	*0.70*	1
	WEX2040E	★	*40*	*32*	*30*	*120*	*150*	6	*0.91*	2
	WEX2050E	★	*50*	*32*	*30*	*120*	*150*	7	*1.02*	2
	WEX2063E	★	*63*	*32*	*30*	*120*	*150*	8	*1.22*	2
Long Type	**WEX2014EL**	★	*14*	*16*	*25*	*95*	*120*	1	*0.14*	1
	WEX2016EL	★	*16*	*16*	*25*	*120*	*145*	2	*0.19*	1
	WEX2018EL	★	*18*	*16*	*25*	*120*	*145*	2	*0.19*	2
	WEX2020EL	★	*20*	*20*	*40*	*110*	*150*	2	*0.32*	1
	WEX2022EL	★	*22*	*20*	*30*	*120*	*150*	2	*0.33*	2
	WEX2025EL	★	*25*	*25*	*50*	*120*	*170*	2	*0.55*	1
	WEX2028EL	★	*28*	*25*	*30*	*140*	*170*	2	*0.59*	2
	WEX2030EL	★	*30*	*25*	*30*	*140*	*170*	2	*0.60*	2
	WEX2032EL	★	*32*	*32*	*60*	*120*	*180*	2	*0.99*	1
	WEX2040EL	★	*40*	*32*	*30*	*150*	*180*	2	*1.12*	2

Inserts are sold separately. ★ Worldwide Warehouse item

Insert

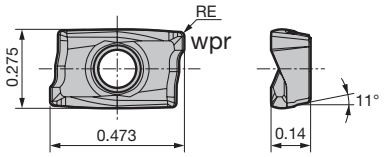
Dimensions (*mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
	General-purpose		P M	P M	K		M S	M S		N
	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT123504PEER-G	●	●	●	●	●			-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-G	●	●	●	●	●			-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-G	●	●	●	●	●			-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123504PEER-H	●	●	●	●	●			-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-H	●	●	●	●	●			-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-H	●	●	●	●	●			-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123504PEER-E						●	●	-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-E						●	●	-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-E						●	●	-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123508PEER-EH						●	●	-	-	.032" / *0.8*	.031" / *.8*	1
AXET123502PEFR-S	-	-	-	-	-	-	-	●	●	.008" / *0.2*	-	1
AXET123504PEFR-S	-	-	-	-	-	-	-	●	●	.016" / *0.4*	-	1
AXET123508PEFR-S	-	-	-	-	-	-	-	●	●	.032" / *0.8*	-	1

-G: General-purpose, -H: Strong Edge, -E, -EH: Exotic Alloy, -S: Aluminum Alloy.

Fig 1



Identification Code -Inch

WEX 2 0625 E W

Cutter Series | Insert Series | Dia. 0.0625" | With Shank | M: Medium, L: Long, W: Weldon, C: Cylindrical

Identification Code - Metric

WEX 2 014 E L

Cutter Series | Insert Size | Dia. | With Shank | Long

Parts

Applicable Cutter	Flat Screw		Wrench	Anti-seizure Cream
		N·m		
WEX2014E(EL) to WEX2018E(EL)	BFTX0305IP	2.0	TRDR08IP	SUMI-P
WEX2020E(EL) to WEX2063E	BFTX0306IP	2.0	TRDR08IP	SUMI-P

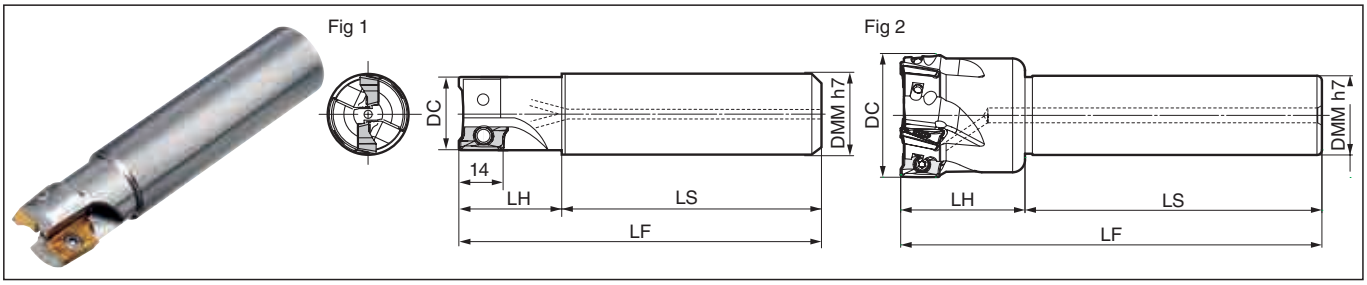
N·m Recommended Tightening Torque (N·m)

WEX Endmill Inch - *17mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	8° to 15°
	Axial	16° to 24°

.551" 90°



Body (Weldon Shank Type)

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs)	Fig
WEX31000EW	●	1.000	1.000	1.530	2.281	3.811	2	0.55	1
WEX31000EMW	●	1.000	1.000	2.560	2.281	4.841	2	0.82	1
WEX31000ELW	●	1.000	1.000	4.060	2.281	6.341	2	0.86	1
WEX31250EW	●	1.250	1.250	2.250	2.281	4.531	3	0.93	1
WEX31250EMW	●	1.250	1.250	4.100	2.281	6.381	3	0.97	1
WEXC31500EMW	●	1.500	1.500	4.140	2.281	6.421	3	1.32	1
WEX31500EW	●	1.500	1.500	2.250	2.281	4.531	4	1.39	1
WEX32000EW	●	2.000	2.000	2.250	2.281	4.531	5	3.31	1

Inserts are sold separately.

Body (Cylindrical Shank Type)

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs)	Fig
WEX31000ELC	●	1.000	1.000	3.137	6.863	10.000	2	1.19	1
WEX31250ELC	●	1.250	1.250	3.149	6.851	10.000	3	1.23	1
WEX31500ELC	●	1.500	1.250	3.000	7.000	10.000	4	1.38	2

Inserts are sold separately. ● USA stocked item

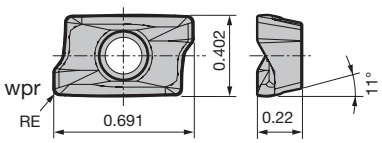
Insert

Dimensions (inch)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
	General-purpose		P M	P M	K		M S	M S		N
	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT170508PEER-L	●	●	●	●	●			-	-	.031	.087	1
AXMT170504PEER-G	●	●	●	●	●			-	-	.016	.102	1
AXMT170508PEER-G	●	●	●	●	●			-	-	.031	.087	1
AXMT170512PEER-G	●	●	●	●	●			-	-	.047	.067	1
AXMT170516PEER-G	●	●	●	●	●			-	-	.063	.059	1
AXMT170520PEER-G*	●	●	●	●	●			-	-	.079	.047	1
AXMT170530PEER-G*	●	●	●	●	●			-	-	.118	-	1
AXMT170508PEER-H	●	●	●	●	●			-	-	.031	.087	1
AXMT170512PEER-H	●	●	●	●	●			-	-	.047	.067	1
AXMT170504PEER-E						●	●	-	-	.016	.102	1
AXMT170508PEER-E						●	●	-	-	.031	.087	1
AXMT170512PEER-E						●	●	-	-	.047	.067	1
AXMT170516PEER-E						●	●	-	-	.063	.059	1
AXMT170520PEER-E*						●	●	-	-	.079	.047	1
AXMT170530PEER-E*						●	●	-	-	.118	-	1
AXMT170508PEER-EH						●	●	-	-	.031	.087	1
AXET170502PEFR-S	-	-	-	-	-	-	-	●	●	.008	-	1
AXET170504PEFR-S	-	-	-	-	-	-	-	●	●	.016	-	1
AXET170508PEFR-S	-	-	-	-	-	-	-	●	●	.031	-	1

Fig 1



-L: Low Cutting force, -G: General-purpose, -H: Strong Edge, -E, -EH: Exotic Alloy, -S: Aluminum Alloy.
* marked inserts require modification of the cutter body.

Parts

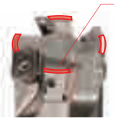
Applicable Cutter	Flat Screw		Wrench	Anti-seizure Cream
		N·m		
WEX3025E(EL) to 3030EL	BFTX0407IP	3.0	TRDR15IP	SUMI-P
WEX3032E(EL) to 3063E(ES)	BFTX0409IP	3.0	TRDR15IP	SUMI-P

Identification Code -Inch

WEX 3 0625 E W

- WEX: Cutter Series
- 3: Insert Series
- 0625: Dia. 0.0625"
- E: With Shank
- W: Type
  - M: Medium
  - L: Long
  - W: Weldon
  - C: Cylindrical

* Modification of the cutter body is required when attaching a nose radius RE = 2.0 or 3.0 insert.



Modify this portion.
Reworking guidelines
For Nose Radius of 2.0: C1 (AXMT170520PEER)
For Nose Radius of 3.0: C1.5 (AXMT170530PEER)
Standard: C0.5.

N·m Recommended Tightening Torque (N·m)

WEX Endmill Metric - *17mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	8° to 15°
	Axial	16° to 24°

14mm 90° | .551" 90°

Fig 1

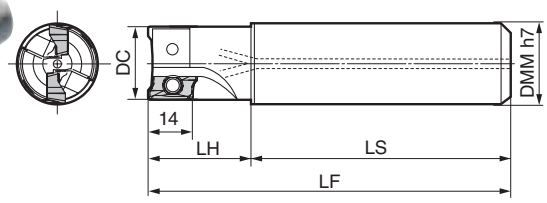
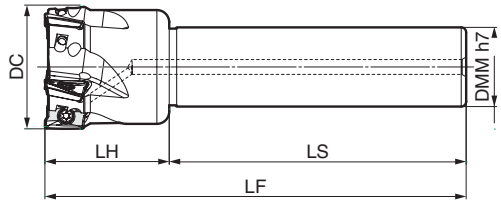


Fig 2



Body (Standard)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WEX3025E-20	★	25	20	35	85	120	2	0.25	2
WEX3025E	★	25	25	35	85	120	2	0.37	1
WEX3028E	★	28	25	35	85	120	2	0.39	2
WEX3030E	★	30	25	40	90	130	3	0.42	2
WEX3032E-25	★	32	25	40	90	130	3	0.43	2
WEX3032E	★	32	32	40	90	130	3	0.67	1
WEX3035E	★	35	32	40	90	130	3	0.69	2
WEX3040E	★	40	32	50	120	170	4	1.01	2
WEX3050E	★	50	32	50	120	170	5	1.23	2
WEX3063E	★	63	32	50	120	170	6	1.58	2

Body (Short)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WEX3050ES	★	50	32	25	110	135	5	0.86	2
WEX3050ES-42	★	50	42	25	110	135	5	1.36	2
WEX3063ES	★	63	32	25	110	135	6	1.02	2
WEX3063ES-42	★	63	42	25	110	135	6	1.52	2

Inserts are sold separately.

Body (Long)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WEX3025EL	★	25	25	50	120	170	2	0.54	1
WEX3028EL	★	28	25	50	120	170	2	0.56	2
WEX3030EL	★	30	25	60	120	180	2	0.60	2
WEX3032EL	★	32	32	60	120	180	2	0.95	1
WEX3035EL	★	35	32	60	120	180	2	0.98	2
WEX3040EL	★	40	32	80	140	220	2	1.38	2

Body (Coarse Pitch)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WEX3040E-C	★	40	32	50	120	170	3	1.04	2
WEX3050E-C	★	50	32	50	120	170	3	1.28	2
WEX3063E-C	★	63	32	50	120	170	4	1.64	2

Body (Short Coarse Pitch)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WEX3050ES-C	★	50	32	25	110	135	3	0.91	2
WEX3050ES-C-42	★	50	42	25	110	135	3	1.41	2
WEX3063ES-C	★	63	32	25	110	135	4	1.07	2
WEX3063ES-C-42	★	63	42	25	110	135	4	1.57	2

Inserts are sold separately. ★ Worldwide Warehouse item

Insert

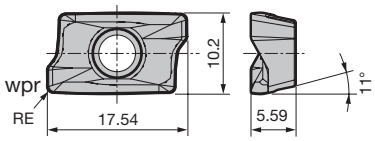
Dimensions (*mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
	General-purpose		P M	P M	K		M S	M S		N
	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT170508PEER-L	●	●	●	●	●			-	-	0.8	2.2	1
AXMT170504PEER-G	●	●	●	●	●			-	-	0.4	2.6	1
AXMT170508PEER-G	●	●	●	●	●			-	-	0.8	2.2	1
AXMT170512PEER-G	●	●	●	●	●			-	-	1.2	1.7	1
AXMT170516PEER-G	●	●	●	●	●			-	-	1.6	1.5	1
AXMT170520PEER-G*	●	●	●	●	●			-	-	2.0	1.2	1
AXMT170530PEER-G*	●	●	●	●	●			-	-	3.0	-	1
AXMT170508PEER-H	●	●	●	●	●			-	-	0.8	2.2	1
AXMT170512PEER-H	●	●	●	●	●			-	-	1.2	1.7	1
AXMT170504PEER-E						●	●	-	-	0.4	2.6	1
AXMT170508PEER-E						●	●	-	-	0.8	2.2	1
AXMT170512PEER-E						●	●	-	-	1.2	1.7	1
AXMT170516PEER-E						●	●	-	-	1.6	1.5	1
AXMT170520PEER-E*						●	●	-	-	2.0	1.2	1
AXMT170530PEER-E*						●	●	-	-	3.0	-	1
AXMT170508PEER-EH						●	●	-	-	0.8	2.2	1
AXET170502PEFR-S	-	-	-	-	-	-	-	●	●	0.2	-	1
AXET170504PEFR-S	-	-	-	-	-	-	-	●	●	0.4	-	1
AXET170508PEFR-S	-	-	-	-	-	-	-	●	●	0.8	-	1

-L: Low Cutting force, -G: General-purpose, -H: Strong Edge, -E, -EH: Exotic Alloy, -S: Aluminum Alloy.
* marked inserts require modification of the cutter body.

Fig 1



Parts

Applicable Cutter	Flat Screw		Wrench	Anti-seizure Cream
		N·m		
WEX3025E(EL) to 3030EL	BFTX0407IP	3.0	TRDR15IP	SUMI-P
WEX3032E(EL) to 3063E(ES)	BFTX0409IP	3.0	TRDR15IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

* Modification of the cutter body is required when attaching a nose radius RE = 2.0 or 3.0 insert.

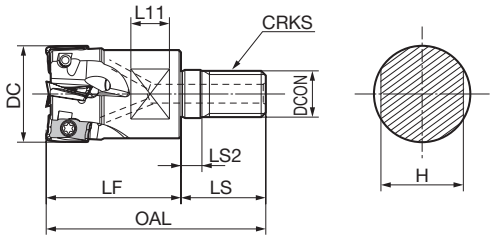
Modify this portion.
Reworking guidelines
For Nose Radius of 2.0: C1 (AXMT170520PEER)
For Nose Radius of 3.0: C1.5 (AXMT170530PEER)
Standard: C0.5.

Expansion

Rake Angle		
	Radial	10° to 18°
	Axial	14° to 25°

Maximum Depth of Cut: .394" 90° / 10mm 90°

Fig 1



Head

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
Inch	**WEX20750M10Z3**	●	0.750	0.413	M10	1.929	1.181	0.197	0.748	0.315	0.591	3	1
	WEX21000M12Z4	●	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	4	1
	WEX21250M16Z5	●	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	5	1
	WEX21500M16Z6	●	1.500	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	6	1
Metric	**WEX2016M08Z2**	★	*16*	*8.5*	M8	*42*	*25*	*5*	*17*	*8*	*13*	2	1
	WEX2018M08Z2	★	*18*	*8.5*	M8	*42*	*25*	*5*	*17*	*8*	*13*	2	1
	WEX2020M10Z3	★	*20*	*10.5*	M10	*49*	*30*	*5*	*19*	*8*	*15*	3	1
	WEX2022M10Z3	★	*22*	*10.5*	M10	*49*	*30*	*5*	*19*	*8*	*15*	3	1
	WEX2025M12Z4	★	*25*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	4	1
	WEX2028M12Z4	★	*28*	*12.5*	M12	*56*	*35*	*5*	*21*	*10*	*19*	4	1
	WEX2030M16Z4	★	*30*	*17.0*	M16	*63*	*40*	*5*	*23*	*10*	*24*	4	1
	WEX2032M16Z5	★	*32*	*17.0*	M16	*63*	*40*	*5*	*23*	*10*	*24*	5	1
	WEX2040M16Z6	★	*40*	*17.0*	M16	*63*	*40*	*5*	*23*	*10*	*24*	6	1

Inserts are sold separately. ● USA stocked item ★ Worldwide Warehouse item

Insert

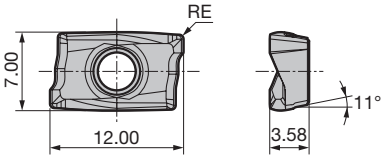
Dimensions (inch " / *mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M/S		K/N	N
	General-purpose		P/M	P/M	K		M/S	M/S		N
	Roughing		P/M	P/M		K		M/S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Fig
AXMT123504PEER-G	●	●	●	●	●			-	-	.016" / *0.4*	1
AXMT123508PEER-G	●	●	●	●	●			-	-	.032" / *0.8*	1
AXMT123512PEER-G	●	●	●	●	●			-	-	.047" / *1.2*	1
AXMT123504PEER-H	●	●	●	●	●			-	-	.016" / *0.4*	1
AXMT123508PEER-H	●	●	●	●	●			-	-	.032" / *0.8*	1
AXMT123512PEER-H	●	●	●	●	●			-	-	.047" / *1.2*	1
AXMT123504PEER-E						●	●	-	-	.016" / *0.4*	1
AXMT123508PEER-E						●	●	-	-	.032" / *0.8*	1
AXMT123512PEER-E						●	●	-	-	.047" / *1.2*	1
AXMT123508PEER-EH						●	●	-	-	.032" / *0.8*	1
AXET123502PEFR-S	-	-	-	-	-	-	-	●	●	.008" / *0.2*	1
AXET123504PEFR-S	-	-	-	-	-	-	-	●	●	.016" / *0.4*	1
AXET123508PEFR-S	-	-	-	-	-	-	-	●	●	.032" / *0.8*	1

-G: General-purpose, -H: Strong Edge, -E, -EH: Stainless Steel & Exotic Alloy, -ES: Aluminum & Non-ferrous Alloys.

Fig 1



Parts

Applicable Endmills	Flat Screw	N·m	Wrench	Anti-seize Cream
WEX2016M, WEX2018M	BFTX0305IP	2.0	TRDR08IP	SUMI-P
WEX2020M to WEX2040M	BFTX0306IP			

SUMI-P Anti-seize cream included in the package.

Identification Code Inch

WEX 2 1000 M12 Z4

Cutter Series | Insert Size | Dia. 1.000" | Mounting Screw Size | Number of Teeth

Identification Code - Metric

WEX 2 016 M08 Z2

Cutter Series | Insert Size | Dia. | Mounting Screw Size | Number of Teeth

N·m Recommended Tightening Torque (N·m)

High Efficiency Shoulder Milling of Deep Steps

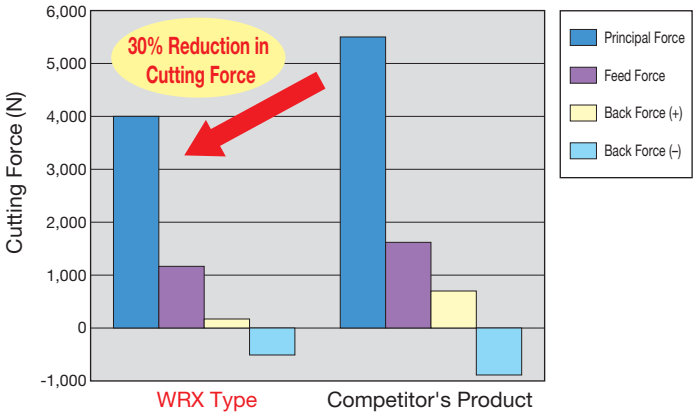
■ General Features

The WRX is an endmill that features cutting edges arranged in a repeater configuration. Its long cutting edges are arranged in multiple stages to enable high efficiency shoulder milling of deep steps.

■ Features

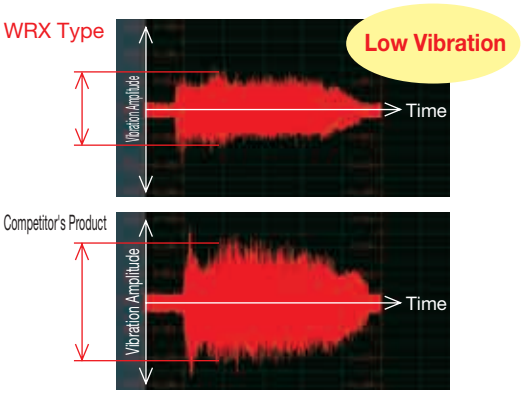
- Cutting edge positions are optimised to provide low resistance and low vibration

■ Comparison of Cutting Force



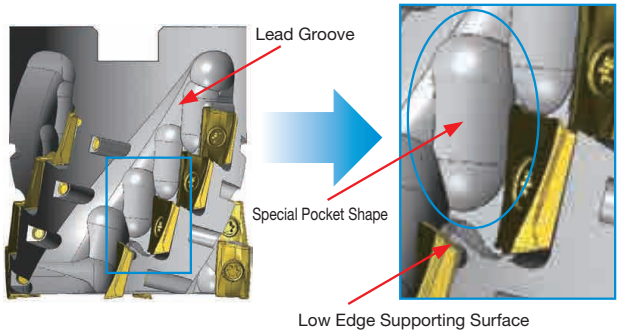
Cutting Conditions
Work Material: 1050
Tool: WRX2025E2725
Cutting Speed: v_c=330 SFM, f_z=0.006 IPT, a_e=0.4in, a_p=1.0in, Dry

■ Comparison of Vibration



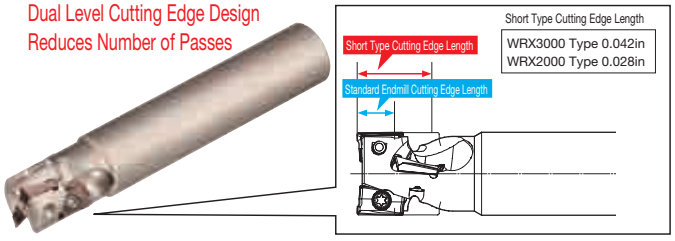
Cutting Conditions
Work Material: 1050
Tool: WRX3080RS5332
Cutting Speed: v_c=492 SFM, f_z=0.008 IPT, a_e=0.2in, a_p=1.6in, Dry

- Lead groove and special pocket shape provide smooth chip evacuation and high body rigidity
- Low edge supporting face reduces bottom edge breakage and provides high reliability



Short Cutting Head Series

Dual Level Cutting Edge Design
Reduces Number of Passes



■ Product Range - Inch

Type	Series Code	Cutting Edge Length (in.)	Dia. (in.)	Shape	Applicable Insert (*)
Shank Type	WRX2000E	1.5 - 2.126	ø1.0 to ø1.5	Weldon	AXMT1235
	WRX3000E	2.500	ø2.00		AXMT1705
Shell Type	WRX2300R	2.50 - 3.00	ø2.500 to ø3.00	Shellmill	

■ Product Range- Metric

Cutting Edge	Series Code	Cutting Edge Length (mm)	Dia. (mm)	Shape	Applicable Insert (*)
Standard Type	WRX2000E	27 to 36	ø20 to ø40	Shank	AXMT1235
	WRX2000R	36	ø40 to ø50	Mounting Hole	
	WRX3000E	40 to 53	ø40 to ø50	Shank	AXMT1705
	WRX3000R	53	ø50 to ø100	Mounting Hole	
Short Cutting Edge Type	WRX2000E	18	ø20 to ø40	Shank	AXMT1235
	WRX2000R		ø40 to ø50	Mounting Hole	
	WRX3000E	27	ø40 to ø50	Shank	AXMT1705
	WRX3000R		ø50 to ø100	Mounting Hole	

* Applicable inserts are common with the popular WEX type SEC-WaveMill

■ Recommended Cutting Conditions

WRX2000

Tool: WRX2040E3642, Insert: AXMT123504PEER

Cutting Conditions: Depth of Cut a_p=1.18in, Width of Cut a_e=0.315in, Dry

Cutting Width a_e=0.3in
Depth of Cut a_p=1.2in

ISO Classification	Work Material	Workpiece Hardness (HB)	Chipbreaker	Grade: ACP100			ACP200			ACP300			ACK200			ACK300			ACM200			ACM300			DL1000		
				Feed Rate per Tooth f_z (mm/t)																							
				0.1	0.15	0.2	0.1	0.15	0.2	0.1	0.15	0.2	0.1	0.15	0.2	0.1	0.15	0.2	0.1	0.15	0.2	0.1	0.15	0.2	0.1	0.15	0.2
				Cutting Speed v_c (m/min)																							
P	Steel, Carbon Steel S15C	125	G	280	260	240	260	240	220	240	220	200															
	S45C	190	G	200	180	160	180	160	140	180	160	140															
	S45C Hardened	250	G	180	120	140	160	140	120	150	130	110															
	S75C	270	G	160	140	120	150	130	110	130	110	110															
	S75C Hardened	300	G	100	80	70	90	70	60	70	60	50															
	Low Alloy Steel (SCM, SNCM)	180	G	200	180	160	180	160	150	160	150	130															
	SCM, SNCM Hardened	275	G	130	110	90	120	100	90	100	90	80															
	SCM, SNCM Hardened	300	G	120	100	80	100	90	80	90	80	60															
	SCM, SNCM Hardened	350	G	90	80	60	80	70	60	70	60	40															
	High-alloy Steel (SKD, SKT, SKH)	200	G	180	170	160	170	160	130	150	140	120															
	SKD, SKT, SKH Hardened	325	G	100	80	60	80	60	50	60	50	30															
M	Stainless Steel SUS430 and Others (Martensitic / Ferritic)	200	E																170	150	120	140	130	110			
	SUS403 and others (Martensitic / Hardened)	240	E																140	120	100	120	100	90			
	SUS304, SUS316 (Austenitic)	180	E																180	160	140	160	140	130			
K	Cast Iron		G										240	220	200	220	200	180									
	Ductile Cast Iron		G										160	140	120	140	120	100									
S	Exotic Alloy		E																50	35		45	25				
N	For Aluminum Alloy Si <12.6%		S																						1000	750	500
	Si >12.6%		S																						250	200	170

● The recommended cutting conditions may not be practical depending on the operating conditions (e.g. machine, workpiece shape, clamping system).

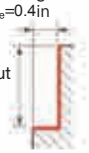
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WRX3000

Tool: WRX3050E5342 Insert: AXMT170508PEER

Cutting Conditions: Depth of Cut ap=2.0in, Width of Cut ae=0.4in, Dry

Cutting Width a_e=0.4in
Depth of Cut a_p=2.0in



Classification	Work Material	Hardness (HB)	Chipbreaker	Grades: ACP100			ACP200			ACP300			ACK200			ACK300			DL1000			ACM 200			ACM300		
				Feed Rate - IPT (mm/tooth)																							
				.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008	.004	.006	.008
				Cutting Speed - SFM (m/min)																							
P	Carbon steel	125	G	1049 (320)	984 (300)	918 (280)	984 (300)	918 (280)	853 (260)	918 (280)	853 (260)	787 (240)															
		190	G	787 (240)	721 (220)	656 (200)	721 (220)	656 (200)	590 (180)	656 (200)	590 (180)	524 (160)															
	Hardened carbon steel	250	G	656 (200)	590 (180)	524 (160)	590 (180)	524 (160)	459 (140)	524 (160)	459 (140)	393 (120)															
		270	G	524 (160)	459 (140)	393 (120)	492 (150)	426 (130)	360 (110)	426 (130)	360 (110)	328 (100)															
		300	G	393 (120)	328 (100)	262 (80)	328 (100)	262 (80)	196 (60)	262 (80)	196 (60)	164 (50)															
	Low alloy steel	180	G	721 (220)	656 (200)	590 (180)	656 (200)	590 (180)	557 (170)	590 (180)	557 (170)	492 (150)															
	Hardened alloy steel	275	G	459 (140)	393 (120)	328 (100)	426 (130)	360 (110)	328 (100)	360 (110)	328 (100)	262 (80)															
		300	G	426 (130)	360 (110)	295 (90)	360 (110)	295 (90)	262 (80)	328 (100)	262 (80)	196 (60)															
		350	G	341 (104)	262 (80)	209 (64)	288 (88)	236 (72)	183 (56)	236 (72)	183 (56)	131 (40)															
	High alloy steel	200	G	656 (200)	590 (180)	524 (160)	590 (180)	524 (160)	459 (140)	524 (160)	459 (140)	393 (120)															
	Hardened high alloy steel	325	G	328 (100)	262 (80)	196 (60)	262 (80)	196 (60)	164 (50)	196 (60)	164 (50)	98 (30)															
M	Stainless Steel 300 Series	200	G	582 SFM	517 SFM	451 SFM	484 SFM	451 SFM	385 SFM	451 SFM	385 SFM	353 SFM													625 SFM	575 SFM	525 SFM
		240	G	484 SFM	418 SFM	353 SFM	418 SFM	353 SFM	320 SFM	353 SFM	320 SFM	254 SFM													580 SFM	525 SFM	480 SFM
		180	G	615 SFM	549 SFM	484 SFM	549 SFM	484 SFM	451 SFM	484 SFM	451 SFM	385 SFM													650 SFM	600 SFM	550 SFM
	Stainless Steel Precipitation Hardening	>240																				300 ~ 800 SFM	275 ~ 775 SFM	250 ~ 750 SFM			
K	Cast iron	200	G										787 (240)	721 (220)	656 (200)	721 (220)	656 (200)	590 (180)									
	Nodular cast iron	280	G										524 (160)	459 (140)	393 (120)	459 (140)	393 (120)	328 (100)									
S	Super alloys		G										164 (50)	98 (30)		164 (50)	98 (30)										
N	Aluminum alloys																		3280 (1000)	2624 (800)	1968 (600)						

WRX Shell Mill (Metric)

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	16° to 17°
	Axial	24°

18 to 36 mm 90° | .709" to 1.417" 90°

Fig 1

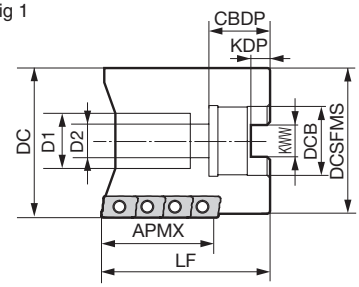
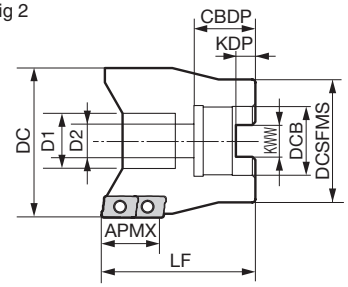


Fig 2



Body (Standard)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Total No. of Teeth	Steps	Effective Number of Teeth	Weight (kg)	Fig
Metric	**WRX2040RS3616**	★	*40*	*36*	*37.5*	*55*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	16	4	4	0.3	1
Metric	**WRX2050RS3622**	★	*50*	*36*	*47.5*	*55*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	16	4	4	0.5	1

Body (Short Cutting Edge)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Total No. of Teeth	Steps	Effective Number of Teeth	Weight (kg)	Fig
Metric	**WRX2040RS1816**	★	*40*	*18*	*32*	*50*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	10	2	5	0.3	2
Metric	**WRX2050RS1822**	★	*50*	*18*	*40*	*50*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	10	2	5	0.4	2

Inserts are sold separately.

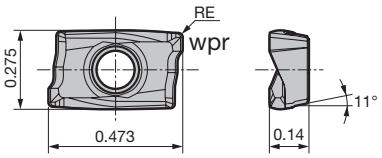
Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
	General-purpose		P M	P M	K		M S	M S		N
	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT123504PEER-G	●	●	●	●	●			-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-G	●	●	●	●	●			-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-G	●	●	●	●	●			-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123504PEER-H	●	●	●	●	●			-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-H	●	●	●	●	●			-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-H	●	●	●	●	●			-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123504PEER-E						●	●	-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-E						●	●	-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-E						●	●	-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123508PEER-EH						●	●	-	-	.032" / *0.8*	.031" / *.8*	1
AXET123502PEFR-S	-	-	-	-	-	-	-	●	●	.008" / *0.2*	-	1
AXET123504PEFR-S	-	-	-	-	-	-	-	●	●	.016" / *0.4*	-	1
AXET123508PEFR-S	-	-	-	-	-	-	-	●	●	.032" / *0.8*	-	1

Fig 1



Parts

Flat Screw		Wrench
	N·m	
BFTX0306IP	2.0	TRDR08IP

* Use peripheral inserts with RE of 0.8 mm or less from the second step and above.

Identification Code

WRX	2	040	R	S	36	16
Cutter Series	Insert Size (Insert Length 12mm)	Tool Dia.	Feed Direction	Metric Bore	Cutting Edge Length	Mounting Dia.

N·m Recommended Tightening Torque (N·m)

WRX Shell Mill (Inch & Metric)

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	13° to 15°
	Axial	22° to 24°

27 to 53mm 90° | 2.50-3.00" 90°

Fig 1

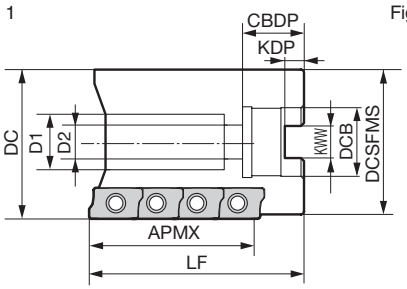


Fig 2

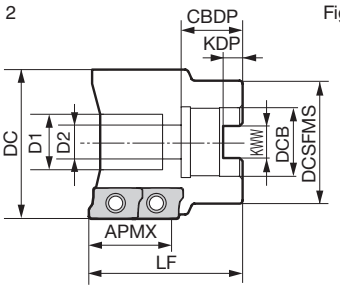
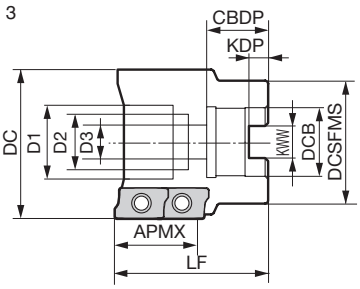


Fig 3



Body (Standard)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Total No. of Teeth	Steps	Effective Number of Teeth	Weight (kg)	Fig
Inch	**WRX32500R100-250**	●	2.500	2.500	2.378	2.750	1.000	0.375	0.236	1.023	0.797	0.531	-	20	5	4	3.42	1
Inch	**WRX33000R125-300**	●	3.000	3.000	2.878	3.375	1.250	0.500	0.315	1.260	1.000	0.655	-	30	6	5	6.24	1
Metric	**WRX3050RS5322**	★	*50*	*53*	*47*	*70*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	12	4	3	0.6	1
Metric	**WRX3063RS5327**	★	*63*	*53*	*60*	*70*	*27*	*12.4*	*7*	*23*	*20*	*13.5*	-	16	4	4	1.0	1
Metric	**WRX3080RS5332**	★	**80*	*53*	*77*	*85*	*32*	*14.4*	*8*	*26*	*25*	*17*	-	20	4	5	2.2	1
Metric	**WRX3100RS5340**	★	*100*	*53*	*97*	*85*	*40*	*16.4*	*9.5*	*30*	*32*	*21*	-	24	4	6	3.5	1

Body (Short Cutting Edge)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Total No. of Teeth	Steps	Effective Number of Teeth	Weight (kg)	Fig
Inch	**WRX3080R27254**	★	**80*	*27*	*60*	*50*	*25.4*	*9.5*	*6*	*25*	*35*	*26*	*13*	12	2	6	1.1	3
Inch	**WRX3100R27317**	★	**100*	*27*	*70*	*63*	*31.8*	*12.7*	*8*	*32.5*	*46*	*28*	*17*	14	2	7	2.0	3
Metric	**WRX3050RS2722**	★	*50*	*27*	*40*	*50*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	8	2	4	0.4	2
Metric	**WRX3063RS2722**	★	*63*	*27*	*50*	*50*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	10	2	5	0.7	2

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

● USA stocked item ★ Worldwide Warehouse item

Insert

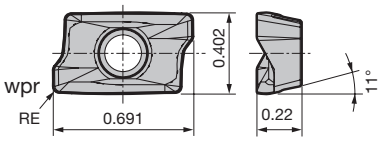
Dimensions (inch / *mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
Process	General-purpose		P M	P M	K		M S	M S		N
Process	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT170508PEER-L	●	●	●	●	●			-	-	.031"/ *0.8*	.087"	1
AXMT170504PEER-G	●	●	●	●	●			-	-	.016" / *0.4*	.102"	1
AXMT170508PEER-G	●	●	●	●	●			-	-	.031" / *0.8*	.087"	1
AXMT170512PEER-G	●	●	●	●	●			-	-	.047" / *1.2*	.067"	1
AXMT170516PEER-G	●	●	●	●	●			-	-	.063" / *1.6*	.059"	1
AXMT170520PEER-G*	●	●	●	●	●			-	-	.079" / *2.0*	.047	1
AXMT170530PEER-G*	●	●	●	●	●			-	-	.118" / *3.0*	-	1
AXMT170508PEER-H	●	●	●	●	●			-	-	.031" / *0.8*	.087"	1
AXMT170512PEER-H	●	●	●	●	●			-	-	.047" / *1.2*	.067"	1
AXMT170504PEER-E						●	●	-	-	.016" / *0.4*	.102"	1
AXMT170508PEER-E						●	●	-	-	.031" / *0.8*	.087"	1
AXMT170512PEER-E						●	●	-	-	.047" / *1.2*	.067"	1
AXMT170516PEER-E						●	●	-	-	.063" / *1.6*	.059"	1
AXMT170520PEER-E*						●	●	-	-	.079" / *2.0*	.047"	1
AXMT170530PEER-E*						●	●	-	-	.118" / *3.0*	-	1
AXMT170508PEER-EH						●	●	-	-	.031" / *0.8*	.087"	1
AXET170502PEFR-S	-	-	-	-	-	-	-	●	●	.008" / *0.3*	-	1
AXET170504PEFR-S	-	-	-	-	-	-	-	●	●	.016" / *0.4*	-	1
AXET170508PEFR-S	-	-	-	-	-	-	-	●	●	.031" / *0.8*	-	1

* marked inserts require modification of the cutter body.

Fig 1



Parts

Flat Screw		Wrench
BFTX0409IP	3.0	TRDR15IP

* Use peripheral inserts with RE of 0.8 mm or less from the second step and above.

* Modification of the cutter body is required when attaching a nose radius RE = 2.0 or 3.0 insert.

Modify this portion.

Reworking guidelines

For RE=2.0: C1 (AXMT170520PEER)

For RE=3.0: C1.5 (AXMT170530PEER)

Standard: C0.5.

N·m Recommended Tightening Torque (N·m)

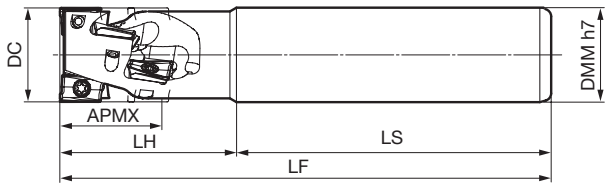
WRX Endmill (Inch & Metric)

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	13° to 16°
	Axial	16° to 24°

18 to 36 mm 90° | 1.50-2.126" 90°

Fig 1



Body (Standard)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Shank DMM	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Steps	Effective Number of Teeth	Weight (kg)	Fig
Inch	**WRX21000E100-150**	●	1.000	1.417	1.000	1.950	2.300	4.250	8	4	2	1.10	1
	WRX21250E125-175	●	1.250	1.750	1.250	2.200	2.300	4.500	15	5	3	1.48	1
	WRX21500E125-200	●	1.500	2.126	1.250	2.500	2.300	4.800	24	6	4	1.82	1
Metric	**WRX2020E3620**	★	*20*	*36*	*20*	*45*	*85*	*130*	4	4	1	0.3	1
	WRX2025E2725	★	*25*	*27*	*25*	*45*	*85*	*130*	6	3	2	0.4	1
	WRX2032E2732	★	*32*	*27*	*32*	*45*	*85*	*130*	9	3	3	0.7	1
	WRX2040E3642	★	*40*	*36*	*42*	*45*	*85*	*130*	16	4	4	1.2	1

Body (Short Cutting Edge)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Shank DMM	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Steps	Effective Number of Teeth	Weight (kg)	Fig
WRX2020E1820	★	*20*	*18*	*20*	*40*	*80*	*120*	4	2	2	0.3	1
WRX2025E1825	★	*25*	*18*	*25*	*45*	*85*	*130*	6	2	3	0.4	1
WRX2032E1832	★	*32*	*18*	*32*	*50*	*90*	*140*	8	2	4	0.8	1
WRX2040E1832	★	*40*	*18*	*32*	*40*	*120*	*160*	10	2	5	1.1	1

● USA stocked item ★ Worldwide Warehouse item

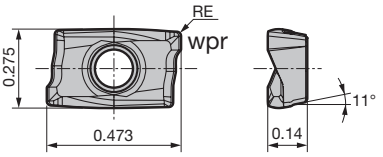
Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
	General-purpose		P M	P M	K		M S	M S		N
	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT123504PEER-G	●	●	●	●	●			-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-G	●	●	●	●	●			-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-G	●	●	●	●	●			-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123504PEER-H	●	●	●	●	●			-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-H	●	●	●	●	●			-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-H	●	●	●	●	●			-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123504PEER-E						●	●	-	-	.016" / *0.4*	.047" / *1.2*	1
AXMT123508PEER-E						●	●	-	-	.032" / *0.8*	.031" / *.8*	1
AXMT123512PEER-E						●	●	-	-	.047" / *1.2*	.016" / *.4*	1
AXMT123508PEER-EH						●	●	-	-	.032" / *0.8*	.031" / *.8*	1
AXET123502PEFR-S	-	-	-	-	-	-	-	●	●	.008" / *0.2*	-	1
AXET123504PEFR-S	-	-	-	-	-	-	-	●	●	.016" / *0.4*	-	1
AXET123508PEFR-S	-	-	-	-	-	-	-	●	●	.032" / *0.8*	-	1

Fig 1



Parts

Wrench	Flat Screw	
		N·m
TRDR08IP	BFTX0306IP	2.0

* Use peripheral inserts with RE of 0.8 mm or less from the second step and above.

N·m Recommended Tightening Torque (N·m)

Identification Code

WRX 2 020 E 36 20

WRX	2	020	E	36	20
Cutter Series	Insert Size (Insert Length 12mm)	Tool Dia.	Endmills	Cutting Edge Length	Shank Dia.

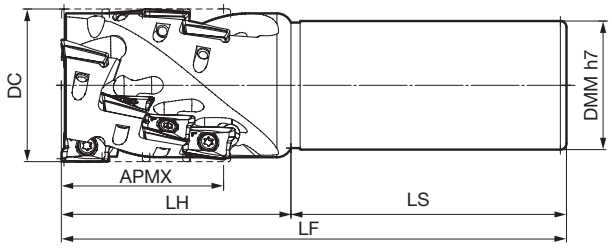
WRX Endmill (Inch & Metric)

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	12° to 13°
	Axial	20° to 22°

27 to 53mm 90° | 2.50" 90°

Fig 1



Body (Standard)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Shank DMM	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Steps	Effective Number of Teeth	Weight (kg)	Fig
Inch	**WRX32000E125-250**	●	2.000	2.500	1.250	2.700	2.300	5.000	15	5	3	2.56	1
Metric	**WRX3040E4042**	★	*40*	*40*	*42*	*65*	*85*	*150*	*9*	3	3	*1.3*	1
	WRX3050E5342	★	*50*	*53*	*42*	*75*	*90*	*165*	*12*	4	3	*1.8*	1

Body (Short Cutting Edge)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Shank DMM	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Steps	Effective Number of Teeth	Weight (kg)	Fig
WRX3040E2732	★	**40**	27	32	60	120	180	6	2	3	*1.2*	1
WRX3050E2732	★	**50**	27	32	60	120	180	8	2	4	*1.4*	1

Inserts are sold separately. ● USA stocked item ★ Worldwide Warehouse item

Insert

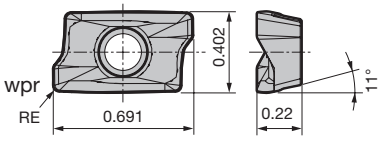
Dimensions (inch / *mm*)

Grade		Coated Carbide							Carbide	DLC
Process	High-speed / Light	P			K		M S		K N	N
	General-purpose		P M	P M	K		M S	M S		N
	Roughing		P M	P M		K		M S		

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	Nose Radius RE	Wiper Facet Length wpr	Fig
AXMT170508PEER-L	●	●	●	●	●			-	-	.031"/ *0.8*	.087"	1
AXMT170504PEER-G	●	●	●	●	●			-	-	.016" / *0.4*	.102"	1
AXMT170508PEER-G	●	●	●	●	●			-	-	.031" / *0.8*	.087"	1
AXMT170512PEER-G	●	●	●	●	●			-	-	.047" / *1.2*	.067"	1
AXMT170516PEER-G	●	●	●	●	●			-	-	.063" / *1.6*	.059"	1
AXMT170520PEER-G*	●	●	●	●	●			-	-	.079" / *2.0*	.047	1
AXMT170530PEER-G*	●	●	●	●	●			-	-	.118" / *3.0*	-	1
AXMT170508PEER-H	●	●	●	●	●			-	-	.031" / *0.8*	.087"	1
AXMT170512PEER-H	●	●	●	●	●			-	-	.047" / *1.2*	.067"	1
AXMT170504PEER-E						●	●	-	-	.016" / *0.4*	.102"	1
AXMT170508PEER-E						●	●	-	-	.031" / *0.8*	.087"	1
AXMT170512PEER-E						●	●	-	-	.047" / *1.2*	.067"	1
AXMT170516PEER-E						●	●	-	-	.063" / *1.6*	.059"	1
AXMT170520PEER-E*						●	●	-	-	.079" / *2.0*	.047"	1
AXMT170530PEER-E*						●	●	-	-	.118" / *3.0*	-	1
AXMT170508PEER-EH						●	●	-	-	.031" / *0.8*	.087"	1
AXET170502PEFR-S	-	-	-	-	-	-	-	●	●	.008" / *0.3*	-	1
AXET170504PEFR-S	-	-	-	-	-	-	-	●	●	.016" / *0.4*	-	1
AXET170508PEFR-S	-	-	-	-	-	-	-	●	●	.031" / *0.8*	-	1

* marked inserts require modification of the cutter body.

Fig 1



Parts

Flat Screw		Wrench
	N·m	
BFTX0409IP	3.0	TRDR15IP

* Use peripheral inserts with RE of 0.8 mm or less from the second step and above.

* Modification of the cutter body is required when attaching a nose radius RE = 2.0 or 3.0 insert.

Modify this portion.
Reworking guidelines
For RE = 2.0: C1
(AXMT170520PEER)
For RE = 3.0: C1.5
(AXMT170530PEER)
Standard: C0.5.

Identification Code

WRX 3 040 E 40 42

Cutter Series	Insert Size (Insert Length 17mm)	Tool Dia.	Endmills	Cutting Edge Length	Shank Dia.

N·m Recommended Tightening Torque (N·m)

■ Features

- Ideal for machining titanium alloys for aerospace
  Designed for machining at large ramping angles, coupled with a selection of corner radii, makes it applicable for a variety of applications including titanium structural parts
- Stable and long tool life in machining titanium alloys
  The optimized cutting edge shape together with newly developed ACS2500/ACS3000 grades (for machining exotic alloys) result in excellent wear resistance and fracture resistance
- Optimized cutting edge shape and chip pocket for excellent chip evacuation

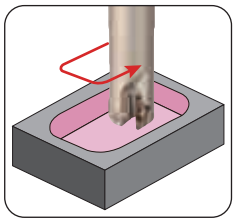
■ Product Range

Type	Description	Cat. No.	Dia. (mm)		
			ø32	ø50	ø63
Shell	Standard	**WSE 16000RS○○**		5	6
	Long	**WSE 16000RS○○L**		5	6
Shank	Standard	**WSE 16000E○○**	3		

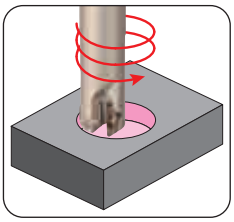
Number in ●● shows the number of teeth

■ Applicable to various applications!

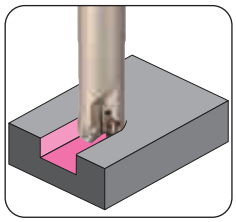
Pocket Expansion



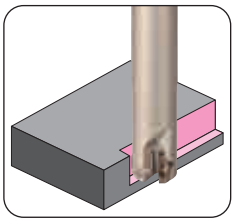
Helical Milling



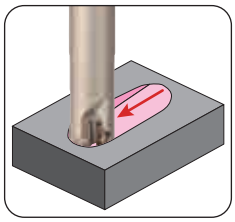
Slot Milling



Shoulder Milling

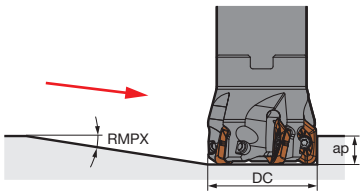


Ramping

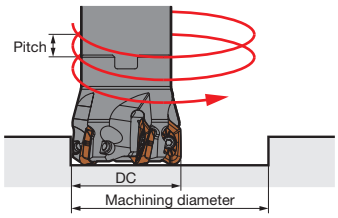


■ Ramping/Helical Milling Upper Limit

Ramping



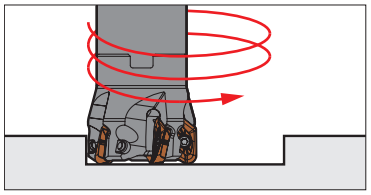
Helical Milling



Dia. DC ø (in)	Corner Radius RE	Max. Ramping Angle RMPX(°)
1.26	RE ≥ 5.0	8.4
	RE ≤ 4.0	12.2
1.97	RE ≥ 5.0	3.6
	RE ≤ 4.0	5.6
2.48	RE ≥ 5.0	2.5
	RE ≤ 4.0	3.9

Dia. DC ø (in)	Corner Radius RE	Max. Machining Dia. ø (in)	Max. Pitch (in/rev)	Standard Diameter ø (in)	Max. Pitch (in/rev)	Min. Machining Dia. ø (in)	Max. Pitch (in/rev)
1.26	4.0	2.18	0.51	2.17	0.51	1.81	0.12
	0.8	2.41	0.51	2.22	0.51	1.81	0.11
1.97	4.0	3.61	0.44	3.61	0.44	3.22	0.11
	0.8	3.83	0.51	3.63	0.43	3.22	0.11
2.48	4.0	4.63	0.40	4.63	0.40	4.25	0.11
	0.8	4.85	0.46	4.65	0.39	4.25	0.10

Precautions for Helical Milling



Helical Milling

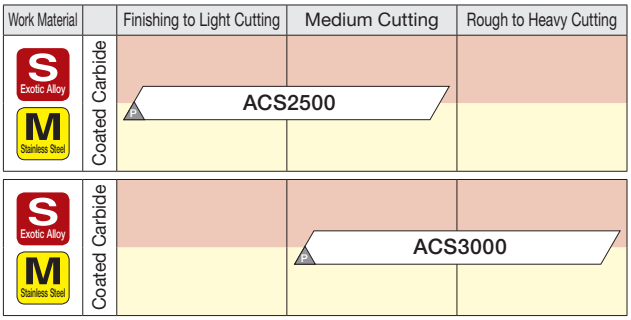
- For helical milling, if the work diameter is smaller than the standard diameter, there will be a center uncut portion.
- A prepared center hole should be made.
- Above the standard diameter, this portion can be removed by traverse cutting with the same cutter.

■ Grade Features

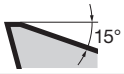
Work Material	Grade	Coating Thickness (μm)	Features
S Exotic Alloy / M Stainless Steel	ACS2500	3	Carbide substrate with excellent wear and adhesion resistance, coupled with a chipping resistant coating, provide outstanding performance especially in machining titanium alloys
	ACS3000	3	High toughness carbide substrate and a coating with excellent chipping resistance provide outstanding stability when machining titanium alloys, heat-resistant alloys or stainless steel

■ Grade Application Range

The newly developed ACS2500/ACS3000 grades ideal for machining titanium alloys, heat-resistant alloys and stainless steel are now available!

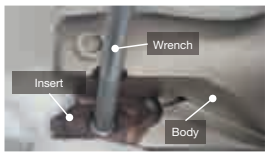


■ Chipbreaker Shape

Work Material	M Stainless Steel, S Exotic Alloy
Applications	General-purpose to Roughing
Features	Standard
Chipbreaker	E
Cutting Edge Cross Section	

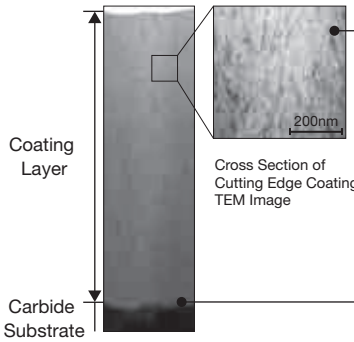
Precautions for Mounting Inserts

(1) Clean the mounting seat surface and contact parts.
(2) While pressing the insert firmly against the seat surface, tighten the screws with the included wrench.
(3) Apply Anti-seizure Cream to the screws and tighten at the recommended torque.
(4) After tightening, check that there are no gaps on the seat surface.



New PVD Coating Layer Features

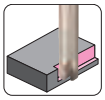
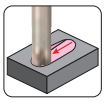
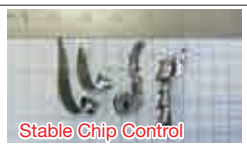
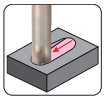
ABSOTECH PVD



Ultra-fine Grained B Additive
- New AlTiBN coating, with an ultra-fine coating structure, achieves high strength and toughness
- Outstanding chipping resistance and wear resistance

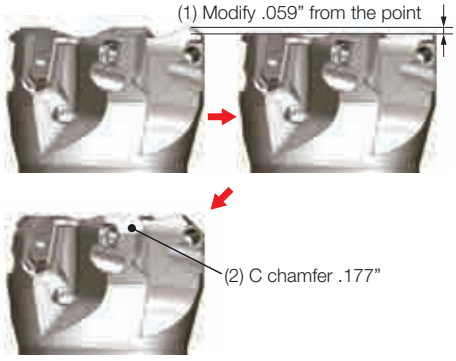
High Adhesion Strength
Significantly improved coating adhesion and more than 2x conventional chipping resistance

■ Excellent Chip Control

Cutting Conditions	Chip	
vc = 196 SFM fz = 0.005 IPT ap = 0.39in ae = 0.83in Wet (7MPa) Ramping Angle: 0° 	WSE	Competitor's Product
vc = 164 SFM fz = 0.005 IPT ap = 0.16in ae = 1.97in Wet (7MPa) Ramping Angle: 3° 	 WSE	Competitor's Product
vc = 164 SFM fz = 0.005 IPT ap = 0.16in ae = 1.97in Wet (7MPa) Ramping Angle: 5.5° 	WSE	× Machining Not Possible Competitor's Product

Machine: 5-axis Machine HSK100, Work Material: Ti-6Al-4V
Tool: WSE 16050RS05L (ø50, 5-tooth)
Insert: XOMT160540PEER-E (ACS3000)

*Modification of the cutter body is required when mounting a corner radius 5.0 or higher insert.



■ Recommended Cutting Conditions

ISO	Material		Hardness	Chipbreaker	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Grade
S	Exotic Alloy	Heat-Resistant Alloy	—	E	25 - 50	0.05 - 0.15	ACS2500/ACS3000
		Ti Alloy	—	E	30 - 90	0.05 - 0.15	ACS2500/ACS3000
M	Stainless Steel	430 Stainless and Others (Martensitic/Ferritic)	200	E	115 - 175	0.05 - 0.15	ACS2500/ACS3000
		403 Stainless and Others (Martensitic/Hardened)	240	E	105 - 155	0.05 - 0.15	ACS2500/ACS3000
		304 Stainless, 316 Stainless (Austenitic)	180	E	125 - 190	0.05 - 0.15	ACS2500/ACS3000

— The recommended cutting conditions may not be practical depending on the operating conditions (e.g. machine, work material shape, clamping system).
— For groove milling, adjust the feed rate to around 70% of the above values.

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WSE Series

M Stainless Steel | S Exotic Alloy

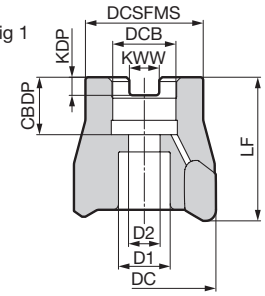
New

Rake Angle		
	Radial	-9° to -6°
	Axial	8° to 14°

15mm 90°

Shoulder Milling | Slot Milling | Ramping | Helical Milling

Fig 1



Body (Shellmill)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	WSE16050RS05	★	50	41	40(38.5)	22	10.4	6.3	20	18	11	5	0.24	1
	WSE16050RS05L	★	50	41	50(48.5)	22	10.4	6.3	20	18	11	5	0.33	1
	WSE16063RS06	★	63	50	40(38.5)	22	10.4	6.3	20	18	11	6	0.46	1
	WSE16063RS06L	★	63	50	50(48.5)	22	10.4	6.3	20	18	11	6	0.61	1

The LF dimensions in parentheses are dimensions using RE = 5.0 or larger insert. When using RE = 5.0 or larger inserts, the maximum depth of cut is 13mm.
Take note of the cutter mounting size (DCB) when selecting a cutter. Inserts are sold separately.

Identification Code

WSE 16 050 R S 05 L

Series Code | Insert Size | Dia. | Feed Direction | Metric Bore | Number of Teeth | Long Body

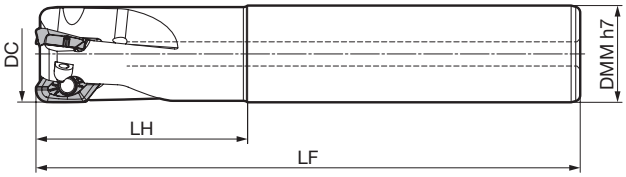
Rake Angle		
	Radial	-9°
	Axial	8°

15mm 90°

Parts

Flat Insert Screw		Detachable Wrench		Anti-seize Cream
		Handle Grip	Bit	
BFTX0409IP	3.0	HPS1015	TRB15IP	SUMI-P

Fig 1



Body (Endmill)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WSE16032E03	★	32	32	60 (58.4)	170 (168.4)	3	0.90	1

The LH and LF dimensions in parentheses are dimensions using RE = 5.0 or higher inserts. When using RE = 5.0 or higher inserts, the maximum depth of cut is *13mm*.
Inserts are sold separately.

■ Identification Code

WSE 16 032 E 03

Series | Insert Size | Dia. (*mm*) | Shank | Number of Teeth

■ Parts

Flat Insert Screw		Wrench	Anti-seize Cream
BFTX0409IP	3.0	TRDR15IP	SUMI-P

■ Insert

Dimensions (*mm*)

Grade Classification		Coated Carbide			
Process	High-speed/Light	M/S			
	Medium Cutting	M/S	M/S		
	Roughing		M/S		
Cat. No.		ACS2500	ACS3000	Corner Radius RE	Fig
XOMT160508PEER-E		★	★	0.8	1
XOMT160512PEER-E		★	★	1.2	1
XOMT160516PEER-E		★	★	1.6	1
XOMT160520PEER-E		★	★	2.0	1
XOMT160530PEER-E		★	★	3.0	1
XOMT160540PEER-E		★	★	4.0	1
XOMT160550PEER-E		★	★	5.0	2
XOMT160560PEER-E		★	★	6.0	2
XOMT160564PEER-E		★	★	6.35	2

Fig1

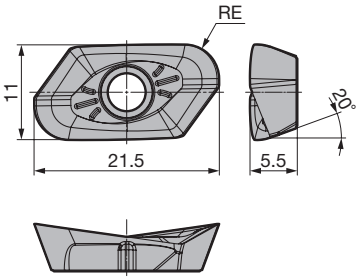
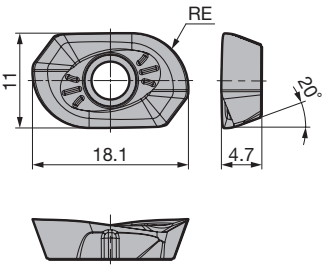


Fig2



N·m Recommended Tightening Torque (N·m)

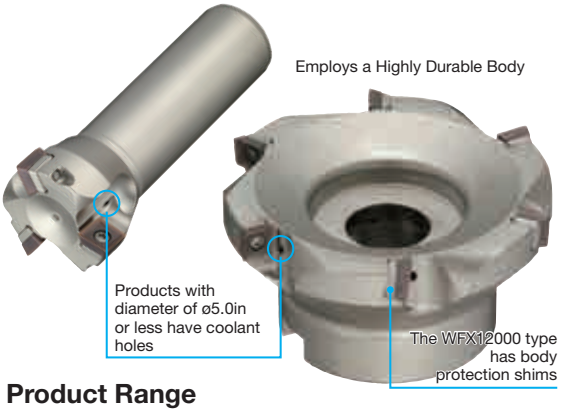
■ General Features

WaveMill WFX for shoulder milling is a screw-locking type cutter capable of using four corners.
Ideal cut edge design delivers good squareness.
Now with high-efficiency, multi-functional WFXH and chamfering WFXC.
Our wide range covers a wide variety of applications.
Now available in ACU2500.

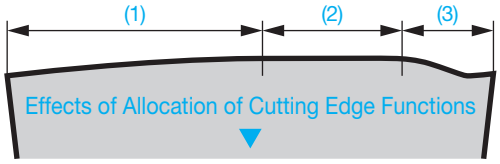
WFXH **WFXC**

■ Features

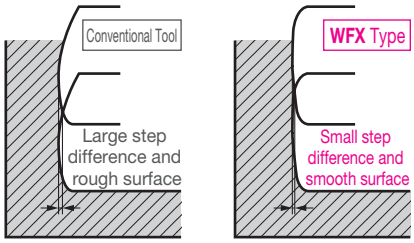
The insert shape optimized for shoulder milling and the high-precision body leave a superior machined surface finish.



• Optimized Edge Shape (For Shoulder Milling)



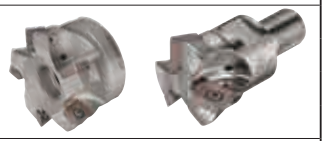
(1): The convex shape **ensures cutting edge strength**
(2): The flat shape **reduces step differences** in shoulder milling



(3): The wiper edge function improves the surface roughness

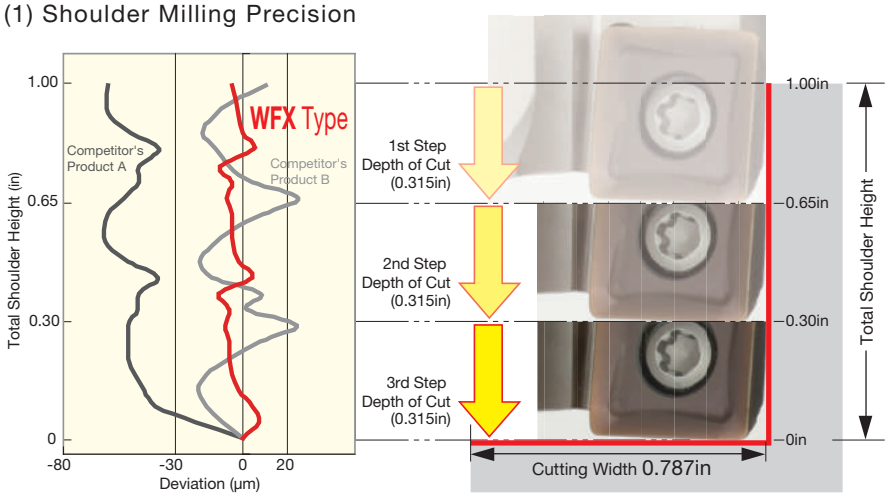
■ Product Range

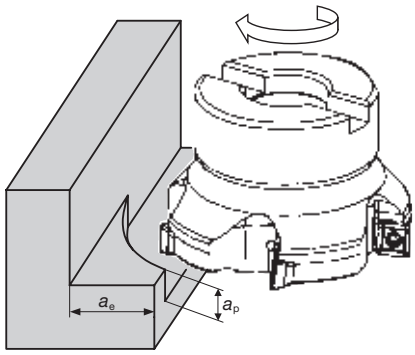
Applications	Type	Cat. No.	Description	Blade Diameters in Stock (inch) (ø2.000 ø2.500 ø3.000 ø4.000 ø5.000 6.000 ø8.000)	Shape
Shoulder Milling	Shell	WFX40000R	Standard	2.000 – 8.00	
		WFXF40000R	Fine Pitch	2.000 – 8.00	
		WFXX40000R	Extra Fine Pitch	2.000 – 5.00	

Applications	Type	Cat. No.	Description	Blade Diameters in Stock (mm) (ø10 ø25 ø40 ø60 ø63 ø80 ø100 1254.92 ø250)	Shape
Shoulder Milling	Shell	WFX08000RS	Standard	40 – 100	
		WFXM08000RS	Fine Pitch	40 – 100	
		WFXF08000RS	Extra Fine Pitch	40 – 100	
		WFX08000R	Standard	80 – 100	
		WFXM08000R	Fine Pitch	80 – 100	
		WFXF08000R	Extra Fine Pitch	80 – 100	
		WFX12000RS	Standard	50 – 100	
		WFXF12000RS	Extra Fine Pitch	50 – 100	
		WFX12000R	Standard	80 – 9.84	
		WFXF12000R	Extra Fine Pitch	80 – 9.84	
	Endmill	WFX08000E	Standard	20 – 63	
		WFXM08000E	Fine Pitch	25 – 63	
		WFX12000E	Standard	40 – 80	
		WFXF12000E	Extra Fine Pitch	50 – 80	
	Modular	WFX08000M	Modular	20 – 40	
High Efficiency	Shell	WFXH08000RS	Standard	40 – 63	
		WFXH12000RS	Standard	60 – 63	
	Modular	WFXH08000M	Modular	25 – 32	
		WFXH12000M	Modular	40	
Chamfering	Endmill	WFXC08000E	Standard	8 – 16	
		WFXC12000E	Standard	25 – 30	
	Modular	WFXC08000M	Modular	16	
		WFXC12000M	Modular	25 – 32	

■ Cutting Performance

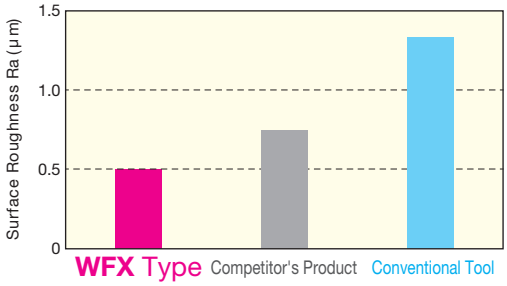
(1) Shoulder Milling Precision





Part Material: **1050 Steel** Tool: **WFX12100R** (ø100 x 5 flutes)
Cutting Conditions: v_c = **656** SFM, f_z = **0.006 IPT**,
a_p = **0.315"** x **3** times, a_e = **0.8"**

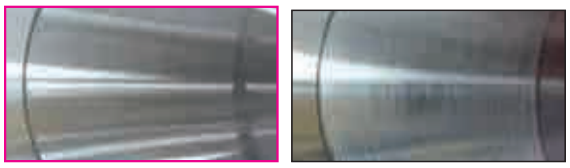
(2) Comparison of Surface Roughness



Part Material: **4140 Steel** Tool: **WFX12100R** (ø100 x 5 flutes)
Cutting Conditions: v_c = **656 SFM**, f_z = **0.004 IPT**,
a_p = **0.12in**, a_e = **3.54in**

(3) Comparison of Surface Properties

Part Material: **1050 Steel**
Cutting Conditions: a_p = **0.02"**

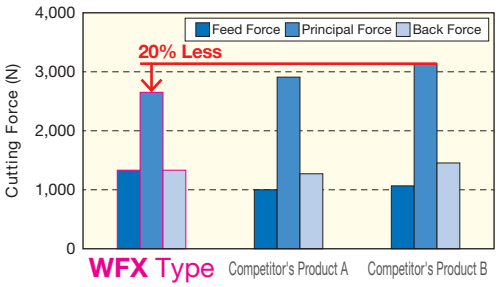


Glossy without Clouding — Clouded without Gloss

Part material: **304 Stainless**
Cutting Conditions: a_p = **0.02"**

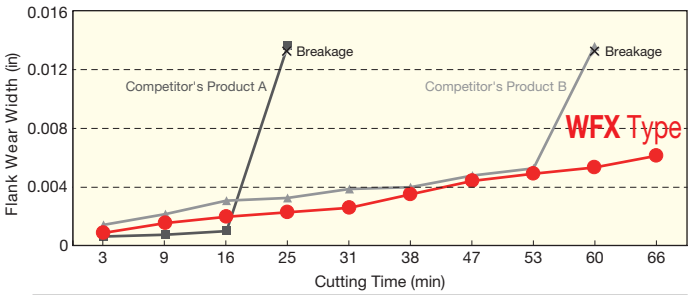
WFX — Competitor's Product

(4) Comparison of Cutting Force



Part Material: **1050 Steel** Tool: **WFX12100R** (ø100 x 5 flutes)
Cutting Conditions: v_c = **656 SFM** f_z = **0.006** IPT,
a_p = **0.4**in, a_e = **0.8in**

(5) Comparison of Wear Resistance



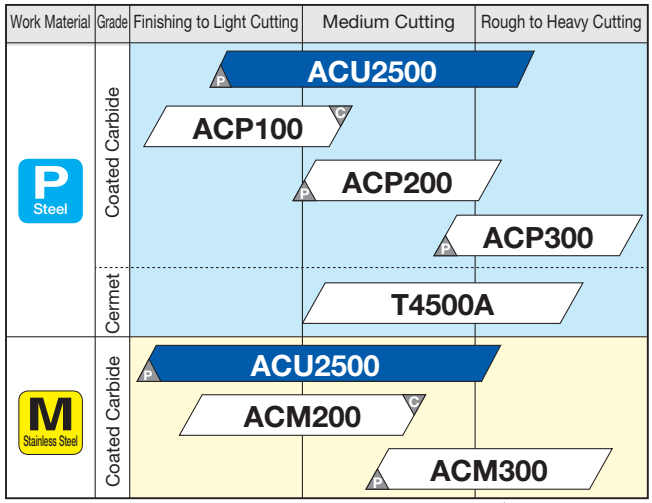
Part Material: **4140 Steel** Tool: **WFX12100R** (ø100 x 1 flute evaluation)
Cutting Conditions: v_c = **656 SFM**, f_z = **0.006 IPT**,
a_p = **0.2**in, a_e = **1.18in**

■ Application Examples

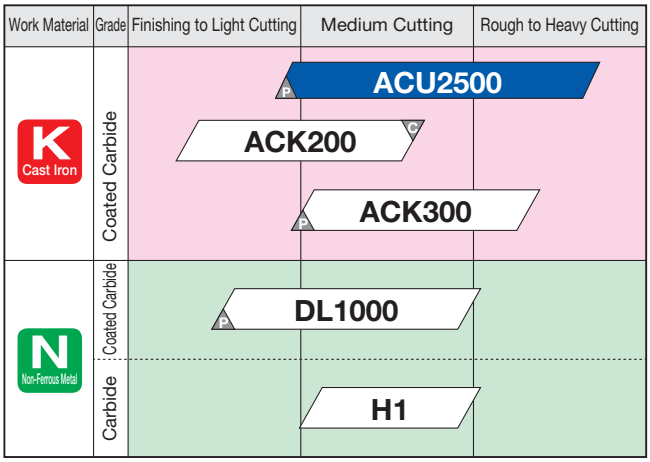
Workpiece (1050 Steel)		Sumitomo	Conventional Tool
	Tool	**WFXF08063RS**	
	Grade	**ACP200**	
	Tool Dia. (mm)	ø63	ø63
	Number of Teeth	8	5
	v_c (SFM)	720	720
	v_f (IPT)	43	43
	f_z (IPM)	0.006	0.008
	a_p (in)	0.12	0.16
	a_e (in)	1.97	1.97
	Coolant	Wet	Wet
	Results	· Vibration reduced by approximately 30% · Good machined surface · Tool life doubled	

Workpiece (Cast Iron - FCD450)		Sumitomo	Conventional Tool
	Tool	**WFXF12100R**	
	Grade	**ACK300**	
	Tool Dia. (mm)	ø100	ø100
	Number of Teeth	7	6
	v_c (SFM)	656	656
	v_f (IPM)	17.5	17.5
	f_z (IPT)	0.004	0.004
	a_p (in)	0.002	0.002
	a_e (in)	-	-
	Coolant	Dry	Dry
	Results	· Good surface roughness Ra 0.98 → 0.38μm, Rz 7.63 → 3.34μm · Cutting time shortened Insert life is extended by approximately 20%	

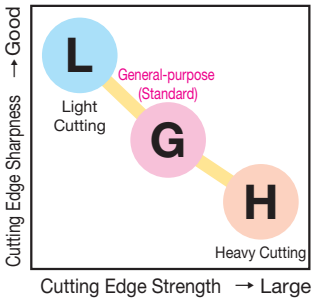
■ Grade Application Range



The letters "C" and "P" at the end of each grade indicate the coating type. C: CVD, P: PVD, Blank: Uncoated



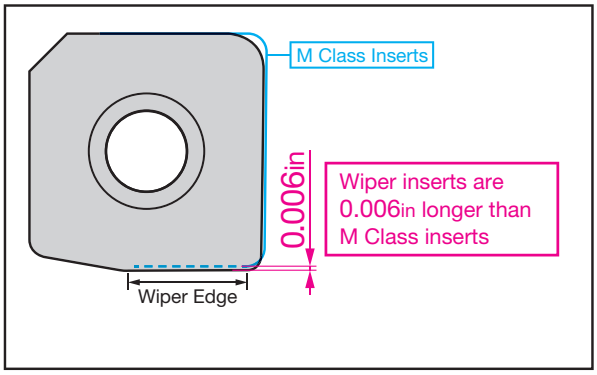
■ Chipbreaker Selection

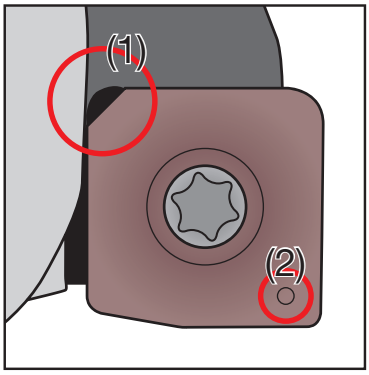


Part Material	P M K S				N
Chipbreaker	L Type	G Type	H Type	Wiper Insert	S Type
Features	Low Cutting Force	General-purpose Type	High Strength Type	Wiper Edge	Sharp Edge
Cutting Edge Cross Section	20°	15°	10°	15°	25°
Applications	Light Cutting, Low Rigidity Milling and Reduction of Burrs	Main Chipbreaker General Purpose to Interrupted Milling	Roughing, Heavy Interrupted Cutting and Hardened Steel Milling	High-precision Finish	For Non-Ferrous Metals

■ Wiper Insert

Optimized wiper edge shape provides superior surface roughness.





Precautions when Using Wiper Inserts

- The wiper insert has a single corner specification.
- Place the wiper insert so that the chamfered corner is in location (1) shown in the figure.
- Use the corner with the ID mark. (2) (08-size inserts have no marks)
- Refer to page N55 for details about wiper inserts.

■ Cutting Conditions

ISO	Part Material	Cutting Speed v_c (SFM/m/min) Min. - Max	Feed Rate f_z (IPT/mm/t) Min. - Max	D.O.C. (In/mm)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	0.10 - 0.20	< 10.0	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	0.10 - 0.20	< 10.0	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	0.10 - 0.20	< 6.0	
M	Stainless Steel	175 - 675	0.004 - 0.008	< 0.394	ACM200
		55 - 300	0.10 - 0.20	< 10.0	
		525 - 820	0.004 - 0.008	< 0.394	ACU2500 ACM300
		160 - 250	0.10 - 0.20	< 10.0	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	0.10 - 0.20	< 10.0	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	0.10 - 0.20	< 10.0	

WFX Shellmill Metric - *8mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-6°
	Axial	12°

6mm 90° | .236" 90°

Fig 1

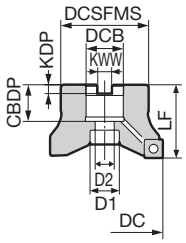


Fig 2

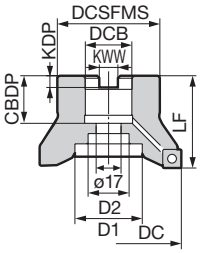
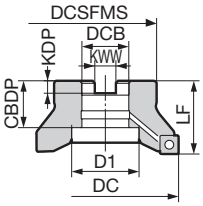


Fig 3



Body (Standard)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WFX08040RS**	★	40	33	40	16	8.4	5.6	18	14	9	3	0.2	1
	WFX08050RS	★	50	41	40	22	10.4	6.3	20	18	11	4	0.3	1
	WFX08063RS	★	63	50	40	22	10.4	6.3	20	18	11	5	0.6	1
	WFX08080RS	★	*80	55	50	27	12.4	7	25	20	14	6	1.0	1
	WFX08100RS	★	100	70	50	32	14.4	8	32	46	-	8	1.4	3
	WFX08080R	★	*80	55	50	25.4	9.5	6	25	20	14	6	1.0	1
	WFX08100R	★	*100	70	63	31.75	12.7	8	32	46	27	8	1.9	2

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet			
Process	High-speed / Light		P			K		M S		K N	N				
	General-purpose	P K M S		P M	P M	K		M S	M S		N	P			
	Roughing	P K M S		P M	P M		K		M S						
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Wiper Facet Length wpr	Fig
SOMT080304PZER-L		★	★	★	★	★	★	★	★	-	-		0.4	1.3	1
SOMT080308PZER-L			★	★	★	★	★	★	★	-	-		0.8	0.9	1
SOMT080304PZER-G		★	★	★	★	★	★	★	★	-	-		0.4	1.3	1
SOMT080308PZER-G		★	★	★	★	★	★	★	★	-	-		0.8	0.9	1
SOMT080312PZER-G		★	★	★	★	★	★	★	★	-	-		1.2	0.5	1
SOMT080308PZER-H		★	★	★	★	★	★	★	★	-	-		0.8	0.9	1
SOMT080312PZER-H		★	★	★	★	★	★	★	★	-	-		1.2	0.5	1
SOET080304PZER-G		★	★	★	★	★	★	★	★	-	-	★	0.4	-	1
SOET080308PZER-G		★	★	★	★	★	★	★	★	-	-	★	0.8	-	1
SOET080312PZER-G		★	★	★	★	★	★	★	★	-	-	★	1.2	-	1
SOET080302PZFR-S		-	-	-	-	-	-	-	-	★	★	-	0.2	-	1
SOET080304PZFR-S		-	-	-	-	-	-	-	-	★	★	-	0.4	-	1
SOET080308PZFR-S		-	-	-	-	-	-	-	-	★	★	-	0.8	-	1
XOEW080308PZTR-W		-	-	-	-		★			-	-	★	-	3.3	2

Refer to H103 (Precautions when Using Wiper Inserts) (Mounting Precautions).

Fig 1

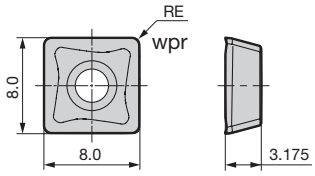
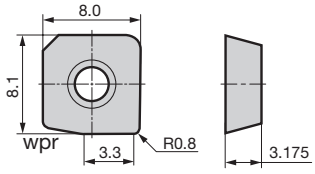


Fig 2 Wiper Insert



Parts

Flat Screw		Wrench
	N·m	
BFTX0306IP	2.0	TRDR08IP

SUMI-P Anti-seize cream included in the package.

Identification Code

WFX 08 040 R S

Cutter Series | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

N·m Recommended Tightening Torque (N·m)

■ Cutting Conditions

ISO	Part Material	Cutting Speed vc ((SFM / m/min) Min. - Max	Feed Rate fz (IPT/ mm/t) Min. - Max	D.O.C. (Inch / *mm*)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	*0.10 - 0.20*	*< 10.0*	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	*0.10 - 0.20*	*< 10.0*	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	*0.10 - 0.20*	*< 6.0*	
M	Stainless Steel	175 - 675	.004 - .008	< 0.394	ACM200
		55 - 300	*0.10 - 0.20*	*< 10.0*	
		525 - 820	.004 - .008	< 0.394	ACU2500 ACM300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	*0.10-0.15-0.20*	*< 10.0*	

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WFXM Shellmill Metric - *8mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-6°
	Axial	12°

6mm 90° | .236" 90°

Fig 1

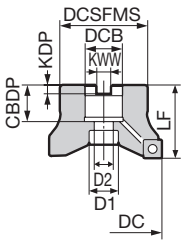


Fig 2

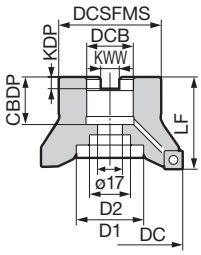
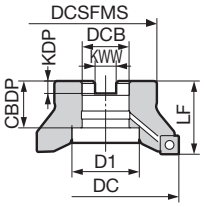


Fig 3



Body (Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WFXM08040RS**	★	*40*	*33*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	4	*0.2*	1
	WFXM08050RS	★	*50*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	5	*0.3*	1
	WFXM08063RS	★	*63*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	6	*0.5*	1
	WFXM08080RS	★	**80*	*55*	*50*	*27*	*12.4*	*7*	*25*	*20*	*14*	8	*1.0*	1
	WFXM08100RS	★	*100*	*70*	*50*	*32*	*14.4*	*8*	*32*	*46*	-	10	*1.4*	3
	WFXM08080R	★	**80*	*55*	*50*	*25.4*	*9.5*	*6*	*25*	*20*	*14*	8	*1.0*	1
	WFXM08100R	★	**100*	*70*	*63*	*31.75*	*12.7*	*8*	*32*	*46*	*27*	10	*1.9*	2

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet			
Process	High-speed/Light		P			K		M S		K N	N				
	General-purpose	K P M S		P M	P M	K		M S	M S		N	P			
	Roughing	K P M S		P M	P M		K		M S						
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Wiper Facet Length wpr	Fig
SOMT080304PZER-L		★	★	★	★	★	★	★	★	-	-		*0.4*	*1.3*	1
SOMT080308PZER-L			★	★	★	★	★	★	★	-	-		*0.8*	*0.9*	1
SOMT080304PZER-G		★	★	★	★	★	★	★	★	-	-		*0.4*	*1.3*	1
SOMT080308PZER-G		★	★	★	★	★	★	★	★	-	-		*0.8*	*0.9*	1
SOMT080312PZER-G		★	★	★	★	★	★	★	★	-	-		*1.2*	*0.5*	1
SOMT080308PZER-H		★	★	★	★	★	★	★	★	-	-		*0.8*	*0.9*	1
SOMT080312PZER-H		★	★	★	★	★	★	★	★	-	-		*1.2*	*0.5*	1
SOET080304PZER-G		★	★	★	★	★	★	★	★	-	-	★	*0.4*	-	1
SOET080308PZER-G		★	★	★	★	★	★	★	★	-	-	★	*0.8*	-	1
SOET080312PZER-G		★	★	★	★	★	★	★	★	-	-	★	*1.2*	-	1
SOET080302PZFR-S		-	-	-	-	-	-	-	-	★	★	-	*0.2*	-	1
SOET080304PZFR-S		-	-	-	-	-	-	-	-	★	★	-	*0.4*	-	1
SOET080308PZFR-S		-	-	-	-	-	-	-	-	★	★	-	*0.8*	-	1
XOEW080308PZTR-W		-	-	-	-		★			-	-	★	-	*3.3*	2

Fig 1

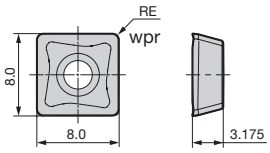
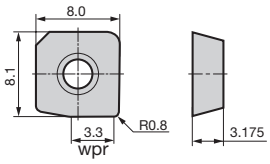


Fig 2 Wiper Insert



Refer to H103 (Precautions when Using Wiper Inserts) (Mounting Precautions).

Parts

Flat Screw		Wrench
BFTX0306IP	2.0	TRDR08IP

SUMI-P Anti-seize cream included in the package.

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"

Identification Code

WFX	M	08	040	R	S
Cutter Series	Fine Pitch	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

■ Cutting Conditions

ISO	Part Material	Cutting Speed v_c ((SFM / m/min) Min. - Max	Feed Rate f_z (IPT/ mm/t) Min. - Max	D.O.C. (Inch / *mm*)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	*0.10 - 0.20*	*< 10.0*	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	*0.10 - 0.20*	*< 10.0*	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	*0.10 - 0.20*	*< 6.0*	
M	Stainless Steel	175 - 675	.004 - .008	< 0.394	ACM200
		55 - 300	*0.10 - 0.20*	*< 10.0*	
		525 - 820	.004 - .008	< 0.394	ACU2500 ACM300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	*0.10-0.15-0.20*	*< 10.0*	

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

WFXF Shellmill Metric - *8mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-6°
	Axial	12°

6mm 90° | .236" 90°

Fig 1

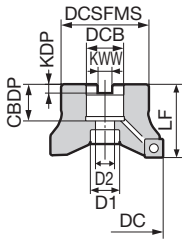


Fig 2

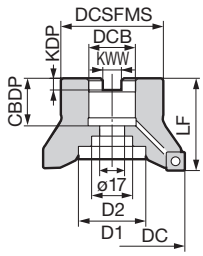
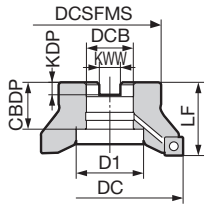


Fig 3



Body (Extra Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WFXF08040RS**	★	*40*	*33*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	6	*0.2*	1
	WFXF08050RS	★	*50*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	*7*	*0.3*	1
	WFXF08063RS	★	*63*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	8	*0.5*	1
	WFXF08080RS	★	**80*	*55*	*50*	*27*	*12.4*	*7*	*25*	*20*	*14*	10	*0.9*	1
	WFXF08100RS	★	*100*	*70*	*50*	*32*	*14.4*	*8*	*32*	*46*	-	12	*1.4*	3
	WFXF08080R	★	**80*	*55*	*50*	*25.4*	*9.5*	*6*	*25*	*20*	*14*	10	*1.0*	1
	WFXF08100R	★	**100*	*70*	*63*	*31.75*	*12.7*	*8*	*32*	*46*	*27*	12	*1.9*	2

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet			
Process	High-speed / Light		P			K		M S		K N	N				
	General-purpose	K M S		P M	P M	K		M S	M S		N	P			
	Roughing	K M S		P M	P M		K		M S						
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Wiper Facet Length wpr	Fig
SOMT080304PZER-L		★	★	★	★	★	★	★	★	-	-		*0.4*	*1.3*	1
SOMT080308PZER-L			★	★	★	★	★	★	★	-	-		*0.8*	*0.9*	1
SOMT080304PZER-G		★	★	★	★	★	★	★	★	-	-		*0.4*	*1.3*	1
SOMT080308PZER-G		★	★	★	★	★	★	★	★	-	-		*0.8*	*0.9*	1
SOMT080312PZER-G		★	★	★	★	★	★	★	★	-	-		*1.2*	*0.5*	1
SOMT080308PZER-H		★	★	★	★	★	★	★	★	-	-		*0.8*	*0.9*	1
SOMT080312PZER-H		★	★	★	★	★	★	★	★	-	-		*1.2*	*0.5*	1
SOET080304PZER-G		★	★	★	★	★	★	★	★	-	-	★	*0.4*	-	1
SOET080308PZER-G		★	★	★	★	★	★	★	★	-	-	★	*0.8*	-	1
SOET080312PZER-G		★	★	★	★	★	★	★	★	-	-	★	*1.2*	-	1
SOET080302PZFR-S		-	-	-	-	-	-	-	-	★	★	-	*0.2*	-	1
SOET080304PZFR-S		-	-	-	-	-	-	-	-	★	★	-	*0.4*	-	1
SOET080308PZFR-S		-	-	-	-	-	-	-	-	★	★	-	*0.8*	-	1
XOEW080308PZTR-W		-	-	-	-		★			-	-	★	-	*3.3*	2

Refer to H103 (Precautions when Using Wiper Inserts) (Mounting Precautions).

Fig 1

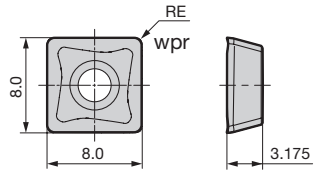
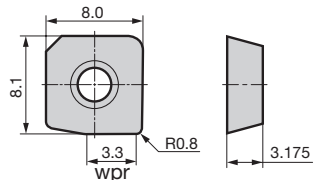


Fig 2 Wiper Insert



Parts

Flat Screw		Wrench
	N·m	
BFTX0306IP	2.0	TRDR08IP

SUMI-P Anti-seize cream included in the package.

N·m Recommended Tightening Torque (N·m)

Identification Code

WFX F 08 040 R S

WFX	F	08	040	R	S
Cutter Series	M: Fine Pitch F: Extra Fine Pitch	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

■ Cutting Conditions

ISO	Part Material	Cutting Speed vc ((SFM / m/min) Min. - Max	Feed Rate fz (IPT/ mm/t) Min. - Max	D.O.C. (Inch / *mm*)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	*0.10 - 0.20*	*< 10.0*	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	*0.10 - 0.20*	*< 10.0*	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	*0.10 - 0.20*	*< 6.0*	
M	Stainless Steel	175 - 675	.004 - .008	< 0.394	ACM200
		55 - 300	*0.10 - 0.20*	*< 10.0*	
		525 - 820	.004 - .008	< 0.394	ACU2500 ACM300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	*0.10-0.15-0.20*	*< 10.0*	

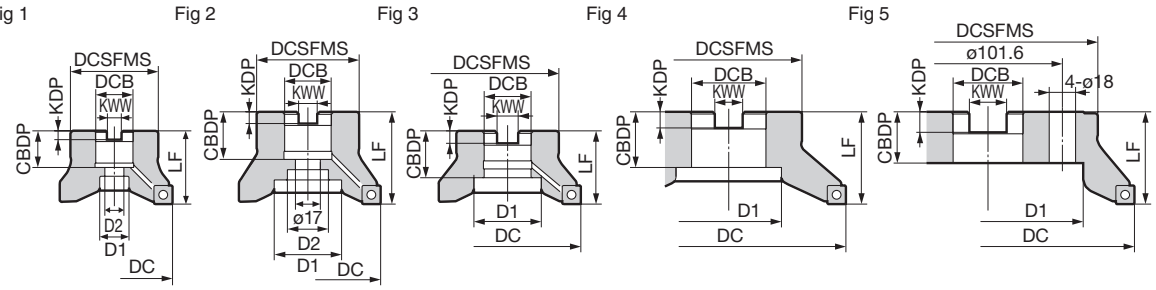
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WFX SHELLMILL INCH -*12mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-8°
	Axial	8°

10mm 90° | .394" 90°



Body (Standard)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Inch	**WFX42000R**	●	2.000	1.500	1.750	.750	.312	.190	.750	.609	.406	3	.28	1
	WFX42500R	●	2.500	1.750	1.750	1.000	.375	.220	.750	.797	.531	4	.41	1
	WFX43000R	●	3.000	2.250	1.750	1.000	.375	.220	.750	.797	.531	4	.74	1
	WFX44000R	●	4.000	2.870	2.000	1.250	.500	.280	.750	1.000	.656	5	1.50	1
	WFX44000R-1.50	●	4.000	3.750	2.500	1.500	.625	.380	1.000	2.000	1.181	5	2.24	3
	WFX45000R	●	5.000	3.750	2.500	1.500	.625	.380	1.000	2.000	.781	6	2.99	1
	WFX46000R	●	6.000	4.380	2.500	1.500	.625	.380	1.060	2.000	-	8	4.18	2

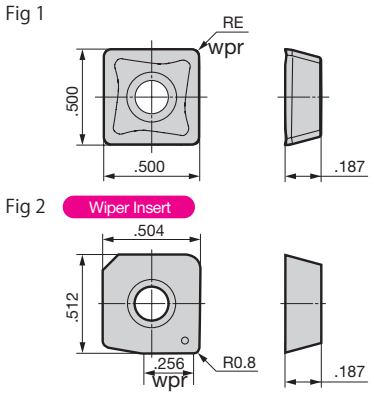
Inserts are sold separately. * Sizes ø6.000", ø8.000" & ø160 mm and above do not have coolant holes.

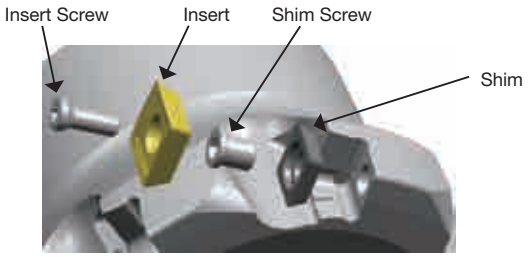
Insert

Dimensions (inch)

Grade		Coated Carbide								Carbide	DLC	Cermet			
Process	High-speed / Light		P			K		M S		K N	N				
	General-purpose	K P M S		P M	P M	K		M S	M S		N	P			
	Roughing	K P M S		P M	P M		K		M S						
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Wiper Facet Length wpr	Fig
SOMT120408PDER-L		●	●	●	●	●	●	●	●	-	-	-	.031	.067	1
SOMT120404PDER-G		★	●	●	●	●	●	●	●	-	-	-	.016	.083	1
SOMT120408PDER-G		★	●	●	●	●	●	●	●	-	-	●	.031	.067	1
SOMT120412PDER-G		★	●	●	●	●	●	●	●	-	-	-	.047	.047	1
SOMT120416PDER-G			●	●	●	●	●	●	●	-	-	-	.063	.031	1
SOMT120408PDER-H		★	●	●	●	●	●	●	●	-	-	-	.031	.067	1
SOET120408PDFR-S		-	-	-	-	-	-	-	-	●	●	-	.031	-	1
XOEW120408PDTR-W		-	-	-	-	-	●			-	-	●	-	.256	2

Refer to H103 (Precautions when Using Wiper Inserts) (Mounting Precautions).





Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)
WFXS4R	BW0507F	BFTX03512IP	3.0	TRDR15IP	LH035

SUMI-P Anti-seize cream included in the package.

N·m Recommended Tightening Torque (N·m)

Identification Code

WFX 4 2000 R

Cutter Series | Insert Size | Cutter Dia. 2.000" | Feed Direction

■ Cutting Conditions

ISO	Part Material	Cutting Speed v_c ((SFM / m/min) Min. - Max	Feed Rate f_z (IPT/ mm/t) Min. - Max	D.O.C. (Inch / *mm*)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	*0.10 - 0.20*	*< 10.0*	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	*0.10 - 0.20*	*< 10.0*	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	*0.10 - 0.20*	*< 6.0*	
M	Stainless Steel	175 - 675	.004 - .008	< 0.394	ACM200
		55 - 300	*0.10 - 0.20*	*< 10.0*	
		525 - 820	.004 - .008	< 0.394	ACU2500 ACM300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	*0.10-0.15-0.20*	*< 10.0*	

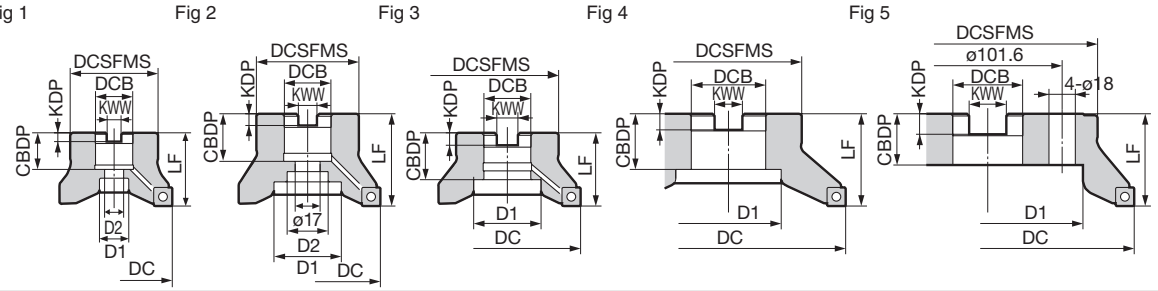
Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WFXF(X) SHELLMILL INCH - *12mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-8°
	Axial	8°

10mm 90° | .394" 90°



Body (Fine & Extra Fine Pitch)

Dimensions (inch)

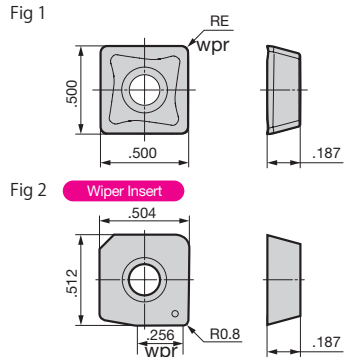
	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Fine Pitch - Inch	WFXF42000R	●	2.000	1.500	1.750	.750	.312	.190	.750	.609	.406	4	.28	1
	WFXF42500R	●	2.500	1.750	1.750	1.000	.375	.220	.750	.797	.531	5	.42	1
	WFXF43000R	●	3.000	2.250	1.750	1.000	.375	.220	.750	.797	.531	6	.73	1
	WFXF44000R	●	4.000	2.870	2.000	1.250	.500	.280	.750	1.000	.656	7	1.46	1
	WFXF44000R-1.50	●	4.000	3.750	2.500	1.500	.625	.380	1.000	2.000	1.181	7	2.23	3
	WFXF45000R	●	5.000	3.750	2.500	1.500	.625	.380	1.000	2.000	.781	8	2.94	1
	WFXF46000R	●	6.000	4.380	2.500	1.500	.625	.380	1.060	2.000	-	12	4.11	2
	WFXF48000R	●	8.000	5.906	2.500	2.500	1.000	.560	1.594	5.118	-	16	6.41	3
Super Fine - Inch	WFXX42000R	●	2.000	1.500	1.750	.750	.312	.190	0.750	0.609	.406	5	0.29	1
	WFXX42500R	●	2.500	1.750	1.750	1.000	.375	.220	0.750	0.797	.531	6	0.44	1
	WFXX43000R	●	3.000	2.250	1.750	1.000	.375	.220	0.750	0.797	.531	8	0.74	1
	WFXX44000R	●	4.000	2.870	2.000	1.250	.500	.280	0.750	1.000	.656	10	1.46	1
	WFXX44000R-1.50	●	4.000	3.750	2.500	1.500	.625	.380	1.000	2.000	1.181	10	2.25	3
	WFXX45000R	●	5.000	3.750	2.500	1.500	.625	.380	1.000	2.000	.781	12	2.95	1

Inserts are sold separately. * Sizes ø6.000", ø8.000" & ø160 mm and above do not have coolant holes.

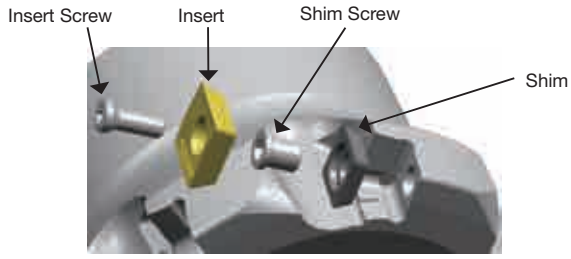
Insert

Dimensions (inch)

Grade		Coated Carbide								Carbide	DLC	Cermet			
Process	High-speed / Light		P			K		M S		K N	N				
	General-purpose	K N S		P M	P M	K		M S	M S		N	P			
	Roughing	K N S		P M	P M		K		M S						
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Wiper Facet Length wpr	Fig
SOMT120408PDER-L		●	●	●	●	●	●	●	●	-	-	-	.031	.067	1
SOMT120404PDER-G		★	●	●	●	●	●	●	●	-	-	-	.016	.083	1
SOMT120408PDER-G		★	●	●	●	●	●	●	●	-	-	●	.031	.067	1
SOMT120412PDER-G		★	●	●	●	●	●	●	●	-	-	-	.047	.047	1
SOMT120416PDER-G			●	●	●	●	●	●	●	-	-	-	.063	.031	1
SOMT120408PDER-H		★	●	●	●	●	●	●	●	-	-	-	.031	.067	1
SOET120408PDFR-S		-	-	-	-	-	-	-	-	●	●	-	.031	-	1
XOEW120408PDTR-W		-	-	-	-	-	●			-	-	●	-	.256	2



Refer to H86 (Precautions when Using Wiper Inserts) (Mounting Precautions).



Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)
WFXS4R	BW0507F	BFTX03512IP	3.0	TRDR15IP	LH035

SUMI-P Anti-seize cream included in the package.

N·m Recommended Tightening Torque (N·m)

Identification Code

WFX F 4 2000 R

WFX	F	4	2000	R
Cutter Series	Fine-Pitch Indication	Insert Size	Cutter Dia. 2.000"	Feed Direction

■ Cutting Conditions

ISO	Part Material	Cutting Speed v_c ((SFM / m/min) Min. - Max	Feed Rate f_z (IPT/ mm/t) Min. - Max	D.O.C. (Inch / *mm*)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	*0.10 - 0.20*	*< 10.0*	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	*0.10 - 0.20*	*< 10.0*	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	*0.10 - 0.20*	*< 6.0*	
M	Stainless Steel	175 - 675	.004 - .008	< 0.394	ACM200
		55 - 300	*0.10 - 0.20*	*< 10.0*	
		525 - 820	.004 - .008	< 0.394	ACU2500 ACM300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	*0.10-0.15-0.20*	*< 10.0*	

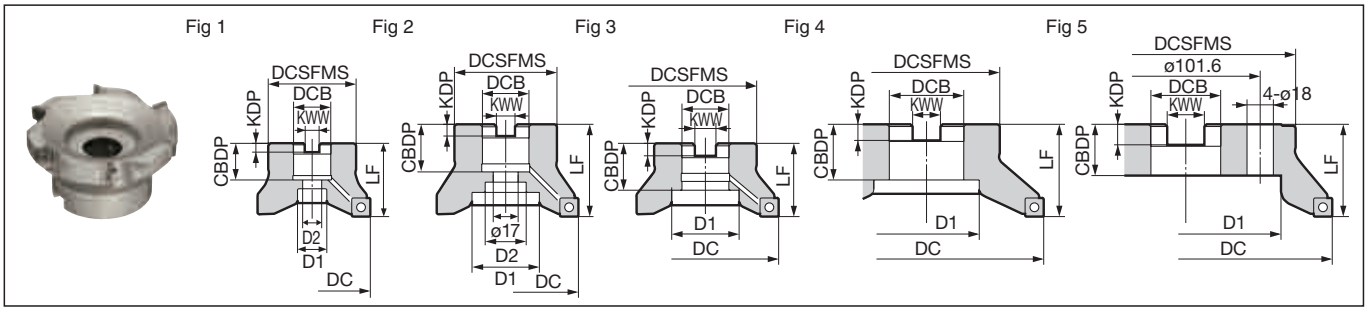
Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WFX SHELLMILL METRIC - *12mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-8°
	Axial	8°

10mm 90° | .394" 90°



Body (Standard Type)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WFX12050RS**	★	50	41	40	22	10.4	6.3	20	18	11	3	0.3	1
	WFX12063RS	★	63	50	40	22	10.4	6.3	20	18	11	4	0.5	1
	WFX12080RS	★	*80	55	50	27	12.4	7	25	20	14	4	0.9	1
	WFX12100RS	★	100	70	50	32	14.4	8	32	46	-	5	1.3	3
	WFX12080R	★	*80	55	50	25.4	9.5	6	25	20	14	4	0.9	1
	WFX12100R	★	*100	70	63	31.75	12.7	8	32.5	46	27	5	1.7	2
	WFX12125R	★	125	80	63	38.1	15.9	10	35.5	55	30	6	2.4	1
	WFX12160R	★	160	100	63	50.8	19.1	11	38	72	-	8	3.6	4
	WFX12200R	★	200	160	63	47.625	25.4	14	35	130	-	10	6.8	5
	WFX12250R	★	250	180	63	47.625	25.4	14	35	160	-	12	9.6	5

Inserts are sold separately. * Sizes ø160 mm and above do not have coolant holes.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	P M S		P M	P M	K		M S	M S		N	P
	Roughing	P M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Wiper Facet Length wpr	Fig
SOMT120408PDER-L	●	●	●	●	●	●	●	●	-	-	-	0.8	1.7	1
SOMT120404PDER-G	★	●	●	●	●	●	●	●	-	-	-	0.4	2.1	1
SOMT120408PDER-G	★	●	●	●	●	●	●	●	-	-	●	0.8	1.7	1
SOMT120412PDER-G	★	●	●	●	●	●	●	●	-	-	-	1.2	1.2	1
SOMT120416PDER-G		●	●	●	●	●	●	●	-	-	-	1.6	0.8	1
SOMT120408PDER-H	★	●	●	●	●	●	●	●	-	-	-	0.8	-	1
SOET120408PDFR-S	-	-	-	-	-	-	-	-	●	●	-	0.8	-	1
XOEW120408PDTR-W	-	-	-	-	-	●			-	-	●	-	6.5	2

Fig 1

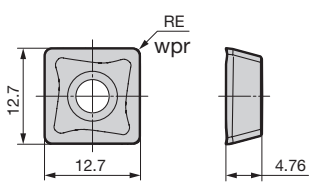
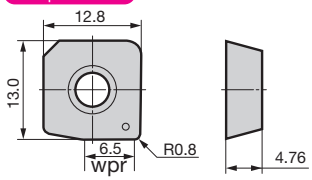
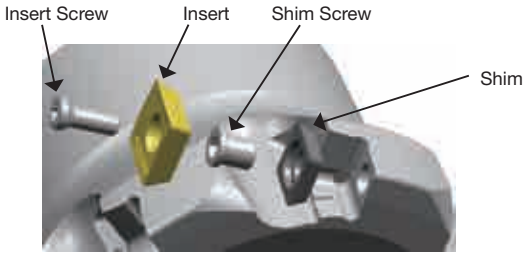


Fig 2 Wiper Insert



Refer to H86 (Precautions when Using Wiper Inserts) (Mounting Precautions).



Identification Code

WFX 12 050 R S

Cutter Series | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)
WFXS4R	BW0507F	BFTX03512IP	3.0	TRDR15IP	LH035

SUMI-P Anti-seize cream included in the package.

N·m Recommended Tightening Torque (N·m)

■ Cutting Conditions

ISO	Part Material	Cutting Speed vc ((SFM / m/min) Min. - Max	Feed Rate fz (IPT/ mm/t) Min. - Max	D.O.C. (Inch / *mm*)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	*0.10 - 0.20*	*< 10.0*	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	*0.10 - 0.20*	*< 10.0*	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	*0.10 - 0.20*	*< 6.0*	
M	Stainless Steel	175 - 675	.004 - .008	< 0.394	ACM200
		55 - 300	*0.10 - 0.20*	*< 10.0*	
		525 - 820	.004 - .008	< 0.394	ACU2500 ACM300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	*0.10-0.15-0.20*	*< 10.0*	

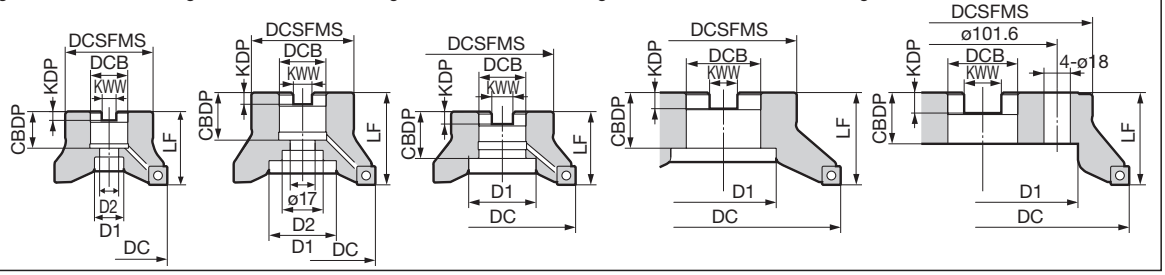
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WFXF Shellmill Metric - *12mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-8°
	Axial	8°

10mm 90° | .394" 90°



Body (Extra Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WFXF12050RS**	★	50	41	40	22	10.4	6.3	20	18	11	4	0.3	1
	WFXF12063RS	★	63	50	40	22	10.4	6.3	20	18	11	5	0.5	1
	WFXF12080RS	★	*80	55	50	27	12.4	7	22	20	14	6	0.9	1
	WFXF12100RS	★	100	70	50	32	14.4	8	32	46	-	7	1.3	3
	WFXF12080R	★	*80	55	50	25.4	9.5	6	25	20	14	6	0.9	1
	WFXF12100R	★	*100	70	63	31.75	12.7	8	32.5	46	27	7	1.7	2
	WFXF12125R	★	125	80	63	38.1	15.9	10	35.5	55	30	8	2.3	1
	WFXF12160R	★	160	100	63	50.8	19.1	11	38	72	-	12	3.5	4
	WFXF12200R	★	200	160	63	47.625	25.4	14	35	135	-	16	6.7	5
	WFXF12250R		250	180	63	47.625	25.4	14	35	160	-	18	9.5	5

Inserts are sold separately. * Sizes ø160 mm and above do not have coolant holes.

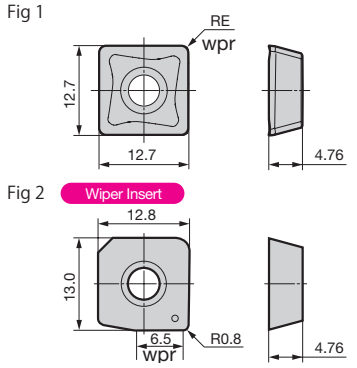
For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

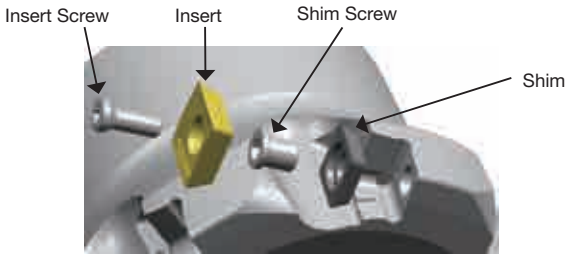
Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	K P S		P M	P M	K		M S	M S		N	P
	Roughing	K P S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A
SOMT120408PDER-L		●	●	●	●	●	●	●	●	-	-	-
SOMT120404PDER-G		★	●	●	●	●	●	●	●	-	-	-
SOMT120408PDER-G		★	●	●	●	●	●	●	●	-	-	●
SOMT120412PDER-G		★	●	●	●	●	●	●	●	-	-	-
SOMT120416PDER-G			●	●	●	●	●	●	●	-	-	-
SOMT120408PDER-H		★	●	●	●	●	●	●	●	-	-	-
SOET120408PDFR-S		-	-	-	-	-	-	-	-	●	●	-
XOEW120408PDTR-W		-	-	-	-	-	●			-	-	●

Cat. No.	Nose Radius RE	Wiper Facet Length wpr	Fig
SOMT120408PDER-L	0.8	1.7	1
SOMT120404PDER-G	0.4	2.1	1
SOMT120408PDER-G	0.8	1.7	1
SOMT120412PDER-G	1.2	1.2	1
SOMT120416PDER-G	1.6	0.8	1
SOMT120408PDER-H	0.8	-	1
SOET120408PDFR-S	0.8	-	1
XOEW120408PDTR-W	-	6.5	2



Refer to H103 (Precautions when Using Wiper Inserts) (Mounting Precautions).



Identification Code

WFX F 12 050 R S

WFX	F	12	050	R	S
Cutter Series	Fine-Pitch Indication	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)
WFXS4R	BW0507F	BFTX03512IP	3.0	TRDR15IP	LH035

SUMI-P Anti-seize cream included in the package.

N·m Recommended Tightening Torque (N·m)

■ Cutting Conditions

ISO	Part Material	Cutting Speed vc (SFM / m/min) Min. - Max	Feed Rate fz (IPT/ mm/t) Min. - Max	D.O.C. (Inch / *mm*)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	*0.10 - 0.20*	*< 10.0*	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	*0.10 - 0.20*	*< 10.0*	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	*0.10 - 0.20*	*< 6.0*	
M	Stainless Steel	175 - 675	.004 - .008	< 0.394	ACM200
		55 - 300	*0.10 - 0.20*	*< 10.0*	
		525 - 820	.004 - .008	< 0.394	ACU2500 ACM300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	*0.10-0.15-0.20*	*< 10.0*	

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

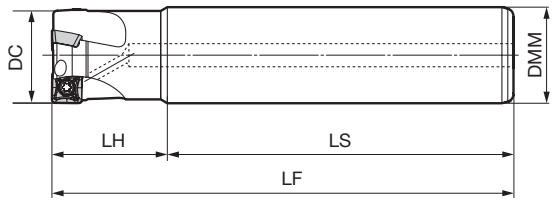
WFX Endmill Metric - *8mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-6°
	Axial	12°

6mm 90° | .236" 90°

Fig 1



Body (Standard)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Fig
WFX08020E-16	★	*20*	*16*	*30*	*80*	*110*	2	1
WFX08020E	★	*20*	*20*	*30*	*80*	*110*	2	1
WFX08022E	★	*22*	*20*	*30*	*90*	*120*	2	1
WFX08025E-20	★	*25*	*20*	*30*	*90*	*120*	2	1
WFX08030E	★	*30*	*25*	*30*	*90*	*120*	3	1
WFX08032E	★	*32*	*32*	*30*	*90*	*120*	3	1
WFX08033E	★	*33*	*32*	*30*	*90*	*120*	3	1
WFX08040E	★	*40*	*32*	*30*	*90*	*120*	3	1
WFX08050E	★	*50*	*32*	*30*	*90*	*120*	4	1
WFX08063E	★	*63*	*32*	*30*	*90*	*120*	5	1

Inserts are sold separately.

Body (Fine Pitch)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Fig
WFXM08025E	★	*25*	*25*	*30*	*90*	*120*	3	1
WFXM08032E	★	*32*	*32*	*30*	*90*	*120*	4	1
WFXM08040E	★	*40*	*32*	*30*	*90*	*120*	4	1
WFXM08050E	★	*50*	*32*	*30*	*90*	*120*	5	1
WFXM08063E	★	*63*	*32*	*30*	*90*	*120*	6	1

Inserts are sold separately.

Insert

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet			
Process	High-speed / Light		P			K		M S		K N	N				
	General-purpose	K M S		P M	P M	K		M S	M S		N	P			
	Roughing	K M S		P M	P M		K		M S						
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Wiper Facet Length wpr	Fig
SOMT080304PZER-L		★	★	★	★	★	★	★	★	-	-		0.4	*1.3*	1
SOMT080308PZER-L			★	★	★	★	★	★	★	-	-		0.8	*0.9*	1
SOMT080304PZER-G		★	★	★	★	★	★	★	★	-	-		0.4	*1.3*	1
SOMT080308PZER-G		★	★	★	★	★	★	★	★	-	-		0.8	*0.9*	1
SOMT080312PZER-G		★	★	★	★	★	★	★	★	-	-		1.2	*0.5*	1
SOMT080308PZER-H		★	★	★	★	★	★	★	★	-	-		0.8	*0.9*	1
SOMT080312PZER-H		★	★	★	★	★	★	★	★	-	-		1.2	*0.5*	1
SOET080304PZER-G		★	★	★	★	★	★	★	★	-	-	★	0.4	-	1
SOET080308PZER-G		★	★	★	★	★	★	★	★	-	-	★	0.8	-	1
SOET080312PZER-G		★	★	★	★	★	★	★	★	-	-	★	1.2	-	1
SOET080302PZFR-S		-	-	-	-	-	-	-	-	★	★	-	0.2	-	1
SOET080304PZFR-S		-	-	-	-	-	-	-	-	★	★	-	0.4	-	1
SOET080308PZFR-S		-	-	-	-	-	-	-	-	★	★	-	0.8	-	1
XOEW080308PZTR-W		-	-	-	-		★			-	-	★	-	*3.3*	2

Refer to H103 (Precautions when Using Wiper Inserts) (Mounting Precautions).

Fig 1

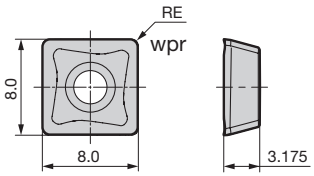
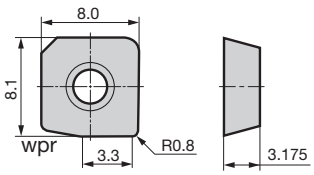


Fig 2 Wiper Insert



Parts

Flat Screw		Wrench
	N·m	
BFTX0306IP	2.0	TRDR08IP

SUMI-P Anti-seize cream included in the package.

Identification Code

WFX M 08 025 E

Cutter Series	Fine-Pitch Indication	Insert Size	Cutter Dia.	Endmill Type

N·m Recommended Tightening Torque (N·m)

■ Cutting Conditions

ISO	Part Material	Cutting Speed vc (SFM / m/min) Min. - Max	Feed Rate fz (IPT/ mm/t) Min. - Max	D.O.C. (Inch / *mm*)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	*0.10 - 0.20*	*< 10.0*	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	*0.10 - 0.20*	*< 10.0*	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	*0.10 - 0.20*	*< 6.0*	
M	Stainless Steel	175 - 675	.004 - .008	< 0.394	ACM200
		55 - 300	*0.10 - 0.20*	*< 10.0*	
		525 - 820	.004 - .008	< 0.394	ACU2500 ACM300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	*0.10-0.15-0.20*	*< 10.0*	

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

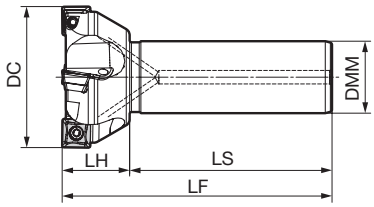
WFX(F) Endmill Metric - *12mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-8°
	Axial	8°

10mm 90° | .394" 90°

Fig 1



Body (Standard)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WFX12040E	★	*40*	*32*	*30*	*90*	*120*	3	0.68	1
WFX12050E	★	*50*	*32*	*30*	*90*	*120*	3	0.78	1
WFX12063E	★	*63*	*32*	*30*	*90*	*120*	4	0.94	1
WFX12080E	★	*80*	*32*	*30*	*90*	*120*	4	1.29	1

Inserts are sold separately. ø40 mm size does not have seats.

Body (Extra Fine Pitch)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WFXF12050E	★	*50*	*32*	*30*	*90*	*120*	4	0.78	1
WFXF12063E	★	*63*	*32*	*30*	*90*	*120*	5	0.96	1
WFXF12080E	★	*80*	*32*	*30*	*90*	*120*	6	1.22	1

Inserts are sold separately.

Insert

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	K P M S		P M	P M	K		M S	M S		N	P
	Roughing	K P M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	Wiper Facet Length wpr	Fig
SOMT120408PDER-L	●	●	●	●	●	●	●	●	-	-	-	*0.8*	*1.7*	1
SOMT120404PDER-G	★	●	●	●	●	●	●	●	-	-	-	*0.4*	*2.1*	1
SOMT120408PDER-G	★	●	●	●	●	●	●	●	-	-	●	*0.8*	*1.7*	1
SOMT120412PDER-G	★	●	●	●	●	●	●	●	-	-	-	*1.2*	*1.2*	1
SOMT120416PDER-G		●	●	●	●	●	●	●	-	-	-	*1.6*	*0.8*	1
SOMT120408PDER-H	★	●	●	●	●	●	●	●	-	-	-	*0.8*	-	1
SOET120408PDFR-S	-	-	-	-	-	-	-	-	●	●	-	*0.8*	-	1
XOEW120408PDTR-W	-	-	-	-	-	●			-	-	●	-	*6.5*	2

Refer to H86 (Precautions when Using Wiper Inserts) (Mounting Precautions).

Fig 1

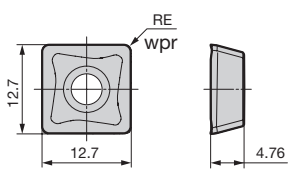
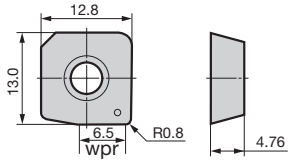
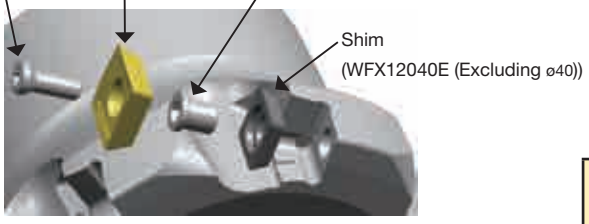


Fig 2 Wiper Insert





Identification Code

WFX F 12 050 E

WFX	F	12	050	E
Cutter Series	Fine-Pitch Indication	Insert Size	Cutter Dia.	Endmill Type

Parts

Shim	Shim Screw	Insert Screw		Wrench	Wrench (For Shims)
WFXS4R	BW0507F	BFTX03512IP	3.0	TRDR15IP	LH035

SUMI-P Anti-seize cream included in the package.
ø40 mm size does not have seats.

■ Cutting Conditions

ISO	Part Material	Cutting Speed v_c (SFM / m/min) Min. - Max	Feed Rate f_z (IPT/ mm/t) Min. - Max	D.O.C. (Inch / *mm*)	Grades
P	General Steel	492 - 820	0.004 - 0.008	< 0.394	ACU2500 ACP200 ACP300
		150 - 250	*0.10 - 0.20*	*< 10.0*	
	Soft Steel	591 - 1148	0.004 - 0.008	< 0.394	
		180 - 350	*0.10 - 0.20*	*< 10.0*	
	Die Steel	328 - 656	0.004 - 0.008	< 0.236	
		100 - 200	*0.10 - 0.20*	*< 6.0*	
M	Stainless Steel	175 - 675	.004 - .008	< 0.394	ACM200
		55 - 300	*0.10 - 0.20*	*< 10.0*	
		525 - 820	.004 - .008	< 0.394	ACU2500 ACM300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
		525 - 820	0.004 - 0.008	< 0.394	ACP300
		160 - 250	*0.10 - 0.20*	*< 10.0*	
K	Cast Iron	328 - 820	0.004 - 0.008	< 0.394	ACU2500 ACK200 ACK300
		100 - 250	*0.10-0.15-0.20*	*< 10.0*	

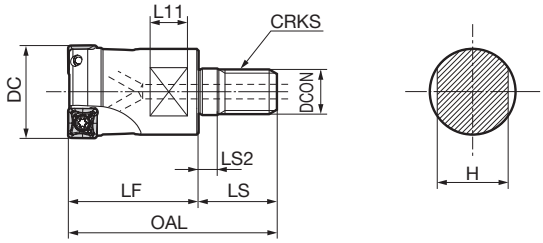
Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

Rake Angle	Radial	-6°
	Axial	12°

6mm 90°

Fig 1



Head

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
WFX08020M10Z2	★	20	10.5	**M10**	49	30	5	19	8	15	2	1
WFX08022M10Z2	★	22	10.5	**M10**	49	30	5	19	8	15	2	1
WFX08025M12Z2	★	25	12.5	**M12**	56	35	5	21	10	19	2	1
WFX08028M12Z2	★	28	12.5	**M12**	56	35	5	21	10	19	2	1
WFX08030M16Z3	★	30	17.0	**M16**	63	40	5	23	10	24	3	1
WFX08032M16Z3	★	32	17.0	**M16**	63	40	5	23	10	24	3	1
WFX08040M16Z3	★	40	17.0	**M16**	63	40	5	23	10	24	3	1

Inserts are sold separately. ★ Worldwide Warehouse item

Insert

Dimensions (mm)

Grade		Coated Carbide								Carbide	DLC	Cermet		
Process	High-speed / Light		P			K		M S		K N	N			
	General-purpose	K M S		P M	P M	K		M S	M S		N	P		
	Roughing	K M S		P M	P M		K		M S					
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Fig
SOMT080304PZER-L		★	●	●	●	●	●	●	●	-	-		0.4	1
SOMT080308PZER-L			●	●	●	●	●	●	●	-	-		0.8	1
SOMT080304PZER-G		★	●	●	●	●	●	●	●	-	-		0.4	1
SOMT080308PZER-G		★	●	●	●	●	●	●	●	-	-		0.8	1
SOMT080312PZER-G		★	●	●	●	●	●	●	●	-	-		1.2	1
SOMT080308PZER-H		★	●	●	●	●	●	●	●	-	-		0.8	1
SOMT080312PZER-H		★	●	●	●	●	●	●	●	-	-		1.2	1
SOET080304PZER-G		★	●	●	●	●	●	●	●	-	-	●	0.4	1
SOET080308PZER-G		★	●	●	●	●	●	●	●	-	-	●	0.8	1
SOET080312PZER-G		★	●	●	●	●	●	●	●	-	-	●	1.2	1
SOET080302PZFR-S		-	-	-	-	-	-	-	-	●	●	-	0.2	1
SOET080304PZFR-S		-	-	-	-	-	-	-	-	●	●	-	0.4	1
SOET080308PZFR-S		-	-	-	-	-	-	-	-	●	●	-	0.8	1
XOEW080308PZTR-W		-	-	-	-		●			-	-	●	-	2

Refer to H86 (Precautions when Using Wiper Inserts) (Mounting Precautions).

Fig 1

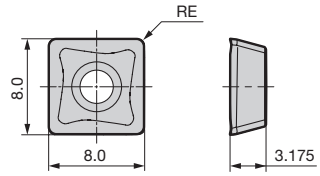
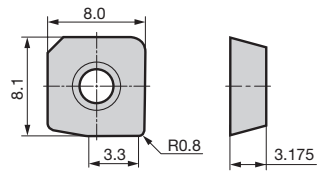


Fig 2 Wiper Insert



Parts

Flat Screw		Wrench
	N·m	
BFTX0306IP	2.0	TRDR08IP

SUMI-P Anti-seize cream included in the package.

Identification Code

WFX 08 020 M10 Z2

Cutter Series | Insert Size | Dia. | Mounting Screw Size | Number of Teeth

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

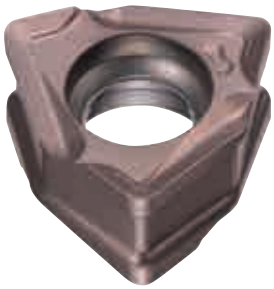
ISO	Work Material	Hardness	Cutting Speed c (m/min) Min. - Max.	Feed Rate z (mm/t) Min. - Max.	Depth of Cut p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150 - 250	0.08 - 0.18	< 6	ACU2500 ACP200 ACP300
	Mild Steel	≤ 180HB	180 - 350	0.10 - 0.20	< 6	
	Die Steel	200 to 220 HB	100 - 200	0.08 - 0.18	< 4	ACP200 ACP300
M	Stainless Steel	-	160 - 250	0.10 - 0.20	< 6	ACU2500 ACM300
K	Cast Iron	250HB	100 - 250	0.10 - 0.20	< 6	ACU2500 ACK200 ACK300
N	Non-ferrous Metal	-	300 - 1,000	0.10 - 0.20	< 6	H1 DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

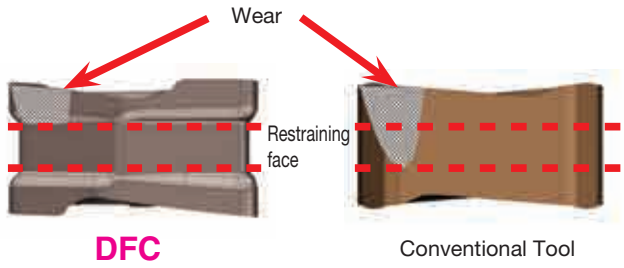
■ General Features

The high-efficiency general-purpose Sumi Dual Mill DFC has a unique insert shape with both excellent sharpness and cutting edge strength, enabling it to be used for a wider range of applications from high-efficiency machining through to finishing.
Further expansion of the shoulder milling GS chipbreaker, suitable for a wide range of applications.
Now available in ACU2500.

■ Features



Unique insert shape delivers sharp cutting performance and cutting edge strength



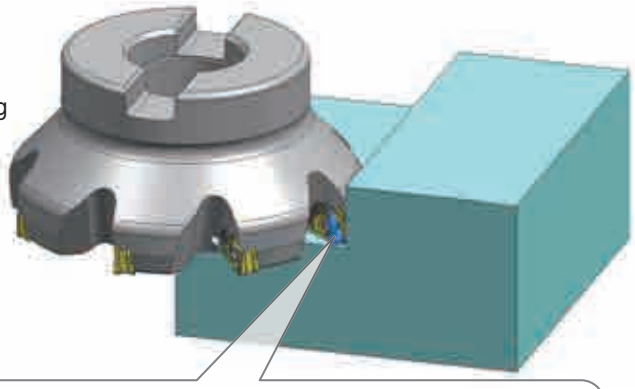
Flank wear of inserts for DFC does not reach the restraining face and thus mounting accuracy does not suffer.

The 90° cutting edge angle is suitable for both face milling and shoulder milling

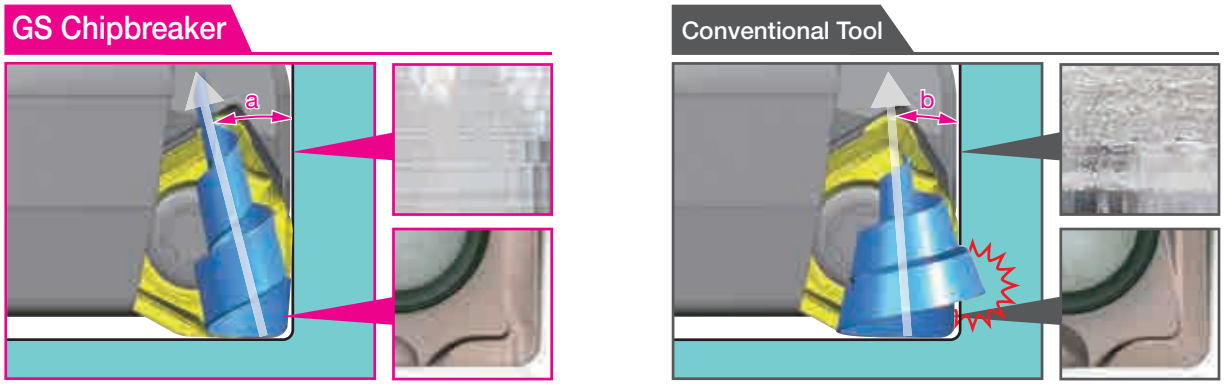
GS Chipbreaker for Shoulder Milling

· Excellent chip control
· Suppresses machined surface deterioration due to chip re-cutting

Part Material: 1050, Tool: ø4.000”
Cutting Conditions: v_c = 656 SFM, f_z = 0.008 IPT,
a_e = 1.97”, a_p = 0.12” x 6 passes, Dry



Chip generation image and machined surface comparison

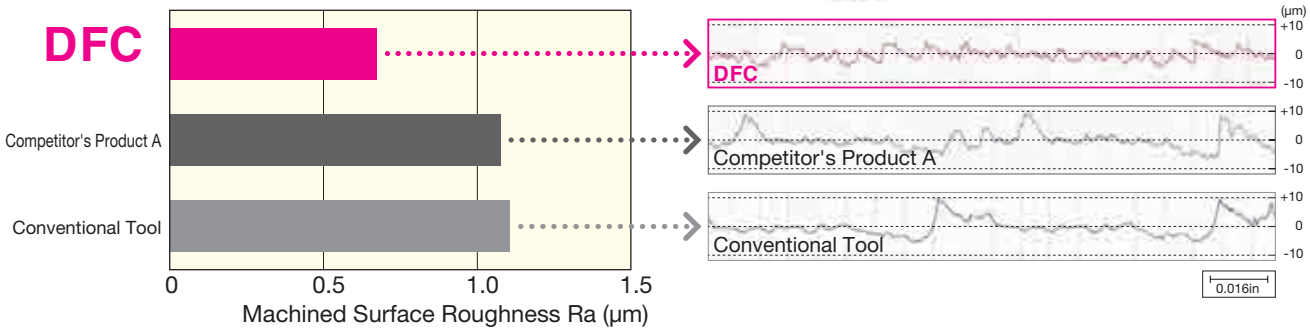


Chip flow direction control (a > b) ⟶ chip re-cutting suppressed

■ Cutting Performance

Face Milling

(1) Machined Surface Roughness Better than competitors' products

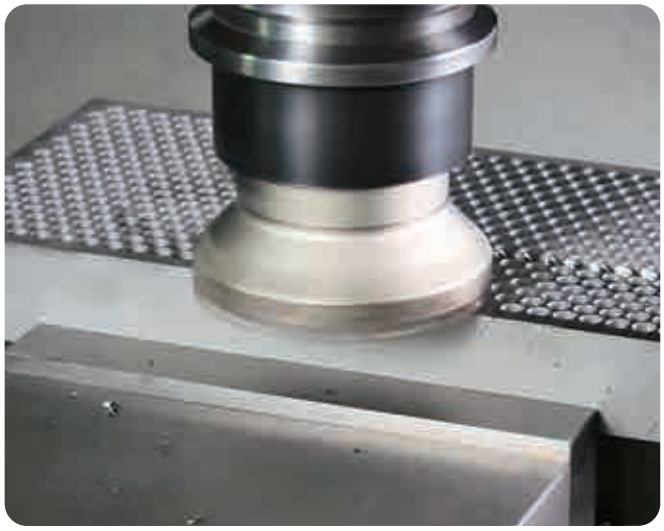


Part Material: 1050 Tool: DFC 09100RS Insert: XNMU 060608PNER-G Grade: ACP200 Cutting Conditions: v_c = 656 SFM, f_z = 0.008 IPT, a_p = 0.12”, a_e = 3.35” Dry

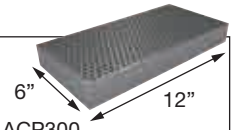
(2) Cutting edge strength: Cutting edge damage during heavy interrupted cutting
Cutting edge strength surpassing competitors' double-sided cutters

	f_z(IPT)		
	0.012	0.016	0.020
DFC	○	○	○
Competitor's Product B (Double-sided, 6 Corners)	○	Damage (Midway through 2 passes)	
Competitor's Product C (Double-sided, 6 Corners)	Damage (Midway through 3 passes)		
Competitor's Product D (Double-sided vertical)	Damage (Midway through 3 passes)		

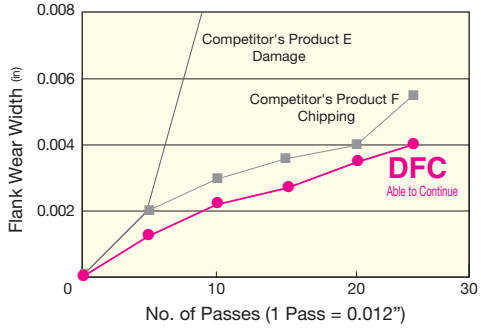
(Cutting Distance: 0.9m)



Part Material: 1050 (With Holes)
Tool: DFC 09100RS
Insert: XNMU 060608PNER-G Grade: ACP300
Cutting Conditions: v_c = 492 SFM a_p = 0.12”, a_e = 1.97” Dry



(3) Wear resistance: Achieves long tool life thanks to excellent wear resistance



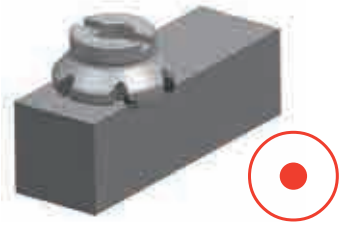
Comparison of cutting edge damage

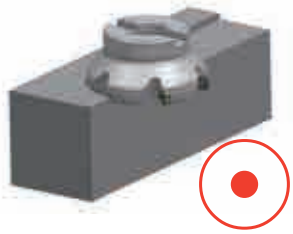
Little damage / Able to continue | Breakage | Damaged

Work Material: 1050 Tool: DFC 09100RS Insert: XNMU 060608PNER-G Grade: ACP200 Cutting Conditions: v_c = 656 SFM, f_z = 0.008 IPT, a_p = 0.12”, a_e = 3.35” Dry

■ Applications and Recommended Chipbreakers

Face Milling	Shoulder Milling	Side Milling
G	GS	G/GS



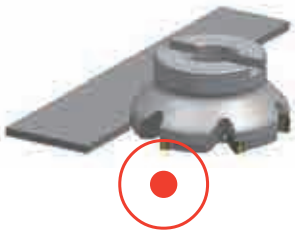


Guidelines for Shoulder Milling Conditions

Radial Direction Maximum Depth of Cut
G Type: $a_e \leq 10\%$ of cutter diameter
GS Type: $a_e \leq 50\%$ of cutter diameter

Recommended Axial Depth of Cut $a_p = 0.120"$

Recommended Feed Rate $f_z \leq 0.008$ IPT
(for general steel)



Applications which are not applicable

Helical Milling

Ramping

■ Product Range

Number in ● is the number of teeth

	Cat. No.		Remarks	Cutter Diameters in Stock (Inch)										Shape
				ø1.00"	ø1.25"	ø1.50"	ø2.00"	ø2.50"	ø3.00"	ø4.00"	ø5.00"	ø6.00"	ø8.00"	
Shell Type	DFC20000R	H119	Standard Pitch	-	-	-	4	5	6	6	7	8	10	
	DFCM20000R	H120	Fine Pitch	-	-	-	5	6	8	10	12	14	15	
	DFCF20000R	H121	Extra Fine Pitch	-	-	-	6	7	9	11	14	16	20	
Shank Type	DFC20000EW	H125	Standard Pitch	2	3	3	4	5	-	-	-	-	-	
	DFCM20000EW	H125	Fine Pitch	-	-	4	5	7	-	-	-	-	-	

● : USA Stock Standard Item, - mark: Not available

	Cat. No.		Remarks	Cutter Diameters in Stock (mm)										Shape
				ø25	ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø160	ø200	
Shell Type	DFC09000R/RS	H122	Standard Pitch	-	-	-	4	4	5	6	7	8	10	
	DFCM09000R/RS	H123	Fine Pitch	-	-	-	5	6	7	8	11	12	16	
	DFCF09000R/RS	H124	Extra Fine Pitch	-	-	-	6	7	9	11	14	16	20	
Shank Type	DFC09000E	H125	Standard Pitch	2	2	3	3*	4*	5*	-	-	-	-	
	DFCM09000E	H125	Fine Pitch	-	3	4	5*	6*	7*	-	-	-	-	

● : metric available WWW ⊙ : Both metric and inch arbors available WWW * mark: Shank dia. 42mm type (made-to-order) - mark: Not available

■ Insert Mounting Precautions

No Gap

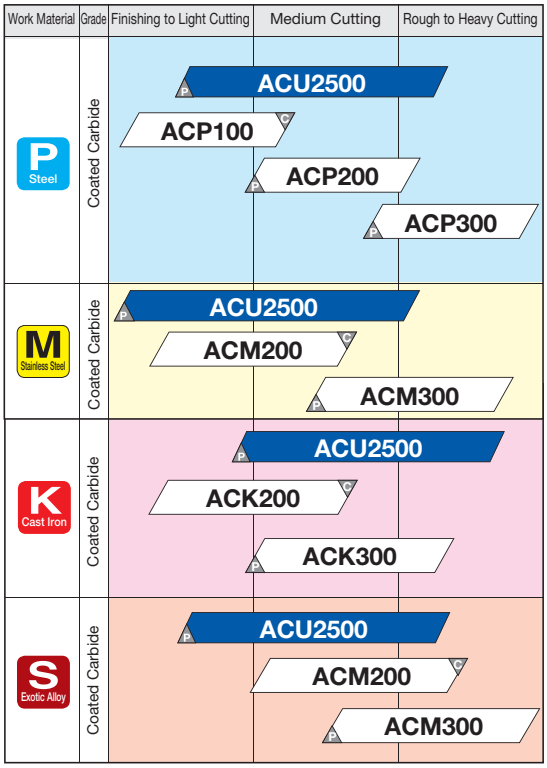
Prevent gaps from occurring

Gap

Place the insert face flat on to the cutter's insert pocket and tighten the flat screw with the recommended torque.

■ Insert Grade

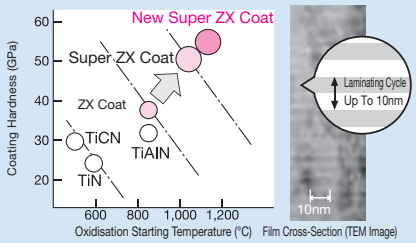
Lineup of Steel Milling Grades ACP100/ACP200/ACP300, Stainless Steel Milling Grades ACM200/ACM300, Cast Iron Milling Grades ACK200/ACK300 and more for a wide range of materials.



The letters "C" and "P" at the end of each grade indicate the coating type. C: CVD, P: PVD, Blank: Uncoated

P ACP200/ACP300/ACK300/ACM300

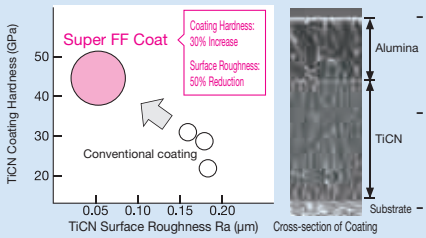
NEW SUPER ZX COAT



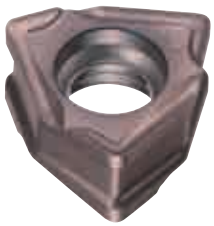
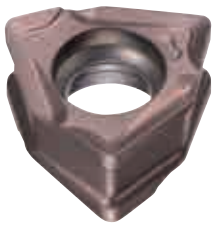
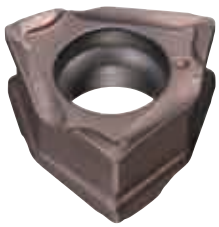
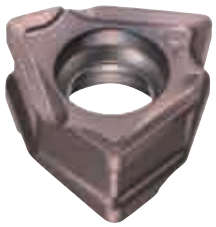
- Compared to conventional tools, the coating hardness has been increased by 40% and the oxidation starting temperature has been increased by 200°C
- Enables more than 1.5 times the machining speed and efficiency of conventional tools
- Achieves more than double the tool life of conventional tools

C ACP100/ACK200/ACM200

SUPER FF COAT



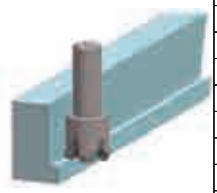
- Achieves excellent chipping resistance with smooth coating and our coating stress control technology
- High-speed, high-efficiency machining at a level more than 1.5 times higher than conventional tools is possible with a high hardness coating layer
- Achieves more than double the tool life of conventional tools

	L	G	GS	H
Chipbreaker				
Cutting Edge Cross Section	30°	20°	20°	20°
Nose Radius (in. / *mm*)	.016, .032 *0.4, 0.8*	.016, .032, .472, .063 *0.4, 0.8, 1.2, 1.6*	.016, .032, .472, .063 *0.4, 0.8, 1.2, 1.6*	.032, .472, .063 *0.8, 1.2, 1.6*
Features and Applications	Light Cutting, Low Rigidity Milling, Reduction of Burrs	Face Milling General-purpose to Interrupted Milling	Shoulder Milling	Heavy Cutting, Heavy Cross-Section Machining and Hardened Steel Milling

■ Application Examples

Ring Part Part Material 4140	Sumitomo	Competitor's Product
Tool	DFCM09050RS	Double-sided 6 Corners
Grade	ACP200	-
Chipbreaker	GS	-
Cutter Dia. (mm)	50	50
Number of Teeth	5	5
v_c (SFM)	460	460
v_f (IPM)	44	44
f_z (in./t)	.0098	.009
a_p (in.)	.098	.098
a_e (in.)	1.18	1.18
Coolant	Dry	Dry
Results	With no chip biting, tool life of 600%	

Machine Vise Part Material 1045	Sumitomo	Competitor's Product
Tool	DFCM09050E	Single-sided 2 Corners
Grade	ACP200	-
Chipbreaker	GS	-
Cutter Dia. (mm)	50	50
Number of Teeth	5	5
v_c (SFM)	615	615
v_f (IPM)	47	31.5
f_z (in./t)	.0079	.005
a_p (in.)	.197	.197
a_e (in.)	.511	.511
Coolant	Air Blow	Air Blow
Results	150% Machining Efficiency	



Block Simultaneous Milling Part Material High Manganese Steel Casting	Sumitomo	Competitor's Product
Tool	DFC09160RS	Double-sided 8 Corners
Grade	ACP300	-
Chipbreaker	G	-
Cutter Dia. (mm)	160	160
Number of Teeth	8	12
v_c (SFM)	500	500
v_f (IPM)	19.7	19.7
f_z (in./t)	0.008	0.005
a_p (in.)	.039	.0197
a_e (in.)	4.0	4.0
Coolant	Wet	Wet
Results	200% Machining Efficiency Tool Life 300%	

Construction Machinery Part, Part Material 1050	Sumitomo	Competitor's Product
Tool	DFC09063RS	Single-sided 2 Corners
Grade	ACP200	-
Chipbreaker	G	-
Cutter Dia. (mm)	63	63
Number of Teeth	4	5
v_c (SFM)	600	600
v_f (IPM)	43	35.8
f_z (in./t)	.012	.008
a_p (in.)	.079	.079
a_e (in.)	2.0	2.0
Coolant	Dry	Dry
Results	120% Machining Efficiency	

Automotive Part Work Material 1050	Sumitomo	Competitor's Product
Tool	DFC09080RS	Single-sided 4 Corners
Grade	ACP200	-
Chipbreaker	G	-
Cutter Dia. (mm)	80	80
Number of Teeth	5	5
v_c (SFM)	750	650
v_f (IPM)	50	31.5
f_z (in./t)	.011	.008
a_p (in.)	.079	.079
a_e (in.)	.197	.197
Coolant	Wet	Wet
Results	160% Machining Efficiency	

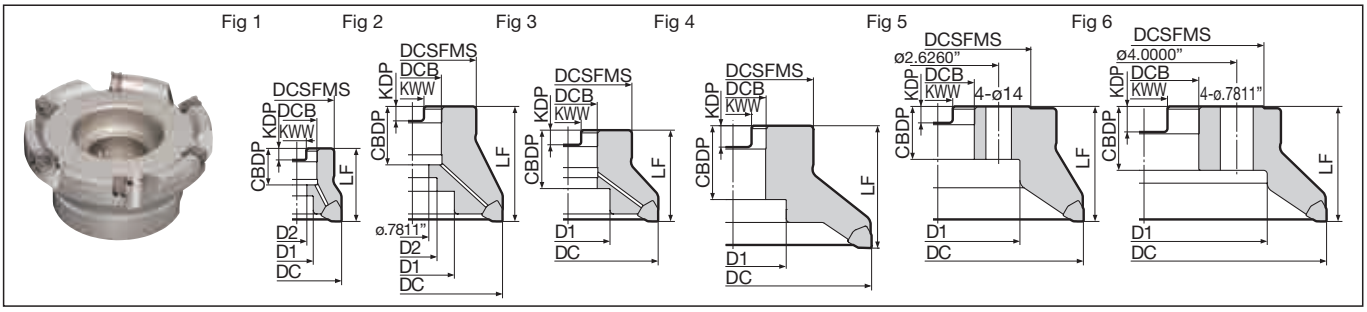
Pump Part Work Material Ductile Iron	Sumitomo	Competitor's Product
Tool	DFCF09100R	Double-sided 6 Corners
Grade	ACK300	-
Chipbreaker	G	-
Cutter Dia. (mm)	100	100
Number of Teeth	11	8
v_c (SFM)	1100	1100
v_f (IPM)	72	72
f_z (in./t)	.0059	.0083
a_p (in.)	.079	.079
a_e (in.)	3.0	3.0
Coolant	Dry	Dry
Results	Tool Life Over 150%	

DFC Shellmill Inch

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-9°
	Axial	-5°

.236" 90° | 6mm 90°



Body (Standard)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs)	Fig
Inch	**DFC22000R**	•	2.0000	1.5000	1.7500	0.7500	0.3120	0.1900	0.7500	0.6090	0.4060	4	0.75	1
	DFC22500R	•	2.5000	1.7500	1.7500	1.0000	0.3750	0.2200	0.7500	0.7970	0.5310	5	1.08	1
	DFC23000R	•	3.0000	2.2500	1.7500	1.0000	0.3750	0.2200	0.7500	0.7970	0.5310	6	1.81	1
	DFC24000R	•	4.0000	2.8700	2.0000	1.2500	0.5000	0.2800	0.7500	1.0000	0.6560	6	3.84	1
	DFC24000R-1.50	•	4.0000	3.1500	2.5000	1.5000	0.6250	0.3800	1.0000	2.0000	1.1810	6	4.76	2
	DFC25000R	•	5.0000	3.7500	2.5000	1.5000	0.6250	0.3800	1.0000	2.0000	1.1810	7	7.87	2
	DFC26000R	•	6.0000	4.3800	2.5000	1.5000	0.6250	0.3800	1.0000	2.0000	1.1810	8	11.64	2
	DFC28000R	•	8.0000	5.1200	2.5000	2.5000	1.0000	0.5600	1.5945	5.1180	-	10	15.00	6

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

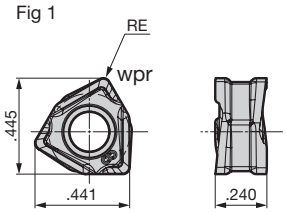
For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (inch)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	P K S	P M	P M		K		M S	M S			
	Roughing	P K S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
XNMU060604PNER-L		★		•	•		•		•	.016	.110	1
XNMU060608PNER-L		★		•	•		•		•	.031	.094	1
XNMU060604PNER-G		★	•	•	•	•	•	•	•	.016	.110	1
XNMU060608PNER-G		★	•	•	•	•	•	•	•	.031	.094	1
XNMU060612PNER-G		★	•	•	•	•	•	•	•	.047	.079	1
XNMU060616PNER-G		★	•	•	•	•	•	•	•	.063	.063	1
XNMU060604PNER-GS		★	•	•	•			•	•	.016	.110	1
XNMU060608PNER-GS		★	•	•	•			•	•	.031	.094	1
XNMU060612PNER-GS		★	•	•	•			•	•	.047	.079	1
XNMU060616PNER-GS		★	•	•	•			•	•	.063	.063	1
XNMU060608PNER-H		★	•	•	•	•	•	•	•	.031	.094	1
XNMU060612PNER-H		★	•	•	•	•	•	•	•	.047	.079	1
XNMU060616PNER-H		★	•	•	•	•	•	•	•	.063	.063	1

Fig 1



Parts

Wrench	Insert Screw		Anti-seize Cream
TRDR15IP	BFTX03512IP	3.0 (N·m)	SUMI-P

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"
BFXH3/4 X 2	5.00"*	1.50"

Identification Code

DFC 2 2000 R

Cutter Series | Insert Series | Cutter Dia. 2.000" | Feed Direction

Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed (SFM) Min. - Max.	Feed Rate (IPT) Min. - Max.	D.O.C. (in.)	Grade
P	General Steel	180~280HB	500 - 820	0.004 - 0.012	<0.236	ACP200 ACP300
	Soft Steel	<180HB	600 - 1,150	0.006 - 0.014	< 0.236	ACP200 ACP300
	Die Steel	200~220HB	330 - 650	0.004 - 0.010	< 0.157	ACP200 ACP300
M	PH Stainless Steel	>220HB	300 - 750	0.004 - 0.010	<0.196	ACM200
	Austenitic Stainless	<250HB	525 - 820	0.005 - 0.010	<0.236	ACM300
K	Cast Iron	250HB	500 - 1150	0.004 - 0.012	<0.236	ACK200 ACK300

For shoulder milling, the GS Type breaker is recommended. Use at $a_e \leq 50\%$ of cutter diameter and $f_z \leq 0.008$ IPT

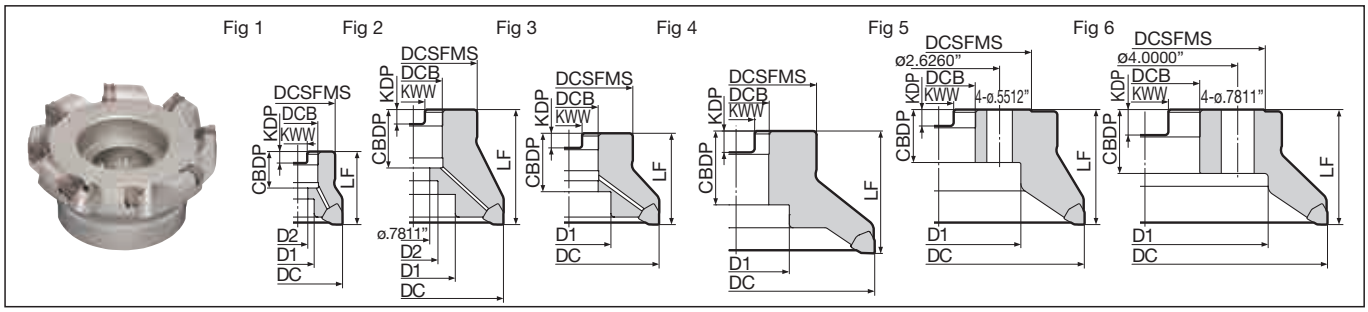
(N·m) Recommended Tightening Torque (N·m)

DFCM Shellmll Inch

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-9°
	Axial	-5°

.236" 90° | 6mm 90°



Body (Fine Pitch)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Inch	DFCM22000R	●	2.0000	1.5000	1.7500	0.7500	0.3120	0.1900	0.7500	0.6090	0.4060	5	0.75	1
	DFCM22500R	●	2.5000	1.7500	1.7500	1.0000	0.3750	0.2200	0.7500	0.7970	0.5310	6	1.05	1
	DFCM23000R	●	3.0000	2.2500	1.7500	1.0000	0.3750	0.2200	0.7500	0.7970	0.5310	8	1.79	1
	DFCM24000R	●	4.0000	2.8700	2.0000	1.2500	0.5000	0.2800	0.7500	1.0000	0.6560	10	3.79	1
	DFCM24000R-1.50	●	4.0000	3.1500	2.5000	1.5000	0.6250	0.3800	1.0000	2.0000	1.1810	10	4.67	2
	DFCM25000R	●	5.0000	3.7500	2.5000	1.5000	0.6250	0.3800	1.0000	2.0000	1.1810	12	7.78	2
	DFCM26000R	●	6.0000	4.3800	2.5000	1.5000	0.6250	0.3800	1.0000	2.0000	1.1810	14	11.55	2
	DFCM28000R	●	8.0000	5.1200	2.5000	2.5000	1.0000	0.5600	1.5945	5.1180	-	15	14.79	6

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

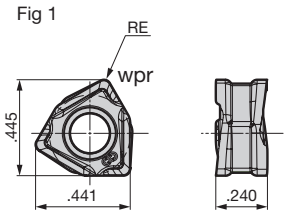
For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (inch)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	K M S	P M	P M		K		M S	M S			
	Roughing	K M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
XNMU060604PNER-L		★		●	●		●		●	.16	.110	1
XNMU060608PNER-L		★		●	●		●		●	.31	.094	1
XNMU060604PNER-G		★	●	●	●	●	●	●	●	.16	.110	1
XNMU060608PNER-G		★	●	●	●	●	●	●	●	.31	.094	1
XNMU060612PNER-G		★	●	●	●	●	●	●	●	.47	.079	1
XNMU060616PNER-G		★	●	●	●	●	●	●	●	.63	.063	1
XNMU060604PNER-GS		★	●	●	●			●	●	.16	.110	1
XNMU060608PNER-GS		★	●	●	●			●	●	.31	.094	1
XNMU060612PNER-GS		★	●	●	●			●	●	.47	.079	1
XNMU060616PNER-GS		★	●	●	●			●	●	.63	.063	1
XNMU060608PNER-H		★	●	●	●	●	●	●	●	.31	.094	1
XNMU060612PNER-H		★	●	●	●	●	●	●	●	.47	.079	1
XNMU060616PNER-H		★	●	●	●	●	●	●	●	.63	.063	1

Fig 1



Parts

Wrench	Insert Screw		Anti-seize Cream
TRDR15IP	BFTX03512IP	3.0 (N·m)	SUMI-P

Identification Code

DFC M 2 2000 R

DFC	M	2	2000	R
Cutter Series	Fine Pitch	Insert Series	Cutter Dia. 2.000"	Feed Direction

Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed (SFM) Min. - Max.	Feed Rate (IPT) Min. - Max.	D.O.C. (in.)	Grade
P	General Steel	180~280HB	500 - 820	0.004 - 0.012	<0.236	ACP200 ACP300
	Soft Steel	<180HB	600 - 1,150	0.006 - 0.014	< 0.236	ACP200 ACP300
	Die Steel	200~220HB	330 - 650	0.004 - 0.010	< 0.157	ACP200 ACP300
M	PH Stainless Steel	>220HB	300 - 750	0.004 - 0.010	<0.196	ACM200
	Austenitic Stainless	<250HB	525 - 820	0.005 - 0.010	<0.236	ACM300
K	Cast Iron	250HB	500 - 1150	0.004 - 0.012	<0.236	ACK200 ACK300

For shoulder milling, the GS breaker is recommended. Use at $a_e \leq 50\%$ of cutter diameter and $f_z \leq 0.008$ IPT

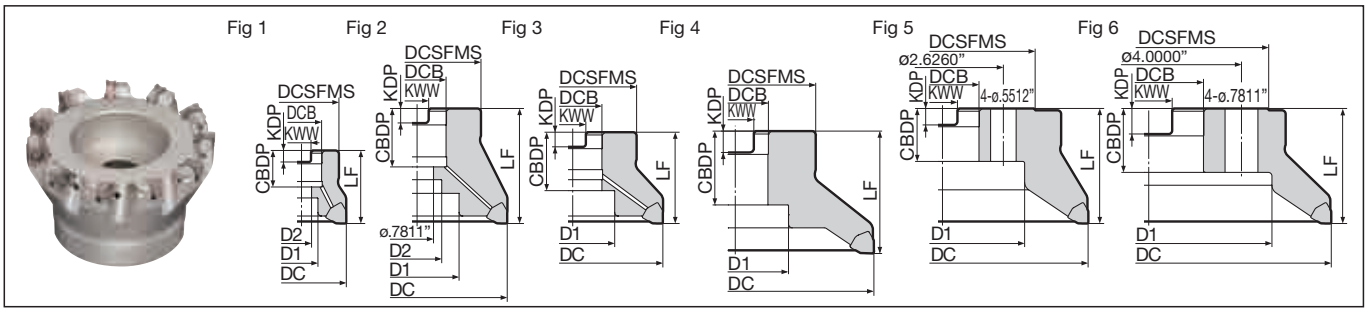
(N·m) Recommended Tightening Torque (N·m)

DFCF Shellmill Inch

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-9°
	Axial	-5°

6mm 90° | .236" 90°



Body (Extra Fine Pitch)

Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Inch	**DFCF22000R**	●	2.0000	1.5000	1.7500	0.7500	0.3120	0.1900	0.7500	0.6090	0.4060	6	0.71	1
	DFCF22500R	●	2.5000	1.7500	1.7500	1.0000	0.3750	0.2200	0.7500	0.7970	0.5310	7	1.03	1
	DFCF23000R	●	3.0000	2.2500	1.7500	1.0000	0.3750	0.2200	0.7500	0.7970	0.5310	9	1.76	1
	DFCF24000R	●	4.0000	2.8700	2.0000	1.2500	0.5000	0.2800	0.7500	1.0000	0.6560	11	3.64	1
	DFCF24000R-1.50	●	4.0000	3.1500	2.5000	1.5000	0.6250	0.3800	1.0000	2.0000	1.1810	11	4.54	2
	DFCF25000R	●	5.0000	3.7500	2.5000	1.5000	0.6250	0.3800	1.0000	2.0000	1.1810	14	7.54	2
	DFCF26000R		6.0000	4.3800	2.5000	1.5000	0.6250	0.3800	1.0000	2.0000	1.1810	16	11.29	2
	DFCF28000R		8.0000	5.1200	2.5000	2.5000	1.0000	0.5600	1.5945	5.1180	-	20	14.59	6

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

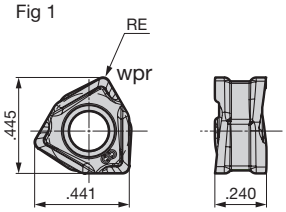
Insert

Dimensions (inch)

Grade		Coated Carbide							
Process	High-speed / Light		P M			K		M S	
	General-purpose	P M S	P M	P M		K		M S	M S
	Roughing	P M S		P M	P M		K		M S

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
XNMU060604PNER-L	★		●	●		●		●	.16	.110	1
XNMU060608PNER-L	★		●	●		●		●	.31	.094	1
XNMU060604PNER-G	★	●	●	●	●	●	●	●	.16	.110	1
XNMU060608PNER-G	★	●	●	●	●	●	●	●	.31	.094	1
XNMU060612PNER-G	★	●	●	●	●	●	●	●	.47	.079	1
XNMU060616PNER-G	★	●	●	●	●	●	●	●	.63	.063	1
XNMU060604PNER-GS	★	●	●	●			●	●	.16	.110	1
XNMU060608PNER-GS	★	●	●	●			●	●	.31	.094	1
XNMU060612PNER-GS	★	●	●	●			●	●	.47	.079	1
XNMU060616PNER-GS	★	●	●	●			●	●	.63	.063	1
XNMU060608PNER-H	★	●	●	●	●	●	●	●	.31	.094	1
XNMU060612PNER-H	★	●	●	●	●	●	●	●	.47	.079	1
XNMU060616PNER-H	★	●	●	●	●	●	●	●	.63	.063	1

Fig 1



Parts

Wrench	Insert Screw		Anti-seize Cream
TRDR15IP	BFTX03512IP	3.0	SUMI-P

Identification Code

DFC F 09 2000 R

DFC	F	09	2000	R
Cutter Series	Extra Fine Pitch	Insert Series	Cutter Dia. 2.000"	Feed Direction

Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed (SFM) Min. - Max.	Feed Rate (IPT) Min. - Max.	D.O.C. (in.)	Grade
P	General Steel	180~280HB	500 - 820	0.004 - 0.012	<0.236	ACP200 ACP300
	Soft Steel	<180HB	600 - 1,150	0.006 - 0.014	< 0.236	ACP200 ACP300
	Die Steel	200~220HB	330 - 650	0.004 - 0.010	< 0.157	ACP200 ACP300
M	PH Stainless Steel	>220HB	300 - 750	0.004 - 0.010	<0.196	ACM200
	Austenitic Stainless	<250HB	525 - 820	0.005 - 0.010	<0.236	ACM300
K	Cast Iron	250HB	500 - 1150	0.004 - 0.012	<0.236	ACK200 ACK300

For shoulder milling, the GS breaker is recommended. Use at $a_e \leq 50\%$ of cutter diameter and $f_z \leq 0.008$ IPT

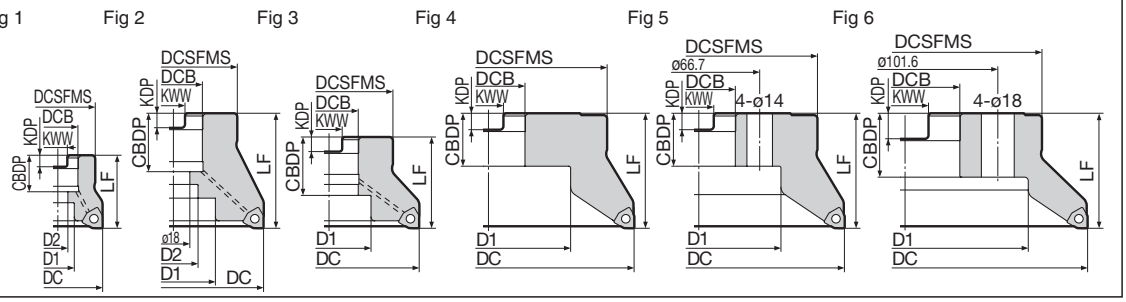
N·m Recommended Tightening Torque (N·m)

DFC Shellmill Metric

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-9°
	Axial	-5°

6mm 90° | .236" 90°



Body (Standard)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	DFC09050RS	★	50	41	40	22	10.4	6.3	20	18	11	4	0.3	1
	DFC09063RS	★	63	50	40	22	10.4	6.3	20	18	11	4	0.5	1
	DFC09080RS	★	*80	55	50	27	12.4	7	22	20	14	5	1.0	1
	DFC09100RS	★	100	70	50	32	14.4	8	32	46	-	6	1.4	3
	DFC09125RS	★	125	80	63	40	16.4	9	29	52	29	7	2.8	1
	DFC09160RS	★	160	130	63	40	16.4	9	29	90	-	8	4.6	5
	DFC09200RS	★	200	150	63	60	25.7	14	35	135	-	10	5.7	6
	DFC09080R	★	*80	55	50	25.4	9.5	6	25	20	14	5	1.0	1
	DFC09100R	★	*100	70	63	31.75	12.7	8	32	46	27	6	2.0	2
	DFC09125R	★	125	80	63	38.1	15.9	10	35.5	55	30	7	2.8	1
	DFC09160R	★	160	100	63	50.8	19.1	11	38	72	-	8	3.6	4
	DFC09200R	★	200	150	63	47.625	25.4	14	35	135	-	10	6.0	6

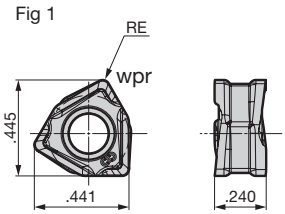
Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (*mm*)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	P M S	P M	P M		K		M S	M S			
	Roughing	P M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
XNMU060604PNER-L		★		●	●		●		●	0.4	2.8	1
XNMU060608PNER-L		★		●	●		●		●	0.8	2.4	1
XNMU060604PNER-G		★	●	●	●	●	●	●	●	0.4	2.8	1
XNMU060608PNER-G		★	●	●	●	●	●	●	●	0.8	2.4	1
XNMU060612PNER-G		★	●	●	●	●	●	●	●	1.2	2	1
XNMU060616PNER-G		★	●	●	●	●	●	●	●	1.6	1.6	1
XNMU060604PNER-GS		★	●	●	●			●	●	0.4	2.8	1
XNMU060608PNER-GS		★	●	●	●			●	●	0.8	2.4	1
XNMU060612PNER-GS		★	●	●	●			●	●	1.2	2	1
XNMU060616PNER-GS		★	●	●	●			●	●	1.6	1.6	1
XNMU060608PNER-H		★	●	●	●	●	●	●	●	0.8	2.4	1
XNMU060612PNER-H		★	●	●	●	●	●	●	●	1.2	2	1
XNMU060616PNER-H		★	●	●	●	●	●	●	●	1.6	1.6	1



Parts

Wrench	Insert Screw		Anti-seize Cream
TRDR15IP	BFTX03512IP	3.0 (N·m)	SUMI-P

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed (v_c) (*m/min*) Min. - Max.	Feed Rate f_z (*mm/t*) Min. - Max.	Depth of Cut a_p (*mm*)	Insert Grade
P	General Steel	180 to 280 HB	150 - 250	0.10 - 0.30	< 6	ACP200 ACP300
	Mild Steel	≤ 180HB	180 - 350	0.15 - 0.35	< 6	ACP200 ACP300
	Die Steel	200 to 220 HB	100 - 200	0.10 - 0.25	< 4	ACP200 ACP300
M	Stainless Steel	-	160 - 250	0.12 - 0.25	< 6	ACM300
K	Cast Iron	250HB	100 - 250	0.10 - 0.30	< 6	ACK200 ACK300

For shoulder milling, the GS Type breaker is recommended. Use at a_e ≤ 50% of cutter diameter and f_z ≤ 0.008 IPT

(N·m) Recommended Tightening Torque (N·m)

Identification Code

DFC 09 050 R S

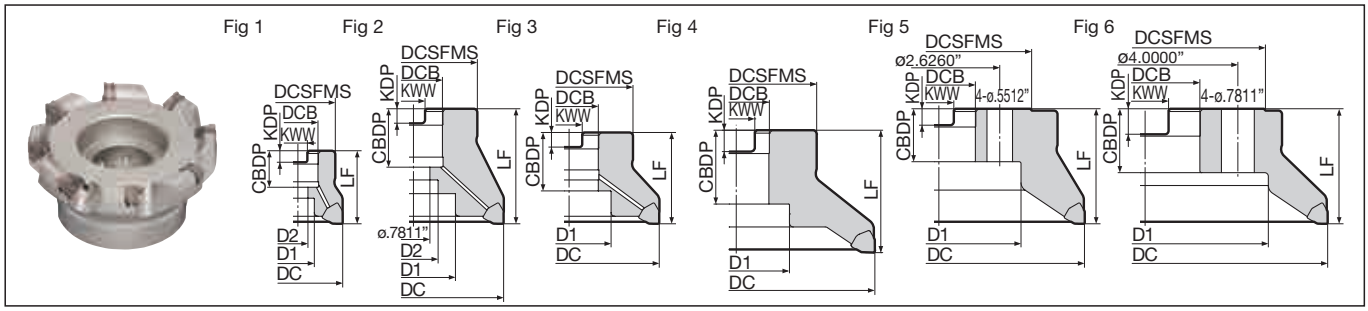
Cutter Series | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

DFCM Shellmill Metric

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-9°
	Axial	-5°

6mm 90° | .236" 90°



Body (Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**DFCM09050RS**	★	50	41	40	22	10.4	6.3	20	18	11	5	0.3	1
	DFCM09063RS	★	63	50	40	22	10.4	6.3	20	18	11	6	0.5	1
	DFCM09080RS	★	*80	55	50	27	12.4	7	22	20	14	7	0.9	1
	DFCM09100RS	★	100	70	50	32	14.4	8	32	46	-	8	1.4	3
	DFCM09125RS	★	125	80	63	40	16.4	9	29	52	29	11	2.7	1
	DFCM09160RS	★	160	130	63	40	16.4	9	29	90	-	12	4.5	5
	DFCM09200RS	★	200	150	63	60	25.7	14	35	135	-	16	5.6	6
	DFCM09080R	★	*80	55	50	25.4	9.5	6	25	20	14	7	0.9	1
	DFCM09100R	★	*100	70	63	31.75	12.7	8	32	46	27	8	1.9	2
	DFCM09125R	★	125	80	63	38.1	15.9	10	35.5	55	30	11	2.7	1
	DFCM09160R	★	160	100	63	50.8	19.1	11	38	72	-	12	3.5	4
	DFCM09200R	★	200	150	63	47.625	25.4	14	35	135	-	16	5.9	6

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

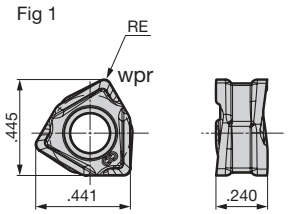
For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (*mm*)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	P M S	P M	P M		K		M S	M S			
	Roughing	P M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
XNMU060604PNER-L		★		●	●		●		●	0.4	2.8	1
XNMU060608PNER-L		★		●	●		●		●	0.8	2.4	1
XNMU060604PNER-G		★	●	●	●	●	●	●	●	0.4	2.8	1
XNMU060608PNER-G		★	●	●	●	●	●	●	●	0.8	2.4	1
XNMU060612PNER-G		★	●	●	●	●	●	●	●	1.2	2	1
XNMU060616PNER-G		★	●	●	●	●	●	●	●	1.6	1.6	1
XNMU060604PNER-GS		★	●	●	●			●	●	0.4	2.8	1
XNMU060608PNER-GS		★	●	●	●			●	●	0.8	2.4	1
XNMU060612PNER-GS		★	●	●	●			●	●	1.2	2	1
XNMU060616PNER-GS		★	●	●	●			●	●	1.6	1.6	1
XNMU060608PNER-H		★	●	●	●	●	●	●	●	0.8	2.4	1
XNMU060612PNER-H		★	●	●	●	●	●	●	●	1.2	2	1
XNMU060616PNER-H		★	●	●	●	●	●	●	●	1.6	1.6	1

Fig 1



Parts

Wrench	Insert Screw		Anti-seize Cream
TRDR15IP	BFTX03512IP	3.0 (N·m)	SUMI-P

Identification Code

DFC M 09 050 R S

Cutter Series | Fine Pitch | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed (v_c) (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Depth of Cut a_p (mm)	Insert Grade
P	General Steel	180 to 280 HB	150 - 250	0.10 - 0.30	< 6	ACP200 ACP300
	Mild Steel	≤ 180HB	180 - 350	0.15 - 0.35	< 6	ACP200 ACP300
	Die Steel	200 to 220 HB	100 - 200	0.10 - 0.25	< 4	ACP200 ACP300
M	Stainless Steel	-	160 - 250	0.12 - 0.25	< 6	ACM300
K	Cast Iron	250HB	100 - 250	0.10 - 0.30	< 6	ACK200 ACK300

For shoulder milling, the GS Type breaker is recommended. Use at a_e ≤ 50% of cutter diameter and f_z ≤ 0.008 IPT

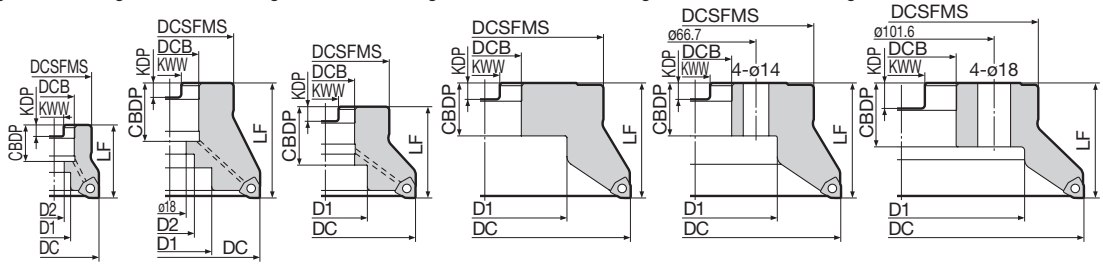
(N·m) Recommended Tightening Torque (N·m) ● mark: Standard stocked item (new product/expanded item)

DFCF Shellmill Metric

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-9°
	Axial	-5°

6mm 90° | .236" 90°



Body (Extra Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**DFCF09050RS**	★	50	41	40	22	10.4	6.3	20	18	11	6	0.3	1
	DFCF09063RS	★	63	50	40	22	10.4	6.3	20	18	11	7	0.5	1
	DFCF09080RS	★	*80	55	50	27	12.4	7	22	20	14	9	0.9	1
	DFCF09100RS	★	100	70	50	32	14.4	8	32	46	-	11	1.3	3
	DFCF09125RS	★	125	80	63	40	16.4	9	29	52	29	14	2.6	1
	DFCF09160RS	★	160	130	63	40	16.4	9	29	90	-	16	4.5	5
	DFCF09200RS	★	200	150	63	60	25.7	14	35	135	-	20	5.5	6
	DFCF09080R	★	*80	55	50	25.4	9.5	6	25	20	14	9	0.9	1
	DFCF09100R	★	*100	70	63	31.75	12.7	8	32	46	27	11	1.9	2
	DFCF09125R	★	125	80	63	38.1	15.9	10	35.5	55	30	14	2.7	1
	DFCF09160R	★	160	100	63	50.8	19.1	11	38	72	-	16	3.5	4
	DFCF09200R	★	200	150	63	47.625	25.4	14	35	135	-	20	5.8	6

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

★ Worldwide Warehouse item

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

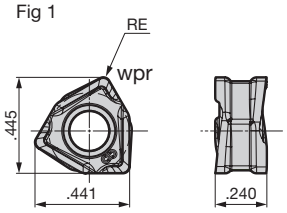
Insert

Dimensions (mm)

Grade		Coated Carbide							
Process	High-speed / Light		P M			K		M S	
	General-purpose	P M S	P M	P M		K		M S	M S
	Roughing	P M S		P M	P M		K		M S
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
XNMU060604PNER-L	★		●	●		●		●	0.4	2.8	1
XNMU060608PNER-L	★		●	●		●		●	0.8	2.4	1
XNMU060604PNER-G	★	●	●	●	●	●	●	●	0.4	2.8	1
XNMU060608PNER-G	★	●	●	●	●	●	●	●	0.8	2.4	1
XNMU060612PNER-G	★	●	●	●	●	●	●	●	1.2	2	1
XNMU060616PNER-G	★	●	●	●	●	●	●	●	1.6	1.6	1
XNMU060604PNER-GS	★	●	●	●			●	●	0.4	2.8	1
XNMU060608PNER-GS	★	●	●	●			●	●	0.8	2.4	1
XNMU060612PNER-GS	★	●	●	●			●	●	1.2	2	1
XNMU060616PNER-GS	★	●	●	●			●	●	1.6	1.6	1
XNMU060608PNER-H	★	●	●	●	●	●	●	●	0.8	2.4	1
XNMU060612PNER-H	★	●	●	●	●	●	●	●	1.2	2	1
XNMU060616PNER-H	★	●	●	●	●	●	●	●	1.6	1.6	1

Fig 1



Parts

Wrench	Insert Screw		Anti-seize Cream
TRDR15IP	BFTX03512IP	3.0 (N·m)	SUMI-P

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed (v_c) (*m/min*) Min. - Max.	Feed Rate f_z (*mm/t*) Min. - Max.	Depth of Cut a_p (*mm*)	Insert Grade
P	General Steel	180 to 280 HB	150 - 250	0.10 - 0.30	< 6	ACP200 ACP300
	Mild Steel	≤ 180HB	180 - 350	0.15 - 0.35	< 6	ACP200 ACP300
	Die Steel	200 to 220 HB	100 - 200	0.10 - 0.25	< 4	ACP200 ACP300
M	Stainless Steel	-	160 - 250	0.12 - 0.25	< 6	ACM300
K	Cast Iron	250HB	100 - 250	0.10 - 0.30	< 6	ACK200 ACK300

For shoulder milling, the GS Type breaker is recommended. Use at $a_e \leq 50\%$ of cutter diameter and $f_z \leq 0.008$ IPT

Identification Code

DFC F 09 050 R S

Cutter Series | Extra Fine Pitch | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

(N·m) Recommended Tightening Torque (N·m) ●: USA Standard stocked item

DFC(M) ENDMILL (Inch & Metric)

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-9°
	Axial	-5°

6mm 90° | .236" 90°

Fig 1

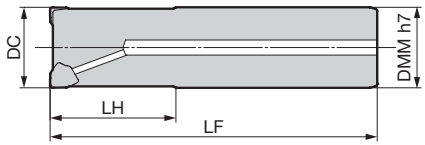
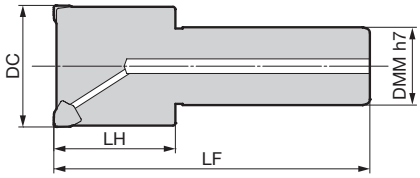


Fig 2



Body (Standard)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Overall Length LF	# of Teeth	Fig
Inch	**DFC21000EW**	●	1.0000	1.0000	2.0591	4.3409	2	1
	DFC21250EW	●	1.2500	1.2500	2.0598	4.3409	3	1
	DFC21500EW	●	1.5000	1.2500	2.0598	4.3409	3	1
	DFC22000EW	●	2.0000	1.2500	2.0598	4.3409	4	1
	DFC22500EW	●	2.5000	1.2500	2.0598	4.3409	5	1
Metric	**DFC09025E**	★	*25*	*25*	*40*	*120*	2	1
	DFC09032E	★	*32*	*32*	*50*	*130*	2	1
	DFC09040E	★	*40*	*32*	*50*	*130*	3	2
	DFC09050E	★	*50*	*32*	*50*	*130*	3	2
	DFC09050E-42		*50*	*42*	*50*	*150*	3	2
	DFC09063E	★	*63*	*32*	*50*	*130*	4	2
	DFC09063E-42		*63*	*42*	*50*	*150*	4	2
	DFC09080E	★	*80*	*32*	*50*	*130*	5	2
	DFC09080E-42		*80*	*42*	*50*	*150*	5	2

Body (Fine Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Head LH	Overall Length LF	# of Teeth	Fig
Inch	**DFCM21500EW**	●	1.5000	1.2500	2.0598	4.3409	4	1
	DFCM22000EW		2.0000	1.2500	2.0598	4.3409	5	1
	DFCM22500EW		2.5000	1.2500	2.0598	4.3409	7	1
Metric	**DFCM09032E**	★	*32*	*32*	*50*	*130*	3	1
	DFCM09040E	★	*40*	*32*	*50*	*130*	4	2
	DFCM09050E	★	*50*	*32*	*50*	*130*	5	2
	DFCM09050E-42		*50*	*42*	*50*	*150*	5	2
	DFCM09063E	★	*63*	*32*	*50*	*130*	6	2
	DFCM09063E-42		*63*	*42*	*50*	*150*	6	2
	DFCM09080E	★	*80*	*32*	*50*	*130*	7	2
	DFCM09080E-42		*80*	*42*	*50*	*150*	7	2

Inserts are sold separately.

● USA stocked item ★ Worldwide Warehouse item

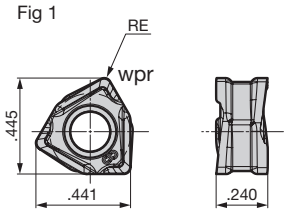
Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide							
Process	High-speed / Light		P M			K		M S	
	General-purposeg	K P S M	P M	P M		K		M S	M S
	Roughing	K P S M		P M	P M		K		M S
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300
XNMU060604PNER-L		★		●	●		●		●
XNMU060608PNER-L		★		●	●		●		●
XNMU060604PNER-G		★	●	●	●	●	●	●	●
XNMU060608PNER-G		★	●	●	●	●	●	●	●
XNMU060612PNER-G		★	●	●	●	●	●	●	●
XNMU060616PNER-G		★	●	●	●	●	●	●	●
XNMU060604PNER-GS		★	●	●	●			●	●
XNMU060608PNER-GS		★	●	●	●			●	●
XNMU060612PNER-GS		★	●	●	●			●	●
XNMU060616PNER-GS		★	●	●	●			●	●
XNMU060608PNER-H		★	●	●	●	●	●	●	●
XNMU060612PNER-H		★	●	●	●	●	●	●	●
XNMU060616PNER-H		★	●	●	●	●	●	●	●

Nose Radius RE	Wiper Facet Length wpr	Fig
.016" / *0.4*	.110"	1
.032" / *0.8*	.094"	1
.016" / *0.4*	.110"	1
.032" / *0.8*	.094"	1
.047" / *1.2*	.079"	1
.063" / 1.6	.063"	1
.016" / *0.4*	.110"	1
.032" / *0.8*	.094"	1
.047" / *1.2*	.079"	1
.063" / 1.6	.063"	1
.032" / *0.8*	.094"	1
.047" / *1.2*	.079"	1
.063" / 1.6	.063"	1

Fig 1



Parts

Wrench	Insert Screw		Anti-seize Cream
		N·m	
TRDR15IP	BFTX03512IP	3.0	SUMI-P

Identification Code - Inch

DFC M 2 1000 EW

Cutter Series | Fine Pitch | Insert Series | Cutter Dia. 1.000" | Endmill Weldon Shank

Identification Code - Metric

DFC M 09 025 E

Cutter Series | Fine Pitch | Insert Size | Cutter Dia. | Endmill Type

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions (for inch/ SFM, see page H101)

ISO	Part Material	Hardness	Cutting Speed (v_c) (*m/min*) Min. - Max.	Feed Rate f_z (*mm/t*) Min. - Max.	Depth of Cut a_p (*mm*)	Insert Grade
P	General Steel	180 to 280 HB	*150 - 250*	*0.10 - 0.30*	*< 6*	ACP200 ACP300
	Mild Steel	≤ 180HB	*180 - 350*	*0.15 - 0.35*	*< 6*	ACP200 ACP300
	Die Steel	200 to 220 HB	*100 - 200*	*0.10 - 0.25*	*< 4*	ACP200 ACP300
M	Stainless Steel	-	*160 - 250*	*0.12 - 0.25*	*< 6*	ACM300
K	Cast Iron	250HB	*100 - 250*	*0.10 - 0.30*	*< 6*	ACK200 ACK300

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

For shoulder milling, the GS breaker is recommended. Use at $a_e \leq 50\%$ of cutter diameter and $f_z \leq 0.008$ IPT.

■ Features

- Excellent Machined Surface Quality

  Employs ground insert for high accuracy to produce excellent machined surface quality.

- Cutting Edge Designed for High Cutting Edge Strength and Sharpness

  Provides tangential insert and optimized cutting edge shape to achieve both high cutting edge strength and sharpness.

- Wide Ranging Product Lineup

  An enhanced lineup of grades is available in addition to 2 types of insert sizes and 3 types of chipbreakers.
  Can be used for various machining applications.

- Now Available grade: ACU2500

■ Product Range

Type	Type	Description	Cutter Diameters in Stock (Inch)											Shape
			ø.625	ø.750	ø1.000	ø1.250	ø1.500	ø2.000	ø2.500	ø3.000	ø4.000	ø5.000	ø6.000	
Shellmills	TSX30000R	Standard Pitch					4	5	6					
	TSXF08000R	Fine Pitch					6	8	10					
	TSX40000R	Standard Pitch					4	5	6	7	9	12	14	
	TSXF40000R	Fine Pitch					5	6	8	10	13			
Endmills	TSX30000EW	Standard Pitch	2	2	3	3	4							
	TSXF30000EW	Fine Pitch			4	5	6							
	TSX40000EW	Standard Pitch			2	2	3							
	TSXF40000EW	Fine Pitch				3	4							

Type	Type	Description	Cutter Diameters in Stock (mm)														Shape
			ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø160	ø200	ø250	ø315	
Shellmills	TSX08000RS	Standard Pitch					4	5	6	7							
	TSX08000R Inch	Standard Pitch								7							
	TSXF08000RS	Extra Fine Pitch					6	8	10	11							
	TSXF08000R Inch	Extra Fine Pitch								11							
	TSX13000RS	Standard Pitch					3	4	5	5	6	7	8	12	14	16	
	TSX13000R Inch	Standard Pitch								5	6	7	8	12	14	16	
	TSXM13000RS	Fine Pitch					4	5	6	7	8	10	12	16	20	24	
	TSXM13000R Inch	Fine Pitch								7	8	10	12	16	20	24	
	TSXF13000RS	Extra Fine Pitch					5	6	7	8	10	14	16				
	TSXF13000R Inch	Extra Fine Pitch								8	10	14	16				
Endmills	TSX08000E	Standard Pitch	2	2*	3*	3*	4	5	6	7							
	TSXF08000E	Extra Fine Pitch		3	4	5	6	8	10	11							
	TSX13000E	Standard Pitch			2	2	3	4	5	5							
	TSXM13000E	Fine Pitch				3	4	5	6	7							
	TSXF13000E	Extra Fine Pitch					5	6	7	8							

Number in ● is the number of teeth
* mark: Different-diameter shanks in stock

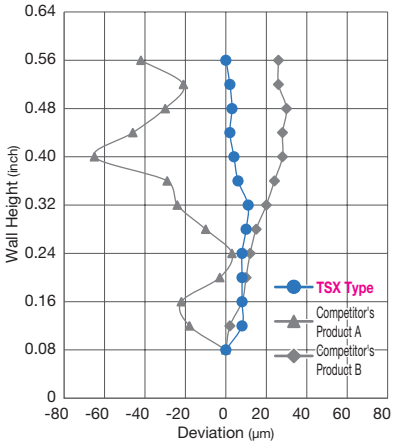
■ Product Range (Repeater Mills)

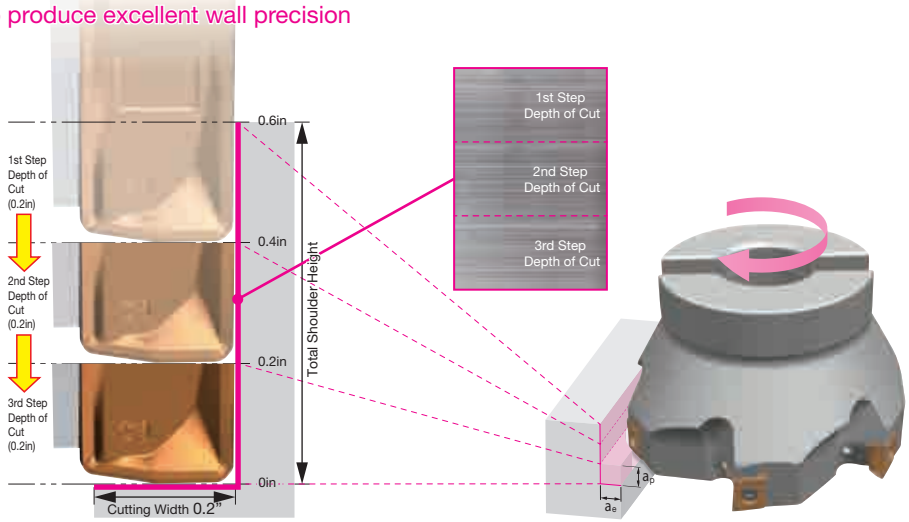
Type	Type	Cutter Diameters in Stock (mm)													Shape
		ø20	ø25	ø32	ø40	ø50		ø63		ø80		ø100		ø125	
Shells	TSXR08000RS			2	3	3	4	5							
	TSXR13000RS				2	3		3	4	4	5	5	6	7	
With Shank	TSXR08000E	1	2	2	3										
	TSXR13000E				2	3									

Number in ● is the number of teeth

■ Shoulder Milling Precision

High accuracy insert and cutting edge shape optimized to produce excellent wall precision

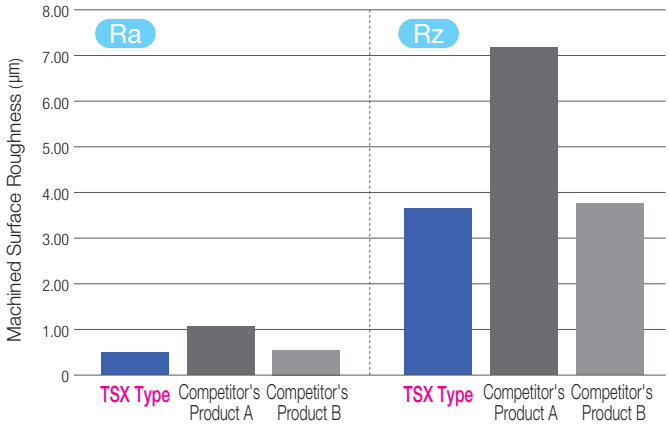




Machine: Vertical Machining Center BT50, Part Material: 1050 Steel
Tool: TSX 13100R, Insert: LNEX 130608PNER-G (ACP200)
Cutting Conditions: v_c = 656 SFM, f_z = 0.008" IPT, a_p = 0.197" x 3 Passes, a_e = 0.20"

■ Machined Surface Roughness

Cutting edge shape optimized to produce excellent machined surface roughness



Machined Surface Comparison

TSX Type Without Cloudiness

Competitor's Product Cloudy

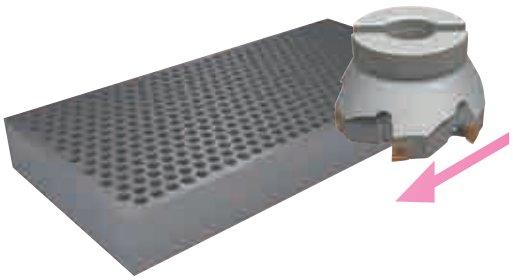
Machine: Vertical Machining Center BT50, Part Material: 1050 Steel
Tool: TSX 13100R, Insert: LNEX 130608PNER-G (ACP200)
Cutting Conditions: v_c = 656 SFM, f_z = 0.008 IPT, a_p = 0.12", a_e = 2.36" Dry

■ Cutting Edge Strength

TSX has high cutting edge strength and enables high efficiency machining

1 Pass = 12"

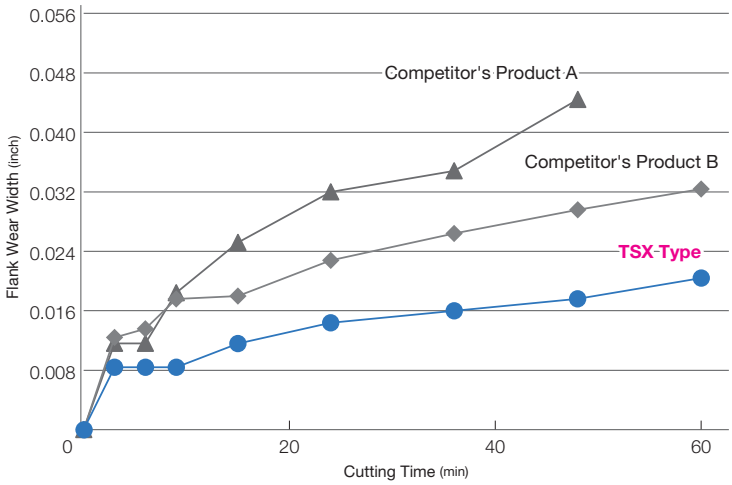
Cutting Length	4 Passes	8 Passes	12 Passes
TSX Type	Continued Machining Possible		
Competitor's Product A	Damage		
Competitor's Product B	Damage		



Machine: Vertical Machining Center BT50, Part Material: 1050 Steel
Tool: TSX 13100R, Insert: LNEX 130608PNER-G (ACP200)
Cutting Conditions: v_c = 492 SFM, f_z = 0.024 IPT (Accelerating)
a_p = 0.12", a_e = 1.57" Dry

■ Tool Life

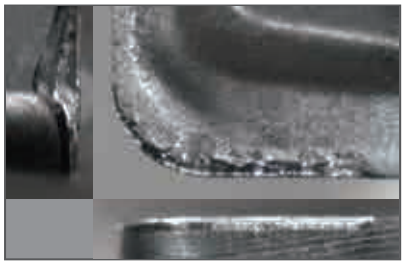
Excellent Wear Resistance Provides Stable Tool Life



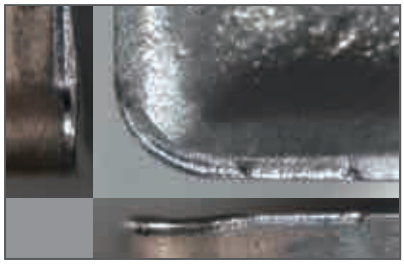
Machine: Vertical Machining Center BT50, Part Material: 1050 Steel
Tool: TSX 08025E, Insert: LNEX 080408PNER-G (ACP200)
Cutting Conditions: v_c = 656 SFM, f_z = 0.004 IPT, a_p = 0.08" a_e = 0.20" Dry

TSX
(After cutting for 60 minutes)

Competitor's Product A
(After cutting for 48 minutes)

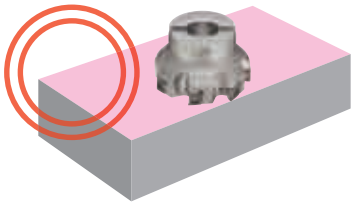


Competitor's Product B
(After cutting for 60 minutes)

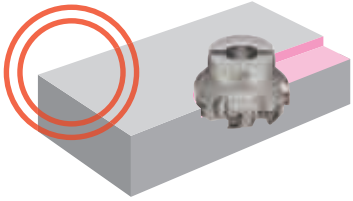


■ Applications

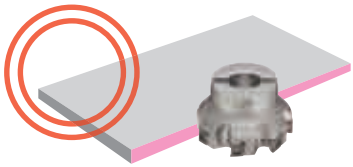
Face Milling



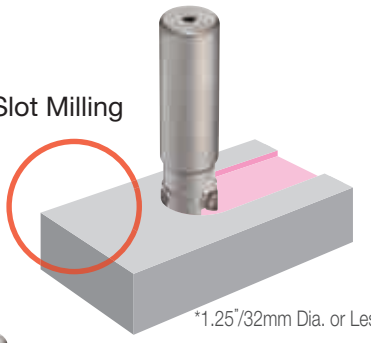
Shoulder Milling



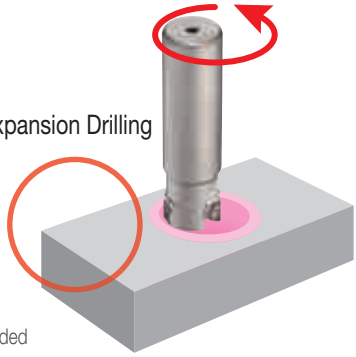
Side Milling



Slot Milling

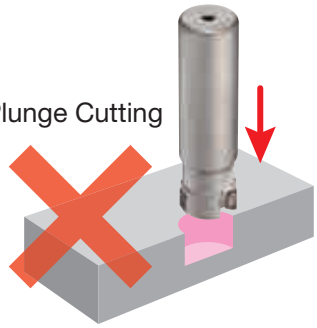


Hole Expansion Drilling

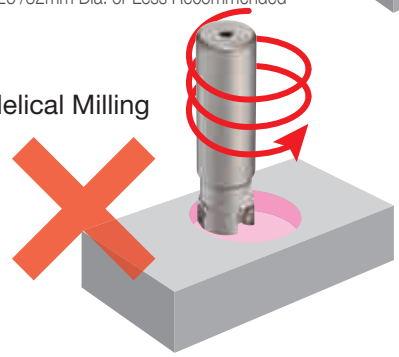


*1.25"/32mm Dia. or Less Recommended

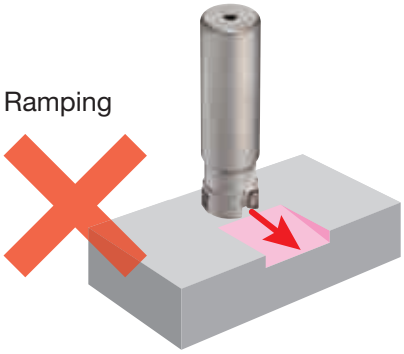
Plunge Cutting



Helical Milling

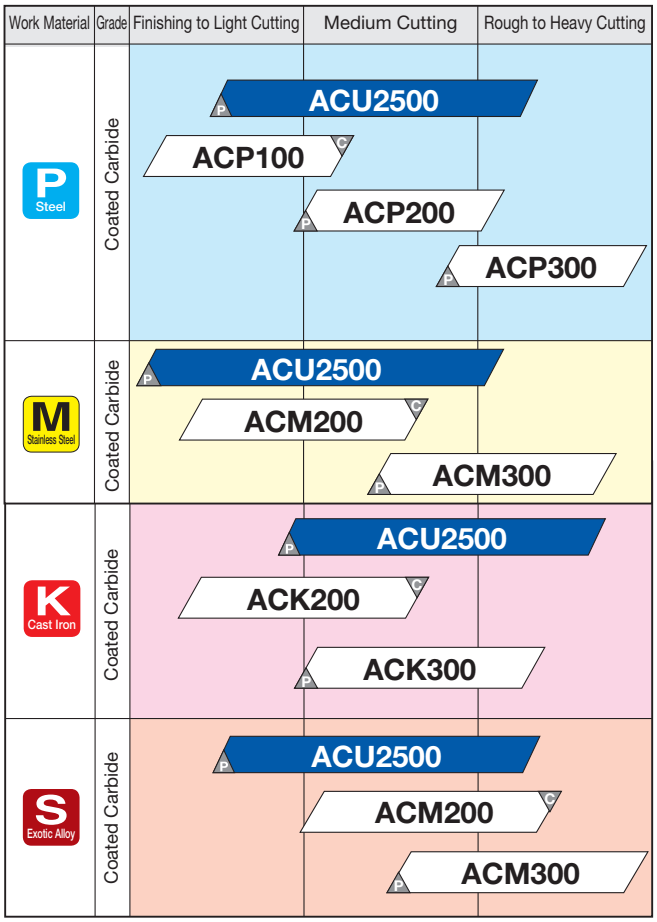


Ramping



■ Insert Grade Selection

Lineup of Milling Grades ACP100/ACP200/ACP300, Stainless Steel Milling Grades ACM200/ACM300, Cast Iron Milling Grades ACK200/ACK300 and more for a wide range of materials.



The letters "C" and "P" at the end of each grade indicate the coating type. C: CVD, P: PVD, Blank: Uncoated

■ Product Range

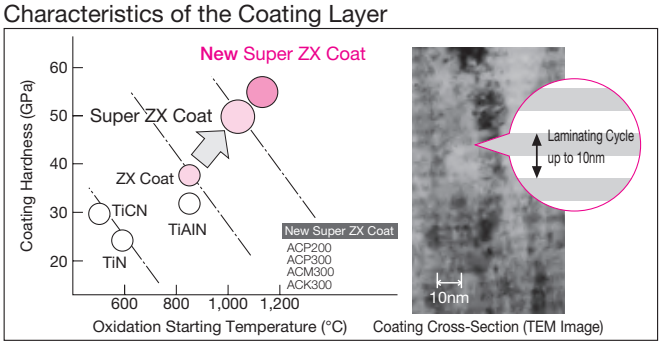
Cat. No.	Nose Radius (inch)					
	R.016	R.031	R.047	R.063	R.094	R.126
LNEX 0804○○PNER-L	●	●	●	●		
LNEX 0804○○PNER-G	●	●	●	●		
LNEX 1306○○PNER-L	●	●	●	●	●	●
LNEX 1306○○PNER-G	●	●	●	●	●	●
LNEX 1306○○PNER-H	●	●	●	●	●	●

■ Coating Features

P Super ZX Coat
(PVD: Physical Vapor Deposition)

Employs our super multi-layered New Super ZX Coat, which utilizes our proprietary thin-layer coating technology and advanced nanotechnology. The coating consists of thousands of alternating, nanometer-thin (1 nanometer = 1 billionth of a meter) layers

Characteristics of the Coating Layer

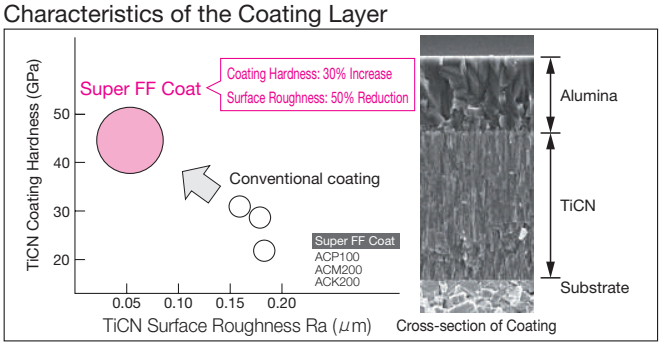


- ▸ Compared to conventional tools, the coating hardness has been increased by 40% and the oxidation starting temperature has been increased by 200°C
- ▸ Enables more than 1.5 times the machining speed and efficiency of conventional tools
- ▸ Achieves more than double the tool life of conventional tools

C Super FF Coat
(CVD: Chemical Vapor Deposition)

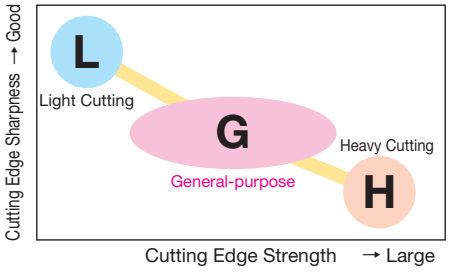
Provides excellent wear resistance and high reliability thanks to our coating stress control technology and the ultra-fine crystal grain coating layer of the Super FF Coat achieved through our proprietary CVD process technology

Characteristics of the Coating Layer

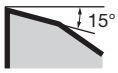
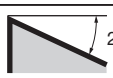
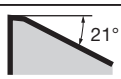
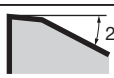


- ▸ Achieves excellent chipping resistance with smooth coating and our coating stress control technology
- ▸ High-speed, high-efficiency machining at a level more than 1.5 times higher than conventional tools is possible with a high hardness coating layer
- ▸ Achieves more than double the tool life of conventional tools

■ Chipbreaker Selection

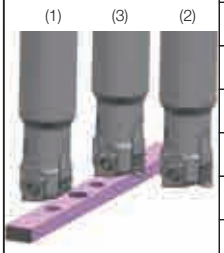


■ Chipbreaker Lineup

Part Material	P M K S		
	L	G	H
Chipbreaker			
Features	Low Cutting Force	General-Purpose	High Strength
LNEX08 Type Cross Section	30°	 15°	Not Available
LNEX13 Type Cross Section	 25°	 21°	 21°
Applications	Light Cutting, Low Rigidity Milling and Reduction of Burrs	General-purpose to Interrupted Milling	Heavy Cutting, Heavy Cross-Section Machining and Hardened Steel Milling

■ Application Examples

4140 Machine Components		Sumitomo	Conventional Tool
Machining Center: BT30	Tool	TSXF08020E	Vertical Type 4 Corners
	Grade	ACP200	-
	Chipbreaker	G	-
	Cutter Dia. (mm)	20	20
	Number of Teeth	3	3
	V_c (SFM)	886	886
	V_f (IPM)	26	26
	f_z (IPT)	0.002	0.002
	a_p (inch)	0.315	0.315
	a_e (inch)	0.025	0.028
	Coolant	Wet	Wet
	Results	Reduced finishing processes thanks to wall surface accuracy superior to conventional tools.	



(1)(2) Side Milling
(3) Face Milling

304 Stainless Steel Guide		Sumitomo	Conventional Tool
Machining Center: BT50	Tool	TSXM13125RS	-
	Grade	ACM200	-
	Chipbreaker	L	-
	Cutter Dia. (mm)	125	125
	Number of Teeth	10	8
	V_c (SFM)	230	230
	V_f (IPM)	3.15	1.57
	f_z (IPT)	0.0018	0.0011
	a_p (inch)	0.197	0.197
	a_e (inch)	3.74	3.74
	Coolant	Wet	Wet
	Results	2 times the machining efficiency and 2 times longer tool life.	

Gray Cast Iron Cylinder Block		Sumitomo	Conventional Tool
Machining Center: BT40	Tool	TSX13050RS	-
	Grade	ACK300	-
	Chipbreaker	L	-
	Cutter Dia. (mm)	50	50
	Number of Teeth	4	4
	V_c (SFM)	771	771
	V_f (IPM)	23.6	23.6
	f_z (IPT)	.004	.004
	a_p (inch)	0.0315	0.0315
	a_e (inch)	0.0315	0.0315
	Coolant	Wet	Wet
	Results	Dimensional tolerance and surface roughness superior to conventional tools.	

Cast Steel Shaft Housing		Sumitomo	Conventional Tool
Machining Center: BT40	Tool	TSX13100R	-
	Grade	ACP200	-
	Chipbreaker	G	-
	Cutter Dia. (mm)	100	100
	Number of Teeth	6	8
	V_c (SFM)	600	450
	V_f (IPM)	37.87	39.37
	f_z (IPT)	0.011	0.011
	a_p (inch)	Roughing: 0.12" , Finishing: 0.04"	Roughing: 0.12", Finishing: 0.04"
	a_e (inch)	-	-
	Coolant	Wet	Wet
	Results	Machined surface superior to conventional tools.	

Ductile Cast Iron Housing		Sumitomo	Conventional Tool
Machining Center: BT40	Tool	TSXM13050RS	Single-Sided 4 Corners
	Grade	ACK300	-
	Chipbreaker	G	-
	Cutter Dia. (mm)	50	50
	Number of Teeth	5	5
	V_c (SFM)	787	787
	V_f (IPM)	45.3	45.3
	f_z (IPT)	0.006	0.006
	a_p (inch)	0.04	0.04
	a_e (inch)	1.18	1.18
	Coolant	Dry	Dry
	Results	Tool life extension of 131% achieved.	

4130 Bearing Cover		Sumitomo	Competitor's Product
Horizontal Machining Center: BT50	Tool	TSXM13080RS	-
	Grade	ACP200	-
	Chipbreaker	H	-
	Cutter Dia. (mm)	80	80
	Number of Teeth	7	6
	V_c (SFM)	591	591
	V_f (IPM)	37.4	37.4
	f_z (IPT)	0.005	0.008
	a_p (inch)	0.031	0.031
	a_e (inch)	1.97	1.97
	Coolant	Dry	Dry
	Results	Tool life extension of 333% achieved.	

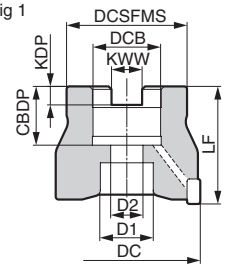
TSX(F) SHELL MILL - *8mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-20°
	Axial	-6°

8mm 90° | .315" 90°

Fig 1



Body (Standard Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lb / *kg*)	Fig
Inch	**TSX31500R**	●	1.500	1.339	1.750	.750	.312	.190	.750	.609	.406	4	0.44	1
	TSX32000R	●	2.000	1.500	1.750	.750	.312	.190	.750	.609	.406	5	0.88	1
	TSX32500R	●	2.500	1.750	1.750	1.000	.375	.220	.750	.797	.531	6	1.10	1
Metric	**TSX08040RS**	★	*40*	*33*	*40*	*16.0*	*8.4*	*5.6*	*18*	*14*	*9*	4	*0.21*	1
	TSX08050RS	★	*50*	*41*	*40*	*22.0*	*10.4*	*6.3*	*20*	*18*	*11*	5	*0.30*	1
	TSX08063RS	★	*63*	*50*	*40*	*22.0*	*10.4*	*6.3*	*20*	*18*	*11*	6	*0.53*	1
	TSX08080RS	★	**80*	*55*	*50*	*27.0*	*12.4*	*7.0*	*22*	*20*	*14*	7	*0.99*	1
	TSX08080R	★	**80*	*55*	*50*	*25.4*	*9.5*	*6.0*	*25*	*20*	*14*	7	*1.00*	1

Body (Extra Fine Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lb / *kg*)	Fig
Inch	**TSXF31500R**	●	1.500	1.339	1.750	.750	.312	.190	.750	0.609	.406	6	0.44	1
	TSXF32000R	●	2.000	1.500	1.750	.750	.312	.190	.750	.609	.406	8	0.88	1
	TSXF32500R	●	2.500	1.750	1.750	1.000	.375	.220	.750	.797	.531	10	1.10	1
Metric	**TSXF08040RS**	★	*40*	*33*	*40*	*16.0*	*8.4*	*5.6*	*18*	*14*	*9*	6	*0.21*	1
	TSXF08050RS	★	*50*	*41*	*40*	*22.0*	*10.4*	*6.3*	*20*	*18*	*11*	8	*0.31*	1
	TSXF08063RS	★	*63*	*50*	*40*	*22.0*	*10.4*	*6.3*	*20*	*18*	*11*	10	*0.54*	1
	TSXF08080RS	★	**80*	*55*	*50*	*27.0*	*12.4*	*7.0*	*22*	*20*	*14*	11	*0.97*	1
	TSXF08080R	★	**80*	*55*	*50*	*25.4*	*9.5*	*6.0*	*25*	*20*	*14*	11	*0.98*	1

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (M12 x 30 to 35mm).

● USA stocked item ★ Worldwide Warehouse item

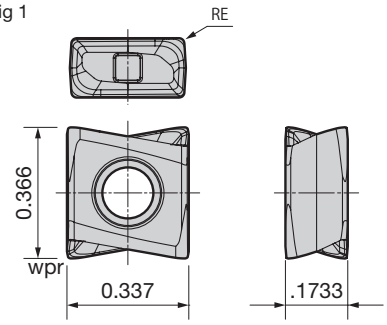
Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide							
Process	High-speed / Light		P M			K		M S	
	General-purpose	P M S	P M	P M		K		M S	M S
	Roughing	P M S		P M	P M		K		M S
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300

Cat. No.	Nose Radius RE	Wiper Facet Length wpr	Fig
LNEX080404PNER-L	.016" / *0.4*	.067" / *1.7*	1
LNEX080408PNER-L	.032" / *0.8*	.055" / *1.4*	1
LNEX080412PNER-L	.047" / *1.2*	.039" / *1.0*	1
LNEX080416PNER-L	.063" / *1.6*	.024" / *.6*	1
LNEX080404PNER-G	.016" / *0.4*	.067" / *1.7*	1
LNEX080408PNER-G	.032" / *0.8*	.055" / *1.4*	1
LNEX080412PNER-G	.047" / *1.2*	.039" / *1.0*	1
LNEX080416PNER-G	.063" / *1.6*	.024" / *.6*	1

Fig 1



Parts

Screw		Wrench	Anti-seize Cream
BFTX0308IP	2.0	TRDR08IP	SUMI-P

Identification Code - Inch

TSX F 3 2000 R

Cutter Series | Extra Fine Pitch Series | Insert | Cutter Dia. 2.000" | Feed Direction

Identification Code - Metric

TSX F 08 050 R S

Cutter Series | Extra Fine Pitch | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c(sfm)Min-Max	Feed Rate f_z(IPT) Min-Max	Recommended Grade
P	Carbon Steel	180-280 HB	500-1000	.004-.014	ACU2500 ACP200 ACP300 ACP100
		> 280 HB	250-750	.004-.014	
	Alloy Steel	180-280HB	330-815	.004-.012	
M	Stainless Steel	220-280HB	300-600	.004-.010	ACU2500 ACM300 ACM200
		> 280HB	250-550	.004-.010	
S	Exotic Material	-	100-300	.004-.008	
K	Cast Iron/Ductile Cast Iron	250HB	330-815	.004-.014	ACU2500 ACK300 ACK200

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT40/CAT40/HSK63A machine tools.

N·m Recommended Tightening Torque (N·m)

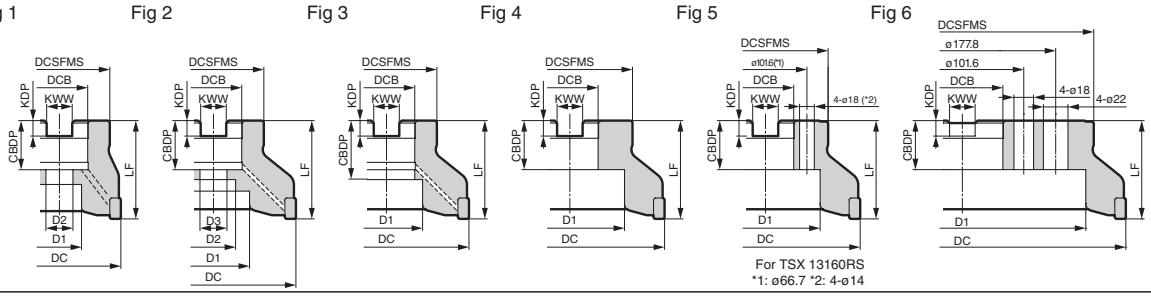
TSX SHELL MILL -13mm Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-23° to -15°
	Axial	-6°

.473" 90°

12mm 90°



Body (Standard Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lb / *kg*)	Fig
Inch	**TSX41500R**	●	1.500	1.339	1.750	0.750	0.312	0.190	0.750	0.609	0.406	-	4	0.44	1
	TSX42000R	●	2.000	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	-	5	0.66	1
	TSX42500R	●	2.500	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	-	6	1.10	1
	TSX43000R	●	3.000	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	-	7	1.76	1
	TSX44000R	●	4.000	2.870	2.000	1.500	0.625	0.380	1.000	2.000	0.781	-	9	4.85	1
	TSX45000R	●	5.000	3.750	2.500	1.500	0.625	0.380	1.000	2.000	0.781	-	12	7.50	1
	TSX46000R	●	6.000	4.380	2.500	1.500	0.625	0.380	1.000	2.000	0.781	-	14	11.0	1
Metric	**TSX13040RS**	★	*40*	*33*	*40*	*16.0*	*8.4*	*5.6*	*18.0*	*14*	*9*	-	*3*	*0.20*	1
	TSX13050RS	★	*50*	*41*	*40*	*22.0*	*10.4*	*6.3*	*20.0*	*18*	*11*	-	*4*	*0.30*	1
	TSX13063RS	★	*63*	*50*	*40*	*22.0*	*10.4*	*6.3*	*20.0*	*18*	*11*	-	*5*	*0.50*	1
	TSX13080RS	★	**80*	*55*	*50*	*27.0*	*12.4*	*7.0*	*22.0*	*20*	*14*	-	*5*	*0.92*	1
	TSX13100RS	★	*100*	*70*	*50*	*32.0*	*14.4*	*8.0*	*32.0*	*46*	-	-	*6*	*1.35*	3
	TSX13125RS	★	*125*	*80*	*63*	*40.0*	*16.4*	*9.0*	*29.0*	*52*	*29*	-	*7*	*2.55*	1
	TSX13160RS	★	*160*	*130*	*63*	*40.0*	*16.4*	*9.0*	*29.0*	*90*	-	-	*8*	*4.97*	5*
	TSX13200RS	★	*200*	*160*	*63*	*60.0*	*25.7*	*14.0*	*35.0*	*135*	-	-	*12*	*6.20*	5
	TSX13250RS	★	*250*	*180*	*63*	*60.0*	*25.7*	*14.0*	*35.0*	*160*	-	-	*14*	*9.35*	5
	TSX13315RS	★	*315*	*240*	*63*	*60.0*	*25.7*	*14.0*	*35.0*	*230*	-	-	*16*	*16.42*	6
	TSX13080R	★	**80*	*55*	*50*	*25.4*	*9.5*	*6.0*	*25.0*	*20*	*14*	-	*5*	*0.93*	1
	TSX13100R	★	**100*	*70*	*63*	*31.75*	*12.7*	*8.0*	*32.0*	*46*	*27*	*18*	*6*	*1.88*	2
	TSX13125R	★	*125*	*80*	*63*	*38.1*	*15.9*	*10.0*	*35.5*	*55*	*30*	-	*7*	*2.61*	1
	TSX13160R	★	*160*	*100*	*63*	*50.8*	*19.1*	*11.0*	*38.0*	*72*	-	-	*8*	*4.18*	4
	TSX13200R	★	*200*	*160*	*63*	*47.625*	*25.4*	*14.0*	*35.0*	*135*	-	-	*12*	*6.36*	5
	TSX13250R	★	*250*	*180*	*63*	*47.625*	*25.4*	*14.0*	*35.0*	*160*	-	-	*14*	*9.60*	5
	TSX13315R	★	*315*	*240*	*63*	*47.625*	*25.4*	*14.0*	*35.0*	*230*	-	-	*16*	*16.68*	6

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

● USA stocked item ★ Worldwide Warehouse item

Identification Code - Inch

TSX 4 2000 R

Cutter Series | Insert Series | Cutter Dia. 2.000" | Feed Direction

Identification Code - Metric

TSX 13 100 R S

Cutter Series | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

Recommended Cutting Conditions - Inch

ISO	Part Material	Hardness	Cutting Speed v_c(SFM)Min-Max	Feed Rate f_z(IPT) Min-Max	Insert Grade
P	Carbon Steel	180-280 HB	500-1000	.004-.014	ACP200 ACP300 ACP100
		> 280 HB	250-750	.004-.014	
	Alloy Steel	180-280HB	330-815	.004-.012	
M	Stainless Steel	220-280HB	300-600	.004-.010	ACM300 ACM200
		> 280HB	250-550	.004-.010	
S	Exotic Material	-	100-300	.004-.008	ACM300 ACM200
K	Cast Iron/Ductile Cast Iron	250HB	330-815	.004-.014	ACK300 ACK200

Note
· The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
· The above figures are guidelines for use with BT40/CAT40/HSK63A machine tools.

Recommended Cutting Conditions - Metric

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	*150 - 300*	*0.10 - 0.40*	ACP100
		> 280HB	*75 - 230*	*0.10 - 0.40*	ACP200
	Alloy Steel	180 to 280 HB	*100 - 250*	*0.10 - 0.35*	ACP300
M	Stainless Steel	220 to 280 HB	*90 - 180*	*0.10 - 0.30*	ACM200
		> 280HB	*75 - 170*	*0.10 - 0.30*	ACM300
K	Cast Iron/Ductile Cast Iron	250HB	*150 - 250*	*0.10 - 0.40*	ACK200 ACK300
S	Exotic Alloy	-	*30 - 90*	*0.10 - 0.20*	ACM200 ACM300

Note
· The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
· The above figures are guidelines for use with BT50/CAT50/HSK100A machine tools.

N·m Recommended Tightening Torque (N·m) ● mark: Standard stocked item (new product/expanded item)

TSX SHELL MILL - *13mm* Inserts

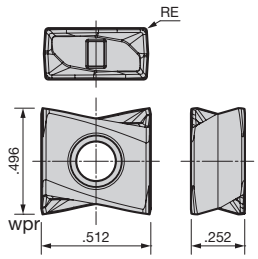
P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	P M K S		P M		K		M S	M S			
	Roughing	P M K S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
LNEX130604PNER-L		★		●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-L		★		●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-L		★		●			●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-L		★		●			●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-L		★		●			●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-L		★		●			●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-L		★		●			●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-G		★	●	●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-G		●	●	●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-G		★	●	●	●	●	●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-G		★	●	●	●	●	●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-G		★	●	●	●	●	●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-G		★	●	●	●	●	●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-G		★	●	●	●	●	●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-H		★		●	●	●	●			.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-H		★		●	●	●	●			.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-H		★		●	●	●	●			.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-H		★		●	●	●	●			.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-H		★		●	●	●	●			.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-H		★		●	●	●	●			.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-H		★		●	●	●	●			.126" / *3.2*	.004" / *0.1*	1

Fig 1



Parts

Applicable Cutter	Screw		Integrated Wrench	Detachable Wrench: Handle Grip	Detachable Wrench: Bit	Seat	Anti-seize Cream
		N·m					
TSX41500R	BFTX03510IP	3.0	TRDR15IP	HPS1015	TRB15IP	-	SUMI-P
TSX42000R							
TSX42500R							
TSX43000R							
TSX44000R							
TSX45000R							
TSX46000R							
TSX13040RS			-			-	
TSX13050RS							
TSX13063RS							
TSX13080RS							
TSX13100RS							
TSX13125RS							
TSX13160RS			TRDR15IP	-	-	TSXS13R	
TSX13200RS							
TSX13250RS							
TSX13315RS							
TSX13080R			-	HPS1015	TRB15IP	-	
TSX13100R							
TSX13125R							
TSX13160R			TRDR15IP	-	-	TSXS13R	
TSX13200R							
TSX13250R							
TSX13315R							

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"

● mark: Standard stocked item (new product/expanded item)

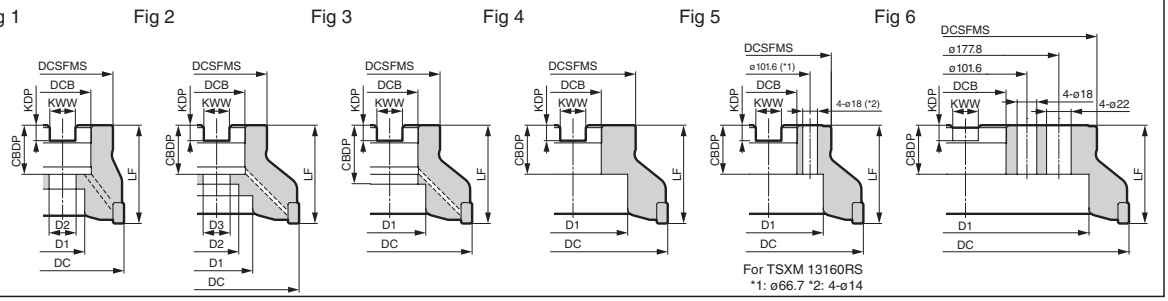
TSXM Shell Mill -13mm Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-23° to 15°
	Axial	-6°

.473" 90°

12mm 90°



Body (Fine Pitch)

Dimensions (mm)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (kg)	Fig
Metric	TSXM13040RS	★	40	33	40	16.0	8.4	5.6	18.0	14	9	-	4	0.19	1
	TSXM13050RS	★	50	41	40	22.0	10.4	6.3	20.0	18	11	-	5	0.28	1
	TSXM13063RS	★	63	50	40	22.0	10.4	6.3	20.0	18	11	-	6	0.50	1
	TSXM13080RS	★	*80	55	50	27.0	12.4	7.0	22.0	20	14	-	7	0.92	1
	TSXM13100RS	★	100	70	50	32.0	14.4	8.0	32.0	46	-	-	8	1.36	3
	TSXM13125RS	★	125	80	63	40.0	16.4	9.0	29.0	52	29	-	10	2.57	1
	TSXM13160RS	★	160	130	63	40.0	16.4	9.0	29.0	90	-	-	12	5.02	5*
	TSXM13200RS	★	200	160	63	60.0	25.7	14.0	35.0	135	-	-	16	6.32	5
	TSXM13250RS	★	250	180	63	60.0	25.7	14.0	35.0	160	-	-	20	9.42	5
	TSXM13315RS	★	315	240	63	60.0	25.7	14.0	35.0	230	-	-	24	16.37	6
	TSXM13080R	★	*80	55	50	25.4	9.5	6.0	25.0	20	14	-	7	0.93	1
	TSXM13100R	★	*100	70	63	31.75	12.7	8.0	32.0	46	27	18	8	1.90	2
	TSXM13125R	★	125	80	63	38.1	15.9	10.0	35.5	55	30	-	10	2.62	1
	TSXM13160R	★	160	100	63	50.8	19.1	11.0	38.0	72	-	-	12	4.22	4
	TSXM13200R	★	200	160	63	47.625	25.4	14.0	35.0	135	-	-	16	6.48	5
	TSXM13250R	★	250	180	63	47.625	25.4	14.0	35.0	160	-	-	20	9.68	5
	TSXM13315R	★	315	240	63	47.625	25.4	14.0	35.0	230	-	-	24	16.63	6

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Identification Code

TSX M 13 100 R S

Cutter Series | Fine Pitch | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

Recommended Cutting Conditions - Inch

ISO	Part Material	Hardness	Cutting Speed v_c(SFM) Min-Max	Feed Rate f_z(IPT) Min-Max	Insert Grade
P	Carbon Steel	180-280 HB	500 - 1000	.004-.014	ACU2500 ACP200 ACP300 ACP100
		> 280 HB	250 - 750	.004-.014	
	Alloy Steel	180-280HB	330 - 815	.004-.012	
M	Stainless Steel	220-280HB	300 - 600	.004-.010	ACU2500 ACM300 ACM200
		> 280HB	250 - 550	.004-.010	
S	Exotic Material	-	100 - 300	.004-.008	
K	Cast Iron/Ductile Cast Iron	250HB	330 - 815	.004-.014	ACU2500 ACK300 ACK200

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT40/CAT40/HSK63A machine tools.

Recommended Cutting Conditions - Metric

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	150 - 300	0.10 - 0.40	ACP100
		> 280HB	75 - 230	0.10 - 0.40	ACP200
	Alloy Steel	180 to 280 HB	100 - 250	0.10 - 0.35	ACP300
M	Stainless Steel	220 to 280 HB	90 - 180	0.10 - 0.30	ACM200
		> 280HB	75 - 170	0.10 - 0.30	ACM300
K	Cast Iron/Ductile Cast Iron	250HB	150 - 250	0.10 - 0.40	ACK200 ACK300
S	Exotic Alloy	-	30 - 90	0.10 - 0.20	ACM200 ACM300

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT50/CAT50/HSK100A machine tools.

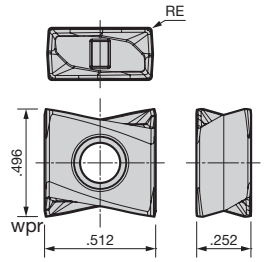
N·m Recommended Tightening Torque (N·m) ● mark: Standard stocked item

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	P K S		P M		K		M S	M S			
	Roughing	P K S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
LNEX130604PNER-L		★		●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-L		★		●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-L		★		●			●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-L		★		●			●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-L		★		●			●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-L		★		●			●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-L		★		●			●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-G		★	●	●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-G		●	●	●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-G		★	●	●	●	●	●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-G		★	●	●	●	●	●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-G		★	●	●	●	●	●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-G		★	●	●	●	●	●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-G		★	●	●	●	●	●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-H		★		●	●	●	●			.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-H		★		●	●	●	●			.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-H		★		●	●	●	●			.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-H		★		●	●	●	●			.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-H		★		●	●	●	●			.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-H		★		●	●	●	●			.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-H		★		●	●	●	●			.126" / *3.2*	.004" / *0.1*	1

Fig 1



●: USA stocked item

Parts

Applicable Cutter	Screw		Integrated Wrench	Detachable Wrench: Handle Grip	Detachable Wrench: Bit	Seat	Anti-seize Cream
		N·m					
TSXM13040RS	BFTX03510IP	3.0	-	HPS1015	TRB15IP	-	SUMI-P
TSXM13050RS							
TSXM13063RS							
TSXM13080RS							
TSXM13100RS							
TSXM13125RS							
TSXM13160RS			TRDR15IP	-	-	TSXS13R	
TSXM13200RS							
TSXM13250RS							
TSXM13315RS							
TSXM13080R			-	HPS1015	TRB15IP	-	
TSXM13100R							
TSXM13125R							
TSXM13160R			TRDR15IP	-	-	TSXS13R	
TSXM13200R							
TSXM13250R							
TSXM13315R							

TSXF SHELL MILL - *13mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	–23 to –15°
	Axial	–6°

12mm 90° | .473" 90°

Fig 1

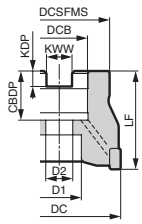


Fig 2

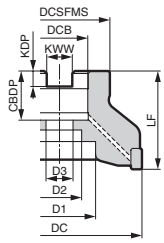


Fig 3

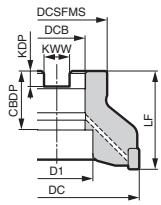


Fig 4

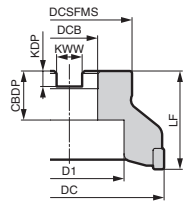
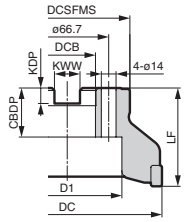


Fig 5



Body (Extra Fine Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**TSXF41500R**	●	1.500	1.339	1.750	0.750	0.312	0.190	0.750	0.609	0.406	-	5	0.44	1
Inch	**TSXF42000R**	●	2.000	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	-	6	0.66	1
Inch	**TSXF42500R**	●	2.500	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	-	8	1.10	1
Inch	**TSXF43000R**	●	3.000	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	-	10	1.76	1
Inch	**TSXF44000R**	●	4.000	2.870	2.000	1.500	0.625	0.380	1.000	2.000	0.781	-	13	4.85	1
Metric	**TSXF13040RS**	★	*40*	*33*	*40*	*16.0*	*8.4*	*5.6*	*18.0*	*14*	*9*	-	5	*0.18*	1
Metric	**TSXF13050RS**	★	*50*	*41*	*40*	*22.0*	*10.4*	*6.3*	*20.0*	*18*	*11*	-	6	*0.29*	1
Metric	**TSXF13063RS**	★	*63*	*50*	*40*	*22.0*	*10.4*	*6.3*	*20.0*	*18*	*11*	-	7	*0.50*	1
Metric	**TSXF13080RS**	★	**80*	*55*	*50*	*27.0*	*12.4*	*7.0*	*22.0*	*20*	*14*	-	8	*0.92*	1
Metric	**TSXF13100RS**	★	*100*	*70*	*50*	*32.0*	*14.4*	*8.0*	*32.0*	*46*	-	-	10	*1.34*	3
Metric	**TSXF13125RS**	★	*125*	*80*	*63*	*40.0*	*16.4*	*9.0*	*29.0*	*52*	*29*	-	14	*2.58*	1
Metric	**TSXF13160RS**	★	*160*	*130*	*63*	*40.0*	*16.4*	*9.0*	*29.0*	*90*	-	-	16	*5.08*	5
Inch	**TSXF13080R**	★	**80*	*55*	*50*	*25.4*	*9.5*	*6.0*	*25.0*	*20*	*14*	-	8	*0.93*	1
Inch	**TSXF13100R**	★	**100*	*70*	*63*	*31.75*	*12.7*	*8.0*	*32.0*	*46*	*27*	*18*	10	*1.88*	2
Inch	**TSXF13125R**	★	*125*	*80*	*63*	*38.1*	*15.9*	*10.0*	*35.5*	*55*	*30*	-	14	*2.60*	1
Inch	**TSXF13160R**	★	*160*	*100*	*63*	*50.8*	*19.1*	*11.0*	*38.0*	*72*	-	-	16	*4.28*	4

Inserts are sold separately. Check the pilot diameter (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Identification Code - Inch

TSX F 4 2000 R

Cutter Series | Extra Fine Pitch | Insert Series | Cutter Dia. 2.000" | Feed Direction

Identification Code - Metric

TSX F 13 100 R S

Cutter Series | Extra Fine Pitch | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

Recommended Cutting Conditions - Inch

ISO	Part Material	Hardness	Cutting Speed v_c(sfm) Min-Max	Feed Rate f_z(ipt) Min-Max	Insert Grade
P	Carbon Steel	180-280 HB	500 - 1000	.004-.014	ACP200 ACP300 ACP100
P	Carbon Steel	> 280 HB	250 - 750	.004-.014	
P	Alloy Steel	180-280HB	330 - 815	.004-.012	
M	Stainless Steel	220-280HB	300 - 600	.004-.010	ACM300 ACM200
M	Stainless Steel	> 280HB	250 - 550	.004-.010	
S	Exotic Material	-	100 - 300	.004-.008	ACM300 ACM200
K	Cast Iron/Ductile Cast Iron	250HB	330 - 815	.004-.014	ACK300 ACK200

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT40 machine tools.

Recommended Cutting Conditions - Metric

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	*150 - 300*	*0.10 - 0.40*	ACP100
P	Carbon Steel	> 280HB	*75 - 230*	*0.10 - 0.40*	ACP200
P	Alloy Steel	180 to 280 HB	*100 - 250*	*0.10 - 0.35*	ACP300
M	Stainless Steel	220 to 280 HB	*90 - 180*	*0.10 - 0.30*	ACM200
M	Stainless Steel	> 280HB	*75 - 170*	*0.10 - 0.30*	ACM300
K	Cast Iron/Ductile Cast Iron	250HB	*150 - 250*	*0.10 - 0.40*	ACK200 ACK300
S	Exotic Alloy	-	*30 - 90*	*0.10 - 0.20*	ACM200 ACM300

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT50/CAT50/HSK100A machine tools.

N·m Recommended Tightening Torque (N·m)

TSXF Shell Mill - *13mm* Inserts

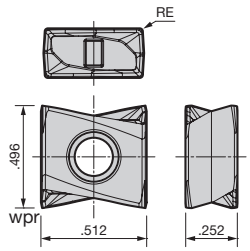
P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	K P M S		P M		K		M S	M S			
	Roughing	K P M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
LNEX130604PNER-L		★		●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-L		★		●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-L		★		●			●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-L		★		●			●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-L		★		●			●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-L		★		●			●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-L		★		●			●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-G		★	●	●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-G		●	●	●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-G		★	●	●	●	●	●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-G		★	●	●	●	●	●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-G		★	●	●	●	●	●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-G		★	●	●	●	●	●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-G		★	●	●	●	●	●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-H		★		●	●	●	●			.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-H		★		●	●	●	●			.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-H		★		●	●	●	●			.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-H		★		●	●	●	●			.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-H		★		●	●	●	●			.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-H		★		●	●	●	●			.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-H		★		●	●	●	●			.126" / *3.2*	.004" / *0.1*	1

Fig 1



Parts

Applicable Cutter	Screw		Integrated Wrench	Detachable Wrench Handle Grip	Detachable Wrench Bit	Anti-seize Cream
		N·m				
TSXF41500R	BFTX03510IP	3.0	TRDR15IP	HPS1015	TRB15IP	SUMI-P
TSXF42000R						
TSXF42500R						
TSXF43000R						
TSXF44000R						
TSXF13040RS			-			
TSXF13050RS						
TSXF13063RS						
TSXF13080RS						
TSXF13100RS						
TSXF13125RS						
TSXF13160RS			TRDR15IP	-	-	
TSXF13080R			-	HPS1015	TRB15IP	
TSXF13100R						
TSXF13125R						
TSXF13160R			TRDR15IP	-	-	

●: USA stocked item

TSX(F) ENDMILL - *8mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	–36 to –20°
	Axial	–6°

8mm 90° | .315" 90°

Fig 1

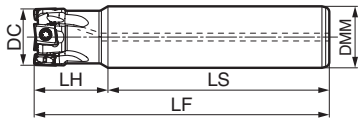
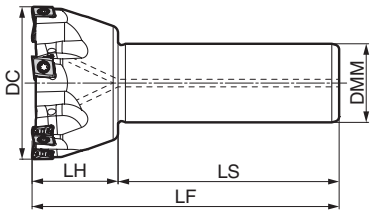


Fig 2



Body (Standard Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Shank Dia. DMM	Head LH	Shank Length LS	Overall Length LF	Number of Teeth	Weight (lbs/kg)	Fig
Inch	**TSX30625EW**	●	0.625	0.625	1.312	1.906	3.218	2	0.22	1
	TSX30750EW	●	0.750	0.750	1.534	2.030	3.563	2	0.35	1
	TSX31000EW	●	1.000	1.000	2.060	2.281	4.341	3	0.88	1
	TSX31250EW	●	1.250	1.250	2.060	2.281	4.341	3	1.32	1
	TSX31500EW	●	1.500	1.250	2.060	2.281	4.341	4	1.54	2
Metric	**TSX08016E**	★	*16*	*16*	*25*	*75*	*100*	2	*0.13*	1
	TSX08020E	★	*20*	*20*	*30*	*80*	*110*	2	*0.22*	1
	TSX08020E-16	★	*20*	*16*	*30*	*80*	*110*	2	*0.15*	2
	TSX08025E	★	*25*	*25*	*30*	*90*	*120*	3	*0.40*	1
	TSX08025E-20	★	*25*	*20*	*30*	*90*	*120*	3	*0.26*	2
	TSX08032E	★	*32*	*32*	*30*	*90*	*120*	3	*0.67*	1
	TSX08032E-25	★	*32*	*25*	*30*	*90*	*120*	3	*0.43*	2
	TSX08040E	★	*40*	*32*	*30*	*90*	*120*	4	*0.72*	2
	TSX08050E	★	*50*	*32*	*30*	*90*	*120*	5	*0.85*	2
	TSX08063E	★	*63*	*32*	*35*	*90*	*125*	6	*1.09*	2
	TSX08080E	★	*80*	*32*	*35*	*90*	*125*	7	*1.44*	2

Inserts are sold separately.

Body (Extra Fine Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Shank Dia. DMM	Head LH	Shank Length LS	Overall Length LF	Number of Teeth	Weight (lbs/kg)	Fig
Inch	**TSXF30750EW**	●	0.750	0.750	1.534	2.030	3.563	3	0.44	1
	TSXF31000EW	●	1.000	1.000	2.060	2.281	4.341	4	0.88	1
	TSXF31250EW	●	1.250	1.250	2.060	2.281	4.341	5	1.32	1
	TSXF31500EW	●	1.500	1.250	2.060	2.281	4.341	6	1.54	2
Metric	**TSXF08020E**	★	*20*	*20*	*30*	*80*	*110*	3	*0.22*	1
	TSXF08025E	★	*25*	*25*	*30*	*90*	*120*	4	*0.40*	1
	TSXF08032E	★	*32*	*32*	*30*	*90*	*120*	5	*0.67*	1
	TSXF08040E	★	*40*	*32*	*30*	*90*	*120*	6	*0.73*	2
	TSXF08050E	★	*50*	*32*	*30*	*90*	*120*	8	*0.85*	2
	TSXF08063E	★	*63*	*32*	*35*	*90*	*125*	10	*1.10*	2
	TSXF08080E	★	*80*	*32*	*35*	*90*	*125*	11	*1.42*	2

Inserts are sold separately.

Identification Code - Inch

TSX F 3 1000 EW

Cutter Series | Extra Fine Pitch | Insert Series | Cutter Dia. 1.000" | Weldon Shank Type

Identification Code - Metric

TSX F 08 032 E (-25)

Cutter Series | Extra Fine Pitch | Insert Size | Cutter Dia. | Shank Type | Shank Dia.

Parts

Applicable Cutter	Screw	N·m	Wrench	Anti-seize Cream
TSX08016E, TSX08020E, TSXF08020E	BFTX0306IP	2.0	TRDR08IP	SUMI-P
TSX08025E to 80E, TSXF08025E to 80E	BFTX0308IP			

Insert Size	Catalog Number	Insert Screw	N·m	Wrench
TSX3000 (LNEX08)	TSX□30625□~TSX□30750□	BFTX0306IP	2.0	TRDR08IP
	TSX□31000□~TSX□32500□	BFTX0308IP		
TSX4000 (LNEX13)	TSX□41000□~TSX□44000□	BFTX03510IP	3.0	TRDR15IP

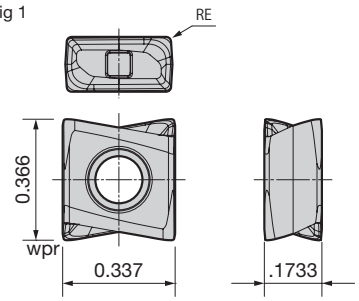
N·m Recommended Tightening Torque (N·m)

Insert

Dimensions (inch "/*mm*)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	P K S	P M	P M		K		M S	M S			
	Roughing	P K S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
LNEX080404PNER-L		★		●	●	●	●	●	●	.016" / *0.4*	.067" / *1.7*	1
LNEX080408PNER-L		★		●	●	●	●	●	●	.032" / *0.8*	.055" / *1.4*	1
LNEX080412PNER-L		★		●			●	●	●	.047" / *1.2*	.039" / *1.0*	1
LNEX080416PNER-L		★		●			●	●	●	.063" / *1.6*	.024" / *.6*	1
LNEX080404PNER-G		★	●	●	●	●	●	●	●	.016" / *0.4*	.067" / *1.7*	1
LNEX080408PNER-G		●	●	●	●	●	●	●	●	.032" / *0.8*	.055" / *1.4*	1
LNEX080412PNER-G		★	●	●	●	●	●	●	●	.047" / *1.2*	.039" / *1.0*	1
LNEX080416PNER-G		★	●	●	●	●	●	●	●	.063" / *1.6*	.024" / *.6*	1

Fig 1



Recommended Cutting Conditions - Inch

ISO	Part Material	Hardness	Cutting Speed v_c(sfm)Min-Max	Feed Rate f_z(ipt) Min-Max	Insert Grade
P	Carbon Steel	180-280 HB	500-1000	.004-.014	ACP200 ACP300 ACP100
		> 280 HB	250-750	.004-.014	
	Alloy Steel	180-280HB	330-815	.004-.012	
M	Stainless Steel	220-280HB	300-600	.004-.010	ACM300 ACM200
		> 280HB	250-550	.004-.010	
S	Exotic Material	-	100-300	.004-.008	ACM300 ACM200
K	Cast Iron/Ductile Cast Iron	250HB	330-815	.004-.014	ACK300 ACK200

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT40 machine tools.

Recommended Cutting Conditions - Metric

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	*150 - 300*	*0.10 - 0.40*	ACP100
		> 280HB	*75 - 230*	*0.10 - 0.40*	ACP200
	Alloy Steel	180 to 280 HB	*100 - 250*	*0.10 - 0.35*	ACP300
M	Stainless Steel	220 to 280 HB	*90 - 180*	*0.10 - 0.30*	ACM200
		> 280HB	*75 - 170*	*0.10 - 0.30*	ACM300
K	Cast Iron/Ductile Cast Iron	250HB	*150 - 250*	*0.10 - 0.40*	ACK200 ACK300
S	Exotic Alloy	-	*30 - 90*	*0.10 - 0.20*	ACM200 ACM300

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT50/CAT50/HSK100A machine tools.

TSX(M/F) ENDMILL - *13mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	–31 to –15°
	Axial	–6°

12mm 90° | .472" 90°

Fig 1

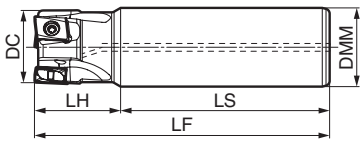
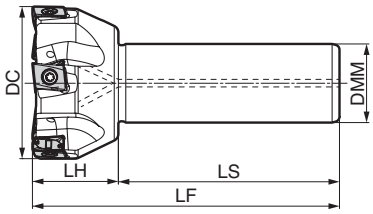


Fig 2



Body (Standard Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Shank Dia. DMM	Head LH	Shank Length LS	Overall Length LF	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**TSX41000EW**	●	1.000	1.000	2.060	2.281	4.341	2	0.66	1
	TSX41250EW	●	1.250	1.250	2.060	2.281	4.341	2	1.32	1
	TSX41500EW	●	1.500	1.250	2.060	2.281	4.341	3	1.54	2
Metric	**TSX13025E**	★	*25*	*25*	*35*	*85*	*120*	2	*0.38*	1
	TSX13032E	★	*32*	*32*	*35*	*85*	*120*	2	*0.66*	1
	TSX13040E	★	*40*	*32*	*30*	*90*	*120*	3	*0.71*	2
	TSX13050E	★	*50*	*32*	*30*	*90*	*120*	4	*0.81*	2
	TSX13063E	★	*63*	*32*	*35*	*90*	*125*	5	*1.08*	2
	TSX13080E	★	*80*	*32*	*35*	*90*	*125*	5	*1.40*	2

Inserts are sold separately.

Body (Fine Pitch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Shank Dia. DMM	Head LH	Shank Length LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
Metric	**TSXM13032E**	★	*32*	*32*	*35*	*85*	*120*	3	*0.65*	1
	TSXM13040E	★	*40*	*32*	*30*	*90*	*120*	4	*0.71*	2
	TSXM13050E	★	*50*	*32*	*30*	*90*	*120*	5	*0.80*	2
	TSXM13063E	★	*63*	*32*	*35*	*90*	*125*	6	*1.07*	2
	TSXM13080E	★	*80*	*32*	*35*	*90*	*125*	7	*1.41*	2

Inserts are sold separately.

Body (Extra Fine Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Shank Dia. DMM	Head LH	Shank Length LS	Overall Length LF	Number of Teeth	Weight (lbs/kg)	Fig
Inch	**TSXF41250EW**	●	1.250	1.250	2.060	2.281	4.341	3	1.32	1
	TSXF41500EW	●	1.500	1.250	2.060	2.281	4.341	4	1.78	2
Metric	**TSXF13040E**	★	*40*	*32*	*30*	*90*	*120*	5	*0.70*	2
	TSXF13050E	★	*50*	*32*	*30*	*90*	*120*	6	*0.80*	2
	TSXF13063E	★	*63*	*32*	*30*	*90*	*125*	7	*1.07*	2
	TSXF13080E	★	*80*	*32*	*35*	*90*	*125*	8	*1.42*	2

Inserts are sold separately. ● USA stocked item ★ Worldwide Warehouse item

Identification Code - Inch

TSX F 4 1000 EW

TSX	F	4	1000	EW
Cutter Series	Extra Fine Pitch	Insert Series	Cutter Dia. 1.000"	Weldon Shank Type

Identification Code - Metric

TSX M 13 050 E

TSX	M	13	050	E
Cutter Series	M: Fine Pitch F : Extra Fine Pitch	Insert Size	Cutter Dia.	Shank Type

Parts

Screw		Wrench	Anti-seize Cream
	N·m		
BFTX03510IP	3.0	TRDR15IP	SUMI-P

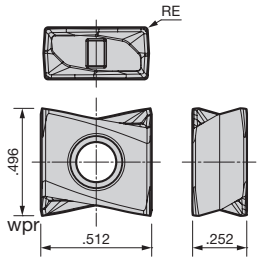
N·m Recommended Tightening Torque (N·m) ●: USA Standard stocked item

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide											
Process	High-speed / Light		P M			K		M S					
	General-purpose	K P M S		P M		K		M S	M S				
	Roughing	K P M S		P M	P M		K		M S				
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig	
LNEX130604PNER-L		★		●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1	
LNEX130608PNER-L		★		●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1	
LNEX130612PNER-L		★		●			●	●	●	.047" / *1.2*	.075" / *1.9*	1	
LNEX130616PNER-L		★		●			●	●	●	.063" / *1.6*	.059" / *1.5*	1	
LNEX130620PNER-L		★		●			●	●	●	.079" / *2.0*	.043" / *1.1*	1	
LNEX130624PNER-L		★		●			●	●	●	.094" / *2.4*	.028" / *0.7*	1	
LNEX130632PNER-L		★		●			●	●	●	.126" / *3.2*	.004" / *0.1*	1	
LNEX130604PNER-G		★	●	●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1	
LNEX130608PNER-G		●	●	●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1	
LNEX130612PNER-G		★	●	●	●	●	●	●	●	.047" / *1.2*	.075" / *1.9*	1	
LNEX130616PNER-G		★	●	●	●	●	●	●	●	.063" / *1.6*	.059" / *1.5*	1	
LNEX130620PNER-G		★	●	●	●	●	●	●	●	.079" / *2.0*	.043" / *1.1*	1	
LNEX130624PNER-G		★	●	●	●	●	●	●	●	.094" / *2.4*	.028" / *0.7*	1	
LNEX130632PNER-G		★	●	●	●	●	●	●	●	.126" / *3.2*	.004" / *0.1*	1	
LNEX130604PNER-H		★		●	●	●	●			.016" / *0.4*	.110" / *2.8*	1	
LNEX130608PNER-H		★		●	●	●	●			.032" / *0.8*	.094" / *2.4*	1	
LNEX130612PNER-H		★		●	●	●	●			.047" / *1.2*	.075" / *1.9*	1	
LNEX130616PNER-H		★		●	●	●	●			.063" / *1.6*	.059" / *1.5*	1	
LNEX130620PNER-H		★		●	●	●	●			.079" / *2.0*	.043" / *1.1*	1	
LNEX130624PNER-H		★		●	●	●	●			.094" / *2.4*	.028" / *0.7*	1	
LNEX130632PNER-H		★		●	●	●	●			.126" / *3.2*	.004" / *0.1*	1	

Fig 1



Recommended Cutting Conditions - Inch

ISO	Part Material	Hardness	Cutting Speed v_c(sfm)Min-Max	Feed Rate f_z(ipt) Min-Max	Insert Grade
P	Carbon Steel	180-280 HB	500-1000	.004-.014	ACP200 ACP300 ACP100
		> 280 HB	250-750	.004-.014	
	Alloy Steel	180-280HB	330-815	.004-.012	
M	Stainless Steel	220-280HB	300-600	.004-.010	ACM300 ACM200
		> 280HB	250-550	.004-.010	
S	Exotic Material	-	100-300	.004-.008	ACM300 ACM200
K	Cast Iron/Ductile Cast Iron	250HB	330-815	.004-.014	ACK300 ACK200

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT40 machine tools.

Recommended Cutting Conditions - Metric

ISO	Part Material	Hardness	Cutting Speed *Vc* (*m/min*) Min. - Max.	Feed Rate *fz* (*mm/t*) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	*150 - 300*	*0.10 - 0.40*	ACP100
		> 280HB	*75 - 230*	*0.10 - 0.40*	ACP200
	Alloy Steel	180 to 280 HB	*100 - 250*	*0.10 - 0.35*	ACP300
M	Stainless Steel	220 to 280 HB	*90 - 180*	*0.10 - 0.30*	ACM200
		> 280HB	*75 - 170*	*0.10 - 0.30*	ACM300
K	Cast Iron/Ductile Cast Iron	250HB	*150 - 250*	*0.10 - 0.40*	ACK200 ACK300
S	Exotic Alloy	-	*30 - 90*	*0.10 - 0.20*	ACM200 ACM300

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT50/CAT50/HSK100A machine tools.

TSXR Repeater Shellmill - *8mm* Inserts

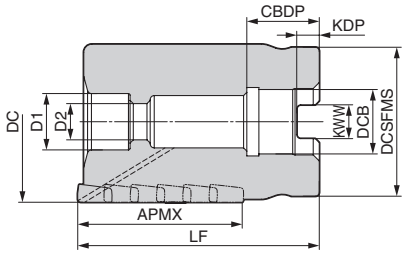
P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	–20 to –15°
	Axial	–6 to –3°

34 to 60 mm, 90°

1.614" to 2.362", 90°

Fig 1



Body

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Total No. of Teeth	Steps	Weight (kg)	Fig
Metric	**TSXR08032RS3416Z02**	★	*32*	*34*	*33*	*55*	*16.0*	*8.4*	*5.6*	*18.0*	*14*	*9*	10	5	*0.17*	1
	TSXR08040RS4016Z03	★	*40*	*40*	*37*	*60*	*16.0*	*8.4*	*5.6*	*18.0*	*14*	*9*	18	6	*0.32*	1
	TSXR08050RS5422Z03	★	*50*	*54*	*47*	*75*	*22.0*	*10.4*	*6.3*	*20.0*	*18*	*11*	24	8	*0.70*	1
	TSXR08050RS5422Z04	★	*50*	*54*	*47*	*75*	*22.0*	*10.4*	*6.3*	*20.0*	*18*	*11*	32	8	*0.68*	1
	TSXR08063RS6027Z05	★	*63*	*60*	*60*	*80*	*27.0*	*12.4*	*7.0*	*22.0*	*20*	*14*	45	9	*1.25*	1

Inserts are sold separately.

★: Worldwide Warehouse Item

Identification Code

TSXR 08 050 R S 54 22 Z03

TSXR	08	050	R	S	54	22	Z03
Cutter Series	Insert Size	Cutter Dia.	Feed Direction	Metric Bore	Max. Depth of Cut	Mounting Hole Diameter	Effective No. of Teeth

Parts

Applicable Cutter	Screw	N·m	Wrench	Bolt	Anti-seize Cream
TSXR08032RS3416Z02	BFTX0308IP	2.0	TRDR08IP	BX0845	SUMI-P
TSXR08040RS4016Z03				BX0850	
TSXR08050RS5422Z03				BX1060	
TSXR08050RS5422Z04					
TSXR08063RS6027Z05				BX1265	

N·m Recommended Tightening Torque (N·m)

TSXR Repeater Shellmill - *8mm* Inserts

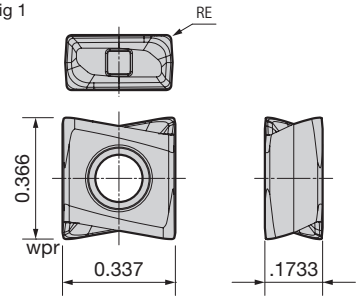
P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Insert

Dimensions (inch "/*mm*)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	P M S	P M	P M		K		M S	M S			
	Roughing	P M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
LNEX080404PNER-L		★		●	●	●	●	●	●	.016" / *0.4*	.067" / *1.7*	1
LNEX080408PNER-L		★		●	●	●	●	●	●	.032" / *0.8*	.055" / *1.4*	1
LNEX080412PNER-L		★		●			●	●	●	.047" / *1.2*	.039" / *1.0*	1
LNEX080416PNER-L		★		●			●	●	●	.063" / *1.6*	.024" / *.6*	1
LNEX080404PNER-G		★	●	●	●	●	●	●	●	.016" / *0.4*	.067" / *1.7*	1
LNEX080408PNER-G		●	●	●	●	●	●	●	●	.032" / *0.8*	.055" / *1.4*	1
LNEX080412PNER-G		★	●	●	●	●	●	●	●	.047" / *1.2*	.039" / *1.0*	1
LNEX080416PNER-G		★	●	●	●	●	●	●	●	.063" / *1.6*	.024" / *.6*	1

Fig 1



Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	110 - 280	0.10 - 0.30	ACP100
		> 280HB	70 - 200	0.10 - 0.30	ACP200
	Alloy Steel	180 to 280 HB	90 - 220	0.10 - 0.25	ACP300
M	Stainless Steel	220 to 280 HB	90 - 180	0.10 - 0.25	ACM200
		> 280HB	70 - 160	0.10 - 0.25	ACM300
K	Cast Iron / Ductile Cast Iron	250HB	125 - 225	0.10 - 0.30	ACK200 ACK300
S	Exotic Alloy	-	30 - 90	0.05 - 0.15	ACM200 ACM300

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT50 machine tools.
- The above are the recommended cutting conditions for a_e = diameter 20% or less.

TSXR Repeater Shellmill - *13mm* Inserts

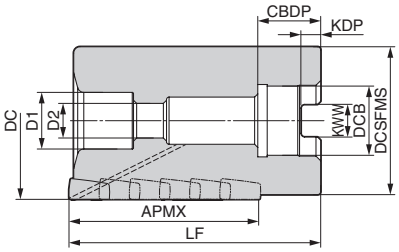
P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	–23 to –15°
	Axial	–6 to –3°

41 to 60 mm 90°

1.614" to 2.362" 90°

Fig 1



Body

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Total No. of Teeth	Steps	Effective No. of Teeth	Weight (kg)	Fig
Metric	**TSXR13040RS4116Z02**	★	40	41	37	60	16.0	8.4	5.6	18.0	14	9	8	4	2	0.31	1
	TSXR13050RS6022Z03	★	50	60	47	80	22.0	10.4	6.3	20.0	18	11	18	6	3	0.66	1
	TSXR13063RS5027Z03	★	63	50	60	75	27.0	12.4	7.0	22.0	20	14	15	5	3	1.12	1
	TSXR13063RS6027Z04	★	63	60	60	80	27.0	12.4	7.0	22.0	20	14	24	6	4	1.15	1
	TSXR13080RS6032Z04	★	80	60	77	80	32.0	14.4	8.0	26.0	25	18	24	6	4	2.06	1
	TSXR13080RS6032Z05	★	80	60	77	80	32.0	14.4	8.0	26.0	25	18	30	6	5	2.04	1
	TSXR13100RS6040Z05	★	100	60	88	85	40.0	16.4	9.0	29.0	32	21	30	6	5	3.45	1
	TSXR13100RS6040Z06	★	100	60	88	85	40.0	16.4	9.0	29.0	32	21	36	6	6	3.44	1
	TSXR13125RS6040Z07	★	125	60	100	85	40.0	16.4	9.0	29.0	32	21	42	6	7	5.63	1

Inserts are sold separately.

★: Worldwide Warehouse Item

Identification Code

TSXR 13 050 R S 60 22 Z03

TSXR	13	050	R	S	60	22	Z03
Cutter Series	Insert Size	Cutter Dia.	Feed Direction	Metric Bore	Max. Depth of Cut	Mounting Hole Diameter	Effective No. of Teeth

Parts

Applicable Cutter	Screw		Wrench	Detachable Wrench Handle Grip	Detachable Wrench Bit	Bolt	Anti-seize Cream
		N·m					
TSXR13040RS4116Z02	BFTX03510IP	3.0	-	HPS1015	TRB15IP	BX0850	SUMI-P
TSXR13050RS6022Z03						BX1060	
TSXR13063RS5027Z03						BX1260	
TSXR13063RS6027Z04						BX1265	
TSXR13080RS6032Z04			TRDR15IP	-	-	BX1660	
TSXR13080RS6032Z05							
TSXR13100RS6040Z05						BX2065	
TSXR13100RS6040Z06							
TSXR13125RS6040Z07							

N·m Recommended Tightening Torque (N·m)

TSXR Repeater Shellmill - *13mm* Inserts

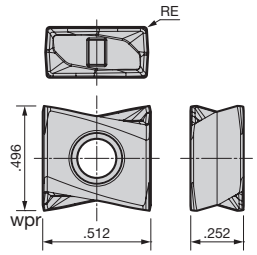
P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide											
Process	High-speed / Light		P M			K		M S					
	General-purpose	P M S		P M		K		M S	M S				
	Roughing	P M S		P M	P M		K		M S				
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
LNEX130604PNER-L		★		●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-L		★		●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-L		★		●			●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-L		★		●			●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-L		★		●			●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-L		★		●			●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-L		★		●			●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-G		★	●	●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-G		●	●	●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-G		★	●	●	●	●	●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-G		★	●	●	●	●	●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-G		★	●	●	●	●	●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-G		★	●	●	●	●	●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-G		★	●	●	●	●	●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-H		★		●	●	●	●			.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-H		★		●	●	●	●			.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-H		★		●	●	●	●			.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-H		★		●	●	●	●			.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-H		★		●	●	●	●			.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-H		★		●	●	●	●			.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-H		★		●	●	●	●			.126" / *3.2*	.004" / *0.1*	1

Fig 1



Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	110 - 280	0.10 - 0.30	ACP100
		> 280HB	70 - 200	0.10 - 0.30	ACP200
	Alloy Steel	180 to 280 HB	90 - 220	0.10 - 0.25	ACP300
M	Stainless Steel	220 to 280 HB	90 - 180	0.10 - 0.25	ACM200
		> 280HB	70 - 160	0.10 - 0.25	ACM300
K	Cast Iron / Ductile Cast Iron	250HB	125 - 225	0.10 - 0.30	ACK200 ACK300
S	Exotic Alloy	-	30 - 90	0.05 - 0.15	ACM200 ACM300

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT50 machine tools.
- The above are the recommended cutting conditions for a_e = diameter 20% or less.

●: USA Standard stocked item

TSXR Repeater Endmill - *8mm* Inserts

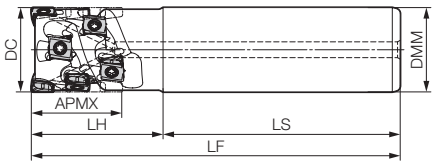
P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	–33 to –18°
	Axial	–6° to –3°

21 to 40 mm 90°

.827" to 1.575" 90°

Fig 1



Body

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Shank Dia. DMM	Head LH	Shank Length LS	Overall Length LF	Total No. of Teeth	Steps	Effective No. of Teeth	Weight (kg)	Fig
Metric	**TSXR08020E2120Z01**	★	*20*	*21*	*20*	*30*	*80*	*110*	3	3	1	*0.22*	1
	TSXR08025E2725Z02	★	*25*	*27*	*25*	*35*	*90*	*125*	8	4	2	*0.39*	1
	TSXR08032E3432Z02	★	*32*	*34*	*32*	*50*	*90*	*140*	10	5	2	*0.74*	1
	TSXR08040E4032Z03	★	*40*	*40*	*32*	*60*	*90*	*150*	18	6	3	*0.92*	1

Inserts are sold separately.

★: Worldwide Warehouse Item

Identification Code

TSXR 08 025 E 27 25 Z02

TSXR	08	025	E	27	25	Z02
Cutter Series	Insert Size	Cutter Dia.	Shank Type	Max. Depth of Cut	Shank Dia.	Effective No. of Teeth

Parts

Screw		Wrench	Anti-seize Cream
	N·m		
BFTX0308IP	2.0	TRDR08IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

TSXR Repeater Endmill - *8mm* Inserts

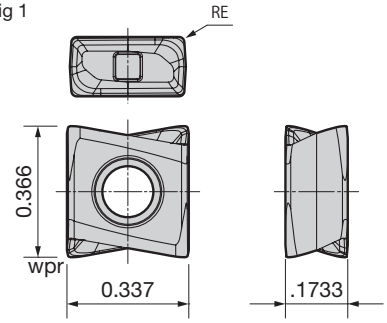
P Steel M Stainless Steel K Cast Iron S Exotic Alloy

Insert

Dimensions (inch "/*mm*)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	P K S	P M	P M		K		M S	M S			
	Roughing	P K S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
LNEX080404PNER-L		★		●	●	●	●	●	●	.016" / *0.4*	.067" / *1.7*	1
LNEX080408PNER-L		★		●	●	●	●	●	●	.032" / *0.8*	.055" / *1.4*	1
LNEX080412PNER-L		★		●			●	●	●	.047" / *1.2*	.039" / *1.0*	1
LNEX080416PNER-L		★		●			●	●	●	.063" / *1.6*	.024" / *.6*	1
LNEX080404PNER-G		★	●	●	●	●	●	●	●	.016" / *0.4*	.067" / *1.7*	1
LNEX080408PNER-G		●	●	●	●	●	●	●	●	.032" / *0.8*	.055" / *1.4*	1
LNEX080412PNER-G		★	●	●	●	●	●	●	●	.047" / *1.2*	.039" / *1.0*	1
LNEX080416PNER-G		★	●	●	●	●	●	●	●	.063" / *1.6*	.024" / *.6*	1

Fig 1



Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	110 - 280	0.10 - 0.30	ACP100
		> 280HB	70 - 200	0.10 - 0.30	ACP200
	Alloy Steel	180 to 280 HB	90 - 220	0.10 - 0.25	ACP300
M	Stainless Steel	220 to 280 HB	90 - 180	0.10 - 0.25	ACM200
		> 280HB	70 - 160	0.10 - 0.25	ACM300
K	Cast Iron / Ductile Cast Iron	250HB	125 - 225	0.10 - 0.30	ACK200 ACK300
S	Exotic Alloy	-	30 - 90	0.05 - 0.15	ACM200 ACM300

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT50 machine tools.
- The above are the recommended cutting conditions for a_e = diameter 20% or less.

●: USA Standard stocked item

TSXR Repeater Endmill - *13mm* Inserts

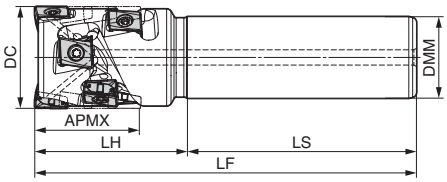
P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	–23 to –18°
	Axial	–6° to –3°

41 to 60mm 90°

1.614" to 2.362" 90°

Fig 1



Body

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Depth of Cut APMX	Shank Dia. DMM	Head LH	Shank Length LS	Overall Length LF	Total No. of Teeth	Steps	Effective No. of Teeth	Weight (kg)	Fig
Metric	**TSXR13040E4132Z02**	★	*40*	*41*	*32*	*60*	*90*	*150*	8	4	2	*0.91*	1
	TSXR13050E6042Z03	★	*50*	*60*	*42*	*80*	*90*	*170*	18	6	3	*1.74*	1

Inserts are sold separately.

★: Worldwide Warehouse Item

Identification Code

TSXR 13 050 E 60 42 Z03

TSXR	13	050	E	60	42	Z03
Cutter Series	Insert Size	Cutter Dia.	Shank Type	Max. Depth of Cut	Shank Dia.	Effective No. of Teeth

Parts

Screw		Wrench	Anti-seize Cream
	N·m		
BFTX03510IP	3.0	TRDR15IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

TSXR Repeater Endmill - *13mm* Inserts

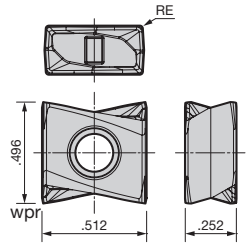
P Steel M Stainless Steel K Cast Iron S Exotic Alloy

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide										
Process	High-speed / Light		P M			K		M S				
	General-purpose	P M K S		P M		K		M S	M S			
	Roughing	P M K S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Nose Radius RE	Wiper Facet Length wpr	Fig
LNEX130604PNER-L		★		●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-L		★		●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-L		★		●			●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-L		★		●			●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-L		★		●			●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-L		★		●			●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-L		★		●			●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-G		★	●	●	●	●	●	●	●	.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-G		●	●	●	●	●	●	●	●	.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-G		★	●	●	●	●	●	●	●	.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-G		★	●	●	●	●	●	●	●	.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-G		★	●	●	●	●	●	●	●	.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-G		★	●	●	●	●	●	●	●	.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-G		★	●	●	●	●	●	●	●	.126" / *3.2*	.004" / *0.1*	1
LNEX130604PNER-H		★		●	●	●	●			.016" / *0.4*	.110" / *2.8*	1
LNEX130608PNER-H		★		●	●	●	●			.032" / *0.8*	.094" / *2.4*	1
LNEX130612PNER-H		★		●	●	●	●			.047" / *1.2*	.075" / *1.9*	1
LNEX130616PNER-H		★		●	●	●	●			.063" / *1.6*	.059" / *1.5*	1
LNEX130620PNER-H		★		●	●	●	●			.079" / *2.0*	.043" / *1.1*	1
LNEX130624PNER-H		★		●	●	●	●			.094" / *2.4*	.028" / *0.7*	1
LNEX130632PNER-H		★		●	●	●	●			.126" / *3.2*	.004" / *0.1*	1

Fig 1



Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	110 - 280	0.10 - 0.30	ACP100
		> 280HB	70 - 200	0.10 - 0.30	ACP200
	Alloy Steel	180 to 280 HB	90 - 220	0.10 - 0.25	ACP300
M	Stainless Steel	220 to 280 HB	90 - 180	0.10 - 0.25	ACM200
		> 280HB	70 - 160	0.10 - 0.25	ACM300
K	Cast Iron / Ductile Cast Iron	250HB	125 - 225	0.10 - 0.30	ACK200 ACK300
S	Exotic Alloy	-	30 - 90	0.05 - 0.15	ACM200 ACM300

Note
- The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
- The above figures are guidelines for use with BT50 machine tools.
- The above are the recommended cutting conditions for a_e = diameter 20% or less.

●: USA Standard stocked item

TSX(F) Modular - *8mm / 13mm* Inserts

SEC- Modular Tools

Rake Angle	Radial	-20°
	Axial	-6°

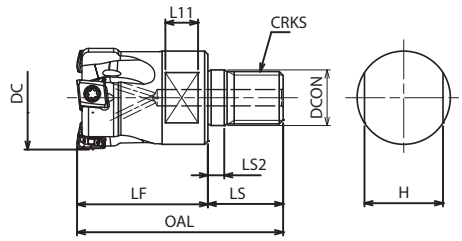
.315" 90° | 8mm 90°

TSX 08

Rake Angle	Radial	-23° to -15°
	Axial	-6°

.473" 90° | 12mm 90°

TSX 13



Head (TSXF30000M) Applicable Insert LNEX08

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
TSXF30750M10Z3	•	0.750	0.413	M10	1.929	1.181	0.197	0.748	0.315	0.591	3	1
TSXF31000M12Z4	•	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	4	1
TSXF31250M16Z5	•	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	5	1
TSXF31500M16Z6	•	1.500	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	6	1

Head (TSXF40000M) Applicable Insert LNEX13

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
TSX41000M12Z2	•	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	2	1
TSX41250M16Z3	•	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	3	1
TSX41500M16Z4	•	1.500	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	4	1

Inserts are sold separately.

• USA stocked item

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide							
Process	High-speed / Light		PM			K		MS	
	General-purpose	KPMS	PM	PM		K		MS	MS
	Roughing	KPMS		PM	PM		K		MS
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300
LNEX080404PNER-L		★		•	•	•	•	•	•
LNEX080408PNER-L		★		•	•	•	•	•	•
LNEX080412PNER-L		★		•			•	•	•
LNEX080416PNER-L		★		•			•	•	•
LNEX080404PNER-G		★	•	•	•	•	•	•	•
LNEX080408PNER-G		•	•	•	•	•	•	•	•
LNEX080412PNER-G		★	•	•	•	•	•	•	•
LNEX080416PNER-G		★	•	•	•	•	•	•	•
LNEX130604PNER-L		★		•	•	•	•	•	•
LNEX130608PNER-L		★		•	•	•	•	•	•
LNEX130612PNER-L		★		•			•	•	•
LNEX130616PNER-L		★		•			•	•	•
LNEX130620PNER-L		★		•			•	•	•
LNEX130624PNER-L		★		•			•	•	•
LNEX130632PNER-L		★		•			•	•	•
LNEX130604PNER-G		★	•	•	•	•	•	•	•
LNEX130608PNER-G		•	•	•	•	•	•	•	•
LNEX130612PNER-G		★	•	•	•	•	•	•	•
LNEX130616PNER-G		★	•	•	•	•	•	•	•
LNEX130620PNER-G		★	•	•	•	•	•	•	•
LNEX130624PNER-G		★	•	•	•	•	•	•	•
LNEX130632PNER-G		★	•	•	•	•	•	•	•
LNEX130604PNER-H		★		•	•	•	•		
LNEX130608PNER-H		★		•	•	•	•		
LNEX130612PNER-H		★		•	•	•	•		
LNEX130616PNER-H		★		•	•	•	•		
LNEX130620PNER-H		★		•	•	•	•		
LNEX130624PNER-H		★		•	•	•	•		
LNEX130632PNER-H		★		•	•	•	•		

Cat. No.	Nose Radius RE	Fig
LNEX080404PNER-L	.016"/ *0.4*	1
LNEX080408PNER-L	0.032"/ *0.8*	1
LNEX080412PNER-L	0.047"/ *1.2*	1
LNEX080416PNER-L	0.063"/ *1.6*	1
LNEX080404PNER-G	0.016"/ *0.4*	1
LNEX080408PNER-G	0.032"/ *0.8*	1
LNEX080412PNER-G	0.047"/ *1.2*	1
LNEX080416PNER-G	0.063"/ *1.6*	1
LNEX130604PNER-L	0.016"/ *0.4*	2
LNEX130608PNER-L	0.032"/ *0.8*	2
LNEX130612PNER-L	0.047"/ *1.2*	2
LNEX130616PNER-L	0.063"/ *1.6*	2
LNEX130620PNER-L	0.079"/ *2.0*	2
LNEX130624PNER-L	0.094"/ *2.4*	2
LNEX130632PNER-L	0.126"/ *3.2*	2
LNEX130604PNER-G	0.016"/ *0.4*	2
LNEX130608PNER-G	0.032"/ *0.8*	2
LNEX130612PNER-G	0.047" / *1.2*	2
LNEX130616PNER-G	0.063" / *1.6*	2
LNEX130620PNER-G	0.079" / *2.0*	2
LNEX130624PNER-G	0.094" / *2.4*	2
LNEX130632PNER-G	0.126" / *3.2*	2
LNEX130604PNER-H	0.016"/ *0.4*	2
LNEX130608PNER-H	0.032" / *0.8*	2
LNEX130612PNER-H	0.047" / *1.2*	2
LNEX130616PNER-H	0.063" / *1.6*	2
LNEX130620PNER-H	0.079" / *2.0*	2
LNEX130624PNER-H	0.094" / *2.4*	2
LNEX130632PNER-H	0.126" / *3.2*	2

Fig 1

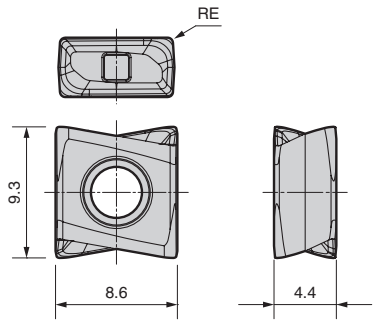
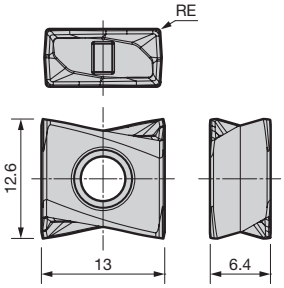


Fig. 2



Identification Code

TSX F 3 0750 M12 Z3

(1) Cutter Series	(2) Pitch Type	(3) Insert Size 3: 08 4:13	(4) Diameter	(5) Mounting Screw	(6) No. of Teeth

Parts

Insert Size	Catalog Number	Insert Screw	Wrench	Recommended Tightening Torque
TSX3000 (LNEX08)	TSX□30625□~TSX□30750□	BFTX0306IP	TRDR08IP	2.0Nm
	TSX□31000□~TSX□32500□	BFTX0308IP		
TSX4000 (LNEX13)	TSX□41000□~TSX□44000□	BFTX03510IP	TRDR15IP	3.0Nm

PWS(F) / PWSR

■ General Features

A highly reliable shoulder milling cutter with strong, sharp cutting edge and tangential inserts.

PWSR, with a 2-stage insert array structure supporting large depths of cut, has been added to the lineup.

*Made to Order Only

■ Features

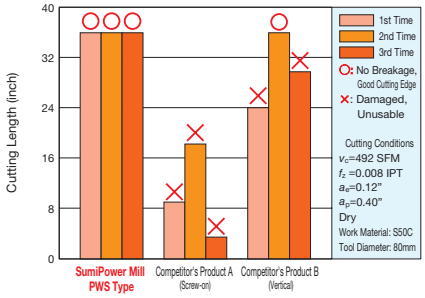
- Tangential inserts with excellent cutting edge strength and optimized breaker provide superb cutting edge and sharpness.
- Serrated insert design created with high-precision formation technology allows stable milling and low chatter even in applications with large tool overhang.
- ACP and ACK series allow a wide range of materials to be covered.

■ Performance

- General-purpose G Insert Performance Comparison

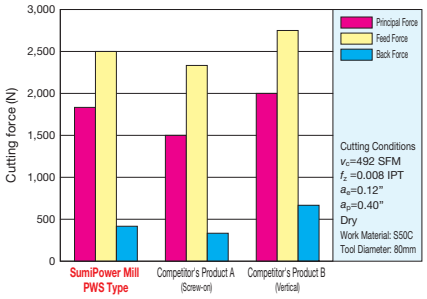
Comparison of Cutting Edge Strength

Strong cutting edge delivers superb stability



Comparison of Cutting Force

Sharpness approaching that of screw-on inserts



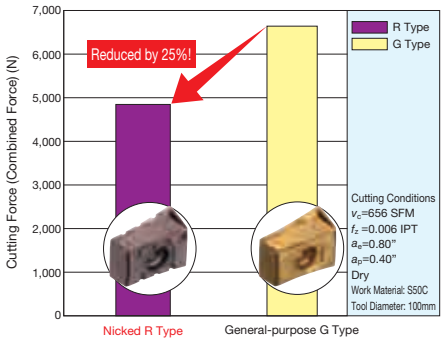
- Serrated R Insert Performance Comparison

Serrated R Insert

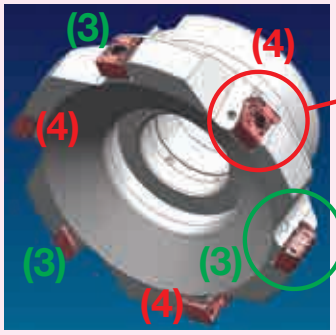
General-purpose G Type Insert

Comparison of Cutting Force

Reduced cutting power and excellent chatter resistance



⚠ Serrated R Insert Usage Precautions



1) Precautions when Mounting

When using the serrated R indexable inserts, mount them so that the serrated grooves alternate as shown in the image on the left.

2) Precautions for Cutting Conditions

As these are mounted as in the image on the left, compared to mounting inserts of the same shape for all blades, the feed rate per tooth is doubled. Accordingly,

f_z = 0..010 IPT

feed rate is set as the upper limit and can be adjusted for use.

Ex.) For use with f_z = 0.008"/t

With all regular blades: Feed Rate per Tooth 0.008 IPT

With serrated types: Feed Rate per Tooth 0.016 IPT

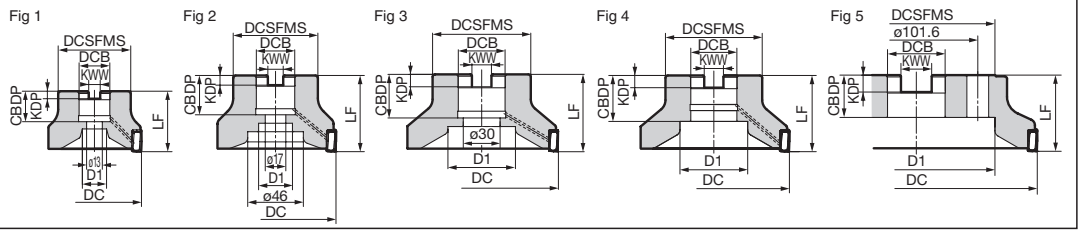
Using inserts incorrectly may damage tools.

PWS(F) Shell Mill

P Steel | M Stainless Steel | K Cast Iron

Rake Angle		
	Radial	–15°
	Axial	–6°

.630" 90°



Body (Standard)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Bore Dia. DCB	Boss DCSFMS	Bolt D1	Height LF	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**PWS43000R**	●	3.000	1.000	2.250	.797	1.750	.375	.220	1.020	5	2.10	1
	PWS44000R-1.25	●	4.000	1.250	2.870	1.000	2.000	.500	.280	1.020	6	5.29	1
	PWS44000R-1.50	●	4.000	1.500	3.540	2.000	2.500	.625	.380	2.400	6	5.40	3
	PWS45000R	●	5.000	1.500	3.750	2.000	2.500	.625	.380	1.535	7	5.29	1
	PWS46000R	●	6.000	1.500	4.380	2.000	2.500	.625	.380	1.535	8	8.81	1
	PWS48000R	●	8.000	2.500	5.118	-	2.500	1.000	.560	1.594	10	14.33	2
	PWS410000R	●	10.000	2.500	7.087	-	2.756	1.000	.560	1.594	12	27.11	2
Metric	**PWS4080R**	★	**80*	*25.4*	*60*	*20*	*50*	*9.5*	*6*	*25*	4	*1.0*	1
	PWS4100R	★	**100*	*31.75*	*70*	*28*	*63*	*12.7*	*8*	*32.5*	6	*1.8*	2
	PWS4125R	★	*125*	*38.1*	*80*	*55*	*63*	*15.9*	*10*	*35.5*	6	*2.4*	3
	PWS4160R	★	*160*	*50.8*	*100*	*72*	*63*	*19.1*	*11*	*38*	8	*4.0*	4
	PWS4200R	★	*200*	*47.625*	*130*	*130*	*63*	*25.4*	*14*	*35*	10	*6.5*	5
	PWS4250R	★	*250*	*47.625*	*130*	*160*	*63*	*25.4*	*14*	*35*	12	*12.3*	5

Cutters with sizes of 8.00" or above come with seats (no coolant holes).
Inserts are sold separately.

Body (Fine Pitch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Bore Dia. DCB	Boss DCSFMS	Bolt D1	Height LF	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Weight (kg)	Fig
Inch	**PWSF43000R**	●	3.000	1.000	2.250	.797	1.750	0.375	.220	1.020	7	1.95	1
	PWSF44000R-1.25	●	4.000	1.250	2.870	1.000	2.000	0.500	.280	1.020	9	5.07	1
	PWSF44000R-1.50	●	4.000	1.500	3.540	2.000	2.500	0.625	.380	2.400	9	5.10	3
	PWSF45000R	●	5.000	1.500	3.750	2.000	2.500	0.625	.380	1.535	10	5.07	1
	PWSF46000R	●	6.000	1.500	4.380	2.000	2.500	0.625	.380	1.535	13	8.59	1
	PWSF48000R	●	8.000	2.500	5.118	-	2.500	1.000	.560	1.594	16	14.10	2
	PWSF410000R	●	10.000	2.500	7.087	-	2.756	1.000	.560	1.594	20	26.90	2
Metric	**PWSF4080R**	★	**80*	*25.4*	*60*	*20*	*50*	*9.5*	*6*	*25*	6	*0.9*	1
	PWSF4100R	★	**100*	*31.75*	*70*	*28*	*63*	*12.7*	*8*	*32.5*	8	*1.7*	2
	PWSF4125R	★	*125*	*38.1*	*80*	*55*	*63*	*15.9*	*10*	*35.5*	8	*2.3*	3
	PWSF4160R	★	*160*	*50.8*	*100*	*72*	*63*	*19.1*	*11*	*38*	10	*3.9*	4
	PWSF4200R	★	*200*	*47.625*	*130*	*130*	*63*	*25.4*	*14*	*35*	12	*6.4*	5
	PWSF4250R	★	*250*	*47.625*	*130*	*160*	*63*	*25.4*	*14*	*35*	14	*12.2*	5

Cutters with sizes of 8.00" or above come with seats (no coolant holes).
Inserts are sold separately.

● USA stocked item ★Worldwide Warehouse item

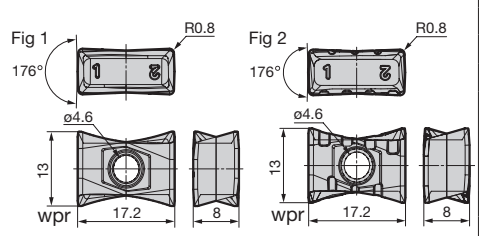
For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (inch "/ *mm*)

Grade		Coated Carbide				
Process	High-speed / Light	P			K	
	General-purpose		P M	P M	K	
	Roughing		P M	P M		K

Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	Wiper Facet Length wpr	Applications	Remarks	Fig
LNMX170808PNSR-L	●	●	●	●	●	0.118" / *3.0*	Light Cutting		1
LNMX170808PNSR-G	●	●	●	●	●	0.118" / *3.0*	General-purpose	1st Recommended	1
LNMX170808PNSR-R	●	●	●	●	●	0.118" / *3.0*	Heavy Cutting	Serrated	2



Parts

Flat Screw (For Inserts / Shims)		Wrench	Anti-seize Cream	Shim (*)
BFTX0412IP	3.0	TTR15IP	SUMI-P	PWSS4R

* mark is included with ø8.00" & ø200 mm or larger sizes.

Recommended Cutting Conditions - Metric

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	150 - 350	0.10-0.35	ACP200
	Alloy Steel	180 to 280 HB	100 - 250	0.10-0.25	ACP200
M	Stainless Steel	-	100 - 200	0.10-0.25	ACP300
K	Cast Iron Ductile Cast Iron	250HB	100 - 250	0.10-0.35	ACK200

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Recommended Cutting Conditions - Inch

ISO	Part Material	Hardness	Cutting Speed v_c (SFM) Min-Max	Feed Rate f_z (IPT) Min-Max	Insert Grade
P	Carbon Steel	180-280HB	500–1,500	.004 – .014	ACP200
	Alloy Steel	180-280HB	330–815	.004 – .010	ACP200
M	Stainless Steel	-	330–650	.006 – .010	ACP300
K	Cast Iron/Ductile Cast Iron	250HB	330–815	.004 – .014	ACK200

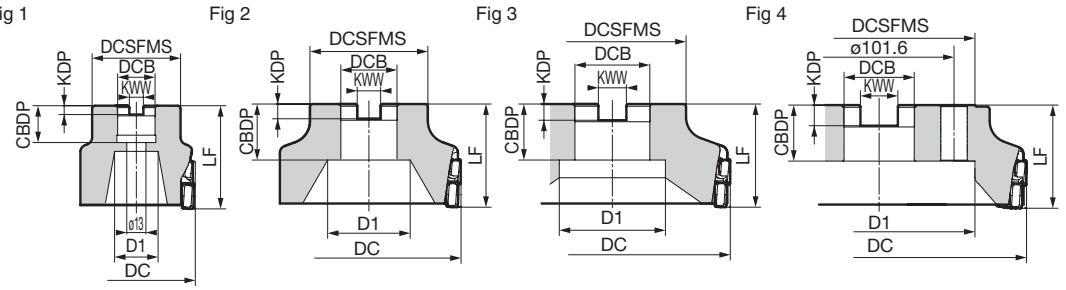
N·m Recommended Tightening Torque (N·m)

PWSR 2 Step Shellmill

P Steel | M Stainless Steel | K Cast Iron

Rake Angle		
	Radial	–15°
	Axial	–6°

Maximum Depth of Cut: 31 mm 90° | 1.22" 90°



Body (2-Step)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Bore Dia. DCB	Boss DCSFMS	Bolt D1	Height LF	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Effective No. of Teeth	Weight (kg)	Fig
Metric	**PWSR4080R**		*80	25.4	60	29.5	70	9.5	6	25	8	4	1.4	1
	PWSR4100R		*100	31.75	70	46	70	12.7	8	32	12	6	2.0	2
	PWSR4125R		125	38.1	80	56	70	15.9	10	38	12	6	3.0	2
	PWSR4160R		160	50.8	100	72	70	19.1	11	38	16	8	5.2	3
	PWSR4200R		200	47.625	130	160	70	25.4	14	38	20	10	8.0	4

Cutters with sizes of ø200mm or above have "without oil holes" and "with shim" specifications.
Inserts are sold separately.

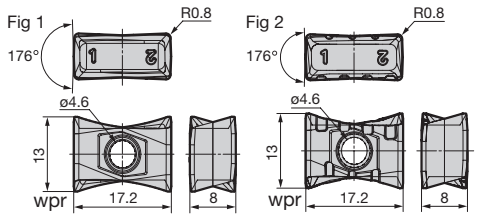
★ Worldwide Warehouse item

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (inch "/*mm*)

Grade		Coated Carbide								
Process	High-speed / Light	P			K					
	General-purpose		P M	P M	K					
	Roughing		P M	P M		K				
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	Wiper Facet Length wpr	Applications	Remarks	Fig
LNMX170808PNSR-L		●	●	●	●	●	0.118" / *3.0*	Light Cutting		1
LNMX170808PNSR-G		●	●	●	●	●	0.118" / *3.0*	General-purpose	1st Recommended	1
LNMX170808PNSR-R		●	●	●	●	●	0.118" / *3.0*	Heavy Cutting	Serrated	2



Parts

Flat Screw (For Inserts / Shims)		Wrench	Anti-seizure Cream	Shim (*)
BFTX0412IP	3.0	TTR15IP	SUMI-P	PWSS4R

* mark is included with ø200 mm or larger sizes.

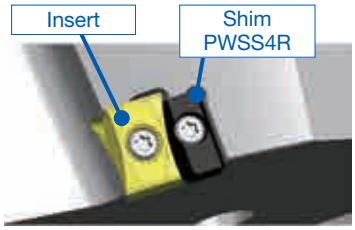
Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	150-**250**-350	0.10-**0.23**-0.35	ACP200
	Alloy Steel	180 to 280 HB	100-**175**-250	0.10-**0.18**-0.25	ACP200
M	Stainless Steel	-	100-**150**-200	0.10-**0.18**-0.25	ACP300
K	Cast Iron Ductile Cast Iron	250HB	100-**175**-250	0.10-**0.23**-0.35	ACK200

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Large Diameter Size
(ø8.00" & ø200 mm or larger sizes.)
Body Structure

Safety Shim Design to Protect Body



■ General Features and Benefits

- DMSW & DMSL inserts provide a complex arc-shape cutting edge which allows for feed rates up to 0.138" IPT at low axial depth of cuts.
- Cutting forces are reduced due to a large lead angle which promotes stable machining in long projection applications.
- Introducing the DMSL series for smaller diameters starting at 0.625".

■ Milling Cutter Product Range (*mm*)

Type	Product Code	ø16	ø18	ø20	ø22	ø25	ø26	ø28	ø30	ø32	ø35	ø40	ø42	ø50	ø52	ø63	ø66	ø80	ø85	ø100	ø125	ø160
Shell Mill	DMSL06000RS											5 6		5 8	8	8	8	9				
Shell Mill	DMSL06000R													5 8		8						
Shell Mill	DMSW08000RS													4 5	4 5	4 5* 6	5 6	6 8	6 8	6	8	10
Shell Mill	DMSW08000R (Inch Arbor)													4 5		4 5 6		6 8		6	8	10
Endmill	DMSL06000E	2	2	3 4	3 4	4 5		4 5	5	5 6	5	6										
Endmill	DMSL06000EL	2	2	3	3	4		4	5	5	5	6										
Endmill	DMSW08000E										2	3		3		4						
Endmill	DMSW08000EL										2	3		3		4						
Modular	DMSL06000M	2	2	3 4	3 4	4 5	4	4 5	5	5 6	5	6	6									
Modular	DMSW08000M										2	3	3									

Diameters Available (*mm*)

Inch Arbor Inch Arbor • Numbers inside are number of teeth * Different pilot diameters available

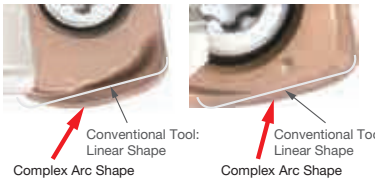
■ Milling Cutter Product Range (Inch)

Type	Product Code	ø.625	ø0.75	ø1.0	ø1.25	ø1.5	ø2.0	ø2.5	ø3.0	ø4.0
Shell Mill	DMSL20000R					5 6	5 8	8		
Shell Mill	DMSW30000R						4	4 6	6 7	8
Endmill	DMSL20000EW	2	3	4 5	5 6					
Endmill	DMSL20000ELC	2	3	4 5	5 6					
Endmill	DMSW30000EW					3	3			
Endmill	DMSW30000ELC					3				
Modular	DMSL20000M	2	3	4 5	5 6					
Modular	DMSW30000M					3				

Diameters Available (Inch)

■ Insert Features

- The complex arc-shape cutting edge is capable of a high feed up to 0.138" IPT at low axial depth of cuts.



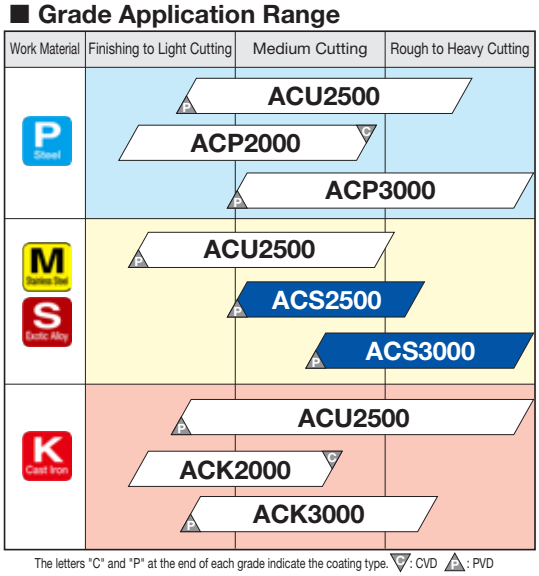
■ Chipbreaker (DMSL)

Work Material	P M K S		P M K H
Applications	Low Rigidity Milling	General Purpose	Heavy Interrupted, High-Hardness
Features	Low Cutting Force	General Purpose	High Strength
Chipbreaker	L	G	H
Cutting Edge Cross Section	.0039" 14° 24° 4-cornered	.0039" 10° 24° 4-cornered	.0039" -4° 18° 4-cornered

■ Chipbreaker (DMSW)

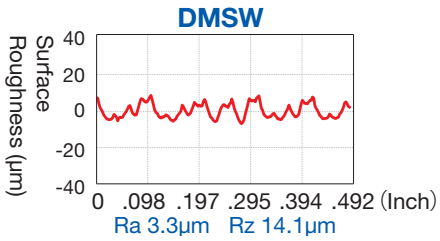
Work Material	P M K S		P M K H
Applications	Low-rigidity Milling	General-purpose	Heavy Interrupted, High-Hardness
Features	Low Cutting Force	General-purpose	High Strength
Chipbreaker	L	G	H
Cutting Edge Cross Section	.0059" 24° 6-cornered	.0047" 24° 6-cornered	.0087" 15° 6-cornered

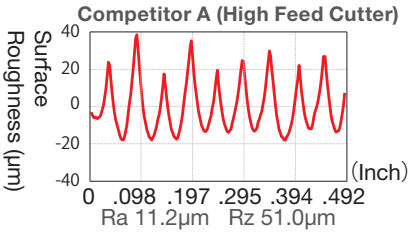
■ Grade Application Range



The letters "C" and "P" at the end of each grade indicate the coating type. C: CVD P: PVD

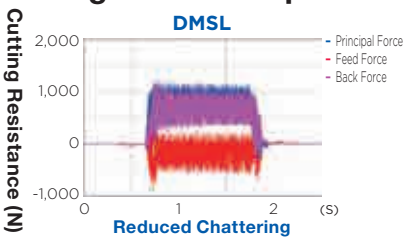
- Compared to conventional high feed mill cutter inert, DMSL and DMSW inserts provide improved surface finish due to the arc-shaped edge

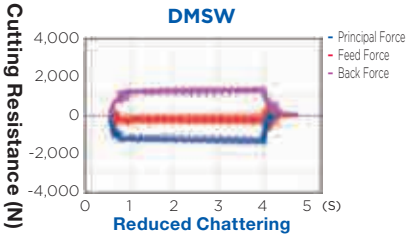


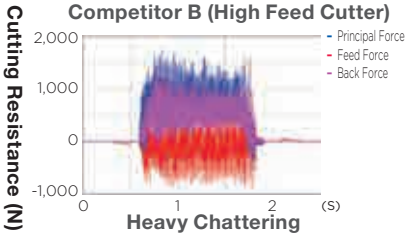


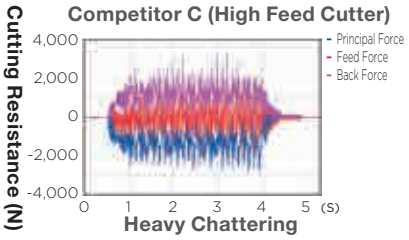
Machine: Vertical Machining Center BT50, **Part Material:** 1050 Carbon Steel, **Insert:** WNMU0807ZNER-G-ACU2500
Milling Cutter: DMSW08063RS04 (*ø63* 4 teeth), **Cutting Conditions:** v_c= 500 SFM, f_z= .0984 IPT, a_p= .0197", a_e= 1.5748", Dry

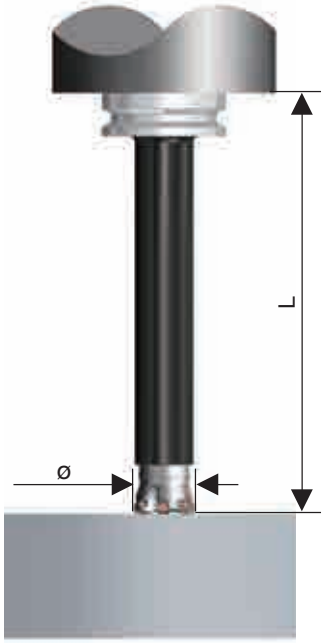
■ Cutting Force Comparison











Machine: Vertical Machining Center BT50,
Part Material: 1050 Medium Carbon Steel,
Milling Cutter: DMSL06020E03 (*ø20* 3 teeth)
Insert: LNMU06T3ZNER-G-ACU2500
Cutting Conditions: v_c= 525 SFM, f_z= .0236 IPT, a_p= .0315", a_e= 0.787", L= 3.937, Dry

Machine: Vertical Machining Center BT50,
Part Material: 1050 Medium Carbon Steel,
Milling Cutter: DMSW08050RS04 (*ø50* 4 teeth)
Insert: WNMU0807ZNER-G-ACU2500
Cutting Conditions: v_c= 525 SFM, f_z= .0256 IPT, a_p= .0315", a_e= 1.772", L= 13.4", Dry

■ Precautions for Corner Finishing

* Corners will have over-cut or under-cut material relative to the corner profile.

Fig 1

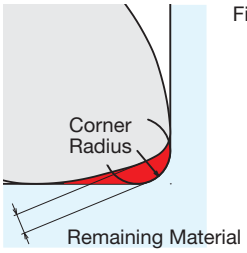
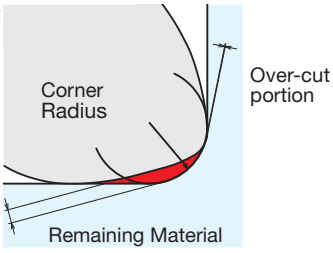
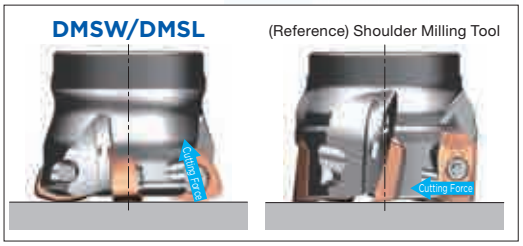


Fig 2

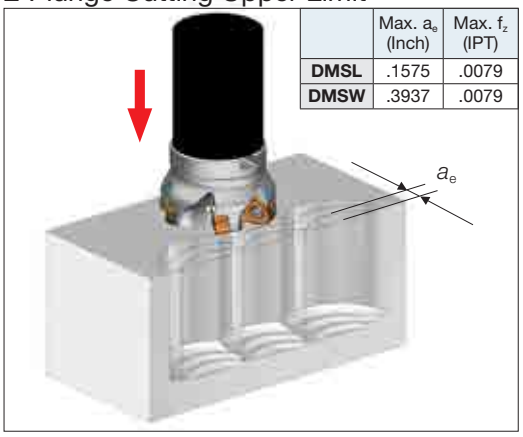




DMSL (*Programmable Radius)			
Corner Radius (Inch)	**Unmachined Surface**	**Over-Cut**	**Fig.**
.0197	.0346	0	1
.0394	.0272	0	1
.0591*	.0213	0	1
.0787	.0161	.0008	2

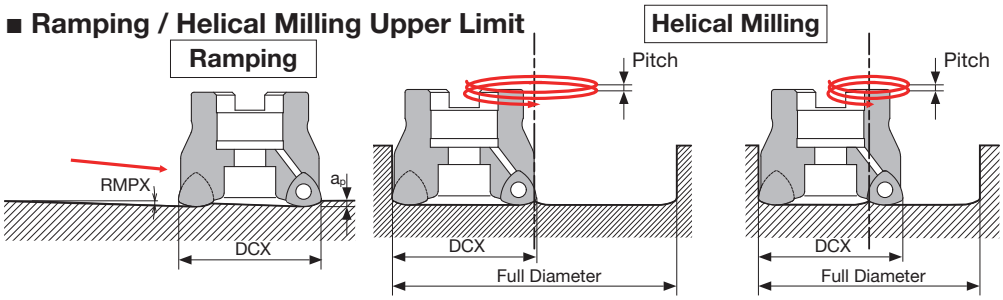
DMSW (*Programmable Radius)			
Corner Radius (Inch)	**Unmachined Surface**	**Over-Cut**	**Fig.**
.0789	.0480	0	1
.0984	.0425	0	1
.1181*	.0374	0	1
.1378	.0327	.0016	2

■ Plunge Cutting Upper Limit



	Max. a_e (Inch)	Max. f_z (IPT)
DMSL	.1575	.0079
DMSW	.3937	.0079

■ Ramping / Helical Milling Upper Limit



Precautions for Helical Milling

- Above the max. machining diameter, the center uncut portion can be removed by traverse cutting with the same cutter.
- Below the min. machining diameter, the center uncut portion cannot be removed with the same cutter.

DMSL

	Max. Dia. DCX (inch / mm)	Ramping	Helical Ramping					
		Max. Ramping Angle RMPX (°)	Max. Machining Dia. (Inch / mm)	Max Pitch	Standard Diameter (Inch)	Max Pitch	Min. Machining Dia. (Inch / mm)	Max Pitch
Inch	0.625	0.6	1.224	0.024	0.949	0.019	0.929	0.010
	0.750	1.0	1.472	0.039	1.197	0.024	1.134	0.019
	1.000	0.9	1.972	0.039	1.693	0.035	1.602	0.019
	1.250	0.7	2.472	0.039	2.193	0.035	2.091	0.019
	1.500	0.6	2.972	0.039	2.693	0.039	2.575	0.019
	2.000	Not recommended						
	2.500	Not recommended						
Metric	16	0.6	31.3	0.6	24.4	0.3	23.8	0.25
	18	0.8	35.3	0.8	28.3	0.4	27.2	0.3
	20	1.0	39.3	1.0	32.3	0.6	30.5	0.3
	22	1.0	43.3	1.0	36.3	0.7	34.3	0.3
	25	1.0	49.3	1.0	42.3	0.9	39.9	0.3
	26	1.0	51.3	1.0	44.3	0.9	41.8	0.3
	28	0.9	55.3	1.0	48.2	0.9	45.7	0.3
	30	0.8	59.3	1.0	52.2	1.0	49.6	0.3
	32	0.7	63.3	1.0	56.2	1.0	53.6	0.3
	35	0.6	69.3	1.0	62.2	1.0	59.5	0.3
	40	0.5	79.3	1.0	72.2	1.0	69.6	0.3
	42	0.5	83.3	1.0	76.2	1.0	73.5	0.3
	50	Not recommended						
	52	Not recommended						
	63	Not recommended						
	66	Not recommended						
	80	Not recommended						

DMSW

	Max. Dia. DCX (inch / mm)	Ramping	Helical Ramping					
		Max. Ramping Angle RMPX (°)	Max. Machining Dia. (Inch / mm)	Max Pitch	Standard Diameter (Inch)	Max Pitch	Min. Machining Dia. (Inch / mm)	Max Pitch
Inch	1.500	0.8	2.972	0.063	2.346	0.031	2.252	0.020
	2.000	1.4	3.972	0.079	3.343	0.079	3.185	0.039
	2.500	1.2	4.972	0.079	4.343	0.079	4.118	0.039
	3.000	1.2	5.972	0.079	5.339	0.079	4.976	0.039
	4.000	0.8	7.972	0.079	7.339	0.079	6.976	0.039
Metric	35	0.5	69.3	1.3	53.5	0.5	52.0	0.5
	40	0.8	79.3	2.0	63.4	1.0	60.2	0.5
	42	0.8	83.3	2.0	67.4	1.0	63.9	0.5
	50	1.4	99.3	2.0	83.3	2.0	79.1	1.0
	52	1.4	103.3	2.0	87.3	2.0	82.8	1.0
	63	1.2	125.3	2.0	109.3	2.0	103.6	1.0
	66	1.2	131.3	2.0	115.3	2.0	109.4	1.0
	80	1.2	159.3	2.0	143.2	2.0	134.0	1.0
	85	1.2	169.3	2.0	153.2	2.0	144.0	1.0
	100	0.8	199.3	2.0	183.2	2.0	174.0	1.0
	125	Not recommended						
	160	Not recommended						

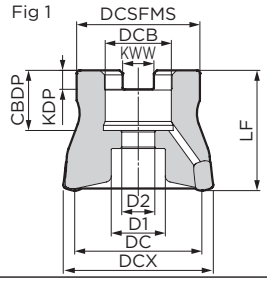
DMSL Shellmill

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-8° to -12.5°
	Axial	-8°

.0591 73° | 1.5mm 73°

Fig 1



■ Body (Shelmill)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lb / *kg*)	Fig
Inch	**DMSL21500R05**	●	1.5000	1.1965	1.4409	1.5000	0.5000	0.2520	0.1575	0.6220	0.4213	0.2811	5	0.44	1
	DMSL21500R06	●	1.5000	1.1965	1.4409	1.5000	0.5000	0.2520	0.1575	0.6220	0.4213	0.2811	6	0.44	1
	DMSL22000R05	●	2.0000	1.6969	1.7520	1.7500	0.7500	0.3118	0.1902	0.7500	0.6091	0.4059	5	0.88	1
	DMSL22000R08	●	2.0000	1.6969	1.7520	1.7500	0.7500	0.3118	0.1902	0.7500	0.6091	0.4059	8	0.86	1
	DMSL22500R08	●	2.5000	2.1965	2.1890	1.7500	1.0000	0.3752	0.2201	0.7500	0.7969	0.5311	8	1.37	1
Metric	**DMSL06040RS05**	★	*40*	*32.3*	*33*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	*5*	*0.20*	*1*
	DMSL06040RS06	★	*40*	*32.3*	*33*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	*6*	*0.20*	*1*
	DMSL06050RS05	★	*50*	*42.3*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	*5*	*0.31*	*1*
	DMSL06050RS08	★	*50*	*42.3*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	*8*	*0.30*	*1*
M/In	**DMSL06050R05**	★	*50*	*42.3*	*41*	*40*	*22.225*	*8.4*	*5*	*20*	*18*	*11*	*5*	*0.32*	*1*
	DMSL06050R08	★	*50*	*42.3*	*41*	*40*	*22.225*	*8.4*	*5*	*20*	*18*	*11*	*8*	*0.30*	*1*

●: USA Stocked Item
★: Worldwide Warehouse Item

Take note of the cutter mounting size (DCB) when selecting a cutter. Inserts are sold separately.
For mounting the cutters marked with * to an arbor, use a JIS B1176 hex socket bolt (metric specification: M12 x 30 to 35mm, inch specification: M16 x 40 to 45mm).

■ Parts

N·m Recommended Tightening Torque (N·m)

Flat Insert Screw		Integrated Wrench	Anti-seize Cream
BFTX02507IP	2.0	TRDR08IP	SUMI-P

■ Identification Code - Inch

DMSL 2 2000 R 05

Series | Insert Series | Cutter Dia. | Feed Direction | Number of Teeth

■ Identification Code - Metric

DMSL 06 066 R S 08 - 27

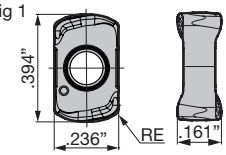
Series | Insert Size | Cutter Dia. | Feed Direction | Metric Bore | Number of Teeth | Mounting Size

■ Insert

Dimensions (Inch)

Material Classification		Coated Carbide								
Process	High-speed/Light		P		K					
	General-purpose	K P M S	P	P H	K	K	M S	M S		
	Roughing	K P M S		P H		K	M S	M S		
Cat. No.		ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS2500	ACS3000	Corner Radius RE	Fig
LNMU06T3ZNER-L		★	★	★			★	★	.039	1
LNMU06T3ZNER-G		●	●	●	●	●	●	●	.039	1
LNMU06T3ZNER-H		●	●	●			●	●	.039	1

Fig 1



■ Recommended Cutting Conditions (DMSL)

ISO	Material	Hardness	Cutting Speed v_c (SFM)	Feed Rate Fz (IPT)	Grade
P	General Steel	Up to 30HRC	350 - 900	0.039 - 0.138	ACU2500/ACP2000/ACP3000
	Alloy Steel	Up to 30HRC	350 - 725	0.039 - 0.070	ACU2500/ACP2000/ACP3000
	Alloy Steel	Up to 45HRC	350 - 650	0.031 - 0.047	ACU2500/ACP2000/ACP3000
M	Stainless Steel	—	265 - 550	0.031 - 0.047	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	350 - 900	0.039 - 0.070	ACU2500/ACK2000/ACK3000
S	Heat Resistant Alloy	—	100 - 260	0.016 - 0.031	ACU2500/ACS2500/ACS3000
	Titanium Alloy	—	65 - 150	0.012 - 0.028	ACU2500/ACS2500/ACS3000
H	Hardened Steel	Up to 52HRC	265 - 430	0.012 - 0.028	ACU2500/ACP3000

Note

- The conditions are guidelines for use with CAT50, BT50, and HSK100A machine tools at depth of cut (a_p) of .030".
- The recommended cutting conditions may require adjustment depending on machine rigidity, workpiece rigidity and projection.

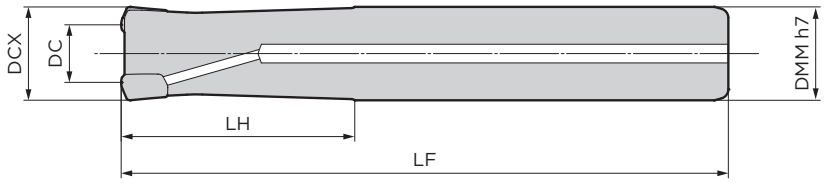
DMSL Endmill

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-12.5° to -16.5°
	Axial	-8°

.0591 73° | 1.5mm 73°

Fig 1



■ Body (Weldon Shank)

Dimensions (inch /*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (lb / *kg*)	Fig
Inch	**DMSL20625EW02**	●	0.6250	0.3276	0.6250	1.2500	4.0000	2	0.29	1
	DMSL20750EW03	●	0.7500	0.4488	0.7500	2.0000	5.0000	3	0.52	1
	DMSL21000EW04	●	1.0000	0.6976	1.0000	2.5000	5.0000	4	0.93	1
	DMSL21000EW05	●	1.0000	0.6976	1.0000	2.5000	5.0000	5	0.93	1
	DMSL21250EW05	●	1.2500	0.9476	1.2500	3.0000	6.0000	5	1.74	1
	DMSL21250EW06	●	1.2500	0.9476	1.2500	3.0000	6.0000	6	1.74	1
Metric	**DMSL06016E02**	★	*16*	*8.4*	*16*	*30*	*110*	*2*	*0.15*	1
	DMSL06018E02	★	*18*	*10.4*	*16*	*30*	*110*	*2*	*0.15*	1
	DMSL06020E03	★	*20*	*12.4*	*20*	*50*	*130*	*3*	*0.27*	1
	DMSL06020E04	★	*20*	*12.4*	*20*	*50*	*130*	*4*	*0.27*	1
	DMSL06022E03	★	*22*	*14.3*	*20*	*50*	*130*	*3*	*0.29*	1
	DMSL06022E04	★	*22*	*14.3*	*20*	*50*	*130*	*4*	*0.29*	1
	DMSL06025E04	★	*25*	*17.3*	*25*	*60*	*140*	*4*	*0.46*	1
	DMSL06025E05	★	*25*	*17.3*	*25*	*60*	*140*	*5*	*0.46*	1
	DMSL06028E04	★	*28*	*20.3*	*25*	*60*	*140*	*4*	*0.49*	1
	DMSL06028E05	★	*28*	*20.3*	*25*	*60*	*140*	*5*	*0.48*	1
	DMSL06030E05	★	*30*	*22.3*	*32*	*70*	*150*	*5*	*0.81*	1
	DMSL06032E05	★	*32*	*24.3*	*32*	*70*	*150*	*5*	*0.82*	1
	DMSL06032E06	★	*32*	*24.3*	*32*	*70*	*150*	*6*	*0.82*	1
	DMSL06035E05	★	*35*	*27.3*	*32*	*50*	*150*	*5*	*0.88*	1

Inserts are sold separately.

■ Body (Long Shank)

Dimensions (inch /*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Diameter DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (lb / *kg*)	Fig
Inch	**DMSL20625ELC02**	●	0.6250	0.3276	0.6250	2.0000	8.0000	2	0.60	1
	DMSL20750ELC03	●	0.7500	0.4488	0.7500	3.0000	8.0000	3	0.84	1
	DMSL21000ELC04	●	1.0000	0.6976	1.0000	4.0000	10.0000	4	1.83	1
	DMSL21000ELC05	●	1.0000	0.6976	1.0000	4.0000	10.0000	5	1.83	1
	DMSL21250ELC05	●	1.2500	0.9476	1.2500	5.0000	10.0000	5	2.98	1
	DMSL21250ELC06	●	1.2500	0.9476	1.2500	5.0000	10.0000	6	2.98	1
Metric	**DMSL06016EL02**	★	*16*	*8.4*	*16*	*70*	*150*	*2*	*0.19*	*1*
	DMSL06018EL02	★	*18*	*10.4*	*16*	*50*	*150*	*2*	*0.21*	*1*
	DMSL06020EL03	★	*20*	*12.4*	*20*	*80*	*160*	*3*	*0.33*	*1*
	DMSL06022EL03	★	*22*	*14.3*	*20*	*60*	*160*	*3*	*0.36*	*1*
	DMSL06025EL04	★	*25*	*17.3*	*25*	*100*	*170*	*4*	*0.54*	*1*
	DMSL06028EL04	★	*28*	*20.3*	*25*	*60*	*170*	*4*	*0.60*	*1*
	DMSL06030EL05	★	*30*	*22.3*	*32*	*120*	*200*	*5*	*1.01*	*1*
	DMSL06032EL05	★	*32*	*24.3*	*32*	*120*	*200*	*5*	*1.06*	*1*
	DMSL06035EL05	★	*35*	*27.3*	*32*	*60*	*210*	*5*	*1.21*	*1*

Inserts are sold separately.

●: USA Stocked Item
★: Worldwide Warehouse Item

■ Parts

Flat Insert Screw		Integrated Wrench	Anti-seize Cream
BFTX02507IP	2.0	TRDR08IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

■ Identification Code - Inch

DMSL 2 1000 EW 05

DMSL: Series; 2: Insert Series; 1000: Cutter Dia.; EW: Shank Type "Weldon"; 05: Number of Teeth

■ Identification Code - Metric

DMSL 06 025 E L 04

DMSL: Series; 06: Insert Size; 025: Max. Dia.; E: Shank Type; L: Long Type; 04: Number of Teeth

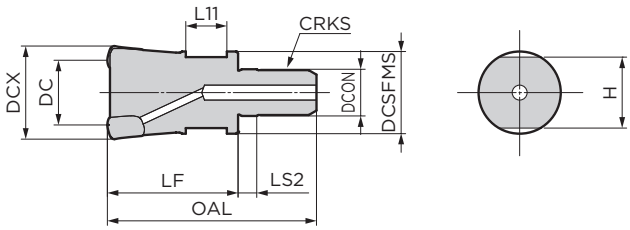
DMSL Modular

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-12.5° to -16.5°
	Axial	-8°

.0591 73° | 1.5mm 73°

Fig 1



■ Modular Head

●: USA Stocked Item ★: Worldwide Warehouse Item Blank: Made-to-order item

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Chamfer L11	Width H	Number of Teeth	Weight (lb / *kg*)	Fig
Inch	**DMSL20625M08Z2**	●	0.6250	0.3276	0.3346	M08	1.6535	0.9843	0.1969	0.3150	0.5118	2	0.07	1
	DMSL20750M10Z3	●	0.7500	0.4488	0.4134	M10	1.9291	1.1811	0.1969	0.3937	0.5906	3	0.11	1
	DMSL21000M12Z4	●	1.0000	0.6976	0.4921	M12	2.2047	1.3780	0.1969	0.4331	0.7480	4	0.22	1
	DMSL21000M12Z5	●	1.0000	0.6976	0.4921	M12	2.2047	1.3780	0.1969	0.4331	0.7480	5	0.22	1
	DMSL21250M16Z5	●	1.2500	0.9476	0.6693	M16	2.4803	1.5748	0.1969	0.4724	0.9449	5	0.42	1
	DMSL21250M16Z6	●	1.2500	0.9476	0.6693	M16	2.4803	1.5748	0.1969	0.4724	0.9449	6	0.42	1
Metric	**DMSL06016M08Z2**	★	*16*	*8.4*	*8.5*	*M8*	*42*	*25*	*5*	*8*	*13*	*2*	*0.03*	*1*
	DMSL06018M08Z2	★	*18*	*10.4*	*8.5*	*M8*	*42*	*25*	*5*	*8*	*13*	*2*	*0.03*	*1*
	DMSL06020M10Z3	★	*20*	*12.4*	*10.5*	*M10*	*49*	*30*	*5*	*10*	*15*	*3*	*0.05*	*1*
	DMSL06020M10Z4	★	*20*	*12.4*	*10.5*	*M10*	*49*	*30*	*5*	*10*	*15*	*4*	*0.05*	*1*
	DMSL06022M10Z3	★	*22*	*14.3*	*10.5*	*M10*	*49*	*30*	*5*	*10*	*15*	*3*	*0.06*	*1*
	DMSL06022M10Z4	★	*22*	*14.3*	*10.5*	*M10*	*49*	*30*	*5*	*10*	*15*	*4*	*0.06*	*1*
	DMSL06025M12Z4	★	*25*	*17.3*	*12.5*	*M12*	*56*	*35*	*5*	*11*	*19*	*4*	*0.10*	*1*
	DMSL06025M12Z5	★	*25*	*17.3*	*12.5*	*M12*	*56*	*35*	*5*	*11*	*19*	*5*	*0.10*	*1*
	DMSL06026M12Z4	★	*26*	*18.3*	*12.5*	*M12*	*56*	*35*	*5*	*11*	*19*	*4*	*0.10*	*1*
	DMSL06028M12Z4	★	*28*	*20.3*	*12.5*	*M12*	*56*	*35*	*5*	*11*	*19*	*4*	*0.11*	*1*
	DMSL06028M12Z5	★	*28*	*20.3*	*12.5*	*M12*	*56*	*35*	*5*	*11*	*19*	*5*	*0.11*	*1*
	DMSL06030M16Z5	★	*30*	*22.3*	*17*	*M16*	*63*	*40*	*5*	*12*	*24*	*5*	*0.18*	*1*
	DMSL06032M16Z5	★	*32*	*24.3*	*17*	*M16*	*63*	*40*	*5*	*12*	*24*	*5*	*0.20*	*1*
	DMSL06032M16Z6	★	*32*	*24.3*	*17*	*M16*	*63*	*40*	*5*	*12*	*24*	*6*	*0.20*	*1*
	DMSL06035M16Z5	★	*35*	*27.3*	*17*	*M16*	*63*	*40*	*5*	*12*	*24*	*5*	*0.21*	*1*

Inserts are sold separately.

●: USA Stocked Item
★: Worldwide Warehouse Item

■ Parts

Flat Insert Screw		Integrated Wrench	Anti-seize Cream
	N·m		
BFTX02507IP	2.0	TRDR08IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

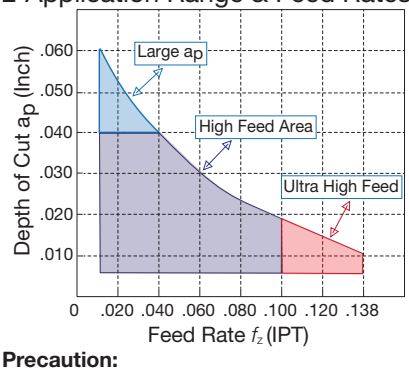
■ Identification Code - Inch

DMSL (Series) **2** (Insert Series) **1000** (Cutter Dia.) **M12** (Mounting Screw Size) **Z4** (Number of Teeth)

■ Identification Code - Metric

DMSL (Series) **06** (Insert Size) **025** (Max. Dia.) **M12** (Mounting Screw Size) **Z4** (Number of Teeth)

■ Application Range & Feed Rates

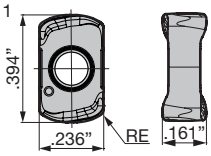


■ Insert

Material Classification		Coated Carbide								
Process	High-speed/Light		P		K					
	General-purpose	N P M S	P	P H	K	K	M S	M S		
	Roughing	N P M S		P H		K	M S	M S		
Cat. No.		ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS2500	ACS3000	Corner Radius RE	Fig
LNMU06T3ZNER-L		★	★	★			★	★	.039	1
LNMU06T3ZNER-G		●	●	●	●	●	●	●	.039	1
LNMU06T3ZNER-H		●	●	●			●	●	.039	1

Dimensions (Inch)

Fig 1



Precaution:
- Please adjust axial depth of cut (ap) based on the feed rate (IPT).
- Do not exceed the recommended depth of cut based on the feed rate (IPT).

DMSW Shellmill

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-7° to -10°
	Axial	-6°

.1181 75° | 3mm 75°

Fig 1

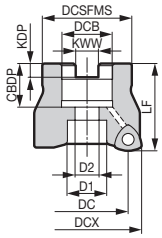


Fig 2

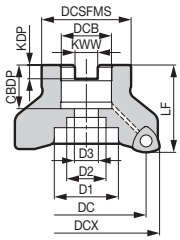


Fig 3

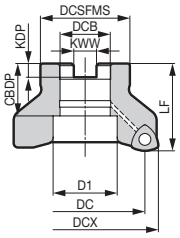


Fig 4

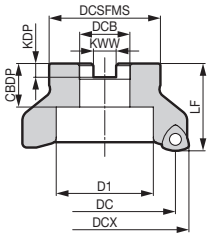
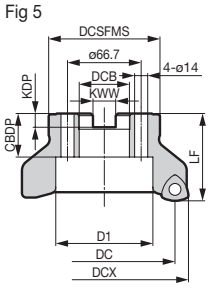


Fig 5



■ Body (Shellmill)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lb / *kg*)	Fig
Inch	**DMSW32000R04**	●	2.000	1.346	1.500	1.750	0.750	0.312	0.190	0.750	0.609	0.406	—	4	0.640	1
	DMSW32500R04	●	2.500	1.846	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	—	4	0.992	1
	DMSW32500R06	●	2.500	1.846	1.750	1.750	1.000	0.375	0.220	0.750	0.797	0.531	—	6	0.948	1
	DMSW33000R06	●	3.000	2.342	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	—	6	1.650	1
	DMSW33000R07	●	3.000	2.342	2.250	1.750	1.000	0.375	0.220	0.750	0.797	0.531	—	7	1.630	1
	DMSW34000R08	●	4.000	3.342	3.543	2.500	1.500	0.625	0.380	1.000	2.000	1.181	0.781	8	4.894	2
Metric	**DMSW08050RS04**	★	*50*	*33.4*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*16.7*	*11*	—	4	*0.25*	1
	DMSW08050RS05	★	*50*	*33.4*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*16.7*	*11*	—	5	*0.24*	1
	DMSW08063RS04	★	*63*	*46.4*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	—	4	*0.46*	1
	DMSW08063RS05	★	*63*	*46.4*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	—	5	*0.46*	1
	DMSW08063RS06	★	*63*	*46.4*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	—	6	*0.44*	1
	DMSW08063RS05-27	★	*63*	*46.4*	*50*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	—	5	*0.55*	1
	DMSW08063RS06-27	★	*63*	*46.4*	*50*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	—	6	*0.53*	1
	DMSW08080RS06	★	** 80*	*63.3*	*55*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	—	6	*0.88*	1
	DMSW08080RS08	★	** 80*	*63.3*	*55*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	—	8	*0.84*	1
	DMSW08100RS06	★	*100*	*83.3*	*70*	*50*	*32*	*14.4*	*8*	*32*	*46*	—	—	6	*1.29*	3
	DMSW08125RS08	★	*125*	*108.3*	*x80*	*63*	*40*	*16.4*	*9*	*29*	*52*	*29*	—	8	*2.41*	1
	DMSW08160RS10	★	*160*	*143.3*	*100*	*63*	*40*	*16.4*	*9*	*29*	*90*	—	—	10	*4.73*	5
Metric - Inch Arbor	**DMSW08050R04**	★	*50*	*33.4*	*41*	*40*	*22.225*	*8.4*	*5*	*20*	*16.7*	*11*	—	4	*0.25*	1
	DMSW08050R05	★	*50*	*33.4*	*41*	*40*	*22.225*	*8.4*	*5*	*20*	*16.7*	*11*	—	5	*0.24*	1
	DMSW08063R04	★	*63*	*46.4*	*50*	*40*	*22.225*	*8.4*	*5*	*20*	*18*	*11*	—	4	*0.46*	1
	DMSW08063R05	★	*63*	*46.4*	*50*	*40*	*22.225*	*8.4*	*5*	*20*	*18*	*11*	—	5	*0.46*	1
	DMSW08063R06	★	*63*	*46.4*	*50*	*40*	*22.225*	*8.4*	*5*	*20*	*18*	*11*	—	6	*0.44*	1
	DMSW08080R06	★	** 80*	*63.3*	*70*	*63*	*31.75*	*12.7*	*8*	*32*	*27*	*18*	—	6	*1.32*	1
	DMSW08080R08	★	** 80*	*63.3*	*70*	*63*	*31.75*	*12.7*	*8*	*32*	*27*	*18*	—	8	*1.28*	1
	DMSW08100R06	★	** 100*	*83.3*	*70*	*63*	*31.75*	*12.7*	*8*	*32*	*46*	*27*	*18*	6	*1.75*	2
	DMSW08125R08	★	*125*	*108.3*	*80*	*63*	*38.1*	*15.9*	*10*	*35.5*	*55*	*30*	—	8	*2.55*	1
	DMSW08160R10	★	*160*	*143.3*	*100*	*63*	*50.8*	*19.1*	*11*	*38*	*72*	—	—	10	*4.18*	4

Take note of the cutter mounting size (DCB) when selecting a cutter. Inserts are sold separately.
For mounting the ø80, ø85, and ø100mm sized cutters marked with * to an arbor , use a JIS B1176 hex socket bolt (metric specification: M12 x 30 to 35mm, inch specification: M16 x 40 to 45mm).

● : USA Stocked Item
★: Worldwide Warehouse Item

■ Parts

Recommended Tightening Torque (N·m)

Applicable Cutter	Flat Insert Screw		Integrated Wrench	Detachable Wrench: Handle Grip	Detachable Wrench: Bit	Anti-seize Cream
		N·m				
DMSW08160R(S)10	BFTX0513IP	5.0	TRDR20IP	—	—	SUMI-P
Other than above			—	HPL2025	TRB20IP	

■ Identification Code - Inch

DMSW 3 2000 R S 05

Series | Insert Series | Cutter Dia. | Feed Direction | Metric Bore | Number of Teeth

■ Identification Code - Metric

DMSW 08 063 R S 05 - 27

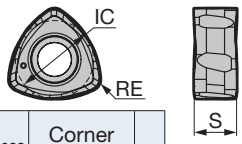
Series | Insert Size | Cutter Dia. | Feed Direction | Metric Bore | Number of Teeth | Mounting Size

■ Insert

Dimensions (Inch)

Grade Classification		Coated Carbide						
Process	High-speed / Light		P		K			
	General-purpose	K P M H		P H		K	M S	M S
	Roughing	K P M H		P H		K		M S
Cat. No.		ACU2500	ACP2000	ACP3000	ACK2000	ACK3000	ACS2500	ACS3000
WNMU0807ZNER-L		★	★	★			★	★
WNMU0807ZNER-G		●	●	●	●	●	●	●
WNMU0807ZNER-H		●	●	●			●	●

Fig. 1



Inscribed Circle IC	Thickness S	Corner Radius RE	Fig
.512	.2756	.063	1

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"
BFXH3/4 X 2	5.00"*	1.50"

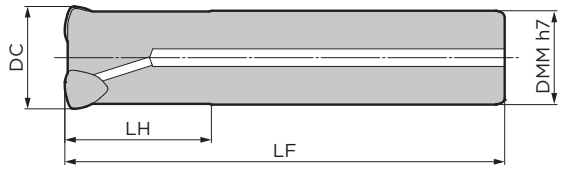
DMSW Endmill

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-10° to -13°
	Axial	-6°

.1181 75° | 3mm 75°

Fig 1



■ Body (Weldon Shank)

Dimensions (inch /mm)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (lb / kg)	Fig
Inch	**DMSW31500EW03**	●	1.500	0.852	1.250	2.498	4.780	3	1.433	1
	DMSW32000EW03	●	2.000	1.346	1.250	2.498	4.780	3	1.676	1
Metric	**DMSW08035E02**	★	*35*	*18.6*	*32*	*50*	*150*	2	*0.85*	1
	DMSW08040E03	★	*40*	*23.5*	*32*	*50*	*150*	3	*0.86*	1
	DMSW08050E03-42	★	*50*	*33.4*	*42*	*50*	*150*	3	*1.51*	1

Inserts are sold separately.

■ Body (Long Shank)

Dimensions (inch /mm)

	Cat. No.	Stock	Max. Dia. DCX	Diameter DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (lb / kg)	Fig
Inch	**DMSW31500ELC03**	●	1.500	0.852	1.250	2.498	10.000	3	3.197	1
Metric	**DMSW08035EL02**	★	*35*	*18.6*	*32*	*60*	*210*	2	*1.21*	1
	DMSW08040EL03	★	*40*	*23.5*	*32*	*60*	*210*	3	*1.22*	1
	DMSW08050EL03-42	★	*50*	*33.4*	*42*	*50*	*250*	3	*2.54*	1

Inserts are sold separately.

●: USA Stocked Item
★: Worldwide Warehouse Item

■ Parts

Flat Insert Screw		Integrated Wrench	Anti-seize Cream
	N·m		
BFTX0513IP	5.0	TRDR20IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

■ Identification Code - Inch

DMSW 3 2000 EW 03

Series | Insert Series | Cutter Dia. | Shank Type "Weldon" | Number of Teeth

■ Identification Code - Metric

DMSW 08 050 E L 03 - 42

Series | Insert Size | Max. Dia. | Shank Type | Long Type | Number of Teeth | Shank Dia.

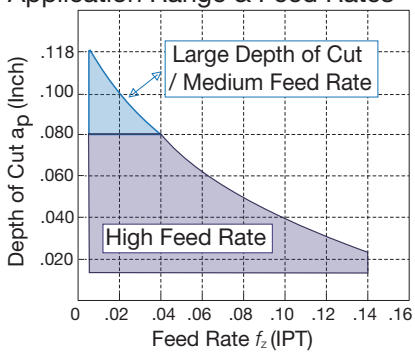
■ Recommended Cutting Conditions (DMSW)

ISO	Material	Hardness	Cutting Speed *v* (SFM)	Feed Rate Fz (IPT)	Grade
P	General Steel	Below 280HB	365 - 900	0.025 - 0.138	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 280HB	365 - 720	0.025 - 0.090	ACU2500/ACP2000/ACP3000
	Alloy Steel	Below 42HRC	365 - 650	0.025 - 0.050	ACU2500/ACP2000/ACP3000
M	Stainless Steel	—	330 - 550	0.025 - 0.050	ACU2500/ACS2500/ACS3000
K	Cast Iron	—	365 - 900	0.025 - 0.080	ACU2500/ACK2000/ACK3000
S	Heat Resistant Alloy	—	80 – 150	0.012 – 0.035	ACU2500/ACS2500/ACS3000
	Titanium Alloy	—	110 – 250	0.016 – 0.035	ACU2500/ACS2500/ACS3000
H	Hardened Steel	Below 52HRC	330 - 430	0.012 - 0.030	ACU2500/ACP3000

Precaution:
- Please adjust axial depth of cut (ap) based on the feed rate (IPT).
- Do not exceed the recommended depth of cut based on the feed rate (IPT).

Note
- The above figures are guidelines for use with CAT50, BT50, and HSK100A machine tools at depth of cut (a_p) of .060".
- The above recommended cutting conditions may require adjustment depending on machine rigidity, workpiece rigidity and projection.

■ Application Range & Feed Rates



Precaution:
- Please adjust axial depth of cut (ap) based on the feed rate (IPT).
- Do not exceed the recommended depth of cut based on the feed rate (IPT).

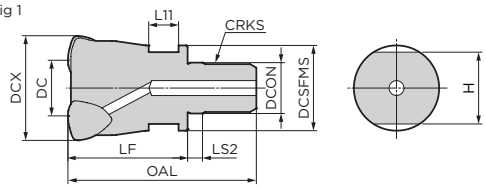
DMSW Modular

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-11° to -13°
	Axial	-6°

.1181 75° | 3mm 75°

Fig 1



■ Modular Head

Dimensions (inch / *mm*)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Chamfer L11	Width H	Number of Teeth	Weight (lb / *kg*)	Fig
DMSW31500M16Z3	●	1.500	0.852	0.669	M16	2.480	1.575	0.197	0.472	0.945	3	0.441	1
DMSW08035M16Z2	★	*35*	*18.6*	*17*	*M16*	*63*	*40*	*5*	*10*	*24*	*2*	*0.19*	1
DMSW08040M16Z3	★	*40*	*23.5*	*17*	*M16*	*63*	*40*	*5*	*10*	*24*	*3*	*0.21*	1

Inserts are sold separately. ●: USA Stocked Item ★: Worldwide Warehouse Item

■ Parts

Recommended Tightening Torque (N·m)

Flat Insert Screw		Integrated Wrench	Anti-seize Cream
	N·m		
BFTX0513IP	5.0	TRDR20IP	SUMI-P

■ Identification Code - Inch

DMSW 3 1500 M16 Z3

Series | Insert Series | Cutter Dia. | Mounting Screw Size | Number of Teeth

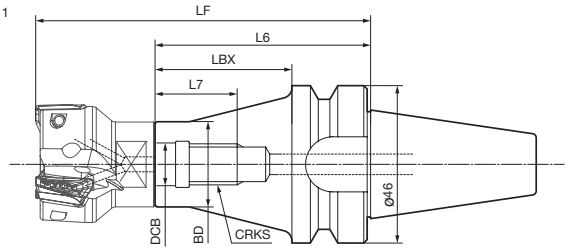
■ Identification Code - Metric

DMSW 08 040 M16 Z3

Series | Insert Size | Max. Dia. | Mounting Screw Size | Number of Teeth

Modular Tools Special Arbor (BBT Integrated)

Fig 1



■ BBT Integrated Arbor

Dimensions (*mm*)

Cat. No.	Stock	Screws CRKS	Bore Dia. DCB	External BD	Body Overhang L6	Length LBX	Thread Depth L7	Overhang LF*1	Coolant Hole	Fig
BBT30-M8-50	★	M8	*8.5*	*15.9*	*73*	*50*	*18*	*98*	Yes	1
BBT30-M10-45	★	M10	*10.5*	*19.9*	*68*	*45*	*20*	*98*	Yes	1
BBT30-M12-40	★	M12	*12.5*	*24.9*	*63*	*40*	*22*	*98*	Yes	1
BBT30-M16-35	★	M16	*17*	*31.9*	*58*	*35*	*24*	*98*	Yes	1

*1 Overhang length for LF is with head mounted. Can also be used with BT30 spindle machines.

Modular Tools - Special Arbors (Carbide Arbors / Steel Arbors)

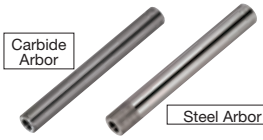
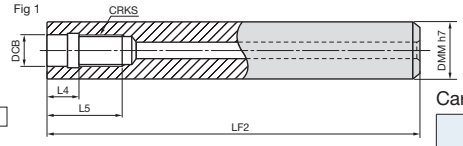


Fig 1



■ Identification Code

MA 32 M16 L200 C

Series | Shank Dia. 1.000" | Mounting Screw Size | Arbor Overall Length 8.000" | Arbor Materials C: Carbide S: Steel

Steel Arbor

Dimensions (inch / *mm*)

	Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF*	Fig
Inch	**MA0625M08L475S**	•	**M8**	0.335	0.625	4.750	0.393	0.708	5.734	1
Inch	**MA0750M10L600S**	•	**M10**	0.413	0.750	6.000	0.393	0.787	7.181	1
Inch	**MA1000M12L800S**	•	**M12**	0.492	1.000	8.000	0.393	0.866	9.378	1
Inch	**MA1000M16L800S**	•	**M16**	0.669	1.000	8.000	0.393	0.944	9.575	1
Inch	**MA1250M16L800S**	•	**M16**	0.669	1.250	8.000	0.393	0.944	9.575	1
Metric	**MA16M08L120S**	★	**M8**	*8.5*	*16*	*120*	*10*	*18*	*145*	1
Metric	**MA20M10L150S**	★	**M10**	*10.5*	*20*	*150*	*10*	*20*	*180*	1
Metric	**MA25M12L200S**	★	**M12**	*12.5*	*25*	*200*	*10*	*22*	*235*	1
Metric	**MA32M16L200S**	★	**M16**	*17.0*	*32*	*200*	*10*	*24*	*240*	1

Carbide Arbor

Dimensions (*mm*)

Cat. No.	Stock	Screw CRKS	Bore Dia. DCB	Shank DMM	Overall Length LF2	Depth L4	Thread Depth L5	Overhang LF*	Fig
MA15M08L120C	★	**M8**	*8.5*	*15*	*120*	*10*	*18*	*145*	1
MA15M08L160C	★	**M8**	*8.5*	*15*	*160*	*10*	*18*	*185*	1
MA16M08L120C	★	**M8**	*8.5*	*16*	*120*	*10*	*18*	*145*	1
MA16M08L160C	★	**M8**	*8.5*	*16*	*160*	*10*	*18*	*185*	1
MA18M10L150C	★	**M10**	*10.5*	*18*	*150*	*10*	*20*	*180*	1
MA18M10L200C	★	**M10**	*10.5*	*18*	*200*	*10*	*20*	*230*	1
MA20M10L150C	★	**M10**	*10.5*	*20*	*150*	*10*	*20*	*180*	1
MA20M10L200C	★	**M10**	*10.5*	*20*	*200*	*10*	*20*	*230*	1
MA23M12L200C	★	**M12**	*12.5*	*23*	*200*	*10*	*22*	*235*	1
MA23M12L250C	★	**M12**	*12.5*	*23*	*250*	*10*	*22*	*285*	1
MA25M12L200C	★	**M12**	*12.5*	*25*	*200*	*10*	*22*	*235*	1
MA25M12L250C	★	**M12**	*12.5*	*25*	*250*	*10*	*22*	*285*	1
MA28M16L200C	★	**M16**	*17.0*	*28*	*200*	*10*	*24*	*240*	1
MA28M16L300C	★	**M16**	*17.0*	*28*	*300*	*10*	*24*	*340*	1
MA32M16L200C	★	**M16**	*17.0*	*32*	*200*	*10*	*24*	*240*	1
MA32M16L300C	★	**M16**	*17.0*	*32*	*300*	*10*	*24*	*340*	1

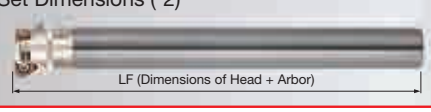
Recommended Tightening Torque (N·m)

* Caution when tightening the head.

- When mounting the head to an arbor, follow the standard tightening torque in the table below.
- Check the mounting screw size for the head and arbor beforehand.

Screw Size	Regulated Tightening Torque k (N·m)	Tool Dimensions L11	Tool Dimensions H
M8	23	*8*	*13*
M10	46	*8*	*15*
M12	80	*10*	*19*
M16	90	*10*	*24*

● Set Dimensions (*2)

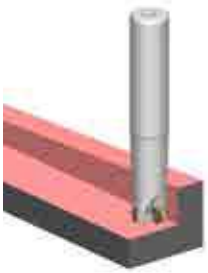


■ Application Examples (DMSL)

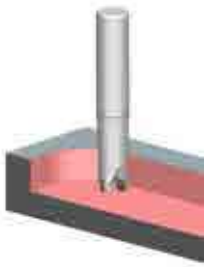
General Steel A36 Machine Component		Sumitomo	Competitor's Product
Vertical Machining Center: BT50	Tool	DMSL06020M10Z3	Single-sided, 2 edges
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*20*	*20*
	Number of Teeth	3	2
	v_c (SFM)	308	308
	v_f (IPM)	157	79
	f_z (IPT)	.035	.026
	a_p (Inch)	.039	.039
	a_e (inch)	.787	.787
	Coolant	Wet	Wet
	Results	Less chatter at an overhang amount of 4.72" (carbide arbor), efficiency 2x	

Carbon Steel Automotive Component		Sumitomo	Competitor's Product
Vertical Machining Center: BT40	Tool	DMSL06020M10Z3	—
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*20*	*20*
	Number of Teeth	3	3
	v_c (SFM)	656	525
	v_f (IPM)	354	154
	f_z (IPT)	.037	.020
	a_p (Inch)	.014	.020
	a_e (inch)	.787	.984
	Coolant	Dry	Wet
	Results	Stable milling at an overhang length of 5.12" (carbide arbor), efficiency 2x	

Heat Treated (40HRc) Die/Mold Component		Sumitomo	Competitor's Product
Vertical Machining Center: BT40	Tool	DMSL06025E04	Single-sided, 4 edges
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*25*	*32*
	Number of Teeth	4	4
	v_c (SFM)	623	492
	v_f (IPM)	378	235
	f_z (IPT)	.039	.039
	a_p (Inch)	.016	.016
	a_e (inch)	.709	.985
	Coolant	Dry	Wet
	Results	Suggested running DMSL dry. Tool life doubled and provided more stability.	



Titanium Alloy Ti-6Al-4V Aerospace Component		Sumitomo	Competitor's Product
Vertical Machining Center: BT40	Tool	DMSL06025E04	Double-sided, 4 edges
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*25*	*25*
	Number of Teeth	4	4
	v_c (SFM)	164	197
	v_f (IPM)	78.7	47.2
	f_z (IPT)	.031	.016
	a_p (Inch)	.028	.028
	a_e (inch)	.59	.59
	Coolant	Wet	Wet
	Results	DMSL provided lower vibration and improved stability. Over 40% efficiency increase.	



■ Application Examples (DMSW)

Cast Steel Machine Component		Sumitomo	Competitor's Product
Horizontal Machining Center: BT50	Tool	DMSW08080RS06	Single-Sided, 2 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*80*	*80*
	Number of Teeth	6	5
	v_c (SFM)	262	262
	v_f (IPM)	35	35
	f_z (IPT)	.0185	.022
	a_p (Inch)	.039	.039
	a_e (inch)	2.36	2.36
	Coolant	Wet	Wet
	Results	Stable with no sudden fractures in mill-scale work, achieving 1.3x longer tool life.	

Carbon Steel S45C Machine Component		Sumitomo	Competitor's Product
Boring Machine BT50	Tool	DMSW08050RS05	Single-Sided, 4 Corners
	Grade	ACU2500	—
	Chipbreaker	G	—
	Cutter Dia. (*mm*)	*50*	*50*
	Number of Teeth	5	5
	v_c (SFM)	620	620
	v_f (IPM)	197	197
	f_z (IPT)	.033	.033
	a_p (Inch)	.039	.039
	a_e (inch)	1.97	1.97
	Coolant	Dry	Dry
	Results	Achieved 240 min of cutting without indexing the inserts.	

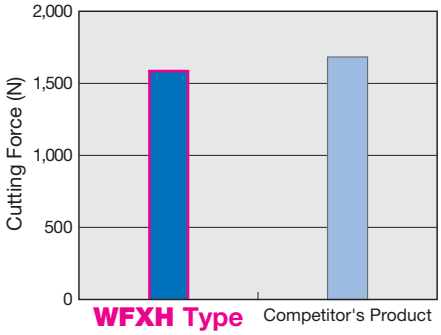
■ General Features

WFXH Series are high performance multi-functional cutters that use a WFX series insert to support roughing at high feed rates and other milling applications.
Now available in ACU2500.

■ Features

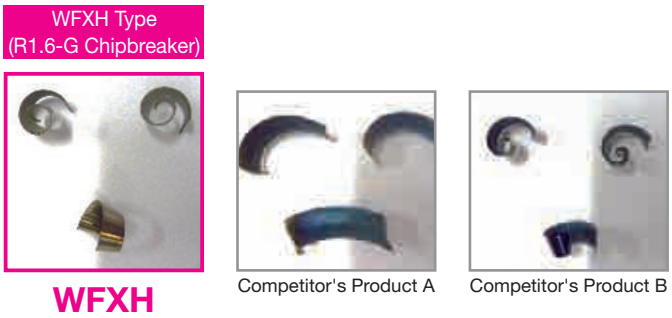
(1) Stable, high-efficiency machining due to insert's superior sharpness
(2) Various milling applications are supported (ramping, helical milling)
(3) Various inserts for the WFX series can be used

Cutting force: High sharpness provides stable cutting



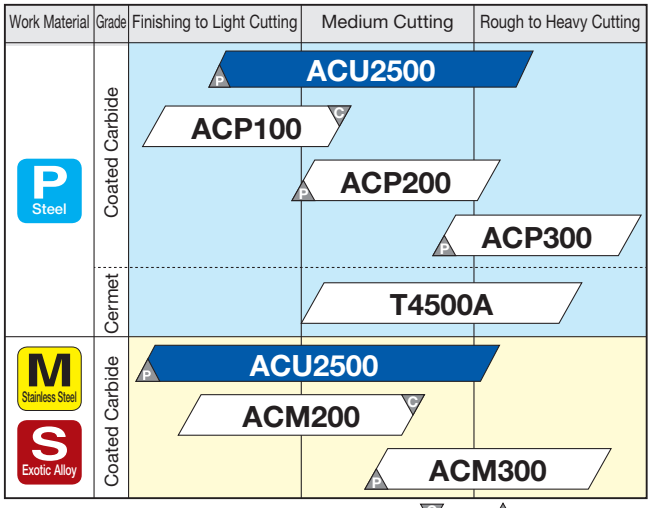
Part Material: 1050
Tool: WFXH12063RS (5 flutes)
Cutting Conditions: v_c=656 SFM, f_z=0.039"/t, a_p=0.019", a_e=1.73", Dry

Chips: Small, curly chips at low cutting temperature

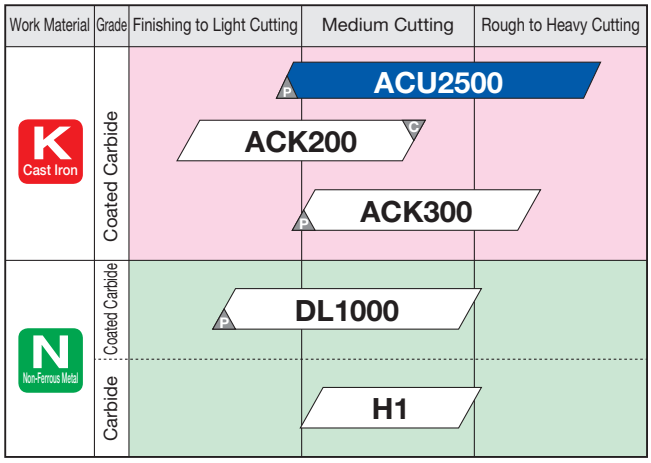


Part Material: 1050
Tool: WFXH12063RS, SOMT120416PDER-G (ACP200)
Cutting Conditions: v_c=656 SFM, f_Z=0.039"/t, a_p=0.039", a_e=1.38", Dry

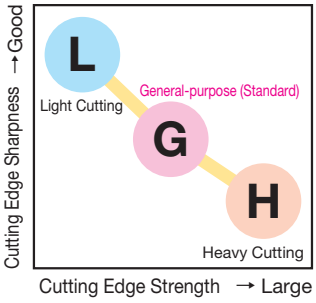
■ Grade Application Range



The letters "C" and "P" at the end of each grade indicate the coating type. C: CVD, P: PVD, Blank: Uncoated



■ Chipbreaker Selection



Work Material	P M K			N
	L Type	G Type	H Type	S Type
Chipbreaker				
Features	Low Cutting Force	General-purpose Type	High Strength Type	Sharp Edge
Cutting Edge Cross Section	20°	15°	10°	25°
Applications	Light Cutting, Low Rigidity Milling and Reduction of Burrs	Main Chipbreaker General Purpose to Interrupted Milling	Roughing, Heavy Interrupted Cutting and Hardened Steel Milling	For Non-Ferrous Metals

■ Precautions for Use (1) Precautions for Corner Finishing

* Corners have remaining material or over-cut portion with respect to the expected corner profile.

Fig 1

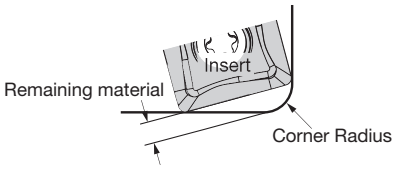
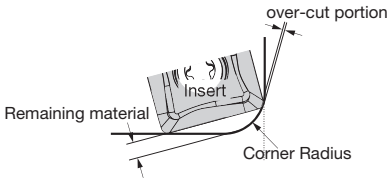


Fig 2



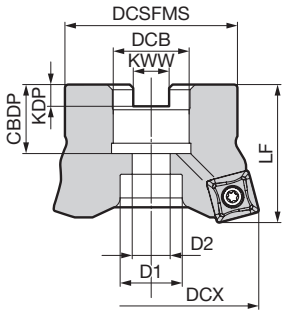
WFXH08000RS

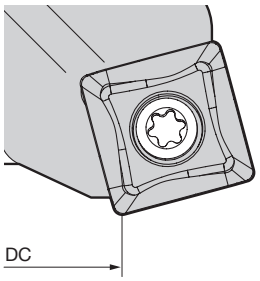
Corner Radius	SOMT08○○04-□			SOMT08○○08-□			SOMT08○○12-□		
	Remaining material	over-cut portion	Shape	Remaining material	over-cut portion	Shape	Remaining material	over-cut portion	Shape
2.0	1.41	0	Fig 1	1.30	0	Fig 1	1.21	0	Fig 1
2.5	1.30	0.02	Fig 2	1.19	0.01	Fig 2	1.09	0	Fig 1
3.0	-	-	-	-	-	-	0.98	0.05	Fig 2

WFXH12000RS

Corner Radius	SOMT12○○04-□			SOMT12○○08-□			SOMT12○○12-□			SOMT08○○16-□		
	Remaining material	over-cut portion	Shape	Remaining material	over-cut portion	Shape	Remaining material	over-cut portion	Shape	Remaining material	over-cut portion	Shape
2.0	2.58	0	Fig 1	2.48	0	Fig 1	2.37	0	Fig 1	2.25	0	Fig 1
2.5	2.47	0	Fig 1	2.37	0	Fig 1	2.25	0	Fig 1	2.14	0	Fig 1
3.0	2.36	0	Fig 1	2.26	0	Fig 1	2.14	0	Fig 1	2.11	0	Fig 1
3.5	2.24	0.01	Fig 2	2.14	0	Fig 1	2.03	0	Fig 1	1.91	0	Fig 1
4.0	-	-	-	2.03	0.04	Fig 2	1.91	0.03	Fig 2	1.8	0.01	Fig 2

■ Precautions for Use (2) The minimum machining diameter DC differs depending on the insert used. We recommend using WFXH Type large nose radius inserts.





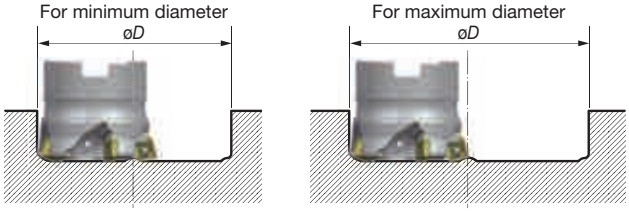
Inch Size (Inch)

Body Cat. No.	DCX	DC		
		R0.4	R0.8	R1.2
WFXH31000EW03	1.0000	.4252	.4449	.4685
WFXH31250EW04	1.2500	.6752	.6949	.7185
WFXH31500R	1.5000	.9252	.9449	.9685
WFXH32000R	2.0000	1.4134	1.4331	1.4567

Metric Size (*mm*)

Body Cat. No.	DCX	DC			
		R0.4	*R0.8*	*R1.2*	*R1.6*
WFXH08025M12Z2	25	10.4	10.9	11.5	—
WFXH08032M12Z3	32	17.4	17.9	18.5	—
WFXH08040RS	40	25.4	25.9	26.5	—
WFXH08050RS	50	35.4	35.9	36.5	—
WFXH08050RS-Z6	50	35.4	35.9	36.5	—
WFXH08063RS	63	48.4	48.9	49.5	—
WFXH12040M12Z3	40	16.6	17.1	17.5	18.1
WFXH12050RS	50	26.6	27.2	27.7	28.2
WFXH12063RS	63	39.5	40.0	40.4	41.1

■ Ramping and Helical Milling



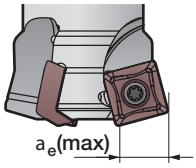
Min. Diameter, Max. Diameter

Ramping Angle

Insert Cat. No.	Max Diameter DCX (Inch/mm)	Helical Milling (inch) Min. Dia.	Helical Milling (inch) Max. Dia.	Ramping Maximum Ramping Angle
SOMT08○○04-□	**1.000**	1.419	1.934	1.5°
	1.250	1.916	2.434	0.5°
	1.500	2.414	2.934	0.5°
	2.000	Impossible	Impossible	Impossible
	25	1.378	1.929	1°30'
	32	1.929	2.480	0°30'
	40	2.559	3.110	0°30'
	50	Impossible	Impossible	0°30'
	63	Impossible	Impossible	Impossible
SOMT08○○08-□	**1.000**	1.405	1.921	3.0°
	1.250	1.901	2.421	1.5°
	1.500	2.400	2.921	1.0°
	2.000	3.379	3.902	0.5°
	25	1.378	1.850	3°
	32	1.929	2.441	1°30'
	40	2.559	3.071	1°
	50	3.346	3.858	0°30'
	63	4.370	4.882	0°30'
SOMT08○○12-□	**1.000**	1.390	1.908	4.0°
	1.250	1.887	2.408	2.5°
	1.500	2.385	2.908	1.5°
	2.000	3.365	3.889	1.0°
	25	1.339	1.850	4°30'
	32	1.889	2.402	2°30'
	40	2.519	3.032	1°30'
	50	3.307	3.819	1°
	63	4.331	4.842	0°30'

Insert Cat. No.	Max Diameter DCX	Helical Milling (inch) Min. Dia.	Helical Milling (inch) Max. Dia.	Ramping Maximum Ramping Angle
SOMT12○○04-□	***40***	2.204	3.110	1°
	50	2.992	3.898	0°30'
	63	Impossible	Impossible	Impossible
SOMT12○○08-□	***40***	2.204	3.071	1°30'
	50	2.992	3.858	1°
	63	4.016	4.882	0°30'
SOMT12○○12-□	***40***	2.165	3.032	2°30'
	50	2.953	3.819	1°30'
	63	3.976	4.843	1°
SOMT12○○12-□	***40***	2.165	2.992	3°30'
	50	2.953	3.779	2°
	63	3.976	4.803	1°30'

■ Maximum Depth of Cut when Plunging



Lower the feed rate when plunging.

Insert Cat. No.	Maximum Depth of Cut a_e(max)
SOMT08	0.236"
SOMT12	0.394"

■ Recommended Cutting Conditions

Work Material	Insert Grade	Cutting Speed v_c(SFM)	Insert Cat. No.	ø25 a_p (inch)	ø25 f_z (IPT)	ø32 a_p (inch)	ø32 f_z (IPT)	ø40 a_p (inch)	ø40 f_z (IPT)	ø50 a_p (inch)	ø50 f_z (IPT)	ø63 a_p (inch)	ø63 f_z (IPT)
P General Steel Below 200HB	ACP200	330-720	**SOMT08**	0.0315	0.0315	0.0315	0.0315	-	-	0.0315	0.0315	0.0315	0.0315
			SOMT12	-	-	-	-	0.0394	0.0394	0.394	0.0394	0.0394	0.0394
P Alloy Steel Below 45HRC	ACP200	260-650	**SOMT08**	0.0275	0.0315	0.0275	0.0315	-	-	0.0275	0.0315	0.0275	0.0315
			SOMT12	-	-	-	-	0.0315	0.0394	0.0315	0.0394	0.0315	0.0394
M Stainless Steel 304, etc.	ACM300	260-540	**SOMT08**	0.0315	0.0275	0.0315	0.0275	-	-	0.0315	0.0275	0.0315	0.0275
			SOMT12	-	-	-	-	0.0394	0.0315	0.0394	0.0315	0.0394	0.0315
K Cast Iron FC, FCD	ACK300	330-720	**SOMT08**	0.0315	0.0394	0.0315	0.0394	-	-	0.0315	0.0394	0.0315	0.0394
			SOMT12	-	-	-	-	0.0394	0.0472	0.0394	0.0472	0.0394	0.0472
H Hardened Steel Below 50HRC	ACK300	135-360	**SOMT08**	0.0197	0.0197	0.0197	0.0197	-	-	0.0197	0.0197	0.0197	0.0197
			SOMT12	-	-	-	-	0.0236	0.0315	0.0236	0.0315	0.0236	0.0315

· The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity.
The above figures are guidelines for use with BT50 machine tools.

· The above recommended cutting conditions assume a tool overhang length of L/D=3 (i.e. overhang length of 3 times tool diameter) or less.
When tool overhang is more than L/D=3 and less than or equal to L/D=5, settings should be adjusted to approximately 70 to 80% of those indicated in the above recommended cutting conditions (a_p, f_z).
When tool overhang is more than L/D=5 and less than or equal to L/D=8, settings should be adjusted to approximately 50 to 60% of those indicated in the above recommended cutting conditions (a_p, f_z).

WFXH Shellmill & Endmill - *8mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | S Exotic Alloy

Rake Angle		
	Radial	−6°
	Axial	6°

0.059" 15°

Fig 1

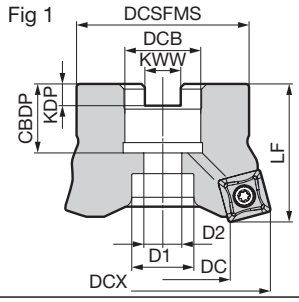
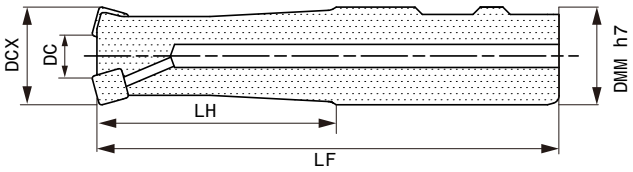


Fig 2



Shellmill Body with Applicable Insert: SOMT08

★: Worldwide Warehouse Item ● USA stocked item

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lb / *kg*)	Fig
Inch	**WFXH31500R** New	●	1.500	*.9685	1.338	1.530	.750	.312	.190	.750	.609	.406	5	.44	1
Inch	**WFXH32000R** New	●	2.000	*1.4567	1.500	1.750	.750	.312	.190	.750	.609	.406	6	.66	1
Metric	**WFXH08040RS**	★	*40*	**26.5*	*33*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	*4*	*.20*	1
Metric	**WFXH08050RS**	★	*50*	**36.5*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	*5*	*.30*	1
Metric	**WFXH08050RS-Z6**	★	*50*	**36.5*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	*6*	*.30*	1
Metric	**WFXH08063RS**	★	*63*	**49.5*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	*6*	*.50*	1

Inserts are sold separately. * DC value with corner radius: R1.2, see page H138 for details

Endmill Body with Applicable Insert: SOMT08

Dimensions (inch)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Head LH	Overall Length LF	Number of Teeth	Weight (lb)	Fig
Inch	**WFXH31000EW03** New	●	1.000	*.4685	1.000	2.500	4.780	3	.88	2
Inch	**WFXH31250EW04** New	●	1.250	*.7185	1.250	2.500	4.780	4	1.32	2

Inserts are sold separately. * DC value with corner radius: R1.2, see page H138 for details

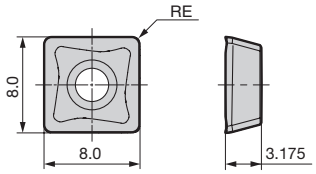
Insert

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
Process	General-purpose	K S M		P M	P M	K		M S	M S		N	P
Process	Roughing	K S M		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Fig
SOMT080304PZER-L	★	★	★	★	★	★	★	★	-	-		*0.4*	1
SOMT080308PZER-L		★	★	★	★	★	★	★	-	-		*0.8*	1
SOMT080304PZER-G	★	★	★	★	★	★	★	★	-	-		*0.4*	1
SOMT080308PZER-G	★	★	★	★	★	★	★	★	-	-		*0.8*	1
SOMT080312PZER-G	★	★	★	★	★	★	★	★	-	-		*1.2*	1
SOMT080308PZER-H	★	★	★	★	★	★	★	★	-	-		*0.8*	1
SOMT080312PZER-H	★	★	★	★	★	★	★	★	-	-		*1.2*	1
SOET080304PZER-G	★	★	★	★	★	★	★	★	-	-	★	*0.4*	1
SOET080308PZER-G	★	★	★	★	★	★	★	★	-	-	★	*0.8*	1
SOET080312PZER-G	★	★	★	★	★	★	★	★	-	-	★	*1.2*	1
SOET080302PZFR-S *	-	-	-	-	-	-	-	-	★	★	-	*0.2*	1
SOET080304PZFR-S *	-	-	-	-	-	-	-	-	★	★	-	*0.4*	1
SOET080308PZFR-S *	-	-	-	-	-	-	-	-	★	★	-	*0.8*	1

Fig 1



★: Worldwide Warehouse Item

*If the cutting edge strength for high efficiency milling of non-ferrous metal is insufficient, try a G chipbreaker (ACK300).

Parts

Flat Screw		Wrench
	N·m	
BFTX0306IP	2.0	TRDR08IP

SUMI-P Anti-seize cream included in the package.

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"

Identification Code

WFX H 08 040 RS - Z6

Cutter Series	For High Efficiency Milling	Insert Size	Dia.	Metric Bore	Fine Pitch Type (Number is no. of teeth)

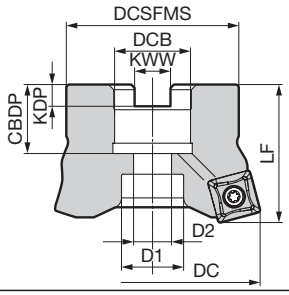
WFXH Shellmill -12mm Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | S Exotic Alloy

Rake Angle	Radial	−6°
	Axial	6°

2.5mm 15°

Fig 1



Body (WFXH12000RS) Applicable Insert: SOMT12

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WFXH12050RS**	★	*50*	**28.2*	*41*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	4	*0.3*	1
	WFXH12063RS	★	*63*	**41.1*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	5	*0.4*	1

Inserts are sold separately. * DC value with corner radius: R1.2, see page H138 for details

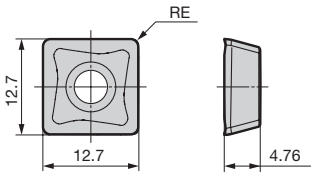
★: Worldwide Warehouse Item

Insert

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet		
Process	High-speed / Light		P			K		M S		K N	N			
	General-purpose	P M S		P M	P M	K		M S	M S		N	P		
	Roughing	P M S		P M	P M		K		M S					
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Fig
SOMT120408PDER-L		●	●	●	●	●	●	●	●	-	-	-	*0.8*	1
SOMT120404PDER-G		★	●	●	●	●	●	●	●	-	-	-	*0.4*	1
SOMT120408PDER-G		★	●	●	●	●	●	●	●	-	-	●	*0.8*	1
SOMT120412PDER-G		★	●	●	●	●	●	●	●	-	-	-	*1.2*	1
SOMT120416PDER-G			●	●	●	●	●	●	●	-	-	-	*1.6*	1
SOMT120408PDER-H		★	●	●	●	●	●	●	●	-	-	-	*0.8*	1
SOET120408PDFR-S *			-	-	-	-	-	-	-	●	●	-	*0.8*	1

Fig 1



● USA stocked item

*If the cutting edge strength for high efficiency milling of non-ferrous metal is insufficient, try a G-type chipbreaker (ACK300).

Parts

Insert Screw		Wrench
	N·m	
BFTX03512IP	3.0	TRDR15IP

SUMI-P Anti-seizure cream included in the package.

Identification Code

WFX H 12 050 RS

Cutter Series	For High Efficiency Milling	Insert Size	Dia.	Metric Bore

N·m Recommended Tightening Torque (N·m)

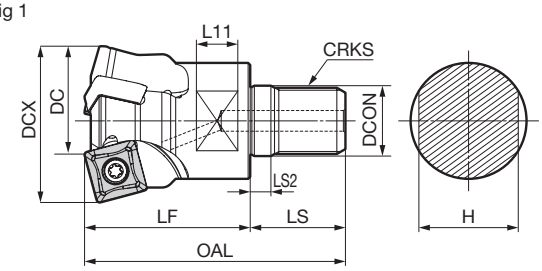
WFXH Modular - 8mm / 12 mm Inserts

Rake Angle		
	Radial	-6°
	Axial	6°

1.5mm 15° (08000M Type)

2.5mm 15° (12000M Type)

Fig 1



Head (WFXH 08000M) Applicable Insert: SOMT08

Dimensions (mm)

Cat. No.	Stock	Max Dia. DCX	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
WFXH08025M12Z2	★	25	*11.5	12.5	**M12**	56	35	5	21	10	19	2	0.1	1
WFXH08032M16Z3	★	32	*18.5	17.0	**M16**	63	40	5	23	10	24	3	0.2	1

Inserts are sold separately.* DC value with corner radius: R1.2, see page H138 for details

Head (WFXH 12000M) Applicable Insert: SOMT12

Dimensions (mm)

Cat. No.	Stock	Max Dia. DCX	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
WFXH12040M16Z3	★	40	*18.1	17.0	**M16**	63	40	5	23	10	24	3	0.2	1

Inserts are sold separately.* DC value with corner radius: R1.2, see page H138 for details

Insert

★ Worldwide Warehouse item

Dimensions (mm)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M/S		K/N	N	
	General-purpose	P/S		P/M	P/M	K		M/S	M/S		N	P
	Roughing	P/S		P/M	P/M		K		M/S			

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Fig
SOMT080304PZER-L	★	●	●	●	●	●	●	●	-	-		0.4	1
SOMT080308PZER-L		●	●	●	●	●	●	●	-	-		0.8	1
SOMT080304PZER-G	★	●	●	●	●	●	●	●	-	-		0.4	1
SOMT080308PZER-G	★	●	●	●	●	●	●	●	-	-		0.8	1
SOMT080312PZER-G	★	●	●	●	●	●	●	●	-	-		1.2	1
SOMT080308PZER-H	★	●	●	●	●	●	●	●	-	-		0.8	1
SOMT080312PZER-H	★	●	●	●	●	●	●	●	-	-		1.2	1
SOET080304PZER-G	★	●	●	●	●	●	●	●	-	-	●	0.4	1
SOET080308PZER-G	★	●	●	●	●	●	●	●	-	-	●	0.8	1
SOET080312PZER-G	★	●	●	●	●	●	●	●	-	-	●	1.2	1
SOET080302PZFR-S	-	-	-	-	-	-	-	-	●	●	-	0.2	1
SOET080304PZFR-S	-	-	-	-	-	-	-	-	●	●	-	0.4	1
SOET080308PZFR-S	-	-	-	-	-	-	-	-	●	●	-	0.8	1
SOMT120408PDER-L		●	●	●	●	●	●	●	-	-	-	0.8	2
SOMT120404PDER-G		●	●	●	●	●	●	●	-	-	-	0.4	2
SOMT120408PDER-G		●	●	●	●	●	●	●	-	-	●	0.8	2
SOMT120412PDER-G		●	●	●	●	●	●	●	-	-	-	1.2	2
SOMT120416PDER-G		●	●	●	●	●	●	●	-	-	-	1.6	2
SOMT120408PDER-H		●	●	●	●	●	●	●	-	-	-	0.8	2
SOET120408PDFR-S	-	-	-	-	-	-	-	-	●	●	-	0.8	2

Fig 1

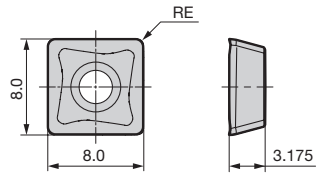
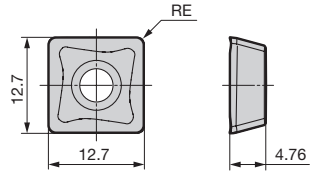


Fig 2



Identification Code

WFX H 08 025 M12 Z2

Cutter Series	For High Efficiency Milling	Insert Size	Dia.	Mounting Screw Size	Number of Teeth

Recommended Cutting Conditions

Work Material	Insert Grade	Cutting Speed v_c (m/min)	Insert Cat. No.	ø25 a_p (mm)	ø25 Feed Rate (mm/rev)	ø32 a_p (mm)	ø32 Feed Rate (mm/rev)	ø40 a_p (mm)	ø40 Feed Rate (mm/rev)	ø50 a_p (mm)	ø50 Feed Rate (mm/rev)	ø63 a_p (mm)	ø63 Feed Rate (mm/rev)
P General Steel Below 200HB	ACP200	100-**150**-200	**SOMT08**	0.8	0.8	0.8	0.8	—	—	0.8	0.8	0.8	0.8
			SOMT12	—	—	—	—	1.0	1.0	1.0	1.0	1.0	1.0
P Alloy Steel Below HRC45	ACP200	80-**130**-180	**SOMT08**	0.7	0.8	0.7	0.8	—	—	0.7	0.8	0.7	0.8
			SOMT12	—	—	—	—	0.8	1.0	0.8	1.0	0.8	1.0
M Stainless Steel SUS304, etc.	ACM300	80-**120**-150	**SOMT08**	0.8	0.7	0.8	0.7	—	—	0.8	0.7	0.8	0.7
			SOMT12	—	—	—	—	1.0	0.8	1.0	0.8	1.0	0.8
K Cast Iron FC, FCD	ACK300	100-**150**-200	**SOMT08**	0.8	1.0	0.8	1.0	—	—	0.8	1.0	0.8	1.0
			SOMT12	—	—	—	—	1.0	1.2	1.0	1.2	1.0	1.2
H Hardened Steel Below HRC50	ACK300	40- **80**-100	**SOMT08**	0.5	0.5	0.5	0.5	—	—	0.5	0.5	0.5	0.5
			SOMT12	—	—	—	—	0.6	0.8	0.6	0.8	0.6	0.8

· The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity. The above figures are guidelines for use with BT50 machine tools.

· The above recommended cutting conditions assume a tool overhang length of L/D=3 (i.e. overhang length of 3 times tool diameter) or less.
When tool overhang is more than L/D = 3 and less than or equal to L/D=5, settings should be adjusted to approximately 70 to 80% of those indicated in the above recommended cutting conditions (i.e. a_p and Feed Rate).
When tool overhang is more than L/D = 5 and less than or equal to L/D=8, settings should be adjusted to approximately 50 to 60% of those indicated in the above recommended cutting conditions (i.e. a_p and feed rate).

Parts

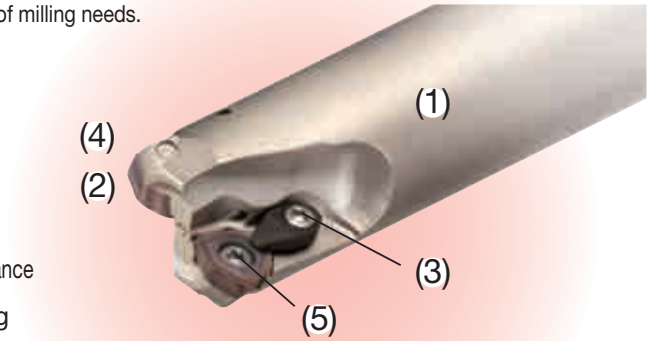
Applicable Endmill	Flat Screw	N·m	Wrench
WFXH08000M	BFTX0306IP	2.0	TRDR08IP
WFXH12000M	BFTX03512IP	3.0	TRDR15IP

SUMI-P Anti-seize cream included in the package.

N·m Recommended Tightening Torque (N·m)

■ General Features

The Metal Slash Mill MSX is a multi-purpose cutter capable of roughing at high feeds. Its wide application range dramatically boosts efficiency.
Inserts are available in four sizes, ranging from ø.750" to ø6.000" diameter, to cover a wide variety of milling needs.

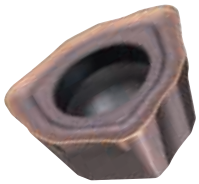


■ Features

(1) **Highly Durable Body** Special surface treatment improves scratch resistance
(2) **Versatile Machining Operations** Use for ramping, helical and pocketing
(3) **Double Clamp** Stable milling with a strong clamp is possible (MSX06000 or MSX08000 units with ø22mm or less use a single clamp)
(4) **With Coolant Hole** Improved chip evacuation with air or coolant supply hole and specially shaped pocket design
(5) **Insert Shape** Unique tool shape combines sharpness and cutting edge strength

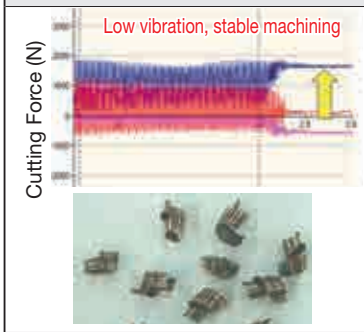
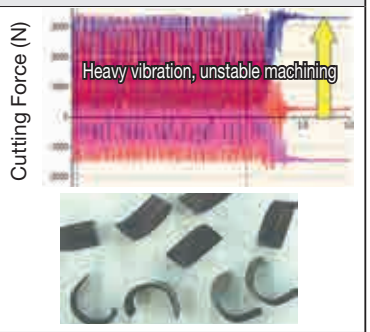
■ Insert Applications and Types

· Insert utilizes a special cutting edge profile.
· Economical, three-cornered insert

Type	General-Purpose	Strong Edge
Applications	General Milling (First Recommendation)	Interrupted Milling
Appearance / Features	 Sharper Edge	Emphasis on Fracture Resistance

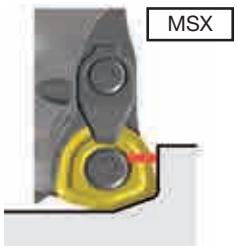
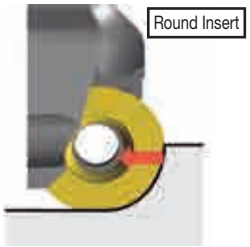
■ Cutting Performance

● Comparison of Cutting Force

MSX	Conventional Tool
	

Part Material: 1050
Cutting Conditions: v_c=492 SFM, f_z=0.04 IPT, a_p=0.984in, a_e=0.08in

● Shoulder Milling Comparison of MSX and Conventional Tool

MSX	Conventional Tool
Performs under high conditions	Prone to chatter
	
Cutting force is consistent even when depth of cut is increased, for stable cutting performance.	Greater depth of cut increases contact length, which increases cutting force.

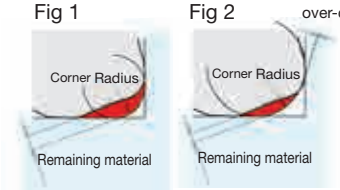
■ Product Range

	Type	External Diameter				Applicable Insert
		Inch	Number of Teeth	MM	Number of Teeth	
Shellmill	**MSX3/08**	1.50" to 2.00"	4 to 5	ø40	4 to 5	WDMT 08
	MSX4/12	2.00" to 4.00"	4 to 7	ø50 to ø63	4 to 7	WDMT 12
	MSX5/14	2.00" to 6.00"	4 to 8	ø50 to ø100	3 to 8	WDMT 14
Endmill	**MSX2/06**	0.75"	3	ø16 to ø25	2 to 3	WDMT 06
	MSX3/08	1.00" to 1.50"	2 to 4	ø20 to ø35	2 to 4	WDMT 08
	MSX4/12	1.25" to 1.50"	2 to 3	ø32 to ø50	2 to 4	WDMT 12
	MSX5/14	-	-	ø40 to ø63	2 to 4	WDMT 14
Modular	**MSX2/06**	0.75" to 1.00"	3	ø16 to ø25	2 to 3	WDMT 06
	MSX3/08	1.00" to 1.25"	3	ø25 to ø35	2 to 3	WDMT 08
	MSX4/12	-		ø32 to ø40	2 to 3	WDMT 12

■ Precautions for Corner Finishing

* Corners will have remaining material or gouges with respect to the expected corner profile.

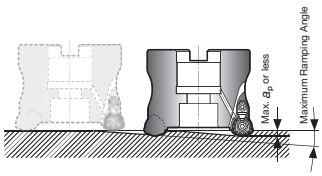
Fig 1 Fig 2 over-cut portion



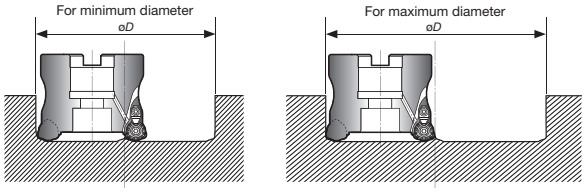
Corner Radius	MSX06000			MSX08000			MSX12000			MSX14000		
	Remaining Material	Over-Cut Portion	Fig	Remaining Material	Over-Cut Portion	Fig	Remaining Material	Over-Cut Portion	Fig	Remaining Material	Over-Cut Portion	Fig
.079	0.016	0	1	0.029	0	1	0.052	0	1	0.065	0	1
.098	0.010	0.003	2	0.023	0	1	0.046	0	1	0.059	0	1
.118				0.018	0.001	2	0.041	0	1	0.054	0	1
.138							0.035	0.00004	2	0.048	0	1
.157										0.042	0.00063	2

■ Ramping and Helical Milling

Ramping



Helical Milling



Uncut material at the center not removable with same cutter. Uncut material at the center removable with same cutter using traverse cutting.

øDc (mm / in.)	WDMT06			WDMT08			WDMT12			WDMT14		
	Ramping	Helical Milling		Ramping	Helical Milling		Ramping	Helical Milling		Ramping	Helical Milling	
	Max. Ramping Angle	Min.	Max.	Max. Ramping Angle	Min.	Max.	Max. Ramping Angle	Min.	Max.	Max. Ramping Angle	Min.	Max.
16	6° 00'	0.827	1.181									
17	5° 00'	0.905	1.259									
18	4° 30'	1	1.339									
20	3° 30'	1.142	1.496	7° 30'	1	1.496						
22	3° 00'	1.299	1.654	5° 30'	1.142	1.654						
25	2° 00'	1.535	1.889	4° 00'	1.378	1.889						
28				3° 00'	1.614	2.126						
32				2° 30'	1.929	2.441	6° 30'	1.654	2.441			
35				2° 00'	2.165	2.677	5° 00'	1.889	2.677			
40				2° 00'	2.559	3.071	4° 00'	2.284	3.071	6° 00'	2.087	3.071
50							2° 30'	3.071	3.858	3° 30'	2.874	3.858
63							2° 00'	4.055	4.882	2° 00'	3.898	4.882
80										1° 30'	5.236	6.221
100										1° 00'	6.811	7.795
0.750	4° 00'	1.11	1.417									
1.000	2° 00'	1.58	1.92	4° 00'	1.42	1.92						
1.250				2° 30'	1.93	2.4	6° 30'	1.62	2.4			
1.500				1° 30'	2.45	2.91	4° 00'	2.13	2.91			
2.000				1° 00'	3.39	3.91	2° 30'	3.08	3.91	3° 30'	2.90	3.91
2.500							1° 30'	4.08	4.91	2° 30'	3.90	4.91
3.000							1° 00'	5.08	5.91	1° 30'	4.90	5.91
4.000							0° 30'	7.08	7.91	1° 00'	6.90	7.91
5.000										0° 30'	8.90	9.91
6.000										0° 30'	10.90	11.91

■ Recommended Cutting Conditions

Insert Cat. No.	Max. a_p	RE	Approx. RE
WDMT0603	1.0	1.5	2.0
WDMT0804	1.5	2.0	2.5
WDMT1205	2.0	2.0	3.0
WDMT1406	2.5	2.0	3.5

Insert Cat. No.	Max. a_p	RE (in)	Approx. RE (in.)*
WDMT0603	0.039"	0.0591"	0.0787"
WDMT0804	0.059"	0.0787"	0.098"
WDMT1205	0.079"	0.0787"	0.118"
WDMT1406	0.098"	0.0787"	0.138"

*Programmed Radius

(a_p: Depth of Cut f_z: Feed Rate)

Work Material	Insert Grade	Cutting Speed v_c (SFM)	Insert Cat. No.	Endmill ø16		ø20		ø25		ø32		ø40		Shellmill ø50/ø63		ø80/ø100	
				a_p (in)	f_z (IPT)	a_p (in)	f_z (IPT)	a_p (in)	f_z (IPTt)	a_p (in)	f_z (IPT)	a_p (in)	f_z (IPT)	a_p (in)	f_z (IPT)	a_p (in)	f_z (IPT)
P General Steel Below 200HB	ACP200	330 - 650	WDMT0603	0.032	0.032	0.032	0.032	-	-	-	-	-	-	-	-	-	-
			WDMT0804	-	-	0.039	0.039	0.039	0.047	0.039	0.047	-	-	-	-	-	-
			WDMT1205	-	-	-	-	-	-	0.047	0.055	0.047	0.055	0.047	0.055	-	-
			WDMT1406	-	-	-	-	-	-	-	-	0.059	0.059	0.059	0.059	0.059	0.059
P Alloy Steel Below 45HRC	ACP200	260 - 590	WDMT0603	0.028	0.032	0.028	0.032	-	-	-	-	-	-	-	-	-	-
			WDMT0804	-	-	0.032	0.039	0.032	0.047	0.032	0.047	-	-	-	-	-	-
			WDMT1205	-	-	-	-	-	-	0.039	0.055	0.039	0.055	0.039	0.055	-	-
			WDMT1406	-	-	-	-	-	-	-	-	0.051	0.059	0.051	0.059	0.051	0.059
M Stainless Steel SUS304, etc.	ACP300	260 - 500	WDMT0603	0.032	0.028	0.032	0.028	-	-	-	-	-	-	-	-	-	-
			WDMT0804	-	-	0.039	0.032	0.039	0.032	0.039	0.032	-	-	-	-	-	-
			WDMT1205	-	-	-	-	-	-	0.047	0.047	0.047	0.047	0.047	0.047	-	-
			WDMT1406	-	-	-	-	-	-	-	-	0.059	0.051	0.059	0.051	0.059	0.051
K Cast Iron FC, FCD	ACK200 ACK300	330 - 650	WDMT0603	0.032	0.039	0.032	0.039	-	-	-	-	-	-	-	-	-	-
			WDMT0804	-	-	0.039	0.047	0.039	0.055	0.039	0.055	-	-	-	-	-	-
			WDMT1205	-	-	-	-	-	-	0.047	0.059	0.047	0.059	0.047	0.059	-	-
			WDMT1406	-	-	-	-	-	-	-	-	0.059	0.071	0.059	0.071	0.059	0.071
H Hardened Steel Below 50HRC	ACK200 ACK300	130 - 330	WDMT0603	0.020	0.020	0.020	0.020	-	-	-	-	-	-	-	-	-	-
			WDMT0804	-	-	0.020	0.020	0.020	0.032	0.020	0.032	-	-	-	-	-	-
			WDMT1205	-	-	-	-	-	-	0.024	0.039	0.024	0.039	0.024	0.039	-	-
			WDMT1406	-	-	-	-	-	-	-	-	0.039	0.047	0.039	0.047	0.039	0.047

· The above recommended cutting conditions may require adjustment depending on machine rigidity and work rigidity. The above figures are guidelines for use with BT50 machine tools.

· The above recommended cutting conditions assume a tool overhang length of L/D=3 (i.e. overhang length of 3 times tool diameter) or less. When tool overhang is more than L/D=3 and less than or equal to L/D=5, settings should be adjusted to approximately 70 to 80% of those indicated in the above recommended cutting conditions (a_p, f_z). When tool overhang is more than L/D=5 and less than or equal to L/D=8, settings should be adjusted to approximately 50 to 60% of those indicated in the above recommended cutting conditions (a_p, f_z).

MSX SHELLMILL (8mm / 12mm / 14mm insert)

P Steel | M Stainless Steel | K Cast Iron | H Hardened Steel | S Exotic Alloy

Rake Angle		
	Radial	–3° to –8°
	Axial	8°

1.5mm 20° | .0591" 20° (08000 Type) | 2.0mm 20° | .079" 20° (12000 Type) | 2.5mm 20° | .096" 20° (14000 Type)

Fig 1

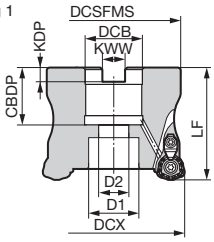
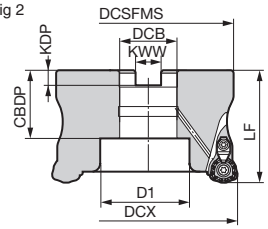


Fig 2



Body with Applicable Insert WDMT08

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**MSX31500R**	●	1.500	1.339	1.530	.750	.312	.190	.750	.609	.406	4	0.58	1
Inch	**MSX32000R**	●	2.000	1.850	2.000	.750	.312	.190	.750	.609	.406	5	0.74	1
Metric	**MSX08040RS**	★	*40*	*37*	*45*	*16*	*8.4*	*5.6*	*18*	*13.5*	*9*	4	*0.2*	1

Body with Applicable Insert WDMT12

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**MSX42000R**	●	2.000	1.850	2.000	.750	.312	.190	.750	.609	.406	4	0.74	1
Inch	**MSXM42000R**	●	2.000	1.850	2.000	.750	.312	.190	.750	.609	.406	5	0.77	1
Inch	**MSX42500R**	●	2.500	2.362	2.000	1.000	.375	.220	.750	.797	.530	5	1.10	1
Inch	**MSX43000R**	●	3.000	2.756	2.000	1.000	.375	.220	.750	.797	.530	6	1.76	1
Inch	**MSX44000R-1.25**	●	4.000	3.740	2.500	1.250	.500	.280	.750	1.000	.656	7	4.85	1
Inch	**MSX44000R-1.50**	●	4.000	3.740	2.500	1.500	.625	.380	1.000	2.000	.781	7	5.85	1
Metric	**MSX12050RS**	★	*50*	*47*	*50*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	4	*0.3*	1
Metric	**MSX12063RS**	★	*63*	*60*	*50*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	5	*0.6*	1

Body with Applicable Insert WDMT14

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**MSX52000R**	●	2.000	1.850	2.000	.750	.312	.190	.750	.609	.406	4	0.74	1
Inch	**MSX52500R**	●	2.500	2.362	2.000	1.000	.375	.220	.750	.797	.531	5	1.10	1
Inch	**MSX53000R**	●	3.000	2.756	2.000	1.000	.375	.220	.750	.797	.531	5	1.76	1
Inch	**MSX54000R-1.25**	●	4.000	3.740	2.500	1.250	.500	.280	.750	1.000	.656	6	4.85	1
Inch	**MSX54000R-1.50**	●	4.000	3.740	2.500	1.500	.625	.380	1.000	2.000	.781	6	5.85	1
Inch	**MSX55000R**	●	5.000	3.937	2.500	1.500	.625	.380	1.000	2.000	.781	7	7.41	1
Inch	**MSX56000R**	●	6.000	3.937	2.500	1.500	.625	.380	1.000	2.000	.781	8	9.63	1
Metric	**MSX14050RS**	★	*50*	*47*	*50*	*22*	*10.4*	*6.3*	*20*	*17*	*11*	3	*0.3*	1
Metric	**MSX14063RS**	★	*63*	*60*	*50*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	4	*0.6*	1
Metric	**MSX14080RS**	★	**80*	*76*	*63*	*27*	*12.4*	*7.0*	*25*	*20*	*13.5*	5	*1.4*	1
Metric	**MSX14100RS**	★	*100*	*96*	*63*	*32*	*14.4*	*8.5*	*32*	*44*		6	*2.2*	2
Metric	**MSX14080R**	★	**80*	*76*	*63*	*31.75*	*12.7*	*8.0*	*32*	*28*	*17*	5	*1.3*	1
Metric	**MSX14100R**	★	**100*	*96*	*63*	*31.75*	*12.7*	*8.0*	*32*	*28*	*17*	6	*2.4*	1

Inserts are sold separately. ● USA stocked item ★: Worldwide Warehouse Item

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

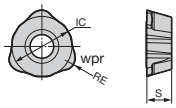
Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide					
Process	High-speed / Light			K		M S	
Process	General-purpose	P M	P M	K		M S	M S
Process	Roughing	P M	P M		K		M S
Applications	Cat. No.	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300
General-purpose	**WDMT0804ZDTR**	●	●	●	●	●	●
General-purpose	**WDMT1205ZDTR**	●	●	●	●	●	●
General-purpose	**WDMT1406ZDTR**	●	●	●	●	●	●
Honed Type	**WDMT0804ZDTR-H**	●	●	●	●	●	●
Honed Type	**WDMT1205ZDTR-H**	●	●	●	●	●	●
Honed Type	**WDMT1406ZDTR-H**	●	●	●	●	●	●

Applicable Cat. No.	Inscribed Circle IC	Thickness S	Nose Radius RE	Wiper Facet Length wpr	Applicable Cutter	Fig
WDMT0804ZDTR	.335" / *8.5*	.157" / *4.0*	.079" / *2.0*	0.035 / *0.9*	MSX08000R Type	1
WDMT1205ZDTR	.473" / *12*	.197" / *5.0*	.079" / *2.0*	0.063 / *1.6*	MSX12000R Type	1
WDMT1406ZDTR	.551" / *14*	.236" / *6.0*	.079" / *2.0*	0.079 / *2.0*	MSX14000R Type	1
WDMT0804ZDTR-H	.335" / *8.5*	.157" / 4.0	.079" / *2.0*	0.035 / *0.9*	MSX08000R Type	1
WDMT1205ZDTR-H	.473" / *12*	.197" / 5.0	.079" / *2.0*	0.063 / *1.6*	MSX12000R Type	1
WDMT1406ZDTR-H	.551" / *14*	.236" / 6.0	.079" / *2.0*	0.079 / *2.0*	MSX14000R Type	1

Fig 1



Applicable Body	Flat Screw		Wrench	Clamp	C-Ring	Clamp Screw
MSX08000R	BFTX0306IP	2.0	TRDR08IP	CCH3.5	CR03	BFTX03510IP08
MSX12000R	BFTX0409IP	3.0	TRDR15IP	CCH3.5	CR03	BFTX03510IP15
MSX14000R	BFTX0511IP	5.0	TRDR20IP	CCH4.5	CR03	BFTX04513IP20

N·m Recommended Tightening Torque (N·m)

Identification Code - Inch

MSX 3 2000 R

Cutter Series | Insert Size | Cutter Dia. 2.000" | Feed Direction

Identification Code - Metric

MSX 08 040 R S

Cutter Series | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

MSX ENDMILL (8mm / 12mm / 14mm insert)

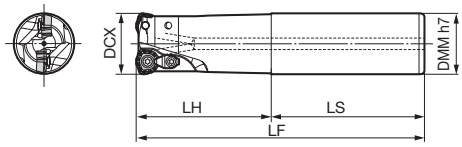
P Steel | M Stainless Steel | K Cast Iron | H Hardened Steel

Rake Angle		
	Radial	–3° to –8°
	Axial	8°

1.0mm	20°	.039"	20°	1.5mm	20°	.0591"	20°	2.0mm	20°	.079"	20°	2.5mm	20°	.096"	20°
(06000 Type)				(08000 Type)				(12000 Type)				(14000 Type)			

Fig. 1 (Single Clamp)

Fig. 2 (Double Clamp)



Body with Applicable Insert: WDMT06

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lb/*kg*)	Fig
Inch	**MSX20750EW**	●	.750	.750	2.000	2.031	4.000	3	.88	1
Inch	**MSX20750ELC**	●	.750	.750	2.000	6.000	8.000	3	.88	1
Metric	**MSX06016ES**	★	*16*	*16*	*30*	*80*	*110*	2	*0.2*	1
Metric	**MSX06016EM**	★	*16*	*16*	*70*	*80*	*150*	2	*0.2*	1
Metric	**MSX06017EM**	★	*17*	*16*	*20*	*130*	*150*	2	*0.2*	1
Metric	**MSX06018EM**	★	*18*	*16*	*20*	*130*	*150*	2	*0.2*	1
Metric	**MSX06020ES**	★	*20*	*20*	*50*	*80*	*130*	3	*0.3*	1
Metric	**MSX06020EM**	★	*20*	*20*	*100*	*80*	*180*	3	*0.4*	1
Metric	**MSX06022EM**	★	*22*	*20*	*30*	*150*	*180*	3	*0.4*	1
Metric	**MSX06025ES**	★	*25*	*25*	*60*	*80*	*140*	3	*0.5*	1
Metric	**MSX06025EM**	★	*25*	*25*	*120*	*130*	*250*	3	*0.8*	1

Body with Applicable Insert: WDMT12

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
Inch	**MSX41250EW**	●	1.250	1.250	2.500	2.281	4.781	2	1.23	2
Inch	**MSX41250ELC**	●	1.250	1.250	2.500	7.500	10.000	2	2.31	2
Inch	**MSX41500EW**	●	1.500	1.250	2.500	2.281	4.781	2	1.47	2
Inch	**MSX41500ELC**	●	1.500	1.500	2.500	7.500	10.000	2	3.21	2
Inch	**MSXF41500EW**	●	1.500	1.500	2.500	2.281	4.781	3	1.53	2
Metric	**MSX12032ES**	★	*32*	*32*	*70*	*80*	*150*	2	*0.8*	2
Metric	**MSX12032EM**	★	*32*	*32*	*120*	*130*	*250*	2	*1.4*	2
Metric	**MSX12035EM**	★	*35*	*32*	*50*	*200*	*250*	2	*1.4*	2
Metric	**MSX12040ES**	★	*40*	*32*	*50*	*100*	*150*	3	*0.9*	2
Metric	**MSX12040EM**	★	*40*	*32*	*50*	*200*	*250*	3	*1.5*	2
Metric	**MSX12050EM**	★	*50*	*42*	*50*	*200*	*250*	4	*2.6*	2

Body with Applicable Insert: WDMT08

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
Inch	**MSX31000EW**	●	1.000	1.000	2.500	2.281	4.781	2	1.04	1
Inch	**MSX31000ELC**	●	1.000	1.000	2.500	7.500	10.000	2	2.13	1
Inch	**MSXF31000EW**	●	1.000	1.000	2.500	2.281	4.781	3	1.09	1
Inch	**MSXF31250EW**	●	1.250	1.250	2.500	2.281	4.781	3	1.24	1
Inch	**MSXF31500EW**	●	1.500	1.500	2.500	2.281	4.781	4	1.31	1
Metric	**MSX08020ES**	★	*20*	*20*	*50*	*80*	*130*	2	*0.3*	1
Metric	**MSX08020EM**	★	*20*	*20*	*100*	*80*	*180*	2	*0.3*	1
Metric	**MSX08022EM**	★	*22*	*20*	*30*	*150*	*180*	2	*0.4*	1
Metric	**MSX08025ES**	★	*25*	*25*	*60*	*80*	*140*	2	*0.4*	2
Metric	**MSX08025EM**	★	*25*	*25*	*120*	*130*	*250*	2	*0.8*	2
Metric	**MSX08028EM**	★	*28*	*25*	*40*	*210*	*250*	2	*0.9*	2
Metric	**MSX08032ES**	★	*32*	*32*	*70*	*80*	*150*	3	*0.8*	2
Metric	**MSX08032EM**	★	*32*	*32*	*120*	*130*	*250*	3	*1.4*	2
Metric	**MSX08035EM**	★	*35*	*32*	*50*	*200*	*250*	3	*1.5*	2

Body with Applicable Insert: WDMT14

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
Metric	**MSX14040ES**	★	*40*	*32*	*50*	*100*	*150*	2	*0.9*	2
Metric	**MSX14040EM**	★	*40*	*32*	*50*	*200*	*250*	2	*1.5*	2
Metric	**MSX14050ES**	★	*50*	*42*	*50*	*100*	*150*	3	*1.5*	2
Metric	**MSX14050EM**	★	*50*	*42*	*50*	*200*	*250*	3	*2.5*	2
Metric	**MSX14063ES**	★	*63*	*42*	*50*	*100*	*150*	4	*1.7*	2
Metric	**MSX14063EM**	★	*63*	*42*	*50*	*200*	*250*	4	*2.8*	2

Inserts are sold separately.

● USA stocked item ★: Worldwide Warehouse Item

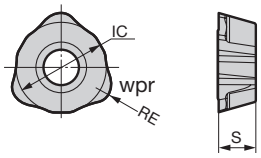
Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide					
Process	High-speed / Light			K		M S	
Process	General-purpose	P M	P M	K		M S	M S
Process	Roughing	P M	P M		K		M S
Applications	Cat. No.	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300
General-purpose	**WDMT0603ZDTR**	●	●	●	●	●	●
General-purpose	**WDMT0804ZDTR**	●	●	●	●	●	●
General-purpose	**WDMT1205ZDTR**	●	●	●	●	●	●
General-purpose	**WDMT1406ZDTR**	●	●	●	●	●	●
Honed Type	**WDMT0603ZDTR-H**	●	●	●	●	●	●
Honed Type	**WDMT0804ZDTR-H**	●	●	●	●	●	●
Honed Type	**WDMT1205ZDTR-H**	●	●	●	●	●	●
Honed Type	**WDMT1406ZDTR-H**	●	●	●	●	●	●

Cat. No.	Inscribed Circle IC	Thickness S	Nose Radius RE	Wiper Facet Length wpr	Applicable Cutter	Fig
WDMT0603ZDTR	.250" / **6.35**	.118" / *3.0*	.071" / *1.5*	.028" / *0.7*	MSX06000E Type	1
WDMT0804ZDTR	.335" / *8.5*	.157" / *4.0*	.079" / *2.0*	.035" / *0.9*	MSX08000R Type	1
WDMT1205ZDTR	.473" / *12*	.197" / *5.0*	.079" / *2.0*	.063" / *1.6*	MSX12000R Type	1
WDMT1406ZDTR	.551" / *14*	.236" / *6.0*	.079" / *2.0*	.079" / *2.0*	MSX14000R Type	1
WDMT0603ZDTR-H	.250" / **6.35**	.118" / *3.0*	.071" / *1.5*	.028" / *0.7*	MSX06000E Type	1
WDMT0804ZDTR-H	.335" / *8.5*	.157" / *4.0*	.079" / *2.0*	.035" / *0.9*	MSX08000R Type	1
WDMT1205ZDTR-H	.473" / *12*	.197" / *5.0*	.079" / *2.0*	.063" / *1.6*	MSX12000R Type	1
WDMT1406ZDTR-H	.551" / *14*	.236" / *6.0*	.079" / *2.0*	.079" / *2.0*	MSX14000R Type	1

Fig 1



Parts

Applicable Inch Body	Applicable *Metric* Body	Flat Screw	N·m	Wrench	Clamp	C-Ring	Clamp Screw
MSX20000	*MSX06000E*	BFTX02505IP	**1.5**	TRDR08IP	-	-	-
MSX30000 ≤ 1.0"	–	BFTX0305IP	**2.0**	TRDR08IP	CCH3.5	CR03	BFTX03510IP08
—	*MSX08020E, MSX08022E*	BFTX0306IP	**2.0**	TRDR08IP	-	-	-
MSX30000 ≥ 1.0"	*Other MSX08000E not described above*	BFTX0306IP	**2.0**	TRDR08IP	CCH3.5	CR03	BFTX03510IP08
MSX40000	*MSX12000E*	BFTX0409IP	**3.0**	TRDR15IP	CCH3.5	CR03	BFTX03510IP15
MSX50000	*MSX14000E*	BFTX0511IP	**5.0**	TRDR20IP	CCH4.5	CR03	BFTX04513IP20

Identification Code - Inch

MSX 3 1000 E W

Cutter Series | Insert Series | Cutter Dia. 1.000" | Endmill Type | W: Weldon C: Cylindrical

Identification Code - Metric

MSX 06 016 E S

Cutter Series | Insert Size | Cutter Dia. | Endmill Type | S: Short M: Medium

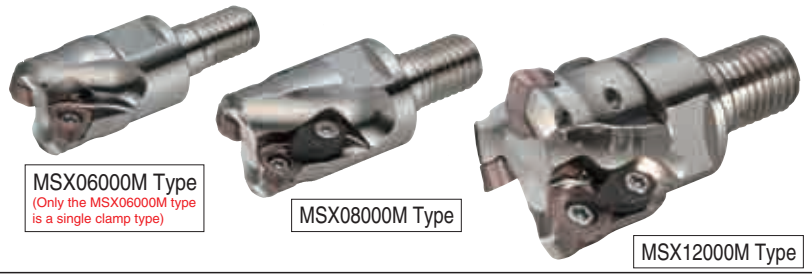
N·m Recommended Tightening Torque (N·m)

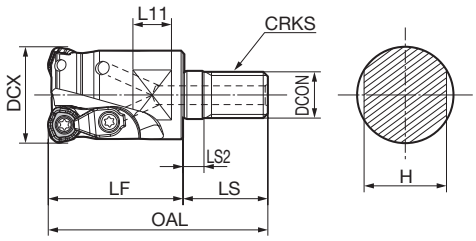
MSX Modular - 6mm / 8mm /12 mm Inserts

Rake Angle		
	Radial	-3° to -6°
	Axial	8°

.039" 20° (06000M) | 1.0mm 20° | .0591" 20° (08000M) | 1.5mm 20° | .079" 20° (12000M) | 2.0mm 20°

Fig 1





Head (MSX 06000M) Applicable Insert: WDMT06

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
Inch	**MSX20750M10Z3**	●	0.750	0.413	**M10**	1.929	1.181	.197	.748	.315	.591	3	1
Inch	**MSX21000M12Z3**	●	1.000	0.492	**M12**	2.205	1.378	.197	.827	.394	.748	3	1
Metric	**MSX06016M08Z2**	★	*16*	*8.5*	**M8**	*42*	*25*	*5*	*17*	*8*	*13*	2	1
Metric	**MSX06018M08Z2**	★	*18*	*8.5*	**M8**	*42*	*25*	*5*	*17*	*8*	*13*	2	1
Metric	**MSX06020M10Z3**	★	*20*	*10.5*	**M10**	*49*	*30*	*5*	*19*	*8*	*15*	3	1
Metric	**MSX06022M10Z3**	★	*22*	*10.5*	**M10**	*49*	*30*	*5*	*19*	*8*	*15*	3	1
Metric	**MSX06025M12Z3**	★	*25*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	3	1

Inserts are sold separately.

Head (MSX 08000M) Applicable Insert: WDMT08

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
Inch	**MSX31000M12Z2**	●	1.000	0.492	**M12**	2.205	1.378	.197	.827	.394	.748	2	1
Inch	**MSX31250M16Z3**	●	1.250	0.669	**M16**	2.480	1.575	.197	.906	.394	.945	3	1
Metric	**MSX08025M12Z2**	★	*25*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	2	1
Metric	**MSX08028M12Z2**	★	*28*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	2	1
Metric	**MSX08030M16Z3**	★	*30*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	3	1
Metric	**MSX08032M16Z3**	★	*32*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	3	1
Metric	**MSX08035M16Z3**	★	*35*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	3	1

Inserts are sold separately.

Head (MSX 12000M) Applicable Insert: WDMT12

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
MSX12032M16Z2	★	*32*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	2	1
MSX12035M16Z2	★	*35*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	2	1
MSX12040M16Z3	★	*40*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	3	1

Inserts are sold separately. ● USA stocked item ★Worldwide Warehouse item

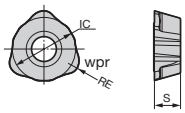
Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide					
Process	High-speed / Light			K		M S	
	General-purpose	P M	P M	K		M S	M S
	Roughing	P M	P M		K		M S

Applications	Cat. No.	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	Inscribed Circle IC	Thickness S	Nose Radius RE	Wiper Facet Length wpr	Applicable Cutter	Fig
General-purpose	**WDMT0804ZDTR**	●	●	●	●	●	●	.335" / *8.5*	.157" / *4.0*	.079" / *2.0*	0.035 / *0.9*	MSX08000R	1
General-purpose	**WDMT1205ZDTR**	●	●	●	●	●	●	.473" / *12*	.197" / *5.0*	.079" / *2.0*	0.063 / *1.6*	MSX12000R	1
General-purpose	**WDMT1406ZDTR**	●	●	●	●	●	●	.551" / *14*	.236" / *6.0*	.079" / *2.0*	0.079 / *2.0*	MSX14000R	1
Honed Type	**WDMT0804ZDTR-H**	●	●	●	●	●	●	.335" / *8.5*	.157" / 4.0	.079" / *2.0*	0.035 / *0.9*	MSX08000R	1
Honed Type	**WDMT1205ZDTR-H**	●	●	●	●	●	●	.473" / *12*	.197" / 5.0	.079" / *2.0*	0.063 / *1.6*	MSX12000R	1
Honed Type	**WDMT1406ZDTR-H**	●	●	●	●	●	●	.551" / *14*	.236" / 6.0	.079" / *2.0*	0.079 / *2.0*	MSX14000R	1

Fig 1



Applicable Endmill	Flat Screw	N·m	Wrench	Clamp	C-Ring	Clamp Screw
MSX06000M	BFTX02505IP	1.5	TRDR08IP	-	-	-
MSX08000M	BFTX0306IP	2.0		CCH3.5	CR03	BFTX03510IP08
MSX12000M	BFTX0409IP	3.0	TRDR15IP	CCH3.5	CR03	BFTX03510IP15

Identification Code - Inch

MSX 2 1000 M12 Z3

Cutter Series | Insert Size | Dia. 1.000" | Mounting Screw Size | Number of Teeth

Identification Code - Metric

MSX 06 016 M08 Z2

Cutter Series | Insert Size | Dia. | Mounting Screw Size | Number of Teeth

N·m Recommended Tightening Torque (N·m)

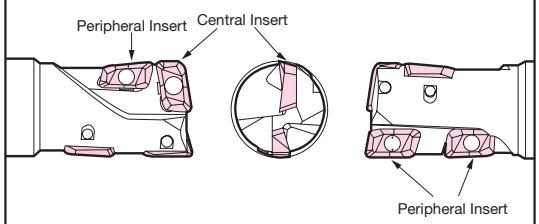
■ General Features

The WaveMill WMM Type performs a variety of operations such as groove milling, shoulder milling, ramping, pocketing, drilling, helical milling, etc., all with a single tool.
With low cutting force and excellent chip evacuation, it is also effective for consolidating tools.

■ Features and Applications

- The WMM Type alone can perform a number of operations such as shoulder milling, slot milling and drilling
- Excellent for high-efficiency ramping, helical drilling and pocketing
- Uses WaveMill inserts for sharpness and cutting edge strength
- The reduction in cutting force enables the same chip evacuation as conventional tools but with less force required
- Easy tool management as only 1 type of insert is used
- Also ideal for stainless steel machining

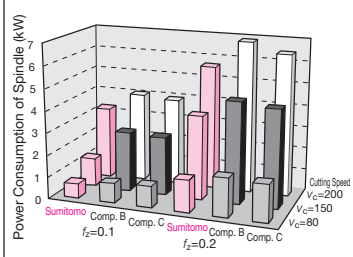
● WMM Type insert arrangement



■ Product Range and Performance

Type	Description	Cutter Dia. (mm) ø20 – ø30 – ø40
2000E	Standard Type	20 – 30
2000EL	Long Type	20 – 30
2000ELH	Long Type w / Coolant Hole	20 – 30
2000EXLH	Extra-Long Type w / Coolant Hole	22 – 30
3000E	Standard Type	32 – 40
3000EL	Long Type	32 – 40
3000ELH	Long Type w / Coolant Hole	32 – 40
3000EXLH	Extra-Long Type w / Coolant Hole	35 – 40

● Performance Comparison (Groove Milling)



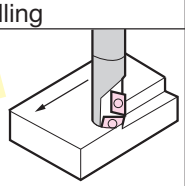
Diameter of Tool: ø25
Work Material: S50C
Cutting Conditions: v_c=80,150,200m/min, f_z=0.1, 0.2mm/t
a_p=15mm, Tool Overhang=40mm

■ Various Milling Examples Tool: WMM2025E

● Shoulder Milling

304 Stainless Steel

Also cuts stainless steel

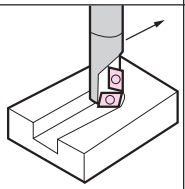


Diameter of Tool: ø25
Insert: APMT103504PDER (ACZ350)
Depth of Cut: a_p=1.00", a_e=0.20"
Cutting Speed: v_c=394 SFM, Feed Rate: f_z=0.006 IPT
Air Blast

● Slot Milling

Gray Cast Iron

Deep slot milling can be performed easily, Easy chip removal

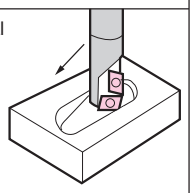


Diameter of Tool: ø25
Insert: APMT103504PDER (ACZ310)
Depth of Cut: a_p=0.60" , a_e=1.00"
Cutting Speed: v_c=590 SFM, Feed Rate: f_z=0.005 IPT
Air Blast

● Ramping

1050 Block Material

Capable of tapered recess cutting without prepared holes

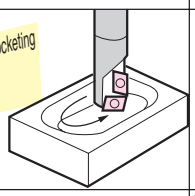


Diameter of Tool: ø25
Insert: APMT103504PDER (ACZ350)
Cutting Width: a_e=1.00", Depth: a_p=0.60"
Cutting Speed: v_c=656 SFM, Feed Rate: f_z=0.004 IPT
Ramp Angle: θ°=15°
Air Blast

● Pocketing

1050 Block Material

Capable of traverse cutting and pocketing with continuous lateral feed from the initial drilling or ramping process

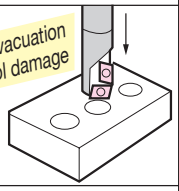


Diameter of Tool: ø25
Insert: APMT103504PDER (ACZ350)
Machining done continuously from a deep drilling process with a depth of 0.60"
Cutting Width: a_e=1.00", Depth: a_p=0.60"
Cutting Speed: v_c=656 SFM, Feed Rate: f_z=0.004 IPT
Air Blast

● Drilling

1050 Block Material

Capable of easy chip evacuation and drilling without tool damage

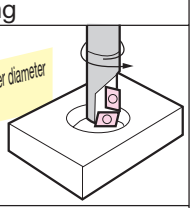


Diameter of Tool: ø25
Insert: APMT103504PDER (ACZ350)
Bore Diameter: ø1.00", Depth: a_p=0.60"
Cutting Speed: v_c=656 SFM, Feed Rate: f=0.004 IPR
Step Feed: 0.20"
Air Blast

● Helical Milling

1050 Block Material

Capable of large boring with diameters 1.2-1.8 times the cutter diameter without prepared holes



Diameter of Tool: ø25
Insert: APMT103504PDER (ACZ350)
Bore Diameter: ø1.6", Depth: a_p=0.80"
Cutting Speed: v_c=984 SFM, Feed Rate: f=0.004 IPR
Axial Feed: 0.60in/Pitch
Air Blast

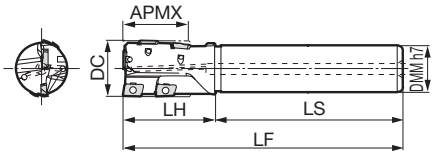
WMM Inch & Metric (*10mm* Insert)

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy

Rake Angle		
	Radial	15° to 16°
	Axial	7° to 11°

1.05- 1.39" 90° | 17 to 35mm 90°

Fig 1



Body (Standard / WMM2000E Type)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM2020E	★	*20*	*20*	*17*	*35*	*95*	*130*	3	1	1
WMM2021E	★	*21*	*20*	*17*	*35*	*95*	*130*	3	1	1
WMM2025E	★	*25*	*25*	*26*	*40*	*100*	*140*	4	1	1
WMM2026E	★	*26*	*25*	*26*	*40*	*100*	*140*	4	1	1
WMM2030E	★	*30*	*25*	*35*	*50*	*100*	*150*	5	1	1

Body (Long / With Coolant Holes)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM2020ELH	★	*20*	*20*	*17*	*60*	*125*	*185*	3	1	1
WMM2021ELH	★	*21*	*20*	*17*	*35*	*150*	*185*	3	1	1
WMM2025ELH	★	*25*	*25*	*26*	*75*	*145*	*220*	4	1	1
WMM2026ELH	★	*26*	*25*	*26*	*40*	*180*	*220*	4	1	1
WMM2030ELH	★	*30*	*25*	*35*	*50*	*180*	*230*	5	1	1

★Worldwide Warehouse Item ● USA stocked item

Milling Cutter Body (Inch)

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM10100M	●	1.000	1.000	1.05	1.719	2.281	4.000	4	1	1
WMM10125M	●	1.250	1.250	1.39	2.719	2.281	5.000	5	1	1

Milling Cutter Body (Long)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM2020EL	★	*20*	*20*	*17*	*60*	*125*	*185*	3	1	1
WMM2021EL	★	*21*	*20*	*17*	*35*	*150*	*185*	3	1	1
WMM2025EL	★	*25*	*25*	*26*	*75*	*145*	*220*	4	1	1
WMM2026EL	★	*26*	*25*	*26*	*40*	*180*	*220*	4	1	1
WMM2030EL	★	*30*	*25*	*35*	*50*	*180*	*230*	5	1	1

Body (Extra-Long / With Coolant Holes)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM2022EXLH		*22*	*20*	*17*	*35*	*215*	*250*	3	1	1
WMM2027EXLH		*27*	*25*	*26*	*40*	*280*	*320*	4	1	1
WMM2030EXLH		*30*	*25*	*35*	*50*	*300*	*350*	5	1	1

Inserts are sold separately.

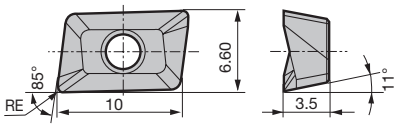
Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide				
Process	High-speed / Light				K N	N
	General-purpose	M	P	K		N
	Roughing					

Cat. No.	ACZ350	ACZ330	ACZ310	H1	DL1000	Nose Radius RE	Fig
APMT103504PDER	●	●	●	-	-	0.016 / *0.4*	1
APMT103508PDER	●	●	●	-	-	0.032 / *0.8*	1
APMT103512PDER	●	●	●	-	-	0.047 / *1.2*	1
APMT103504PDER-H	●	●	●	-	-	0.016 / *0.4*	1
APMT103508PDER-H	●	●	●	-	-	0.032 / *0.8*	1
APMT103512PDER-H	●	●	●	-	-	0.047 / *1.2*	1
APET103504PDER-F	●	●	●	-	-	0.016 / *0.4*	1
APET103504PDFR-S	-	-	-	●	●	0.016 / *0.4*	1

Fig 1



-H: Strong Edge Type, F: Ground Insert, S: For Aluminum Alloy.

Spare Parts (Common)

Applicable Endmill	Flat Screw		Wrench	Anti-seize Cream
WMM2000	BFTX02506N	N·m 1.5	TRD08	SUMI-P
WMM3000	BFTX03584	N·m 3.0	TRD15	SUMI-P

■ Recommended Cutting Conditions Diameter *ø20 to ø26mm* (Not for extra-long)

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.		Insert Grade
P	Carbon Steel	180 to 280 HB	80 -160	Shoulder Milling	0.05-0.20	ACZ330
				Groove Milling	0.05-0.12	
				Drilling	0.05-0.18	
M	Stainless Steel	-	80 -120	Shoulder Milling	0.05-0.15	ACZ350
				Groove Milling	0.05-0.10	
				Drilling	0.05-0.12	
K	Cast Iron	250HB	70 -180	Shoulder Milling	0.05-0.20	ACZ310
				Groove Milling	0.05-0.12	
				Drilling	0.05-0.18	
N	Aluminum Alloy	-	200 - 500	Shoulder Milling	0.10-0.20	DL1000
				Groove Milling	0.05-0.10	
				Drilling	0.05-0.10	

■ Recommended Cutting Conditions Diameter *ø30 to ø40mm* (Not for extra-long)

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.		Insert Grade
P	Carbon Steel	180 to 280 HB	80-160	Shoulder Milling	0.05-0.25	ACZ330
				Groove Milling	0.05-0.15	
				Drilling	0.05-0.20	
M	Stainless Steel	-	80-120	Shoulder Milling	0.05-0.20	ACZ350
				Groove Milling	0.05-0.12	
				Drilling	0.05-0.18	
K	Cast Iron	250HB	70-180	Shoulder Milling	0.05-0.25	ACZ310
				Groove Milling	0.05-0.15	
				Drilling	0.05-0.20	
N	Aluminum Alloy	-	200-500	Shoulder Milling	0.10-0.20	DL1000
				Groove Milling	0.05-0.10	
				Drilling	0.05-0.10	

N·m Recommended Tightening Torque (N·m)

Note The cutting conditions are guidelines. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

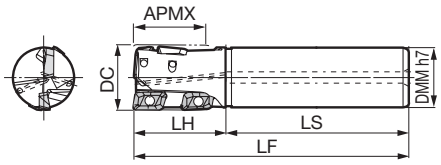
WMM Inch & Metric (*16mm* Insert)

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy

Rake Angle		
	Radial	17° to 19°
	Axial	7° to 11°

1.54" 90° | 39mm 90°

Fig 1



Body (Standard / WMM3000E Type)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM3032E	★	*32*	*32*	*39*	*50*	*100*	*150*	4	1	1
WMM3033E	★	*33*	*32*	*39*	*50*	*100*	*150*	4	1	1
WMM3035E	★	*35*	*32*	*39*	*50*	*100*	*150*	4	1	1
WMM3040E	★	*40*	*32*	*39*	*55*	*105*	*160*	4	1	1
WMM2030E	★	*30*	*25*	*35*	*50*	*100*	*150*	5	1	1

Body (Long / With Coolant Holes)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM3032ELH	★	*32*	*32*	*39*	*90*	*140*	*230*	4	1	1
WMM3033ELH	★	*33*	*32*	*39*	*50*	*180*	*230*	4	1	1
WMM3035ELH	★	*35*	*32*	*39*	*50*	*180*	*230*	4	1	1
WMM3040ELH	★	*40*	*32*	*39*	*55*	*185*	*240*	4	1	1

Milling Cutter Body (Inch)

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM16150M	●	1.500	1.250	1.54	2.719	2.281	5.000	4	1	1

Milling Cutter Body (Long)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM3032EL	★	*32*	*32*	*39*	*90*	*140*	*230*	4	1	1
WMM3033EL	★	*33*	*32*	*39*	*50*	*180*	*230*	4	1	1
WMM3035EL	★	*35*	*32*	*39*	*50*	*180*	*230*	4	1	1
WMM3040EL	★	*40*	*32*	*39*	*55*	*185*	*240*	4	1	1

Body (Extra-Long / With Coolant Holes)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Total No. of Teeth	Effective Number of Teeth	Fig
WMM3035EXLH		*35*	*32*	*39*	*50*	*320*	*370*	4	1	1
WMM3040EXLH		*40*	*32*	*39*	*55*	*365*	*420*	4	1	1

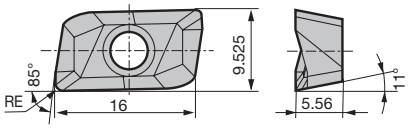
Insert

★Worldwide Warehouse Item ● USA stocked item

Dimensions (*mm*)

Grade		Coated Carbide						
Process	High-speed / Light				K N	N		
	General-purpose	M	P	K		N		
	Roughing							
Cat. No.		ACZ350	ACZ330	ACZ310	H1	DL1000	Nose Radius RE	Fig
APMT160508PDER		●	●	●	-	-	0.031 / *0.8*	1
APMT160512PDER		●	●	●	-	-	0.047 / *1.2*	1
APMT160516PDER		●	●	●	-	-	0.063 / *1.6*	1
APMT160508PDER-H		●	●	●	-	-	0.031 / *0.8*	1
APMT160512PDER-H		●	●	●	-	-	0.047 / *1.2*	1
APMT160516PDER-H		●	●	●	-	-	0.063 / *1.6*	1
APMT160520PDER-H*		●	●	●	-	-	0.079 / *2.0*	1
APMT160530PDER-H*		●	●	●	-	-	0.118 / *3.0*	1
APMT160540PDER-H*		●	●	●	-	-	0.157 / *4.0*	1
APMT160550PDER-H*		●	●	●	-	-	0.197 / *5.0*	1
APMT160560PDER-H*		●	●	●	-	-	0.236 / *6.0*	1
APET160508PDER-F		●	●	●	-	-	0.031 / *0.8*	1
APET160508PDFR-S		-	-	-	●	●	0.031 / *0.8*	1

Fig 1



-H: Strong Edge Type, F: Ground Insert, S: For Aluminum Alloy.
* marked inserts require modification of the cutter body.
Correct the tool diameter by +0.5mm before use.

Parts

Applicable Endmill	Flat Screw		Wrench	Anti-seize Cream
WMM2000	BFTX02506N	N·m 1.5	TRD08	SUMI-P
WMM3000	BFTX03584	N·m 3.0	TRD15	SUMI-P

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

Blade Diameter ø30 to ø40mm (Not for extra-long)

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.		Insert Grade
P	Carbon Steel	180 to 280 HB	80-160	Shoulder Milling	0.05-0.25	ACZ330
				Groove Milling	0.05-0.15	
				Drilling	0.05-0.20	
M	Stainless Steel	-	80-120	Shoulder Milling	0.05-0.20	ACZ350
				Groove Milling	0.05-0.12	
				Drilling	0.05-0.18	
K	Cast Iron	250HB	70-180	Shoulder Milling	0.05-0.25	ACZ310
				Groove Milling	0.05--0.15	
				Drilling	0.05-0.20	
N	Aluminum Alloy	-	200-500	Shoulder Milling	0.10-0.20	DL1000
				Groove Milling	0.05-0.10	
				Drilling	0.05-0.10	

Note The cutting conditions are guidelines. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

■ Features

● **High-efficiency, high-rigidity radius cutter**
Wide insert seat face design achieves high efficiency machining of stainless steel etc.
Designed for superior durability
Ideal for roughing of aerospace components such as turbine blades

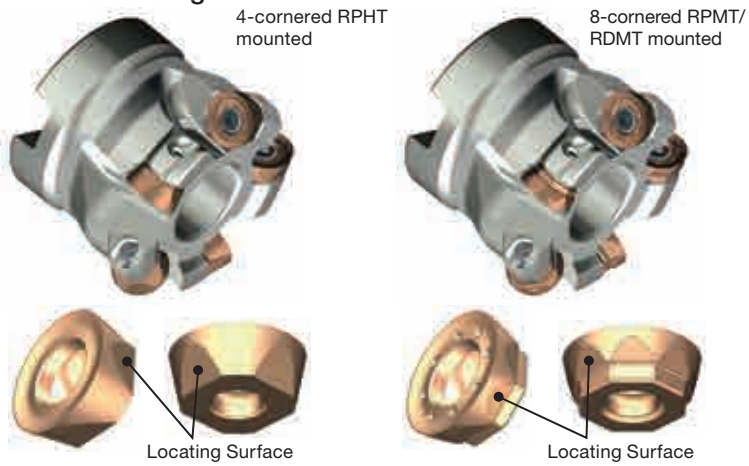
● **Lineup of ground and M class inserts**
In addition to the 4-cornered ground type inserts, economical 8-cornered M Class inserts are also available

● **Uses new grades for exotic alloy machining**
New ACS2500/ACS3000 grades achieve stable and long tool life in machining exotic alloys, such as titanium alloys and Ni-based heat-resistant alloys, as well as stainless steel

■ High-rigidity clamp design

Wide Insert Seat Face Design

■ Cutter body can be shared by optimizing the locating surface design



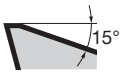
4-cornered ground inserts or 8-cornered M Class inserts can be used on the same cutter body

■ Product Range

Type	Cat. No.	Max. Diameter (mm)							
		ø25	ø32	ø40	ø42	ø50	ø52	ø63	ø80
Shell	RSE 10000RS○○			5		6			
	RSE 12000RS○○			4	4	5 6	5	6	8
	RSE 12000R○○ Inch								8
Shank	RSE 10000E○○	2 3	3 4						

Number in ●● shows the number of teeth Inch Inch Bore

■ Chipbreaker Shape

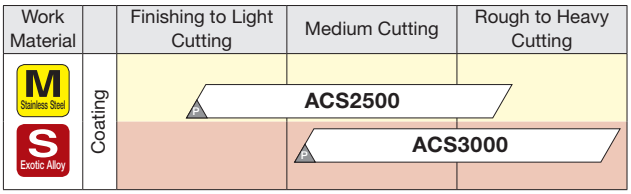
Work Material	M Stainless Steel, S Exotic Alloy
Applications	General-purpose to Roughing
Features	Standard
Chipbreaker	G
Cutting Edge Cross Section	

■ Grade Features

Work Material	Grade	Coating Thickness (μm)	Features
M Stainless Steel / S Exotic Alloy	**ACS2500**	3	Coating with excellent wear and adhesion resistance provides outstanding performance especially in machining **titanium alloys**
	ACS3000	3	High toughness carbide substrate and a coating with excellent chipping resistance provide outstanding stability in a wide range of work materials such as **heat-resistant alloys, stainless steel**, and **titanium alloys**

■ Grade Application Range

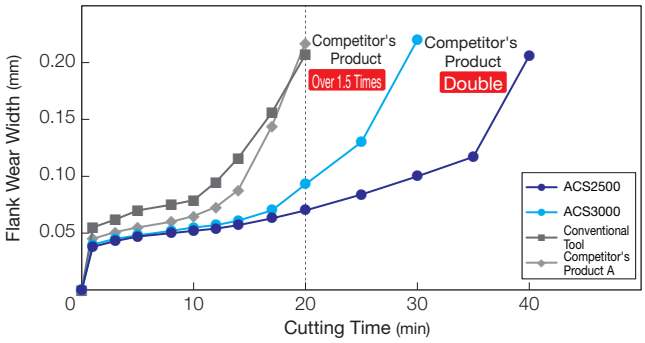
Newly developed **ACS2500/ACS3000** grades, ideal for machining titanium alloys, heat-resistant alloys and stainless steel, are now available!



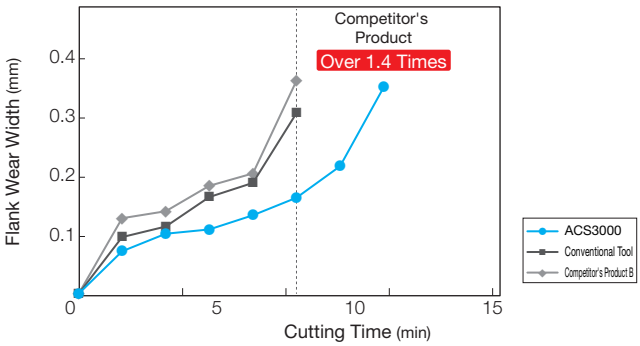
The letters "C" and "P" at the end of each grade indicate the coating.

C: CVD P: PVD

■ Cutting Performance



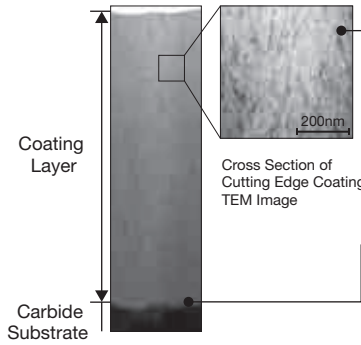
Machine	: Vertical Machining Center BT40, Work Material: Ti-6Al-4V
Tool	: RSE 12050RS05, Insert: RPHT1204M0EN-G
Cutting conditions	: vc = *70m/min* fz = *0.25mm/t* ap = *2mm* ae = *30mm* Wet



Machine	: Vertical Machining Center BT40, Work Material: Inconel 718 (44HRC)
Tool	: RSE 12050RS05, Insert: RPHT1204M0EN-G
Cutting conditions	: vc = *40m/min* fz = *0.3mm/t* ap = *2mm* ae = *30mm* Wet

New PVD Coating Layer Features

ABSOTECH **PVD**

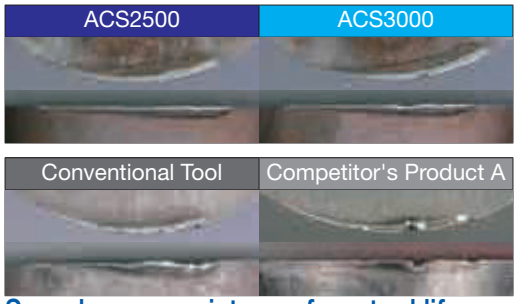


Ultra-fine Grained B Additive
- New AlTiBN coating, with an ultra-fine coating structure, achieves high strength and toughness
- Outstanding chipping resistance and wear resistance

High Adhesion Strength
Significantly improved coating adhesion and more than 2x conventional chipping resistance

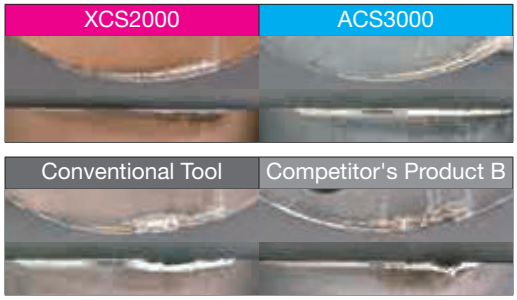
Applicable Grades: ACS2500, ACS3000

After cutting for 20 minutes



Superb wear resistance for a tool life 1.5 times greater than that of conventional tools and competitor's products

After cutting for 7.9 minutes



Superb fracture resistance for a tool life 1.4 times greater than that of conventional tools and competitor's products

RSE Shellmill

M Stainless Steel | S Exotic Alloy

New

Rake Angle	Radial	-5°
	Axial	4°

RSE10 5mm 4-cornered 1.4mm 8-cornered

RSE12 6mm 4-cornered 1.7mm 8-cornered

Face Milling | Shoulder Milling | Slot Milling | Ramping | Profiling | Helical Milling

Fig 1

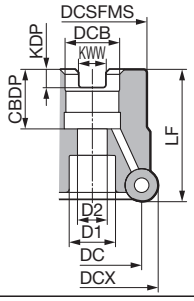
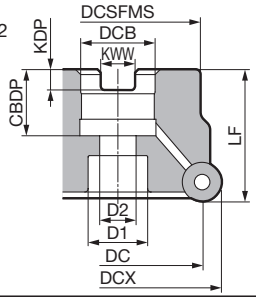


Fig 2



RSE10 (Shelmill)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**RSE10040RS05**	★	40	30	33	40	16	8.4	5.6	18	14	9	5	0.16	1
	RSE10050RS06	★	50	40	40	40	22	10.4	6.3	20	18	11	6	0.27	1

Inserts are sold separately.

RSE12 (Shellmill)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**RSE12040RS04**	★	40	28	33	40	16	8.4	5.6	18	13.5	9	4	0.15	2
	RSE12042RS04	★	42	30	33	40	16	8.4	5.6	18	14	9	4	0.17	2
	RSE12050RS05	★	50	38	41	40	22	10.4	6.3	20	18	11	5	0.24	2
	RSE12050RS06	★	50	38	41	40	22	10.4	6.3	20	18	11	6	0.23	2
	RSE12052RS05	★	52	40	41	40	22	10.4	6.3	20	18	11	5	0.26	2
	RSE12063RS06	★	63	51	50	40	22	10.4	6.3	20	18	11	6	0.47	2
	RSE12080RS08	★	* 80	68	55	50	27	12.4	7	22	20	14	8	0.89	2
Inch Arbor	**RSE12080R08**	★	* 80	68	55	50	25.4	12.4	7	22	20	14	8	0.9	2

Inserts are sold separately.

Note For mounting the cutters marked with * to an arbor, use a JIS B1176 hex socket bolt (M12 x 30 to 35mm).

Parts

RSE Size	Flat Insert Screw	N·m	Detachable Wrench: Handle Grip	Detachable Wrench: Bit	Anti-seize Cream
RSE10	BFTX03584IP	3.0	HPS1015	TRB15IP	SUMI-P
RSE12	BFTX04095IP	3.0	HPS1015	TRB15IP	SUMI-P

Identification Code

RSE 10 040 R S 05

Series Code | Insert Size | Max. Dia. | Feed Direction | Metric Bore | Number of Teeth

Insert

Dimensions (mm)

Grade Classification		Coated Carbide	
Process	High-speed/Light Cutting	M S	
	Medium Cutting	M S	M S
	Roughing		M S

Cat. No.	ACS2500	ACS3000	Inscribed Circle IC	Thickness S	Fig
RPHT10T3M0EN-G	★	★	10	3.97	1
RPMT10T3M0EN-G	★	★	10	3.97	2
RDMT10T3M0EN-G	★	★	10	3.97	3

Fig 1 4-cornered

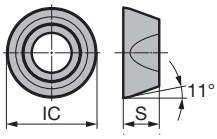


Fig 2 8-cornered

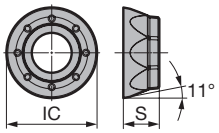
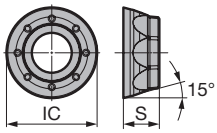


Fig 3 8-cornered



Recommended Cutting Conditions

ISO	Work Material		Hardness	Chipbreaker	Cutting Speed vc (SFM) Min. - Max.	Feed Rate fz (IPT) Min. - Max.	Grade
S	Exotic Alloy	Heat-Resistant Alloy	—	G	85 - 180	.006 - .014"	ACS2500/ACS3000
		Ti Alloy	—	G	105 - 320	.006 - .014"	ACS2500/ACS3000
M	Stainless Steel	SUS430 and Others (Martensitic/Ferritic)	200HB	G	380 - 630	.006 - .018"	ACS2500/ACS3000
		SUS403 and Others (Martensitic/Hardened)	240HB	G	350 - 560	.006 - .018"	ACS2500/ACS3000
		SUS304, SUS316 (Austenitic)	180HB	G	410 - 685	.006 - .018"	ACS2500/ACS3000

Note
- The recommended cutting conditions may not be practical depending on the operating conditions (e.g. machine, work material shape, clamping system).
- For groove milling, calculate the feed rate at around 70% of the above values.
- The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m) ★Worldwide Warehouse Item

RSE Endmill

M Stainless Steel | S Exotic Alloy

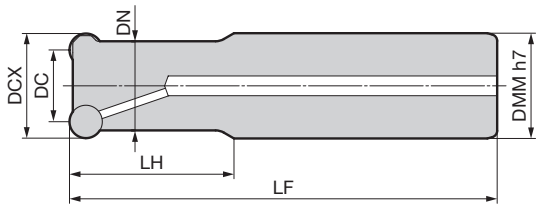
New

Rake Angle		
	Radial	0°
	Axial	4°

5mm 4-cornered | 1.4mm 8-cornered

Face Milling | Shoulder Milling | Slot Milling | Ramping | Profiling | Helical Milling

Fig 1



Body (Shank)

Dimensions (*mm*)

Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Shank DMM	Diameter DN	Head LH	Overall Length LF	Number of Teeth	Weight (kg)	Fig
RSE10025E02	★	*25*	*15*	*25*	*20.3*	*50*	*130*	2	0.4	1
RSE10025E03	★	*25*	*15*	*25*	*20.3*	*50*	*130*	3	0.39	1
RSE10032E03	★	*32*	*22*	*32*	*27.1*	*50*	*130*	3	0.68	1
RSE10032E04	★	*32*	*22*	*32*	*27.1*	*50*	*130*	4	0.67	1

Inserts are sold separately.

Parts

Flat Insert Screw		Wrench	Anti-seize Cream
	N·m		
BFTX03584IP	3.0	TRDR15IP	SUMI-P

Identification Code

RSE 10 032 E 03

Series Code | Insert Size | Max. Dia. | Shank type | Number of Teeth

Insert

Dimensions (mm)

Grade Classification		Coated Carbide				
Process	High-speed/Light Cutting	M S				
	Medium Cutting	M S	M S			
	Roughing		M S			
Cat. No.		ACS2500	ACS3000	Inscribed Circle IC	Thickness S	Fig
RPHT1204M0EN-G		★	★	12	4.76	1
RPMT1204M0EN-G		★	★	12	4.76	2
RDMT1204M0EN-G		★	★	12	4.76	3

Fig 1 4-cornered

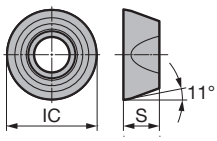


Fig 2 8-cornered

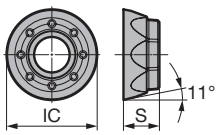
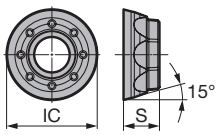


Fig 3 8-cornered



Recommended Cutting Conditions

ISO	Work Material		Hardness	Chipbreaker	Cutting Speed vc (SFM) Min. - Max.	Feed Rate fz (IPT) Min. - Max.	Grade
S	Exotic Alloy	Heat-Resistant Alloy	—	G	85 - 180	.006 - .014"	ACS2500/ACS3000
		Ti Alloy	—	G	105 - 320	.006 - .014"	ACS2500/ACS3000
M	Stainless Steel	SUS430 and Others (Martensitic/Ferritic)	200HB	G	380 - 630	.006 - .018"	ACS2500/ACS3000
		SUS403 and Others (Martensitic/Hardened)	240HB	G	350 - 560	.006 - .018"	ACS2500/ACS3000
		SUS304, SUS316 (Austenitic)	180HB	G	410 - 685	.006 - .018"	ACS2500/ACS3000

Note
· The recommended cutting conditions may not be practical depending on the operating conditions (e.g. machine, work material shape, clamping system).
· For groove milling, calculate the feed rate at around 70% of the above values.
· The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

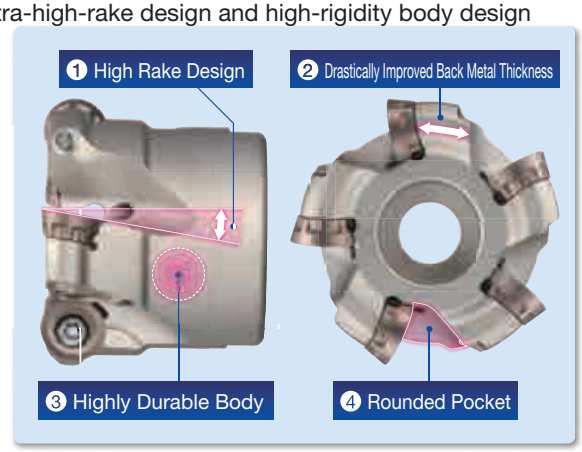
N·m Recommended Tightening Torque (N·m) ★Worldwide Warehouse Item

■ General Features

Wave Radius Mill RSX is a radius cutter that enables stable machining even when using machines with low clamp rigidity, thanks to a body design that achieves excellent sharpness and rigidity.
Lineup of ACM Series grades for stainless steel/exotic alloy, ACP200 grade for steel and ACK300 grade for cast iron to suit a wide range of work materials.
RSX08000 and RSX20000 lineup extended to support a wide range of machining.

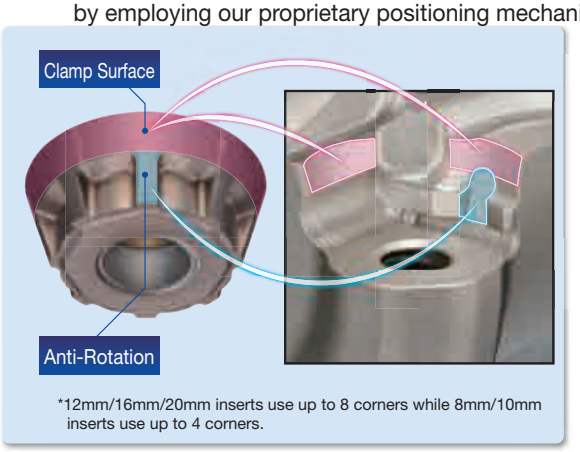
■ Low-resistance, Low-vibration Design

Achieves low-resistance, low-vibration machining thanks to ultra-high-rake design and high-rigidity body design



■ Excellent Operability

Enables easy corner control with high accuracy and operability by employing our proprietary positioning mechanism



*12mm/16mm/20mm inserts use up to 8 corners while 8mm/10mm inserts use up to 4 corners.

■ Product Range

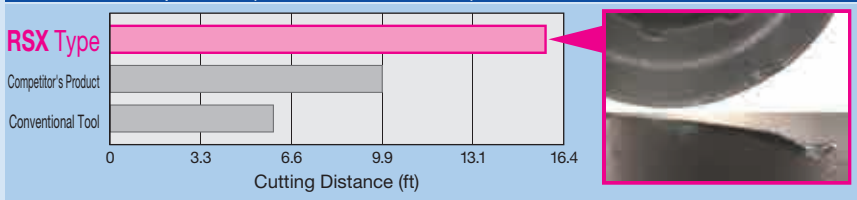
Type		Insert Size	Type	Cutter Dia. (inch) ø1.00	ø1.25	ø1.50	ø2.00	ø2.50	ø3.00	ø4.00	ø5.00	ø6.00
Shell Type	Standard	10	RSX32000 R				●					
		12	RSX40000 R				●	●	●	●	●	●
		16	RSX50000 R					●	●	●	●	●
	Fine-Pitch	10	RSXF32000 R				●					
		12	RSXF40000 R				●	●	●	●	●	●
		16	RSXF50000 R					●	●	●	●	●
Shank Type	Standard	10	RSX30000 EW	●	●	●						
		12	RSX40000 EW		●	●						
	Fine-Pitch	10	RSXF30000 EW	●	●	●						
		12	RSXF40000 EW		●	●						
Modular Type	Standard	10	RSX30000 M	●	●							
		12	RSX40000 M		●	●						
	Fine-Pitch	10	RSXF30000 M	●	●							
		12	RSXF40000 M		●	●						

Type		Insert Size	Type	Cutter Dia. (inch) ø1.00	ø1.25	ø1.50	ø2.00	ø2.50	ø3.00	ø4.00	ø5.00	ø6.00
Shell Type	Standard	10	RSX32000 R				●					
		12	RSX40000 R				●	●	●	●	●	●
		16	RSX50000 R					●	●	●	●	●
	Fine-Pitch	10	RSXF32000 R				●					
		12	RSXF40000 R				●	●	●	●	●	●
		16	RSXF50000 R					●	●	●	●	●
Shank Type	Standard	10	RSX30000 EW	●	●	●						
		12	RSX40000 EW		●	●						
	Fine-Pitch	10	RSXF30000 EW	●	●	●						
		12	RSXF40000 EW		●	●						
Modular Type	Standard	10	RSX30000 M	●	●							
		12	RSX40000 M		●	●						
	Fine-Pitch	10	RSXF30000 M	●	●							
		12	RSXF40000 M		●	●						

●: Inch in stock, Blank: Not available

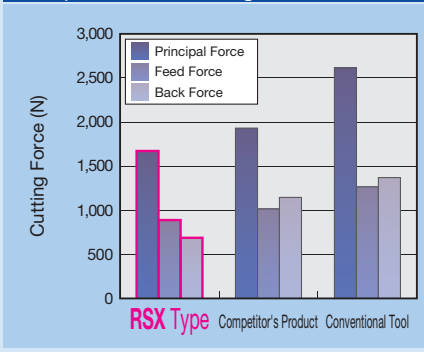
■ Cutting Performance

Tool Life Comparison (Fracture Resistance)



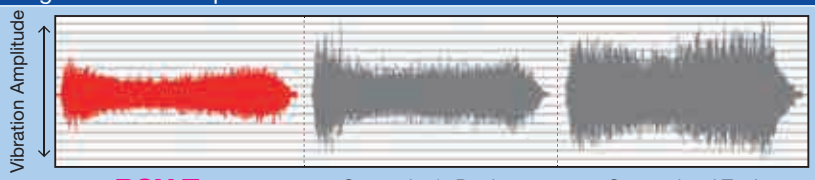
Achieves a tool life approximately 1.6 times longer than that of our competitors' products

Comparison of Cutting Force



Part Material: 304 Stainless Tool: ø50
Cutting Conditions: Vc = 656 SFM, fz = 0.0197”
ap = 0.08”, ae = 0.40”, Wet

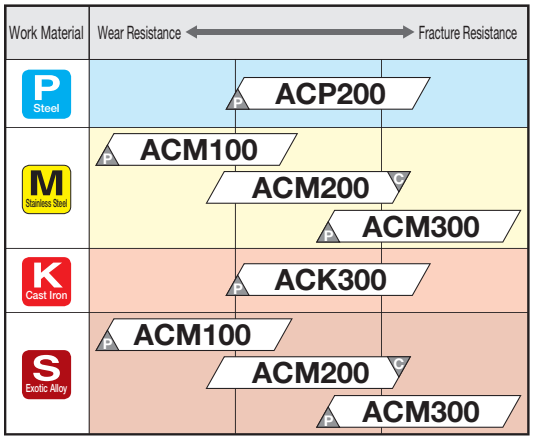
Cutting Vibration Comparison



Reduced by approximately 15% compared to competitors' products

■ Long, Stable Tool Life

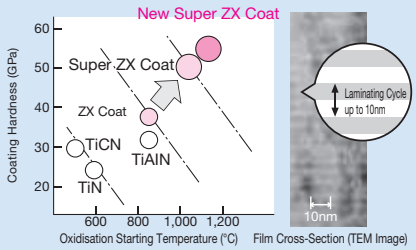
Adopts ACP200 grade for steel and ACK300 grade for cast iron machining, enabling milling of steel, stainless steel, cast iron and exotic alloys



The letters "C" and "P" at the end of each grade indicate the coating type.
C: CVD, P: PVD, Blank: Uncoated

P ACP200/ACM100/ACM300/ACK300

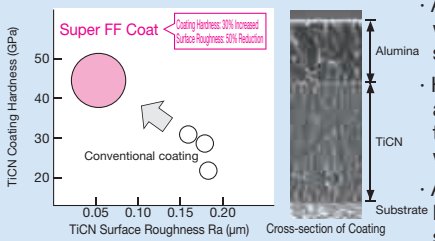
NEW SUPER ZX COAT



- Compared to conventional tools, the coating hardness has been increased by 40% and the oxidization starting temperature has been increased by 200°C
- Enables more than 1.5 times the machining speed and efficiency of conventional tools
- Achieves more than double the tool life of conventional tools under the same cutting conditions

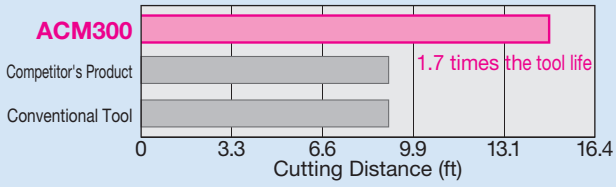
C ACM200

SUPER FF COAT



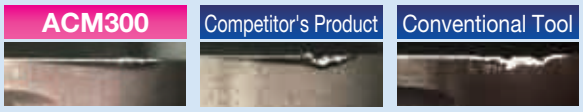
- Achieves excellent chipping resistance with smooth coating and our coating stress control technology
- High-speed, high-efficiency machining at a level more than 1.5 times higher than conventional tools is possible with a high hardness coating layer
- Achieves more than double the tool life of conventional tools under the same cutting conditions

Tool Life (304 Stainless Machining)

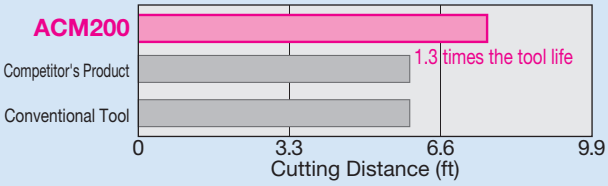


Cutter: RSXF12050RS
Insert: RDET1204M0EN-G
Cutting Conditions: vc = 656 SFM, fz = 0.02” IPT
ap = 0.08”, ae = 0.40” Wet

(Cutting Distance: 8.86ft)

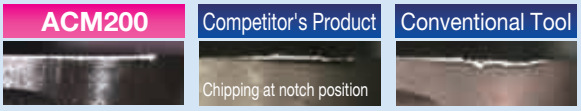


Tool Life (17-4 PH Machining)



Cutter: RSXF12050RS
Insert: RDET1204M0EN-G
Cutting Conditions: vc = 492 SFM, fz = 0.012 IPT
ap = 0.08”, ae = 0.40” Wet

(Cutting Distance: 5.91ft)

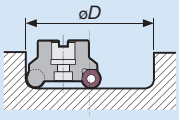


■ Machining Applications

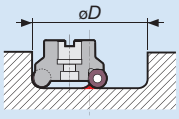
Can be used for various types of high-efficiency machining such as deep shoulder milling of molds, ramping, and helical milling.

Precautions for Helical Milling

Standard Diameter

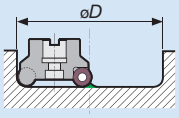


Standard Diameter or Below



Center uncut portion cannot be removed with the same cutter.

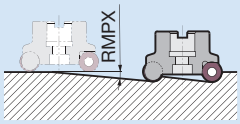
Standard Diameter or Above



Center uncut portion can be removed by traverse cutting with the same cutter.

Precautions for Ramping

Use at the RMPX below or lower.

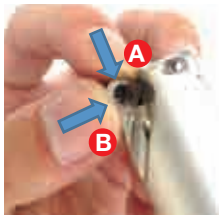


Recommended Values for Helical Milling and Ramping

Insert Cat. No.	Ramping	
	Cutter Dia. DC inch	Maximum Ramping Angle RMPX
RDET10...	**1.000**	10° 15'
	1.250	6° 45'
	1.500	4° 45'
	2.000	3° 15'
RDET12...	**1.250**	12° 30'
	1.500	8° 30'
	2.000	5° 30'
	2.500	4°
	3.000	3°
	4.000	2°
	5.000	1° 30'
	6.000	1°
RDET16...	**2.500**	5° 50'
	3.000	4° 20'
	4.000	2°
	5.000	1° 30'
	6.000	1°

Insert Cat. No.	Helical Milling (mm)				Ramping
	Cutter Dia. DC	Work Dia. ø*D*			Maximum Ramping Angle RMPX
		Min. Dia.	Standard Diameter	Max. Dia.	
RDET08...	**20**	1.09	1.26	1.54	12°00'
	25	1.46	1.65	1.93	7°15'
	32	2.00	2.04	2.48	4°45'
RDET10...	**25**	1.30	1.57	1.93	10°30'
	32	1.81	2.13	2.48	6°45'
	40	2.44	2.76	3.11	4°30'
	50	3.23	3.54	3.90	3°15'
	52	3.39	3.70	4.06	3°10'
RDET12...	**32**	1.63	2.05	2.48	12°30'
	40	2.26	2.68	3.11	8°00'
	50	3.05	3.46	3.90	5°30'
	52	81.5	3.62	4.06	5°15'
	63	3.21	4.49	4.92	4°00'
	66	4.31	4.72	5.16	3°45'
	80	5.41	5.83	6.26	2°50'
	100	6.99	7.40	7.83	2°10'
RDET16...	**63**	3.78	4.33	4.92	6°00'
	80	5.12	5.67	6.26	4°10'
	100	6.69	7.24	7.83	3°00'
	125	8.66	9.21	9.80	2°20'
RDET20...	**80**	4.80	5.51	6.26	4°15'
	100	6.38	7.09	7.83	3°00'
	125	8.35	9.05	9.80	2°00'
	160	11.01	11.81	12.56	1°15'

■ Precautions for Mounting Inserts



Hold down the insert from the A and B directions and fasten the screw.

Precautions for RSX08000 Type

Align either insert rake face marking position C with the marking position D on the body.

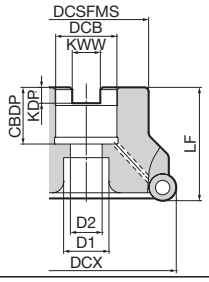
RSX(F) Shellmill -10mm Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-5°
	Axial	10°

5mm | .197"

Fig 1



Body (RSX32000R & RSX10000RS) Standard

Dimensions (lbs / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**RSX32000R**	●	2.000	1.500	1.750	0.750	0.312	0.221	0.750	0.609	0.406	4	0.80	1
Metric	**RSX10040RS**	★	*40*	*34*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	4	*0.2*	1
Metric	**RSX10050RS**	★	*50*	*40*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	5	*0.3*	1
Metric	**RSX10052RS**	★	*52*	*40*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	5	*0.4*	1

Body (RSXF32000R & RSXF10000RS) Fine Pitch

Dimensions (lbs / *mm*))

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Inch	**RSXF32000R**	●	2.000	1.500	1.750	0.750	0.312	0.221	0.750	0.609	0.406	4	0.80	1
Metric	**RSXF10040RS**	★	*40*	*34*	*40*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	5	*0.2*	1
Metric	**RSXF10050RS**	★	*50*	*40*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	6	*0.3*	1
Metric	**RSXF10052RS**	★	*52*	*40*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	6	*0.3*	1

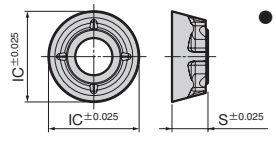
Inserts are sold separately. Check the collet mounting size (DCB) when selecting the cutter.

Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide							
Process	High-speed / Light			M S	M S				
Process	General-purpose	P M		M S	M S	M S			
Process	Roughing	P M	K			M S			
Cat. No.		ACP200	ACK300	ACM100	ACM200	ACM300	Inscribed Circle IC	Thickness S	Fig
RDET10T3MOEN-G		●	●	●	●	●	0.394 / *10*	0.156 / *3.97*	1
RDET10T3M0EN-H		●	●	●	●	●	0.394 / *10*	0.156 / *3.97*	1

Fig 1



● Cross Section of Cutting Edge

★Worldwide Warehouse Item ● USA stocked item

Parts

Recommended Tightening Torque (N·m)

Wrench	Flat Screw		Anti-seize Cream
TRDR15IP	BFTX03584IP	3.0	SUMI-P

Coolant Through Bolts		
Catalog Number	Cutter Diameter	Applicable Pilot Dia.
BFXH3/8 X 1	1.5", 2.00"	0.75"
BFXH1/2 X 1 1/4	2.50", 3.00"	1.00"
BFXH5/8 X 1 1/4	4.00"	1.25"
BFXH3/4 X 2	4.00"	1.50"
BFXH3/4 X 1 1/2	5.00"	1.50"

Identification Code - Inch

RSX F 3 2000 R

Cutter Series | Fine-Pitch Indication | Insert Series | Cutter Dia. 2.000" | Feed Direction

Identification Code - Metric

RSX F 10 040 R S

Cutter Series | Fine-Pitch Indication | Insert Size | Cutter Dia. | Feed Direction | Metric Bore

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (SFM/ m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	330-725 SFM 100-**160**-200	.008-.024 IPT 0.20-**0.40**-0.60	ACP200
P	Alloy Steel	180 to 280 HB	330-650 SFM 100-**140**-180	.008-.016 IPT 0.20-**0.30**-0.40	ACP200
K	Cast Iron	250HB	265-580 SFM 80-**120**-160	.004-.016 IPT 0.10-**0.30**-0.40	ACK300

			Work Material	Hardness	Cutting Speed v_c (sfm) Min - Max	Feed Rate f_z(ipt) Min - Max	Recommended Grade
M	Stainless Steel	Cr Based	Ferrite System	200 HB	500 - 650	0.006 – 0.014	ACM300
M	Stainless Steel	Cr Based	Martensitic	200~330HB	250 - 600	0.006 – 0.014	ACM300
M	Stainless Steel	Cr-Ni Based	Austenitc	200 HB	500 - 650	0.006 - 0.014	ACM300
M	Stainless Steel	Cr-Ni Based	400 Series	230~270HB	250 - 600	0.006 - 0.014	ACM200
M	Stainless Steel	Cr-Ni Based	Precipitation Hardening	330HB	200 - 525	0.006 - 0.014	ACM200
S	Heat Resistant Alloy		Ni Based Material System	250~350HB	65 - 130	0.004 - 0.012	ACM100 ACM200
S	Titanium		Pure Titanium	(Rm400)	200 - 325	0.004 – 0.012	ACM100 ACM200
S	Titanium		α+α Alloy System	(Rm1050)	130 - 200	0.004 – 0.012	ACM100 ACM200

NOTE: The cutting conditions above are a guide.
Actual Conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.

RSX(F) SHELLMILL INCH -*12mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-5°
	Axial	10°

.236"

Fig 1

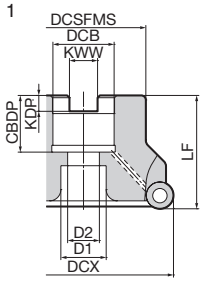


Fig 2

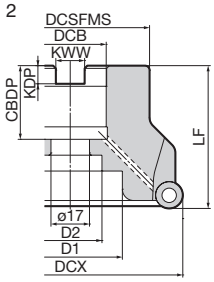
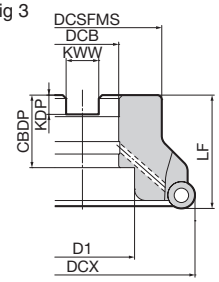


Fig 3



Body (RSX40000R) Standard

Dimensions (inch)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs)	Fig
Inch	**RSX42000R**	●	2.000	1.500	1.750	0.750	0.312	0.248	0.750	0.609	0.406	4	0.70	1
	RSX42500R	●	2.500	1.750	1.750	1.000	0.375	0.248	0.750	0.797	0.531	5	1.1	1
	RSX43000R	●	3.000	2.250	1.750	1.000	0.375	0.276	0.750	0.797	0.531	6	1.75	1
	RSX44000R-1.25	●	4.000	2.870	2.000	1.250	0.500	0.335	0.750	1.000	0.656	7	3.75	1
	RSX44000R-1.50	●	4.000	2.870	2.500	1.500	0.625	0.335	1.000	2.000	0.781	7	4.00	1
	RSX45000R	●	5.000	3.750	2.500	1.500	0.625	0.465	1.000	2.000	0.781	8	7.60	1
	RSX46000R	●	6.000	4.380	2.500	1.500	0.625	0.532	1.000	2.000	0.781	9	11.90	1

Body (RSXF40000R) Fine Pitch

Dimensions (inch)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (lbs)	Fig
Inch	**RSXF42000R**	●	2.000	1.500	1.750	0.750	0.312	0.248	0.750	0.609	0.406	5	0.65	1
	RSXF42500R	●	2.500	1.750	1.750	1.000	0.375	0.248	0.750	0.797	0.531	6	1.05	1
	RSXF43000R	●	3.000	2.250	1.750	1.000	0.375	0.276	0.750	0.797	0.531	8	1.75	1
	RSXF44000R-1.25	●	4.000	2.870	2.000	1.250	0.500	0.335	0.750	1.000	0.656	9	4.75	1
	RSXF44000R-1.50	●	4.000	2.870	2.500	1.500	0.625	0.335	1.000	2.000	0.781	9	5.25	1
	RSXF45000R	●	5.000	3.750	2.500	1.500	0.625	0.465	1.000	2.000	0.781	11	7.5	1
	RSXF46000R	●	6.000	4.380	2.500	1.500	0.625	0.532	1.000	2.000	0.781	12	11.75	1

Inserts are sold separately. Check the collet mounting size (DCB) when selecting the cutter.

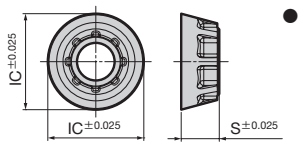
● USA stocked item

Insert

Dimensions (inch)

Grade		Coated Carbide							
Process	High-speed / Light			M S	M S				
	General-purpose	P M		M S	M S	M S			
	Roughing	P M	K			M S			
Cat. No.		ACP200	ACK300	ACM100	ACM200	ACM300	Inscribed Circle IC	Thickness S	Fig
RDET1204M0EN-G		●	●	●	●	●	.473	.187	1
RDET1204M0EN-H		●	●	●	●	●	.473	.187	1

Fig 1



● Cross Section of Cutting Edge

G Type

H Type

Parts

Wrench	Flat Screw		Anti-seize Cream
		N·m	
TRDR15IP	BFTX0409IP	3.0	SUMI-P

Identification Code

RSX F 4 2000 R

Cutter Series	Fine-Pitch Indication	Insert Series	Cutter Dia. 2.000"	Feed Direction

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (SFM/ m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	330-725 SFM 100-**160**-200	.008-.024 IPT 0.20-**0.40**- 0.60	ACP200
P	Alloy Steel	180 to 280 HB	330-650 SFM 100-**140**-180	.008-.016 IPT 0.20-**0.30**- 0.40	ACP200
K	Cast Iron	250HB	265-580 SFM 80-**120**-160	.004-.016 IPT 0.10-**0.30**- 0.40	ACK300

			Work Material	Hardness	Cutting Speed v_c (sfm) Min - Max	Feed Rate f_z(ipt) Min - Max	Recommended Grade
M	Stainless Steel	Cr Based	Ferrite System	200 HB	500 - 650	0.006 – 0.014	ACM300
			Martensitic	200~330HB	250 - 600	0.006 – 0.014	ACM300
		Cr-Ni Based	Austenitc	200 HB	500 - 650	0.006 - 0.014	ACM300
			400 Series	230~270HB	250 - 600	0.006 - 0.014	ACM200
			Precipitation Hardening	330HB	200 - 525	0.006 - 0.014	ACM200
S	Heat Resistant Alloy		Ni Based Material System	250~350HB	65 - 130	0.004 - 0.012	ACM100 ACM200
	Titanium		Pure Titanium	(Rm400)	200 - 325	0.004 – 0.012	
			α+β Alloy System	(Rm1050)	130 - 200	0.004 – 0.012	

NOTE: The cutting conditions above are a guide.
Actual Conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.

RSX(F) Shellmill Metric - *12mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-5°
	Axial	10°

6mm

Fig 1

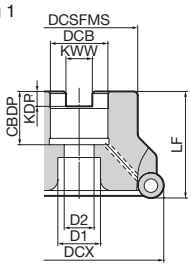


Fig 2

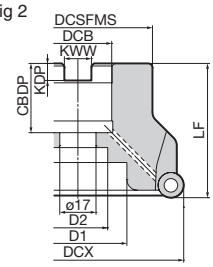
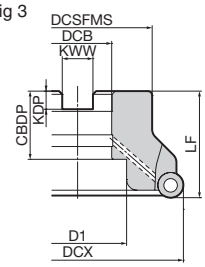


Fig 3



Body (RSX12000RS / R)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**RSX12040RS**	★	40	32	40	16	8.4	5.6	18	13.5	9	3	0.2	1
	RSX12050RS	★	50	40	40	22	10.4	6.3	20	18	11	4	0.3	1
	RSX12052RS	★	52	40	40	22	10.4	6.3	20	18	11	4	0.3	1
	RSX12063RS	★	63	40	40	22	10.4	6.3	20	18	11	5	0.4	1
	RSX12066RS	★	66	55	50	27	12.4	7.0	25	20	14	6	0.7	1
	RSX12080RS	★	*80	55	50	27	12.4	7.0	25	20	14	6	1.0	1
	RSX12100RS	★	100	70	50	32	14.4	8.5	32	46	-	6	1.4	3
	RSX12080R	★	*80	55	50	25.4	9.5	6.0	25	20	13	6	1.0	1
	RSX12100R	★	*100	70	63	31.75	12.7	8.0	32.5	46	28	6	1.9	2

Body (RSXF12000RS / R) Fine Pitch

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**RSXF12040RS**	★	40	32	40	16	8.4	5.6	18	13.5	9	4	0.2	1
	RSXF12050RS	★	50	40	40	22	10.4	6.3	20	18	11	5	0.3	1
	RSXF12052RS	★	52	40	40	22	10.4	6.3	20	18	11	5	0.3	1
	RSXF12063RS	★	63	40	40	22	10.4	6.3	20	18	11	6	0.4	1
	RSXF12066RS	★	66	55	50	27	12.4	7.0	25	20	14	7	0.7	1
	RSXF12080RS	★	*80	55	50	27	12.4	7.0	25	20	14	7	0.9	1
	RSXF12100RS	★	100	70	50	32	14.4	8.5	32	46	-	10	1.3	3
	RSXF12080R	★	*80	55	50	25.4	9.5	6.0	25	20	13	7	1.0	1
	RSXF12100R	★	*100	70	63	31.75	12.7	8.0	32.5	46	28	10	1.8	2

Inserts are sold separately. Check the collet mounting size (DCB) when selecting the cutter.

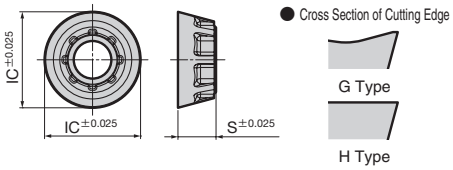
* For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (*mm*)

Grade		Coated Carbide							
Process	High-speed / Light			M S	M S				
	General-purpose	P M		M S	M S	M S			
	Roughing	P M	K			M S			
Cat. No.		ACP200	ACK300	ACM100	ACM200	ACM300	Inscribed Circle IC	Thickness S	Fig
RDET1204M0EN-G		●	●	●	●	●	12	4.76	1
RDET1204M0EN-H		●	●	●	●	●	12	4.76	1

Fig 1



★Worldwide Warehouse Item ● USA stocked item

Parts

Wrench	Flat Screw		Anti-seize Cream
		N·m	
TRDR15IP	BFTX0409IP	3.0	SUMI-P

Identification Code

RSX F 12 040 R S

Cutter Series	Fine-Pitch Indication	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (SFM/ m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	330-725 SFM 100-**160**-200	.008-.024 IPT 0.20-**0.40**- 0.60	ACP200
P	Alloy Steel	180 to 280 HB	330-650 SFM 100-**140**-180	.008-.016 IPT 0.20-**0.30**- 0.40	ACP200
K	Cast Iron	250HB	265-580 SFM 80-**120**-160	.004-.016 IPT 0.10-**0.30**- 0.40	ACK300

			Work Material	Hardness	Cutting Speed v_c (sfm) Min - Max	Feed Rate f_z(ipt) Min - Max	Recommended Grade
M	Stainless Steel	Cr Based	Ferrite System	200 HB	500 - 650	0.006 – 0.014	ACM300
M	Stainless Steel	Cr Based	Martensitic	200~330HB	250 - 600	0.006 – 0.014	ACM300
M	Stainless Steel	Cr-Ni Based	Austenitc	200 HB	500 - 650	0.006 - 0.014	ACM300
M	Stainless Steel	Cr-Ni Based	400 Series	230~270HB	250 - 600	0.006 - 0.014	ACM200
M	Stainless Steel	Cr-Ni Based	Precipitation Hardening	330HB	200 - 525	0.006 - 0.014	ACM200
S	Heat Resistant Alloy		Ni Based Material System	250~350HB	65 - 130	0.004 - 0.012	ACM100 ACM200
S	Titanium		Pure Titanium	(Rm400)	200 - 325	0.004 – 0.012	ACM100 ACM200
S	Titanium		$\alpha+\beta$ Alloy System	(Rm1050)	130 - 200	0.004 – 0.012	ACM100 ACM200

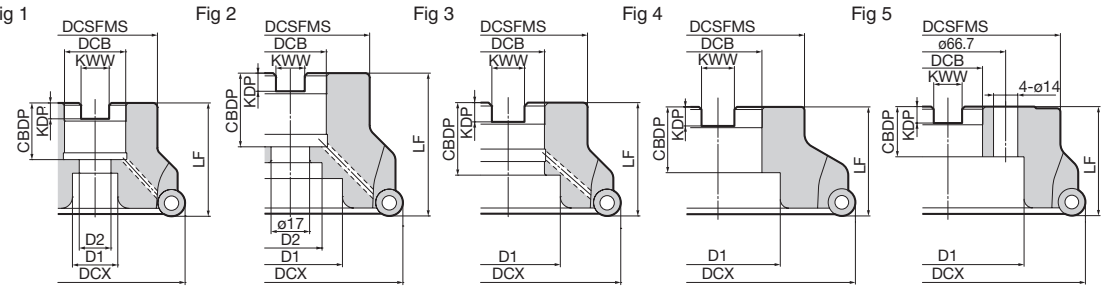
NOTE: The cutting conditions above are a guide.
Actual Conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.

RSX(F) Inch SHELLMILL Type - 16mm Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-5°
	Axial	10°

.315"



Body (RSX50000R)

Dimensions (inch)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Inch	**RSX52500R**	●	2.500	1.750	1.750	1.000	0.375	0.248	0.750	0.797	0.531	4	0.95	1
	RSX53000R	●	3.000	2.250	1.750	1.000	0.375	0.248	0.750	0.797	0.531	5	1.50	1
	RSX54000R-1.25	●	4.000	2.870	2.000	1.250	0.500	0.276	0.750	1.000	0.656	7	4.25	1
	RSX54000R-1.50	●	4.000	2.870	2.500	1.500	0.625	0.335	1.000	2.000	0.781	7	4.90	1
	RSX55000R	●	5.000	3.750	2.500	1.500	0.625	0.335	1.000	2.000	0.781	8	7.1	1
	RSX56000R	●	6.000	4.380	2.500	1.500	0.625	0.465	1.000	2.000	0.781	9	11.2	5

Body (RSXF50000R) Fine Pitch

Dimensions (inch)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Inch	**RSXF52500R**	●	2.500	1.750	1.750	1.000	0.375	0.248	0.750	0.797	0.531	5	0.85	1
	RSXF53000R	●	3.000	2.250	1.750	1.000	0.375	0.248	0.750	0.797	0.531	6	1.55	1
	RSXF54000R-1.25	●	4.000	2.870	2.000	1.250	0.500	0.276	0.750	1.000	0.656	8	3.25	3
	RSXF54000R-1.50	●	4.000	2.870	2.500	1.500	0.625	0.335	1.000	2.000	0.781	8	4.35	1
	RSXF55000R	●	5.000	3.750	1.500	1.500	0.625	0.335	1.000	2.000	0.781	9	6.4	5
	RSXF56000R	●	6.000	6.000	4.380	1.500	0.625	0.465	1.000	0.781	1.500	10	10.5	1

Inserts are sold separately. Check the collet mounting size (DCB) when selecting the cutter.

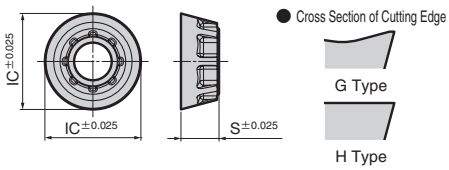
● USA stocked item

Insert

Dimensions (inch)

Grade		Coated Carbide							
Process	High-speed / Light			M S	M S				
	General-purpose	P M		M S	M S	M S			
	Roughing	P M	K			M S			
Cat. No.		ACP200	ACK300	ACM100	ACM200	ACM300	Inscribed Circle IC	Thickness S	Fig
RDET1606M0EN-G		●	●	●	●	●	0.630	0.256	1
RDET1606M0EN-H		●	●	●	●	●	0.630	0.256	1

Fig 1



Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (SFM/ m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	330-725 SFM 100-**160**-200	.008-.024 IPT 0.20-**0.40**- 0.60	ACP200
P	Alloy Steel	180 to 280 HB	330-650 SFM 100-**140**-180	.008-.016 IPT 0.20-**0.30**- 0.40	ACP200
K	Cast Iron	250HB	265-580 SFM 80-**120**-160	.004-.016 IPT 0.10-**0.30**- 0.40	ACK300

		Work Material	Hardness	Cutting Speed v_c (sfm) Min - Max	Feed Rate f_z(ipt) Min - Max	Recommended Grade
M	Stainless Steel Cr-Ni Based	Ferrite System	200 HB	500 - 650	0.006 – 0.014	ACM300
		Martensitic	200~330HB	250 - 600	0.006 – 0.014	ACM300
		Austenitc	200 HB	500 - 650	0.006 - 0.014	ACM300
		400 Series	230~270HB	250 - 600	0.006 - 0.014	ACM200
		Precipitation Hardening	330HB	200 - 525	0.006 - 0.014	ACM200
S	Heat Resistant Alloy	Ni Based Material System	250~350HB	65 - 130	0.004 - 0.012	ACM100 ACM200
	Titanium	Pure Titanium	(Rm400)	200 - 325	0.004 – 0.012	
		α+β Alloy System	(Rm1050)	130 - 200	0.004 – 0.012	

NOTE: The cutting conditions above are a guide.
Actual Conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.

Parts

Wrench	Flat Screw		Anti-seize Cream
		N·m	
TRDR20IP	BFTX0511IP	5.0	SUMI-P

Identification Code

RSX F 5 3000 R

Cutter Series	Fine-Pitch Indication	Insert Series	Cutter Dia. 3.000"	Feed Direction

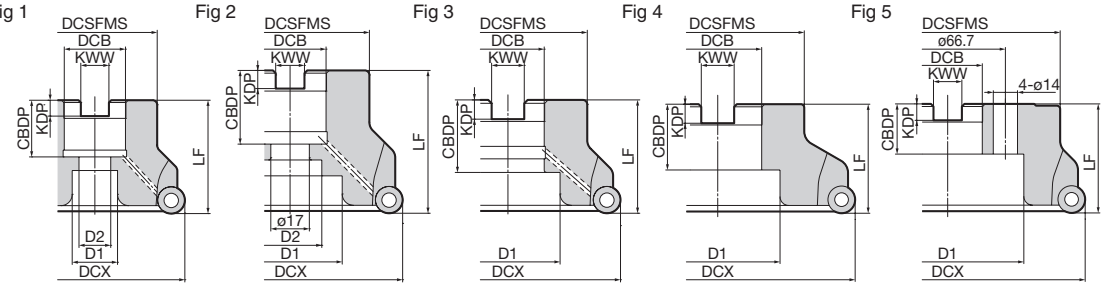
N·m Recommended Tightening Torque (N·m)

RSX(F) Metric Shellmill Type - 16mm Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-5°
	Axial	10°

8mm



Body (RSX16000RS / R)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**RSX16063RS**	★	63	50	40	22	10.4	6.3	20	18	11	4	0.5	1
	RSX16080RS	★	*80	55	50	27	12.4	7.0	25	20	14	5	0.9	1
	RSX16100RS	★	100	70	50	32	14.4	8.5	32	46	-	6	1.3	3
	RSX16125RS	★	125	80	63	40	16.4	9.5	29	52	29	6	2.6	1
	RSX16080R	★	*80	55	50	25.4	9.5	6.0	25	20	13	5	0.9	1
	RSX16100R	★	*100	70	63	31.75	12.7	8.0	32.5	46	28	6	1.8	2
	RSX16125R	★	125	80	63	38.1	15.9	10.0	35.5	55	30	6	2.7	1

Body (RSXF16000RS / R) Fine Pitch

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**RSXF16063RS**	★	63	50	40	22	10.4	6.3	20	18	11	5	0.4	1
	RSXF16080RS	★	*80	55	50	27	12.4	7.0	25	20	14	6	0.8	1
	RSXF16100RS	★	100	70	50	32	14.4	8.5	32	46	-	7	1.3	3
	RSXF16125RS	★	125	80	63	40	16.4	9.5	29	52	29	8	2.5	1
	RSXF16160RS		160	130	63	40	16.4	9.5	29	88	-	10	4.8	5
	RSXF16080R	★	*80	55	50	25.4	9.5	6.0	25	20	13	6	0.8	1
	RSXF16100R	★	*100	70	63	31.75	12.7	8.0	32.5	46	28	7	1.7	2
	RSXF16125R	★	125	80	63	38.1	15.9	10.0	35.5	55	30	8	2.6	1
	RSXF16160R		160	100	63	50.8	19.0	11.0	38	72	-	10	4.3	4

Inserts are sold separately. Check the collet mounting size (DCB) when selecting the cutter.

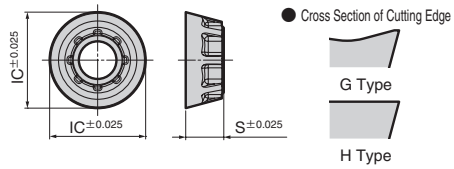
For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (*mm*)

Grade		Coated Carbide							
Process	High-speed / Light			M S	M S				
	General-purpose	P M		M S	M S	M S			
	Roughing	P M	K			M S			
Cat. No.		ACP200	ACK300	ACM100	ACM200	ACM300	Inscribed Circle IC	Thickness S	Fig
RDET1606M0EN-G		●	●	●	●	●	16	6.5	1
RDET1606M0EN-H		●	●	●	●	●	16	6.5	1

Fig 1



● USA stocked item ★Worldwide Warehouse Item

Parts

Wrench	Flat Screw		Anti-seize Cream
TRDR20IP	BFTX0511IP	5.0	SUMI-P

Identification Code

RSX F 16 063 R S

RSX	F	16	063	R	S
Cutter Series	Fine-Pitch Indication	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (SFM/ m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	330-725 SFM 100-**160**-200	.008-.024 IPT 0.20-**0.40**- 0.60	ACP200
P	Alloy Steel	180 to 280 HB	330-650 SFM 100-**140**-180	.008-.016 IPT 0.20-**0.30**- 0.40	ACP200
K	Cast Iron	250HB	265-580 SFM 80-**120**-160	.004-.016 IPT 0.10-**0.30**- 0.40	ACK300

			Work Material	Hardness	Cutting Speed v_c (sfm) Min - Max	Feed Rate f_z(ipt) Min - Max	Recommended Grade
M	Stainless Steel	Cr Based	Ferrite System	200 HB	500 - 650	0.006 – 0.014	ACM300
			Martensitic	200~330HB	250 - 600	0.006 – 0.014	ACM300
			Austenitc	200 HB	500 - 650	0.006 - 0.014	ACM300
		Cr-Ni Based	400 Series	230~270HB	250 - 600	0.006 - 0.014	ACM200
			Precipitation Hardening	330HB	200 - 525	0.006 - 0.014	ACM200
S	Heat Resistant Alloy		Ni Based Material System	250~350HB	65 - 130	0.004 - 0.012	ACM100 ACM200
	Titanium		Pure Titanium	(Rm400)	200 - 325	0.004 – 0.012	
			α+β Alloy System	(Rm1050)	130 - 200	0.004 – 0.012	

NOTE: The cutting conditions above are a guide.
Actual Conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.

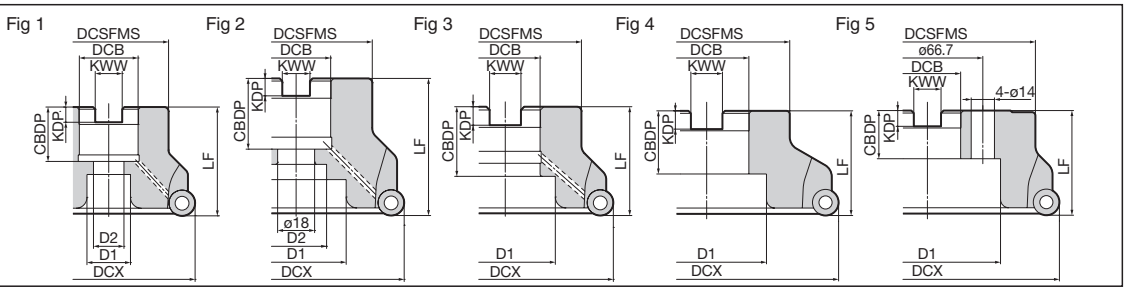
N·m Recommended Tightening Torque (N·m)

RSX(F) Metric Shellmill - *20mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle	Radial	-5°
	Axial	10°

10mm



Body (RSX20000R / RS)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**RSX20080RS**	★	*80	55	50	27	12.4	7	22	20	14	4	0.9	1
	RSX20100RS	★	100	70	50	32	14.4	8	32	46	-	5	1.8	3
	RSX20125RS	★	125	80	63	40	16.4	9	29	52	29	6	2.6	1
	RSX20160RS	★	160	130	63	40	16.4	9	29	90	-	7	4.7	5
	RSX20080R	★	*80	55	50	25.4	9.5	6	25	20	14	4	0.9	1
	RSX20100R	★	100	70	63	31.75	12.7	8	32	46	27	5	1.8	2
	RSX20125R	★	125	80	63	38.1	15.9	10	35.5	55	30	6	2.6	1
	RSX20160R	★	160	100	63	50.8	19.1	11	38	72	-	7	4.2	4

Body (RSXF20000R / RS) Fine Pitch

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**RSXF20080RS**	★	*80	55	50	27	12.4	7	22	20	14	5	0.9	1
	RSXF20100RS	★	100	70	50	32	14.4	8	32	46	-	6	1.8	3
	RSXF20125RS	★	125	80	63	40	16.4	9	29	52	29	7	2.6	1
	RSXF20160RS	★	160	130	63	40	16.4	9	29	90	-	9	4.6	5
	RSXF20080R	★	*80	55	50	25.4	9.5	6	25	20	14	5	0.9	1
	RSXF20100R	★	*100	70	63	31.75	12.7	8	32	46	27	6	1.8	2
	RSXF20125R	★	125	80	63	38.1	15.9	10	35.5	55	30	7	2.6	1
	RSXF20160R	★	160	100	63	50.8	19.1	11	38	72	-	9	4.1	4

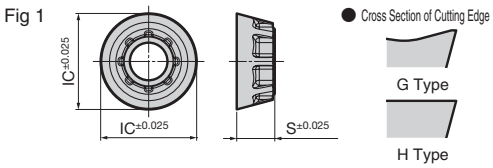
Inserts are sold separately. Check the collet mounting size (DCB) when selecting the cutter.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

Dimensions (*mm*)

Grade		Coated Carbide							
Process	High-speed / Light			M S	M S				
	General-purpose	P M		M S	M S	M S			
	Roughing	P M	K			M S			
Cat. No.		ACP200	ACK300	ACM100	ACM200	ACM300	Inscribed Circle IC	Thickness S	Fig
RDET2006M0EN-G		★	★	★	★	★	20	6.5	1
RDET2006M0EN-H		★	★	★	★	★	20	6.5	1



★Worldwide Warehouse Item

Parts

Wrench	Flat Screw		Anti-seize Cream
		N·m	
TRDR25IP	BFTX0615IP	5.0	SUMI-P

Identification Code

RSX F 20 080 R S

Cutter Series	Fine-Pitch Indication	Insert Size	Cutter Dia.	Feed Direction	Metric Bore

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (SFM/ m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	330-725 SFM 100-**160**-200	.008-.024 IPT 0.20-**0.40**-0.60	ACP200
P	Alloy Steel	180 to 280 HB	330-650 SFM 100-**140**-180	.008-.016 IPT 0.20-**0.30**-0.40	ACP200
K	Cast Iron	250HB	265-580 SFM 80-**120**-160	.004-.016 IPT 0.10-**0.30**-0.40	ACK300

		Work Material	Hardness	Cutting Speed v_c (sfm) Min - Max	Feed Rate f_z(ipt) Min - Max	Recommended Grade
M	Stainless Steel Cr Based	Ferrite System	200 HB	500 - 650	0.006 – 0.014	ACM300
M	Stainless Steel Cr Based	Martensitic	200~330HB	250 - 600	0.006 – 0.014	ACM300
M	Stainless Steel Cr-Ni Based	Austenitc	200 HB	500 - 650	0.006 - 0.014	ACM300
M	Stainless Steel Cr-Ni Based	400 Series	230~270HB	250 - 600	0.006 - 0.014	ACM200
M	Stainless Steel Cr-Ni Based	Precipitation Hardening	330HB	200 - 525	0.006 - 0.014	ACM200
S	Heat Resistant Alloy	Ni Based Material System	250~350HB	65 - 130	0.004 - 0.012	ACM100 ACM200
S	Titanium	Pure Titanium	(Rm400)	200 - 325	0.004 – 0.012	ACM100 ACM200
S	Titanium	$\alpha+\beta$ Alloy System	(Rm1050)	130 - 200	0.004 – 0.012	ACM100 ACM200

NOTE: The cutting conditions above are a guide.
Actual Conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.

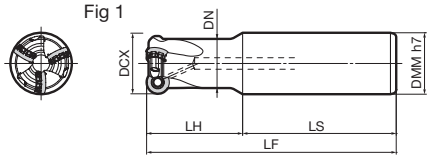
RSX(F) ENDMILL - *8mm / 10mm / 12mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle		
	Radial	-5° to -8°
	Axial	10°

4mm (08000ES) | 5mm (10000ES) | .197" | 6mm (12000ES) | .236"

Fig 1



Body (*RSXF08*) Fine Pitch, Applicable Insert IC = *8mm*

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
Metric	**RSXF08020ES**	★	*20*	*20*	*16.9*	*30*	*70*	*100*	3	*0.3*	1
Metric	**RSXF08025ES**	★	*25*	*25*	*21.9*	*40*	*80*	*120*	4	*0.4*	1

Body (RSX3 / *RSX10*) Applicable Insert IC = 10mm

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**RSX31000EW**	●	1.000	1.000	0.799	2.060	2.280	4.340	2	0.95	1
Inch	**RSX31250EW**	●	1.250	1.250	1.063	2.060	2.280	4.340	3	1.15	1
Inch	**RSX31500EW**	●	1.500	1.250	1.334	2.060	2.280	4.340	3	1.25	1
Metric	**RSX10025ES**	★	*25*	*25*	*20.3*	*50*	*80*	*130*	2	*0.4*	1
Metric	**RSX10032ES**	★	*32*	*32*	*27.1*	*50*	*80*	*130*	3	*0.7*	1

Body (RSX4 / *RSX12*) Applicable Insert IC = 12mm

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**RSX41250EW**	●	1.250	1.250	1.063	2.060	2.280	4.340	2	1.20	1
Inch	**RSX41500EW**	●	1.500	1.250	1.334	2.060	2.280	4.340	3	1.50	1
Metric	**RSX12032ES**	★	*32*	*32*	*25.6*	*50*	*80*	*130*	2	*0.7*	1

★Worldwide Warehouse Item ● USA stocked item

Body (*RSXF3* / *RSX10*) Fine Pitch, Applicable Insert IC = *10mm*

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**RSXF31000EW**	●	1.000	1.000	0.799	2.060	2.280	4.340	3	1.00	1
Inch	**RSXF31000ELC**	●	1.000	1.000	0.799	3.750	6.250	10.000	3	2.00	1
Inch	**RSXF31250EW**	●	1.250	1.250	1.063	2.060	2.280	4.340	4	1.25	1
Inch	**RSXF31250ELC**	●	1.250	1.250	1.063	3.750	6.250	10.000	4	2.75	1
Inch	**RSXF31500EW**	●	1.500	1.250	1.334	2.060	2.280	4.340	4	1.40	1
Inch	**RSXF31500ELC**	●	1.500	1.250	1.334	3.750	6.250	10.000	4	3.25	1
Metric	**RSXF10025ES**	★	*25*	*25*	*20.3*	*50*	*80*	*130*	3	*0.4*	1
Metric	**RSXF10032ES**	★	*32*	*32*	*27.1*	*50*	*80*	*130*	4	*0.7*	1

Body (*RSXF4* / *RSXF12*) Fine Pitch, Applicable Insert IC = *12mm*

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (lbs / *kg*)	Fig
Inch	**RSXF41250EW**	●	1.250	1.250	1.063	2.060	2.280	4.340	3	1.40	1
Inch	**RSXF41250ELC**	●	1.250	1.250	1.063	3.750	6.250	10.000	3	3.50	1
Inch	**RSXF41500EW**	●	1.500	1.250	1.334	2.060	2.280	4.340	4	1.65	1
Inch	**RSXF41500ELC**	●	1.500	1.250	1.334	3.750	6.250	10.000	4	4.00	1
Metric	**RSXF12032ES**	★	*32*	*32*	*25.6*	*50*	*80*	*130*	3	*0.7*	1

Inserts are sold separately.

Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide				
Process	High-speed / Light			M S	M S	
Process	General-purpose	P M		M S	M S	M S
Process	Roughing	P M	K			M S
Cat. No.		ACP200	ACK300	ACM100	ACM200	ACM300
RDET0803M0EN-G		★	★	★	★	★
RDET0803M0EN-H		★	★	★	★	★
RDET10T3M0EN-G		●	●	●	●	●
RDET10T3M0EN-H		●	●	●	●	●
RDET1204M0EN-G		●	●	●	●	●
RDET1204M0EN-H		●	●	●	●	●

Cat. No.	Inscribed Circle IC	Thickness S	Applicable Cutters	Fig
RDET0803M0EN-G	0.315 / *8*	0.125 *3.18*	RSX(F)08000ES	1
RDET0803M0EN-H				1
RDET10T3M0EN-G	0.394 / *10*	0.156 *3.97*	RSX30000EW RSX(F)10000RS / ES	1
RDET10T3M0EN-H				1
RDET1204M0EN-G	0.472 / *12*	0.187 *4.76*	RSX40000EW RSX(F)12000RS / ES	2
RDET1204M0EN-H				2

Fig 1

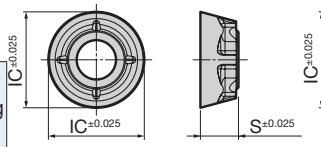
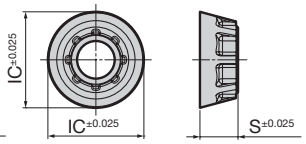


Fig 2



● Cross Section of Cutting Edge

G Type H Type

Parts

Applicable Cutter	Wrench	Flat Screw	N·m	Anti-seize Cream
RSX(F)08000ES	TRDR08IP	BFTX02506IP	1.5	SUMI-P
RSX(F)10000ES	TRDR15IP	BFTX03584IP	3.0	SUMI-P
RSX(F)12000ES	TRDR15IP	BFTX0409IP	3.0	SUMI-P

Identification Code - Inch

RSX F 3 1000 EW

Cutter Series	Fine-Pitch Indication	Insert Series	Cutter Dia. 1.000"	Endmill Type W: Weldon C: Cylindrical

Identification Code

RSX F 10 025 ES

Cutter Series	Fine-Pitch Indication	Insert Size	Cutter Dia.	Endmill Type

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (SFM/ m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	330-725 SFM 100-**160**-200	.008-.024 IPT 0.20-**0.40**- 0.60	ACP200
P	Alloy Steel	180 to 280 HB	330-650 SFM 100-**140**-180	.008-.016 IPT 0.20-**0.30**- 0.40	ACP200
K	Cast Iron	250HB	265-580 SFM 80-**120**-160	.004-.016 IPT 0.10-**0.30**- 0.40	ACK300

		Work Material	Hardness	Cutting Speed v_c (sfm) Min - Max	Feed Rate f_z (ipt) Min - Max	Recommended Grade
M	Stainless Steel Cr Based	Ferrite System	200 HB	500 - 650	0.006 – 0.014	ACM300
M	Stainless Steel Cr Based	Martensitic	200~330HB	250 - 600	0.006 – 0.014	ACM300
M	Stainless Steel Cr-Ni Based	Austenitc	200 HB	500 - 650	0.006 - 0.014	ACM300
M	Stainless Steel Cr-Ni Based	400 Series	230~270HB	250 - 600	0.006 - 0.014	ACM200
M	Stainless Steel Cr-Ni Based	Precipitation Hardening	330HB	200 - 525	0.006 - 0.014	ACM200
S	Heat Resistant Alloy	Ni Based Material System	250~350HB	65 - 130	0.004 - 0.012	ACM100 ACM200
S	Titanium	Pure Titanium	(Rm400)	200 - 325	0.004 – 0.012	ACM100 ACM200
S	Titanium	α+β Alloy System	(Rm1050)	130 - 200	0.004 – 0.012	ACM100 ACM200

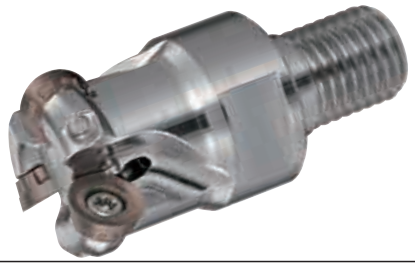
NOTE: The cutting conditions above are a guide.
Actual Conditions will need to be adjusted according to machine rigidity, work clamp rigidity, cutting depth and other factors.

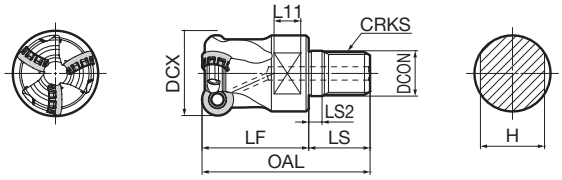
RSX(F) Modular - *8mm / 10mm / 12 mm* Inserts

Rake Angle		
	Radial	-5° to -8°
	Axial	10°

.157" (08000M) | 4mm | .197" (10000M) | 5mm | .236" (12000M) | 6mm

Fig 1





Head (RSX08000M) Applicable Insert RDET08

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
Metric	**RSX08020M10Z2**	★	*20*	*10.5*	**M10**	*49*	*30*	*5*	*19*	*8*	*15*	*2*	*0.1*	1
	RSX08025M12Z3	★	*25*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	*3*	*0.1*	1
	RSX08032M16Z4	★	*32*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	*4*	*0.2*	1

Head (RSXF08000M) Fine Pitch Type, Applicable Insert RDET08

Dimensions (mm)

	Cat. No.	Stock	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
Metric	**RSXF08020M10Z3**	★	*20*	*10.5*	**M10**	*49*	*30*	*5*	*19*	*8*	*15*	*3*	*0.1*	1
	RSXF08025M12Z4	★	*25*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	*4*	*0.1*	1
	RSXF08032M16Z5	★	*32*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	*5*	*0.2*	1

Head (RSX10000M) Applicable Insert RDET10

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
Metric	**RSX10025M12Z2**	★	*25*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	*2*	*0.1*	1
	RSX10032M16Z3	★	*32*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	*3*	*0.2*	1

Head (RSXF3 & RSXF10) Fine Pitch Type, Applicable Insert RDET10

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
Inch	**RSXF31000M12Z3**	●	1.000	0.492	M12	2.205	1.378	0.197	0.827	0.394	0.748	3	.22	1
	RSXF31250M16Z4	●	1.250	0.669	M16	2.480	1.575	0.197	0.906	0.394	0.945	4	.44	1
Metric	**RSXF10025M12Z3**	★	*25*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	*3*	*0.1*	1
	RSXF10032M16Z4	★	*32*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	*4*	*0.2*	1

Head (RSX12000M) Applicable Insert RDET12

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
Metric	**RSX12032M16Z2**	★	*32*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	*2*	*0.2*	1
	RSX12040M16Z3	★	*40*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	*3*	*0.3*	1

● USA stocked item ★ Worldwide Warehouse item

Head (RSXF4 & RSX12) Fine Pitch Type, Applicable Insert RDET12

Dimensions (inch / *mm*)

	Cat. No.	Stock	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
Inch	**RSXF41250M16Z3**	●	1.250	0.669	**M16**	2.480	1.575	0.197	0.906	0.394	0.945	3	.44	1
	RSXF41500M16Z4	●	1.500	0.669	**M16**	2.480	1.575	0.197	0.906	0.394	0.945	4	.66	1
Metric	**RSXF12032M16Z3**	★	*32*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	*3*	*0.2*	1
	RSXF12040M16Z4	★	*40*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	*4*	*0.3*	1

Inserts are sold separately.

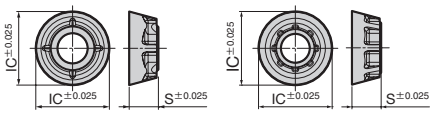
Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide				
Process	High-speed / Ligh			M S	M S	
	General-purpose	P M		M S	M S	M S
	Roughing	P M	K			M S

Cat. No.	ACP200	ACK300	ACM100	ACM200	ACM300	Inscribed Circle IC	Thickness S	Applicable Cutter	Fig
RDET0803M0EN-G	●	●	●	●	●	*8*	*3.18*	RSX(F)08000ES/M	1
RDET0803M0EN-H	●	●	●	●	●	*8*	*3.18*		
RDET10T3M0EN-G	●	●	●	●	●	.394" / *10*	.156" / *3.97*	RSX(F)10000RS/ES/M	1
RDET10T3M0EN-H	●	●	●	●	●	.394" / *10*	.156" / *3.97*		
RDET1204M0EN-G	●	●	●	●	●	.472" / *12*	.187" / *4.76*	RSX(F)12000RS/ES/M	2
RDET1204M0EN-H	●	●	●	●	●	.472" / *12*	.187" / *4.76*		

Fig 1 Fig 2



● Cross Section of Cutting Edge

Parts

Applicable Endmill	Flat Screw		Wrench	Anti-seize Cream
		N·m		
RSX(F)08000M	BFTX02506IP	1.5	TRDR08IP	SUMI-P
RSX(F)10000M Type	BFTX03584IP	3.0	TRDR15IP	
RSX(F)12000M Type	BFTX0409IP	3.0		

SUMI-P Anti-seize cream included in the package.

Identification Code - Inch

RSX F 3 1000 M12 Z3

Cutter Series | Fine-Pitch Indication | Insert Size | Dia. 1.000" | Mounting Screw Size | Number of Teeth

Identification Code - Metric

RSX F 10 025 M12 Z2

Cutter Series | Fine-Pitch Indication | Insert Size | Dia. | Mounting Screw Size | Number of Teeth

N·m Recommended Tightening Torque (N·m)

■ General Features

The WRCX Wave Radius Mill is a versatile, high-efficiency cutter that is suited to various types of machining such as deep shoulder milling of molds, ramping, and helical milling. Furthermore, a wide selection of chipbreakers and grades covers a wide range of work materials, from steel to non-ferrous metals.

■ Features

- Durable body with special surface treatment offers significantly improved tool life and reliability.
- Superb chatter resistance with anti-vibration edge design.
- All sizes come with coolant holes preventing chip build-up and jamming.
- Sturdy screw clamp with Torx Plus screw insert mounting ensures stable machining.

■ Product Range

	Metric Sizes	O.D. (mm)	# of Teeth
Shellmill	**WRCX(F)12000R(S)**	ø40 to ø80	4-6
	WRCX(F)16000R(S)	ø63 to ø100	3-6
	WRCX20000R(S)	ø125 to ø160	5-6
Endmill	**WRCX08000E**	ø20 to ø25	2-3
	WRCX10000E	ø25 to ø32	2-3
	WRCX16000E	ø40 to ø50	2-3
Modular	**WRCX08000M**	ø20 to ø25	2-3
	WRCX10000M	ø25 to ø32	2-3

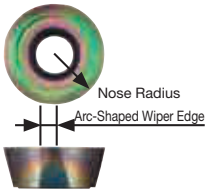
Inch Sizes	O.D. (Inch)	# of Teeth
WRCX30000R	ø2.000"	4
WRCX40000R	ø2.0 to ø4.0"	4-6
WRCX60000R	ø3.0 to ø6.0"	5-8
WRCX80000R	ø4.0 to ø6.0"	6-8
WRCX30000EW	ø1.0 to ø1.5"	2-4
WRCX30000ELC	ø1.0 to ø1.5"	2-4
WRCX40000EW	ø1.25 to ø1.5"	2-3
WRCX40000ELC	ø1.25 to ø1.5"	2-3

■ Abundant Insert Series

- In addition to conventional WRC Type inserts, the new lineup includes non-ferrous metal inserts and surfing inserts

Non-Ferrous Metal Inserts QPET ○○○○○○ PPFR-S

- Good surface roughness with arc-shaped wiper edge
- Sharp corners
- Four-cornered insert

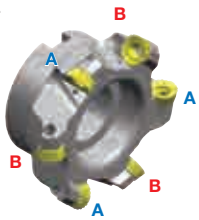


Surfing Insert QPMT ○○○○○○ PPER-R

- Cutting edges feature unique rippled design
- Four-cornered insert
- Low cutting force, enabling use on low-rigidity machines as well

*Use in combinations that alternate cutting edge **A** and cutting edge **B**.
(Only useable on cutters with an even number of cutting edges)

(Position 0°) (Position Rotated 90°) (Shape Created)



Shift the phase in 90° increments to mount inserts

- Maximum Allowable Spindle Speed when Milling Non-Ferrous Metal (Unit: RPM)

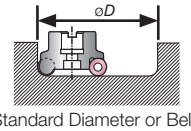
Cutter Dia. DC(*mm*)	Insert Cat. No. QPET10·····-S	QPET12·····-S	QPET16·····-S
25	28,000		
32	25,000		
40		22,000	15,000
50		20,000	14,000
63		18,000	13,000
80		16,000	12,000
100			10,000

Even if the speed used is within the maximum allowable revolution speeds listed above, abnormal vibrations may occur due to machine rigidity or other factors. Therefore, it is advisable to start operation at half the maximum allowable revolution speed and increase the speed gradually while checking for abnormalities.

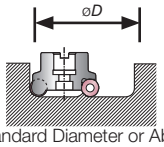
■ Usage Precautions

- Precautions for Helical Milling

Standard Diameter

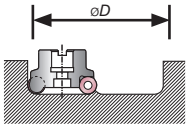


Standard Diameter or Below



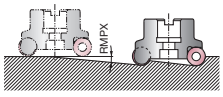
Center uncut portion cannot be removed with the same cutter.

Standard Diameter or Above



Center uncut portion can be removed by traverse cutting with the same cutter.

- Precautions for Ramping
  - Use at the RMPX below or lower.



- Recommended Values for Helical Milling and Ramping

Insert Cat. No. Inch	Cutter Dia. DCX	Ramping Maximum Ramping Angle RMPX(max)	Insert Cat. No. *metric*	Helical Milling (Dimensions in inch) Cutter Dia. DCX	Work Dia. ø*D* Min. Dia.	Standard Diameter	Max. Dia.	Ramping Maximum Ramping Angle RMPX(max)
QP□□32.510○○	**1.00**	11°. 30'	QP□□08○○○○	***20***	0.98	1.26	1.54	13°
	1.25	7° 30'		***25***	1.38	1.65	1.93	8°20'
	1.50	5° 30'	QP□□10○○○○	***25***	1.26	1.57	1.89	13°10'
	2.00	5° 30'		***32***	1.81	2.13	2.44	8°
QP□□4312○○	**1.25**	18° 30'	QP□□12○○○○	***40***	2.24	2.68	3.11	10°
	1.50	12° 30'		***50***	3.03	3.46	3.90	7°30'
	2.00	7° 30'		***63***	4.06	4.49	4.92	5°10'
	2.50	5° 30'		***80***	5.39	5.83	6.26	3°50'
	3.00	4°	QP□□16○○○○	***40***	1.93	2.52	3.11	19°30'
	4.00	2° 30'		***50***	2.72	3.31	3.90	12°
QP□□6416○○	**3.00**	7° 30'		***63***	3.74	4.33	4.92	8°
	4.00	4° 30'		***80***	5.08	5.67	6.26	5°30'
	5.00	3° 15'		***100***	6.65	7.24	7.83	4°
	6.00	3° 15'	QP□□20○○○○	***125***	8.35	9.06	9.76	3°30'
QP□□8424○○	**4.00**	6°		***160***	11.10	11.81	12.52	2°30'
	5.00	4° 15'						
	6.00	3° 15'						

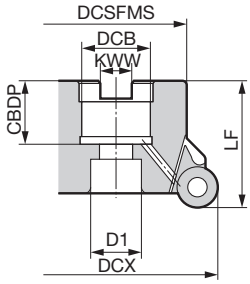
WRCX(F) Inch Shellmill & Endmill

P Steel | M Stainless Steel | K Cast Iron | N Aluminum Alloy

Rake Angle		
	Radial	0°
	Axial	-3°

.1875" | .250" | .375" | .500"

Fig 1



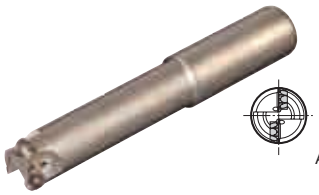
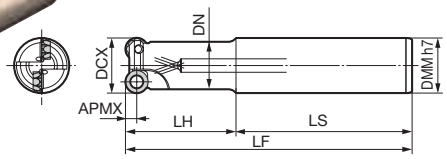


Fig. 2



Body (Shellmill)

Dimensions (inch)

Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Mounting Depth CBDP	Bolt D1	Number of Teeth	Insert	Insert Size	Fig
WRCX32000R	●	2.000	1.500	1.750	0.750	0.312	1.020	0.609	4	QPMT3	0.375	1
WRCX42000R	●	2.000	1.500	1.750	0.750	0.312	1.020	0.609	4	QPMT4	0.500	1
WRCX42500R	●	2.500	1.750	1.750	1.000	0.375	1.020	0.797	4			1
WRCX43000R	●	3.000	2.250	1.750	1.000	0.375	1.020	0.797	5			1
WRCX44000R	●	4.000	2.87	2.00	1.250	0.500	1.020	1.000	6			1
WRCX63000R	●	3.000	2.25	1.75	1.000	0.375	1.020	0.797	5	QPMT6	0.750	1
WRCX64000R	●	4.000	2.87	2.00	1.250	0.500	1.020	1.000	6			1
WRCX65000R	●	5.000	3.75	2.50	1.500	0.625	1.060	2.000	6			1
WRCX66000R	●	6.000	3.75	2.50	1.500	0.625	1.060	2.000	8			1
WRCX84000R	●	4.000	2.87	2.00	1.250	0.500	1.020	1.000	6	QPMT8	1.000	1
WRCX85000R	●	5.000	3.75	2.50	1.500	0.625	1.060	2.000	6			1
WRCX86000R	●	6.000	3.70	2.50	1.500	0.625	1.060	2.000	8			1

Inserts are sold separately.

Body (WRCX30000) Applicable Insert IC = 0.375

Dimensions (inch)

Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Number of Teeth	Fig
WRCX31000EW	●	1.000	1.000	1.000	0.157	2.060	2.281	4.341	2	2
WRCX31000ELC	●	1.000	1.000	1.000	0.157	3.750	6.250	10.000	2	2
WRCX31250EW	●	1.250	1.250	1.250	0.157	2.060	2.281	4.341	3	2
WRCX31250ELC	●	1.250	1.250	1.250	0.157	3.750	6.250	10.000	3	2
WRCX31500EW	●	1.500	1.500	1.500	0.157	2.060	2.281	4.341	4	2
WRCX31500ELC	●	1.500	1.500	1.500	0.157	3.750	6.250	10.000	4	2

Body (WRCX40000) Applicable Insert IC = 0.500

Dimensions (inch)

Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Number of Teeth	Fig
WRCX41250EW	●	1.250	1.250	1.250	0.197	2.060	2.281	4.341	2	2
WRCX41250ELC	●	1.250	1.250	1.250	0.197	3.750	6.250	10.000	2	2
WRCX41500EW	●	1.500	1.500	1.500	0.197	2.060	2.281	4.341	3	2
WRCX41500ELC		1.500	1.500	1.500	0.197	3.750	6.250	10.000	3	2

● USA stocked item

Insert (Common)

Dimensions (inch)

Grade		Coated Carbide				Carbide	DLC
Process	High-speed / Light	P				K N	N
	General-purpose		P M	P M			N
	Roughing		P M	P M	K		

Applications	Cat. No.	ACP100	ACP200	ACP300	ACK300	H1	DL1000	Inscribed Circle IC	Thickness S	Max Depth of Cut	Fig
General purpose*	**QPMT32.510PPEN**	●	●	●	●			0.375	0.156	0.1875	1
	QPMT32.510PPEN-H	●		●	●			0.375	0.156	0.1875	1
	QPMT4312PPEN	●	●	●	●			0.500	0.1875	0.250	1
	QPMT4312PPEN-H	●		●	●			0.500	0.1875	0.250	1
	QPMT6416PPEN	●	●	●	●			0.750	0.250	0.375	1
	QPMT6416PPEN-H	●		●	●			0.750	0.250	0.375	1
	QPMT8424PPEN	●	●	●	●			1.000	0.250	0.500	1
	QPMT8424PPEN-H	●		●	●			1.000	0.250	0.500	1
For Non-Ferrous Metals	**QPET32.510PPENS***					●	●	0.375	0.156	0.1875	2
	QPET4312PPENS*					●	●	0.500	0.1875	0.250	2

*: -H at the end indicates strong edge type.

Fig 1

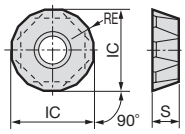
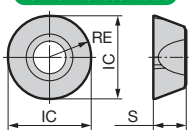


Fig 2 For Non-Ferrous Metals



Parts

Cutter	Flat Screw		Wrench	Anti-seize Cream
		N·m		
WRCX3□□□R	BFTX03584IP	3.0	TRDR15IP	SUMI-P
WRCX4□□□R	BFTX0409IP	3.0		
WRCX6□□□R	BFTX0511IP	5.0	TRDR20IP	
WRCX8□□□R	BFTX0615IP	7.5		

Coolant Through Bolts	
Catalog Number	Cutter Size
BFXH 3/8 x 1	2.00"
BFXH 1/2 x 1 1/4	2.50"
BFXH 1/2 x 1 1/4	3.00"
BFXH 5/8 x 1 1/4	4.00"
BFXH 3/4 x 1 1/2	5.00"

Recommended Cutting Conditions

	Part Material	Grade	øD = 1.00" - 1.25" SFM	øD = 1.00" - 1.25" IPT	øD = 1.50" - 3.00" SFM	øD = 1.50" - 3.00" IPT	øD = 4.00" - 6.00" SFM	øD = 4.00" - 6.00" IPT
P	Carbon Steel	ACP200	260-395-525	.004-.012-.016	330-525-655	.008-.016-.024	490-655-820	.012-.016-.024
P	Alloy Steel (HRC<40)	ACP200	195-330-460	.004-.008-.012	330-460-590	.008-.012-.016	330-525-655	.004-.012-.020
M	Stainless Steel (304)	ACP200, ACP300	195-330-395	.004-.006-.008	260-395-525	.004-.008-.012	525-590-655	.006-.008-.012
K	Gray Cast Iron	ACK200, ACK300	195-260-395	.004-.008-.012	260-395-525	.004-.008-.016	330-490-655	.004-.006-.008
N	Non-ferrous Metal	H1, DL1000	655-1640-3280	.004-.008-.012	655-1640-3280	.004-.012-.016	655-1640-3280	.008-.016-.024

N·m Recommended Tightening Torque (N·m)

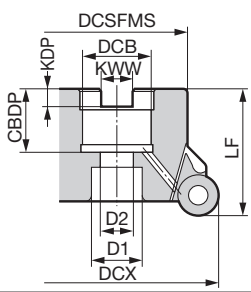
WRCX(F) Metric Shellmill Type -12mm

P Steel | M Stainless Steel | K Cast Iron | N Aluminum Alloy

Rake Angle	Radial	0°
	Axial	-3°

6mm | .236”

Fig 1



Body (Standard Type)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WRCX12040RS**	★	40	36	40	16	8.4	5.6	18	13.5	9	4	0.2	1
	WRCX12050RS	★	50	40	40	22	10.4	6.3	20	18	11	4	0.2	1
	WRCX12063RS	★	63	40	40	22	10.4	6.3	20	18	11	5	0.4	1
	WRCX12080RS	★	*80	55	50	27	12.4	7.0	25	20	13.5	6	0.9	1

Inserts are sold separately.

Body (Fine Pitch Type)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WRCXF12050RS**	★	50	40	40	22	10.4	6.3	20	18	11	5	0.2	1
	WRCXF12063RS	★	63	40	40	22	10.4	6.3	20	18	11	6	0.4	1

Inserts are sold separately.

For securing the ø80mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (M12 x 30 to 35mm).

★Worldwide Warehouse Item

Insert (Common)

Dimensions (*mm*)

Grade		Coated Carbide					Carbide	DLC				
Process	High-speed / Light	P			K		K N	N				
	General-purpose		P M	P M	K			N				
	Roughing		P M	P M		K						
Applications	Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	H1	DL1000	Inscribed Circle IC	Nose Radius RE	Thickness S	Fig
General-purpose	**QPMT120440 PPEN**		●	●	●	●	-	-	12	4.0	4.76	1
	QPMT120440 PPEN-H		●	●	●	●	-	-	12	4.0	4.76	1
For Non-Ferrous Metals	**QPET120460 PPFR-S**	-	-	-	-	-	●	●	12	6.0	4.76	2
Surfing	**QPMT120460 PPER-R**		★	★			-	-	12	6.0	4.76	3

*: -H at the end indicates strong edge type.

Fig 1

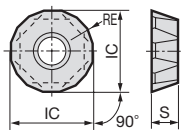


Fig 2 For Non-Ferrous Metals

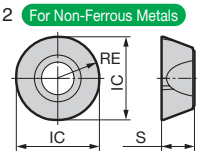
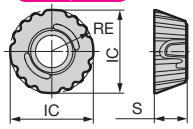


Fig 3 Surfing Insert



Parts

Flat Screw		Wrench	Anti-seize Cream
BFTX0409IP	3.0	TRDR15IP	SUMI-P

Recommended Cutting Conditions

External Diameter ø40 to ø80 mm

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	100 - 200	0.20 - 0.60	ACP200
	Alloy Steel	180 to 280 HB	100 - 180	0.20 - 0.40	ACP200
M	Stainless Steel	-	80 - 160	0.10 - 0.30	ACP300
K	Cast Iron	250HB	80 - 160	0.10 - 0.40	ACK200
N	Non-ferrous Metal	-	200 - 1,000	0.10 - 0.40	DL1000

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

WRCX(F) Metric Shellmill -16mm Inserts

P Steel | M Stainless Steel | K Cast Iron | N Aluminum Alloy

Rake Angle		
	Radial	0°
	Axial	-3°

8mm | .315"

Fig 1

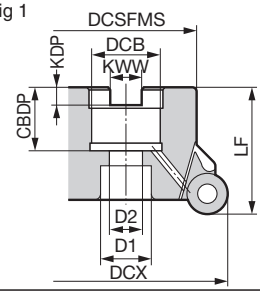
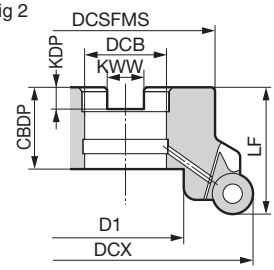


Fig 2



Body (WRCX16000RS / R)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WRCX16063RS**	★	63	50	40	22	10.4	6.3	20	18	11	3	0.4	1
	WRCX16080RS	★	*80	55	50	27	12.4	7.0	25	20	13.5	4	0.8	1
	WRCX16100RS	★	100	70	50	32	14.4	8.5	32	46	-	5	1.2	2
	WRCX16080R	★	80	55	50	25.4	9.5	6.0	25	20	13	4	0.8	1
	WRCX16100R	★	100	70	63	31.75	12.7	8.0	32	46	17	5	1.4	1

Inserts are sold separately.

Body (WRCXF16000RS / R) Fine Pitch

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WRCXF16063RS**	★	63	50	40	22	10.4	6.3	20	18	11	4	0.4	1
	WRCXF16080RS	★	*80	55	50	27	12.4	7.0	25	20	13.5	5	0.7	1
	WRCXF16100RS	★	100	70	50	32	14.4	8.5	32	46	-	6	1.2	2

Inserts are sold separately.

For securing the ø80mm and ø100mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (ø80: M12 x 30 to 35mm, ø100: M16 x 40 to 45mm).

Insert

★Worldwide Warehouse Item ● USA stocked item

Dimensions (*mm*)

Grade		Coated Carbide					Carbide	DLC
Process	High-speed / Light	P			K		K N	N
	General-purpose		P M	P M	K			N
	Roughing		P M	P M		K		

Applications	Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	H1	DL1000	Inscribed Circle IC	Nose Radius RE	Thickness S	Fig
General-purpose*1	**QPMT160660 PPEN**		●	●	●	●	-	-	16	6.0	6.5	1
	QPMT160660 PPEN-H		●	●	●	●	-	-	16	6.0	6.5	1
Anti-Vibration*2	**QPMT160608 PPEN**		●	●	●	●	-	-	16	0.8	6.5	1
	QPMT160608 PPEN-CP		●	●	●	●	-	-	16	0.8	6.5	2
For Non-Ferrous Metals	**QPET160680 PPFR-S**	-	-	-	-	-	●	●	16	8.0	6.5	3
Surfing	**QPMT160680 PPER-R**		★	★			-	-	16	8.0	6.5	4

Fig 1

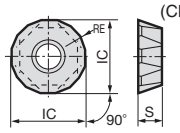


Fig 2 (CP Type)

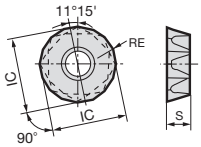


Fig 3 For Non-Ferrous Metals

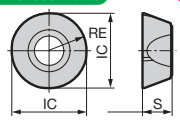
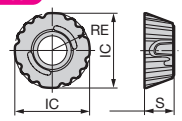


Fig 4 Surfing Insert



*1: -H at the end indicates strong edge type.
*2: For insert arrangements in anti-vibration applications, place the 08 type and 08-CP type alternately.

Parts

Flat Screw		Wrench	Anti-seize Cream
	N·m		
BFTX0511IP	5.0	TRDR20IP	SUMI-P

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

Diameter *ø40 to ø80 mm*

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	100 -200	0.20-0.60	ACP200
	Alloy Steel	180 to 280 HB	100 -180	0.20-0.40	ACP200
M	Stainless Steel	-	80 -160	0.10-0.30	ACP300
K	Cast Iron	250HB	80 -160	0.10-0.40	ACK200
N	Non-ferrous Metal	-	200 -1,000	0.10-0.40	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Diameter *ø100 to ø160mm*

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	150 -250	0.30-0.60	ACP200
	Alloy Steel	180 to 280 HB	100 -200	0.10-0.50	ACP200
M	Stainless Steel	-	160 -200	0.15-0.30	ACP300
K	Cast Iron	250HB	100 -200	0.10-0.20	ACK200
N	Non-ferrous Metal	-	200 -1,000	0.20-0.60	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WRCX Metric Shellmill - *20mm* Inserts

P Steel | M Stainless Steel | K Cast Iron

Rake Angle		
	Radial	0°
	Axial	-3°

10mm | **0.394"**

Fig 1

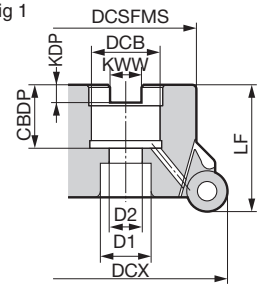
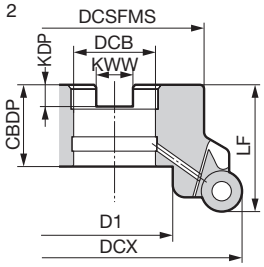


Fig 2



Body (WRCX20000R)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**WRCX20125R**	★	*125*	*80*	*63*	*38.1*	*15.9*	*10.0*	*35.5*	*55*	*30*	5	*2.3*	1
	WRCX20160R	★	*160*	*100*	*63*	*50.8*	*19.1*	*11.0*	*38*	*72*	-	6	*4.0*	2

Inserts are sold separately.

Insert

★Worldwide Warehouse Item ● USA stocked item

Dimensions (*mm*)

Grade		Coated Carbide					Carbide	DLC
Process	High-speed / Light	P			K		K N	N
	General-purpose		P M	P M	K			N
	Roughing		P M	P M		K		

Applications	Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	H1	DL1000	Inscribed Circle IC	Nose Radius RE	Thickness S	Fig
General-purpose*1	**QPMT200670PPEN**		●	●	●	●	-	-	20	7.0	6.5	1
	QPMT200670PPEN-H		●	●	●	●	-	-	20	7.0	6.5	1
Anti-Vibration*2	**QPMT200608PPEN**		●	●	●	●	-	-	20	0.8	6.5	1
	QPMT200608PPEN-CP		●	●	●	●	-	-	20	0.8	6.5	2
Surfing	**QPMT2006100PPER-R**		★	★			-	-	20	10.0	6.5	3

Fig 1

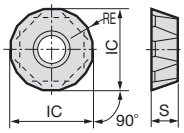


Fig 2 (CP Type)

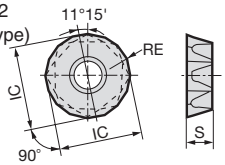
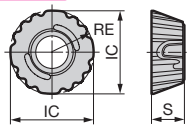


Fig 3

Surfing Insert



*1: -H at the end indicates strong edge type.

*2: For insert arrangements in anti-vibration applications, place the 08 type and 08-CP type alternately.

Parts

Flat Screw		Wrench	Anti-seize Cream
	N·m		
BFTX0615IP	7.5	TRDR25IP	SUMI-P

Recommended Cutting Conditions

Diameter *ø100 to ø160mm*

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	150 -250	0.30-0.60	ACP200
	Alloy Steel	180 to 280 HB	100 -200	0.10-0.50	ACP200
M	Stainless Steel	-	160 -200	0.15-0.30	ACP300
K	Cast Iron	250HB	100 -200	0.10-0.20	ACK200
N	Non-ferrous Metal	-	200 -1,000	0.20-0.60	DL1000

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

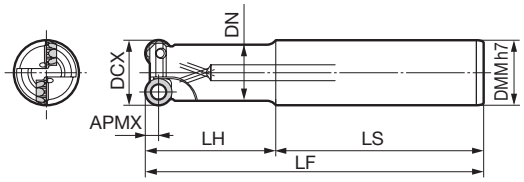
WRCX Endmill Metric - *8mm/ 10mm/ 16mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Aluminum Alloy

Rake Angle		
	Radial	-23 to -15°
	Axial	-6°

4mm (08000E Type) | .157" (10000E Type) | 5mm (16000E Type) | .197" | 8mm | .315"

Fig 1



Body (WRCX08000E) Applicable Insert IC = *8mm*

Dimensions (*mm*)

Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WRCX08020ES	★	20	20	18	4	50	80	130	2	0.2	1
WRCX08020EM	★	20	20	18	4	100	80	180	2	0.3	1
WRCX08020EL		20	20	18	4	130	120	250	2	0.5	1
WRCX08025ES	★	25	25	21	4	50	80	130	3	0.4	1
WRCX08025EM	★	25	25	21	4	100	80	180	3	0.5	1
WRCX08025EL		25	25	21	4	130	120	250	3	0.7	1

Body (WRCX10000E) Applicable Insert IC = *10mm*

Dimensions (*mm*)

Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WRCX10025ES	★	25	25	21	5	50	80	130	2	0.4	1
WRCX10025EM	★	25	25	21	5	100	80	180	2	0.5	1
WRCX10025EL		25	25	21	5	130	120	250	2	0.7	1
WRCX10032ES	★	32	32	28	5	50	80	130	3	0.7	1
WRCX10032EM	★	32	32	28	5	120	80	200	3	1.0	1
WRCX10032EL		32	32	28	5	180	120	300	3	1.5	1

Body (WRCX16000E) Applicable Insert IC = *16mm*

Dimensions (*mm*)

Cat. No.	Stock	Max. Dia. DCX	Shank DMM	Diameter DN	Max. Depth of Cut APMX	Head LH	Shank LS	Overall Length LF	Number of Teeth	Weight (kg)	Fig
WRCX16040ES	★	40	32	31.3	8	50	120	170	2	0.9	1
WRCX16040EM	★	40	32	31.3	8	50	200	250	2	1.4	1
WRCX16050ES	★	50	32	40.8	8	50	120	170	3	1.0	1
WRCX16050EM	★	50	32	40.8	8	50	200	250	3	1.5	1

Inserts are sold separately.

Parts

Applicable Cutters	Flat Screw	N·m	Wrench
WRCX08000E	BFTX02506IP	1.5	TRDR08IP
WRCX10000E	BFTX03584IP	3.0	TRDR15IP
WRCX16000E	BFTX0511IP	5.0	TRDR20IP

Recommended Cutting Conditions

Diameter *ø20 to ø32mm*

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	80-**120**-160	0.10-**0.30**-0.40	ACP200
	Alloy Steel	180 to 280 HB	60-**100**-140	0.10-**0.20**-0.30	ACP200
M	Stainless Steel	-	60-**100**-120	0.10-**0.15**-0.20	ACP300
K	Cast Iron	250HB	60- **80** -120	0.10-**0.20**-0.30	ACK200
N	Non-ferrous Alloys	-	200-**500**-1,000	0.10-**0.20**-0.30	DL1000

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Diameter *ø40 to ø50 mm*

ISO	Part Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	100-**160**-200	0.20-**0.40**-0.60	ACP200
	Alloy Steel	180 to 280 HB	100-**140**-180	0.20-**0.30**-0.40	ACP200
M	Stainless Steel	-	80-**120**-160	0.10-**0.20**-0.30	ACP300
K	Cast Iron	250HB	80-**120**-160	0.10-**0.20**-0.40	ACK200
N	Non-ferrous Alloys	-	200-**500**-1,000	0.10-**0.30**-0.40	DL1000

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Insert

★Worldwide Warehouse Item ● USA stocked item

Dimensions (*mm*)

Grade		Coated Carbide					Carbide	DLC
Process	High-speed / Light	P			K		K N	N
	General-purpose		P M	P M	K			N
	Roughing		P M	P M		K		

Applications	Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	H1	DL1000	Inscribed Circle IC	Corner Radius RE	Thickness S	Fig	Applicable Cutter
General-purpose*1	**QPMT080330PPEN**		●	●	●	●	-	-	8	3.0	3.18	1	WRCX08000E
	QPMT080330PPEN-H		●	●	●	●	-	-	8	3.0	3.18	1	
	QPMT10T335PPEN		●	●	●	●	-	-	10	3.5	3.97	1	WRCX10000E
	QPMT10T335PPEN-H		●	●	●	●	-	-	10	3.5	3.97	1	
	QPMT160660PPEN		●	●	●	●	-	-	16	6.0	6.5	1	WRCX16000E
	QPMT160660PPEN-H		●	●	●	●	-	-	16	6.0	6.5	1	
Anti-Vibration*2	**QPMT160608PPEN**		●	●	●	●	-	-	16	0.8	6.5	1	WRCX16000E
	QPMT160608PPEN-CP		●	●	●	●	-	-	16	0.8	6.5	2	
For Non-Ferrous Metals	**QPET10T350PPFR-S**	-	-	-	-	-	●	●	10	5.0	3.97	3	WRCX10000E
	QPET160680PPFR-S	-	-	-	-	-	●	●	16	8.0	6.5	3	WRCX16000E
Surfing	**QPMT160680PPER-R**		★	★			-	-	16	8.0	6.5	4	WRCX16000E

Fig 1

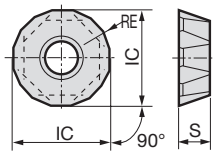


Fig 2 (CP Type)

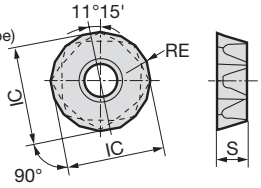


Fig 3 For Non-Ferrous Metals

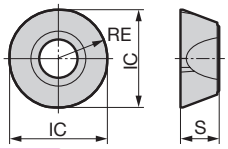
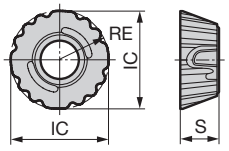


Fig 4 Surfing Insert



*1: -H at the end indicates strong edge type. *2: For insert arrangements in anti-vibration applications, place the 08 type and 08-CP type alternately.

N·m Recommended Tightening Torque (N·m)

WRCX Modular - *8mm / 10mm / 12mm* Inserts

SEC-Modular Tools

P Steel | M Stainless Steel | K Cast Iron | N Aluminum Alloy

Rake Angle		
	Radial	0°
	Axial	-3°

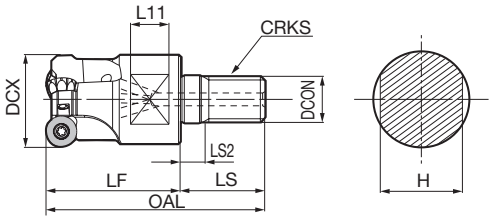
4mm (08000M) | 5mm (10000M) | 6mm (12000M)

WRCX08000M Type

WRCX10000M Type

WRCX12000M Type

Fig 1



Head (WRCX 08000M) Applicable Insert IC = *8mm*

Dimensions (*mm*)

Cat. No.	Stock	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
WRCX08020M10Z2	★	*20*	*10.5*	**M10**	*49*	*30*	*5*	*19*	*8*	*15*	2	1
WRCX08025M12Z3	★	*25*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	3	1

Inserts are sold separately.

Head (WRCX 10000M) Applicable Insert IC = *10mm*

Dimensions (*mm*)

Cat. No.	Stock	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
WRCX10025M12Z2	★	*25*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	2	1
WRCX10028M12Z2	★	*28*	*12.5*	**M12**	*56*	*35*	*5*	*21*	*10*	*19*	2	1
WRCX10030M16Z3	★	*30*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	3	1
WRCX10032M16Z3	★	*32*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	3	1

Inserts are sold separately.

Head (WRCX 12000M) Applicable Insert IC = *12mm*

Dimensions (*mm*)

Cat. No.	Stock	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Fig
WRCX12040M16Z4	★	*40*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	4	1

Inserts are sold separately. ★ Worldwide Warehouse item

Parts

Applicable Endmill	Flat Screw		Wrench
		N·m	
WRCX08000M	BFTX02506IP	**1.5**	TRDR08IP
WRCX10000M	BFTX03584IP	**3.0**	TRDR15IP
WRCX12000M	BFTX0409IP	**3.0**	TRDR15IP

SUMI-P Anti-seizure cream included in the package.

Identification Code

WRCX 08 020 M10 Z2

Cutter Series | Insert Size | Dia. | Mounting Screw Size | Number of Teeth

Insert

Dimensions (*mm*)

Grade		Coated Carbide					Carbide	DLC
Process	High-speed / Light	P			K		K N	N
	General-purpose		P M	P M	K			N
	Roughing		P M	P M		K		

Applications	Cat. No.	ACP100	ACP200	ACP300	ACK200	ACK300	H1	DL1000	Inscribed Circle IC	Nose Radius RE	Thickness S	Applicable Endmill	Fig
General-purpose *1	**QPMT080330 PPEN**		●	●	●	●	-	-	*8*	*3.0*	*3.18*	WRCX08000M Type	1
	QPMT080330 PPEN-H		●	●	●	●	-	-					1
	QPMT10T335 PPEN		●	●	●	●	-	-	*10*	*3.5*	*3.97*	WRCX10000M Type	1
	QPMT10T335 PPEN-H		●	●	●	●	-	-					1
	QPMT120440 PPEN		●	●	●	●	-	-	*12*	*4.0*	*4.76*	WRCX12000M Type	1
	QPMT120440 PPEN-H		●	●	●	●	-	-					1
For Non-Ferrous Metals	**QPET10T350 PPFR-S**	-	-	-	-	-	●	●	*10*	*5.0*	*3.97*	WRCX10000M Type	2
	QPET120460 PPFR-S	-	-	-	-	-	●	●	*12*	*6.0*	*4.76*	WRCX12000M Type	2
Surfing	**QPMT120460 PPER-R**		●	●			-	-	*12*	*6.0*	*4.76*	WRCX12000M Type	3

*1 -H at the end means the strong edge type.

Fig 1

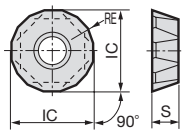


Fig 2

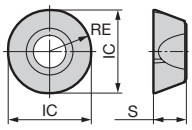
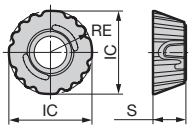


Fig 3

Surfing Insert



Recommended Cutting Conditions

O.D. *ø20 to ø32mm*

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180to 280 HB	80-160	0.10-0.40	ACP200
	Alloy Steel	180to 280 HB	60-140	0.10-0.30	ACP200
M	Stainless Steel	-	60-120	0.10-0.20	ACP300
K	Cast Iron	250HB	60-120	0.10-0.30	ACK200
N	Non-ferrous Metal	-	200-1,000	0.10-0.30	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

O.D. *ø40mm*

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180to 280 HB	100-200	0.20-0.60	ACP200
	Alloy Steel	180to 280 HB	100-180	0.20-0.40	ACP200
M	Stainless Steel	-	80-160	0.10-0.30	ACP300
K	Cast Iron	250HB	80-160	0.10-0.40	ACK200
N	Non-ferrous Metal	-	200-1,000	0.10-0.40	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

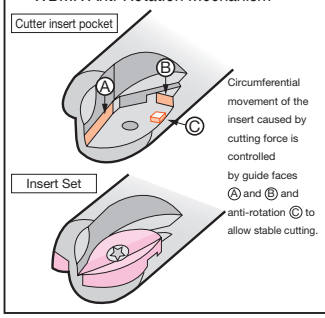
N·m Recommended Tightening Torque (N·m)

3D Profile Roughing

■ General Features

A lineup of ø.750" to ø2.000" ballnose endmill models for 3D profile roughing of die molds and machine parts.

● WBMR Anti-Rotation Mechanism



WBMR
(ø.750" to ø2.000")
(ø20 to ø50mm)

(WBMR2250S)

WBMR-L
(ø1.000" to ø1.250")
(ø20 to ø50mm)

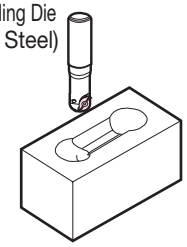
(WBMR2500SL)

■ WBMR2000 / 2000L (ø.750" to ø2.000")

- Wave-shaped high rake angle insert design achieves a sharp cutting edge and low resistance
- Economical M-class insert with strong cutting edge
- Anti-rotation guides prevent insert from slipping during machining
- Integrated insert shape is used for large diameter cutters, enabling easier tool management

■ Application Examples

● Cold Molding Die (D3 Tool Steel)



Evaluation
Flank wear width after continuous cutting for seven hours was less than competitor's product. Stable cutting was observed.

WBMR2200S (ø20)
Insert Grade: ACZ350
Cutting Conditions
n = 2,200min^{-1}
v_f = 500mm/min
Depth of Cut: 0.3 to 2mm
Insoluble Cutting Oil

■ Spare Parts

Endmill Cat. No. □ indicates S/M/L	Part Name	Short Edge	Long Edge (-L)	
		For Tip Insert	For Tip Insert	For Peripheral Insert
WBMR2200□(L)	Flat Screw	BFTX0307N (N·m) 2.0		
	Wrench	TRX10		
WBMR2250□(L)	Flat Screw	BFTX0409N (N·m) 3.0		
	Wrench	TRD15		
WBMR2300□(L)	Flat Screw	BFTX0511N (N·m) 5.0		BFTX0407N (N·m) 3.0
	Wrench	TRD20		TRD15
WBMR2400□(L)	Flat Screw	BFTX0619N (N·m) 7.5		BFTX0409N (N·m) 3.0
	Wrench	TRD25		TRD15
WBMR2500□(L) WBMR2500□(L)-C	Flat Screw	BFTX0619N (N·m) 7.5		BFTX0409N (N·m) 3.0
	Wrench	TRD25		TRD15

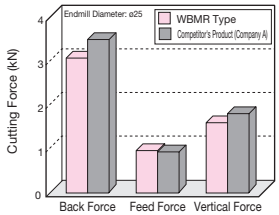
SUMI-P Anti-seize cream included in the package.

Inch Hardware

Catalog Number	Screw	Wrench
WBMR075□X	BFTX0307N	TRX10
WBMR100□X	BFTX0409N	TRD15
WBMR125□X	BFTX0511N	TRD20
WBMR150□X	BFTX0619N	TRD25
WBMR200□X	BFTX0619N	TRD25

■ Performance

● Cutting Force



Part Material: 1050 Steel
Cutting Conditions
(Shoulder Milling, Down Cut)
v_c = 656 SFM
f_z = 0.006 IPT
Axial Depth of Cut 0.197"
Radial Depth of Cut 0.197"

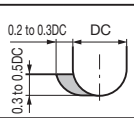
Recommended Cutting Conditions

(A) Tip insert only (Inch)

ISO	Part Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	330 - 660	0.004" - 0.012"	ACP200
	Alloy Steel	180 to 280 HB	230 - 400	0.004" - 0.012"	ACP200
M	Stainless Steel, Die Steel	-	165 - 330	0.004" - 0.008"	ACP300
K	Cast Iron	250HB	330 - 500	0.008" - 0.016"	ACK300

(A) Tip insert only (Metric)

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	100-200	0.10-0.30	ACP200
	Alloy Steel	180 to 280 HB	70-120	0.10-0.30	ACP200
M	Stainless Steel, Die Steel	-	50-100	0.10-0.20	ACP300
K	Cast Iron	250HB	100-150	0.20-0.40	ACK300



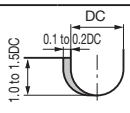
Recommended Cutting Conditions

(B) Tip insert and peripheral insert (Inch)

ISO	Part Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	265 - 500	0.004" - 0.012"	ACP200
	Alloy Steel	180 to 280 HB	165 - 330	0.004" - 0.012"	ACP200
M	Stainless Steel, Die Steel	-	135 - 265	0.004" - 0.008"	ACP300
K	Cast Iron	250HB	265 - 400	0.008" - 0.016"	ACK300

(B) Tip insert and peripheral insert (Metric)

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	80-150	0.10-0.30	ACP200
	Alloy Steel	180 to 280 HB	50-100	0.10-0.30	ACP200
M	Stainless Steel, Die Steel	-	40-80	0.10-0.20	ACP300
K	Cast Iron	250HB	80-120	0.20-0.40	ACK300



Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

(N·m) Recommended Tightening Torque (N·m)

WBMR Endmill

P Steel | M Stainless Steel | K Cast Iron

Rake Angle		
	Radial	-
	Axial	-10°

20~47mm | .787" to 1.85"

Fig 1

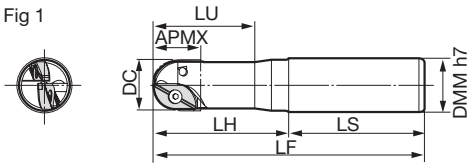
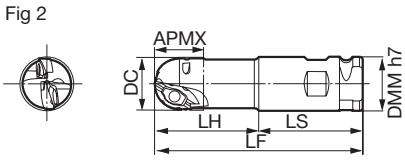


Fig 2



Note: Fig. 2 shows a combination clamped shank diagram (2500□-C).

Body

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Length LU	Overall Length LF	Fig
Inch	**WBMR075SX**	●	0.750	1.000	0.752	2.285	2.261	1.181	4.546	2
	WBMR075MX	●	0.750	1.000	0.752	3.785	2.261	1.181	6.046	2
	WBMR075LX	●	0.750	1.000	0.752	5.285	2.261	1.181	7.546	2
	WBMR100SX	●	1.000	1.250	0.917	2.535	2.261	1.378	4.796	2
	WBMR100MX	●	1.000	1.250	0.917	4.285	2.261	1.378	6.546	2
	WBMR100LX	●	1.000	1.250	0.917	6.035	2.261	1.378	8.296	2
	WBMR100LCX	●	1.000	1.250	0.917	2.535*	9.215**	1.378	11.75	1
	WBMR125SX	●	1.250	1.250	1.228	2.535	2.261	1.693	4.796	2
	WBMR125MX	●	1.250	1.250	1.228	4.535	2.261	1.693	6.796	2
	WBMR125LX	●	1.250	1.250	1.228	6.535	2.261	1.693	8.796	2
	WBMR125LCX	●	1.250	1.250	1.228	2.535*	11.215**	1.693	13.75	1
	WBMR150SX	●	1.500	1.500	1.543	2.535	2.688	1.94	5.223	2
	WBMR150MX	●	1.500	1.500	1.543	4.535	3.244	3.688	7.779	2
	WBMR150LX	●	1.500	1.500	1.543	6.535	3.244	5.488	9.779	2
	WBMR200SX	●	2.000	2.000	1.862	2.785	3.244	2.256	6.029	2
	WBMR200MX	●	2.000	2.000	1.862	5.035	3.244	4.138	8.279	2
	WBMR200LX	●	2.000	2.000	1.862	7.285	3.244	6.163	10.529	2
Metric	**WBMR2200S**	★	*20*	*25*	*20*	*60*	*80*	*40*	*140*	1
	WBMR2200M	★	*20*	*25*	*20*	*60*	*140*	*40*	*200*	1
	WBMR2200L	★	*20*	*25*	*20*	*80*	*170*	*40*	*250*	1
	WBMR2250S	★	*25*	*32*	*23*	*70*	*80*	*50*	*150*	1
	WBMR2250M	★	*25*	*32*	*23*	*73*	*147*	*50*	*220*	1
	WBMR2250L	★	*25*	*32*	*23*	*100*	*200*	*50*	*300*	1
	WBMR2300S	★	*30*	*32*	*28*	*80*	*80*	*60*	*160*	1
	WBMR2300M	★	*30*	*32*	*28*	*85*	*155*	*60*	*240*	1
	WBMR2300L	★	*30*	*32*	*28*	*120*	*230*	*60*	*350*	1
	WBMR2400S	★	*40*	*42*	*35*	*100*	*100*	-	*200*	1
	WBMR2400M	★	*40*	*42*	*35*	*180*	*100*	-	*280*	1
	WBMR2400L	★	*40*	*42*	*35*	*250*	*100*	-	*350*	1
	WBMR2500S	★	*50*	*42*	*47*	*100*	*100*	-	*200*	1
	WBMR2500M	★	*50*	*42*	*47*	*180*	*100*	-	*280*	1
	WBMR2500L	★	*50*	*42*	*47*	*250*	*100*	-	*350*	1
	WBMR2500S-C	★	*50*	*50.8*	*47*	*100*	*100*	-	*200*	2
	WBMR2500M-C	★	*50*	*50.8*	*47*	*180*	*100*	-	*280*	2
	WBMR2500L-C	★	*50*	*50.8*	*47*	*250*	*100*	-	*350*	2

Inserts are sold separately.

Insert

Dimensions (*mm*)

Fig 1

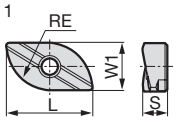


Fig 2

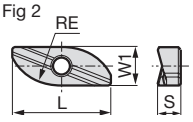


Fig 3

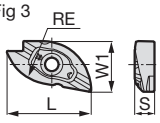
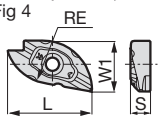


Fig 4



Grade		Coated Carbide		
Process	High-speed / Light			
	General-purpose	P M	P M	
	Roughing	P M	P M	K

Cat. No.	ACP200	ACP300	ACK300	Length L	Width W1	Thickness S	Nose Radius RE	Fig	Applicable Endmill	Remarks
ZNMT1804100-C	★	★	★	18.00	9.76	4.76	10	1	WBMR 2200□	· Tip inserts are used in combination according to Fig. 1 & 2.
ZNMT2004100-S	★	★	★	20.00	7.50	4.37	10	2		
ZNMT2205125-C	★	★	★	22.50	12.20	5.70	12.5	1	WBMR 2250□	· Tip inserts are used in combination according to Fig. 1 & 2.
ZNMT2305125-S	★	★	★	23.00	9.38	5.56	12.5	2		
ZNMT2706150-C	★	★	★	27.00	14.64	6.75	15	1	WBMR 2300□	· Tip inserts are used in combination according to Fig. 1 & 2.
ZNMT2806150-S	★	★	★	28.00	11.25	6.35	15	2		
ZNMT3608200	★	★	★	36.00	19.50	8.65	20	3	WBMR 2400□	· Use two of the items shown in Fig. 4 as the tip inserts.
ZNMT4310250	★	★	★	43.00	25.70	10.15	25	3	WBMR 2500□	· Use two of the items shown in Fig. 4 or Fig. 5 (nicked) as the tip inserts.
ZNMT4310250-N	★	★	★	43.00	25.70	10.15	25	4		

● USA stocked item ★ Worldwide Warehouse item

Insert

Dimensions (inch)

Fig 1

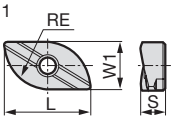


Fig 2

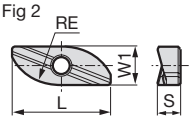
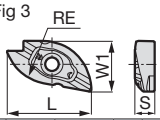


Fig 3



Grade		Coated Carbide		
Process	High-speed / Light			
	General-purpose	P M	P M	
	Roughing	P M	P M	K

Cat. No.	ACP200	ACP300	ACK300	Length L	Width W1	Thickness S	Nose Radius RE	Fig	Applicable Endmill
ZNMT3CX	●	●	●	0.720	0.361	0.189	0.375	1	WBMR075□
ZNMT3SX	●	●	●	0.795	0.280	0.167	0.375	2	
ZNMT4CX	●	●	●	0.887	0.480	0.224	0.500	1	WBMR100□
ZNMT4SX	●	●	●	0.913	0.369	0.217	0.500	2	
ZNMT5CX	●	●	●	1.150	0.615	0.281	0.625	1	WBMR125□
ZNMT5SX	●	●	●	1.185	0.472	0.263	0.625	2	
ZNMT6X	●	●	●	1.430	0.781	0.348	0.750	3	WBMR150□
ZNMT8X	●	●	●	1.705	1.012	0.400	1.000	3	WBMR200□

WBMR Endmill

P Steel | M Stainless Steel | K Cast Iron

Rake Angle		
	Radial	-
	Axial	-10°

30 to 69 mm | 1.18" to 2.72"

Fig 1

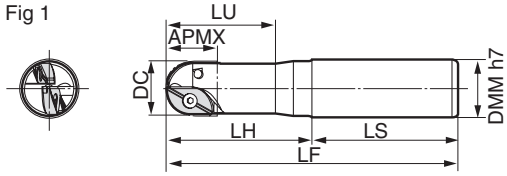


Fig 2

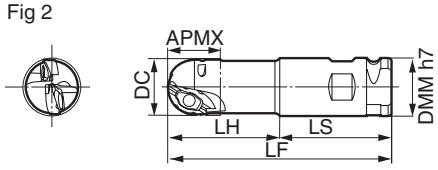
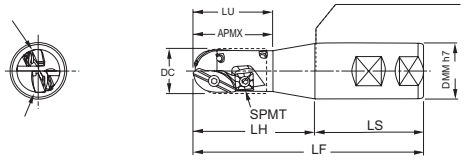


Fig 3 shown with SPMT insert



Note: Fig. 2 shows a combination clamped shank diagram (2500□-C).

Body

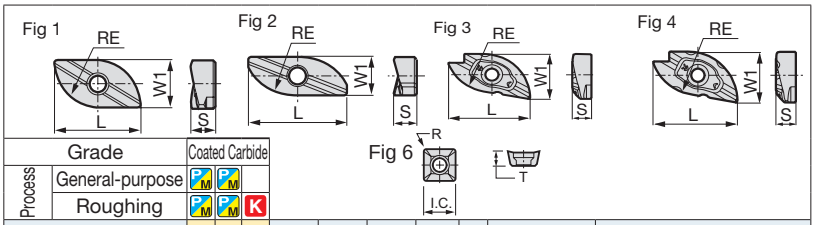
Dimensions (inch / *mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Length LU	Overall Length LF	Fig
WBMR100SLX	●	1.000	1.250	1.535	2.535	2.261	1.653	4.796	3
WBMR100MLX	●	1.000	1.250	1.535	4.285	2.261	1.653	6.546	3
WBMR100LLX	●	1.000	1.250	1.535	6.035	2.261	1.653	8.296	3
WBMR125SLX	●	1.250	1.250	1.835	2.535	2.261	1.968	4.796	3
WBMR125MLX	●	1.250	1.250	1.835	4.535	2.261	1.968	6.796	3
WBMR125LLX	●	1.250	1.250	1.835	6.535	2.261	1.968	8.796	3
WBMR2200SL	★	*20*	*25*	*30*	*60*	*80*	*40*	*140*	1
WBMR2200ML	★	*20*	*25*	*30*	*60*	*140*	*40*	*200*	1
WBMR2200LL	★	*20*	*25*	*30*	*80*	*170*	*40*	*250*	1
WBMR2250SL	★	*25*	*32*	*38*	*70*	*80*	*50*	*150*	1
WBMR2250ML	★	*25*	*32*	*38*	*73*	*147*	*50*	*220*	1
WBMR2250LL	★	*25*	*32*	*38*	*100*	*200*	*50*	*300*	1
WBMR2300SL	★	*30*	*32*	*42*	*80*	*80*	*60*	*160*	1
WBMR2300ML	★	*30*	*32*	*42*	*85*	*155*	*60*	*240*	1
WBMR2300LL	★	*30*	*32*	*42*	*120*	*230*	*60*	*350*	1
WBMR2400SL	★	*40*	*42*	*50*	*100*	*100*	-	*200*	1
WBMR2400ML	★	*40*	*42*	*50*	*180*	*100*	-	*280*	1
WBMR2400LL	★	*40*	*42*	*50*	*250*	*100*	-	*350*	1
WBMR2500SL	★	*50*	*42*	*69*	*100*	*100*	-	*200*	1
WBMR2500ML	★	*50*	*42*	*69*	*180*	*100*	-	*280*	1
WBMR2500LL	★	*50*	*42*	*69*	*250*	*100*	-	*350*	1
WBMR2500SL-C	★	*50*	*50.8*	*69*	*100*	*100*	-	*200*	2
WBMR2500ML-C	★	*50*	*50.8*	*69*	*180*	*100*	-	*280*	2
WBMR2500LL-C	★	*50*	*50.8*	*69*	*250*	*100*	-	*350*	2

Inserts are sold separately.

Insert

Dimensions (*mm*)



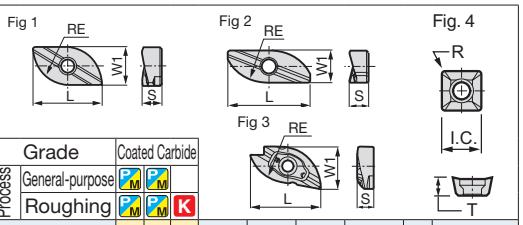
Grade		Coated Carbide		
Process	General-purpose	P M	P M	
	Roughing	P M	P M	K

Cat. No.	ACP200	ACP300	ACK300	Length L	Width W1	Thickness S	Nose Radius RE	Fig	Applicable Endmill	Remarks
ZNMT1804100-C	★	★	★	18.00	9.76	4.76	10	1	WBMR 2200□L	· Tip inserts are used in combination according to Fig. 1 & 2. · Peripheral insert (Fig. 3) for 2200□L only.
ZNMT2004100-S	★	★	★	20.00	7.50	4.37	10	2		
SPMT070308	★	★	★	7.94	-	3.18	-	3		
ZNMT2205125-C	★	★	★	22.50	12.20	5.70	12.5	1	WBMR 2250□L	· Tip inserts are used in combination according to Fig. 1 & 2. · Peripheral insert (Fig. 3) for 2250□L only.
ZNMT2305125-S	★	★	★	23.00	9.38	5.56	12.5	2		
SPMT09T308	★	★	★	9.53	-	3.97	-	3		
ZNMT2706150-C	★	★	★	27.00	14.64	6.75	15	1	WBMR 2300□L	· Tip inserts are used in combination according to Fig. 1 & 2. · Peripheral insert (Fig. 3) for 2300□L only.
ZNMT2806150-S	★	★	★	28.00	11.25	6.35	15	2		
SPMT09T308	★	★	★	9.53	-	3.97	-	3		
ZNMT3608200	★	★	★	36.00	19.50	8.65	20	4	WBMR 2400□L	· Use two of the items shown in Fig. 4 as the tip inserts. · Peripheral insert (Fig. 3) for 2400□L only.
SPMT09T308	★	★	★	9.53	-	3.97	-	3		
ZNMT4310250	★	★	★	43.00	25.70	10.15	25	4	WBMR 2500□L	· Use two of the items shown in Fig. 4 or Fig. 5 (nicked) as the tip inserts. · Peripheral insert (Fig. 3) for 2500□L only.
ZNMT4310250-N	★	★	★	43.00	25.70	10.15	25	5		
SPMT120408	★	★	★	12.70	-	4.76	-	6		

● USA stocked item ★ Worldwide Warehouse item

Insert

Dimensions (inch)



Grade		Coated Carbide		
Process	General-purpose	P M	P M	
	Roughing	P M	P M	K

Cat. No.	ACP200	ACP300	ACK300	Length L	Width W1	Thickness S	Nose Radius RE	Fig	Applicable Endmill
ZNMT3CX	●	●	●	0.720	0.361	0.189	0.375	1	WBMR075□
ZNMT3SX	●	●	●	0.795	0.280	0.167	0.375	2	
ZNMT4CX	●	●	●	0.887	0.480	0.224	0.500	1	WBMR100□
ZNMT4SX	●	●	●	0.913	0.369	0.217	0.500	2	
ZNMT5CX	●	●	●	1.150	0.615	0.281	0.625	1	WBMR125□
ZNMT5SX	●	●	●	1.185	0.472	0.263	0.625	2	
ZNMT6X	●	●	●	1.430	0.781	0.348	0.750	3	WBMR150□
ZNMT8X	●	●	●	1.705	1.012	0.400	1.000	3	WBMR200□
SPMT09T308	★	★	●	0.375	0.375	0.156	0.031	4	

■ General Features

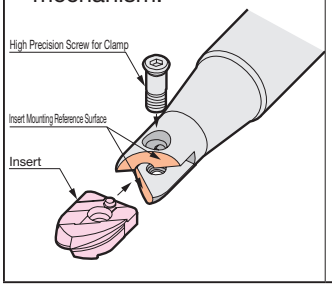
A lineup of ø0.5" to ø1.25" ballnose endmill models for 3D profile finishing of die molds and machine parts.

3D Profile Finishing

■ WBMF10000 Type (ø0.5" to ø1.25")

- Simple but precise clamping design
- Original large helix angle design
- Sharp cutting edge that produces good surface roughness
- Excellent wear resistance with Super ZX Coat

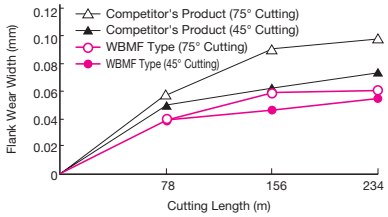
● WBMF Type clamp mechanism.



WBMF1000

■ Performance

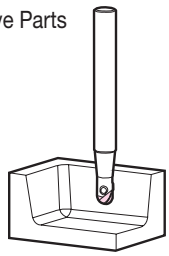
● Insert Life



Results
WBMF Type outperforms competitors' products in most processes including plan profiling, with better wear resistance.
Part Material: 1050
Machining Method: Ramping (45°, 75°)
Cutting Conditions
n = 2,000 RPM
v_f = 78.74 IPM
a_p = 0.012"
p_f = 0.024"
Dry

■ Application Examples

● Mold for Automotive Parts (Injection Mold)



Evaluation
Much better finishing as compared to competitors' products, with polishing time required reduced by half.
WBMF1000 Type
Work Material: 1055
Process: Contouring
Cutting Conditions
n = 2,500 RPM
v_f = 31.5 IPM
a_p = 0..028"
Overhang = 5.9"
Wet

Parts

Applicable Endmill	Precision Screw		Wrench
WBMF1100	BFTG0408F	N·m 3.0	TRD15
WBMF1120	BFTG0409F		
WBMF1160	BFTG0513F	N·m 5.0	TRD20
WBMF1200	BFTG0617F	N·m 7.5	TRD25
WBMF1250	BFTG0621F		
WBMF1300	BFTG0825F		

Hardware - Inch

Cat. Number	Screw	Wrench
WBMF10500□	BFTG0409F	TRD15
WBMF10625□	BFTG0513F	TRD20
WBMF10750□	BFTG0617F	TRD25
WBMF11000□	BFTG0621F	TRD25
WBMF11250□	BFTG0825F	TRD25

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	200-300	0.10-0.30	ACZ120
	Alloy Steel	180 to 280 HB	100-200	0.10-0.30	ACZ120

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	656-984	0.004"-0.012"	ACZ120
	Alloy Steel	180 to 280 HB	330-656	0.004"-0.012"	ACZ120

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WBMF Endmill Type

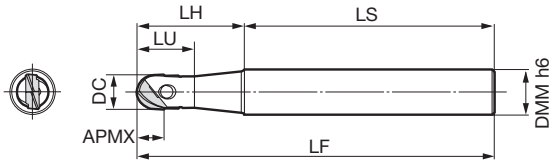
P Steel

Rake Angle	Radial	-
	Axial	0°

0.1 to 0.4 mm

.0039" to .016"

Fig 1



Body

Dimensions (inch /*mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Max. Depth of Cut APMX	Head LH	Shank LS	Length LU	Overall Length LF	Fig
Inch	**WBMF10500S**	•	0.5	0.625	0.427	1.772	1.906	0.782	3.678	1
	WBMF10500M	•	0.5	0.625	0.427	2.5222	1.906	0.782	4.428	1
	WBMF10500L	•	0.5	0.75	0.427	3.27	2.031	0.782	5.3	1
	WBMF10625S	•	0.625	0.75	0.47	1.77	2.0313	1	3.801	1
	WBMF10625M	•	0.625	0.75	0.47	2.52	2.0313	1	4.551	1
	WBMF10625L	•	0.625	1	0.47	3.265	2.2813	1	5.546	1
	WBMF10750S	•	0.75	1	0.572	2.265	2.2813	1.25	4.5459	1
	WBMF10750M	•	0.75	1	0.572	3.7647	2.2813	1.25	6.0459	1
	WBMF10750L	•	0.75	1	0.572	5.265	2.2813	1.25	7.546	1
	WBMF11000S	•	1	1.25	0.736	2.5117	2.2813	1.5	4.793	1
	WBMF11000M	•	1	1.25	0.736	4.265	2.2813	1.5	6.546	1
	WBMF11000L	•	1	1.25	0.736	6.0147	2.2813	1.5	8.296	1
	WBMF11250S	•	1.25	1.25	0.919	2.515	2.2813	1.75	4.796	1
	WBMF11250M	•	1.25	1.25	0.919	4.515	2.2813	1.75	6.796	1
	WBMF11250L	•	1.25	1.25	0.919	6.5147	2.2813	1.75	8.796	1
Metric	**WBMF1100S**	★	*10*	*16*	*9*	*30*	*70*	*17*	*100*	1
	WBMF1100M	★	*10*	*16*	*9*	*35*	*95*	*17*	*130*	1
	WBMF1100L	★	*10*	*16*	*9*	*50*	*130*	*17*	*180*	1
	WBMF1120S	★	*12*	*16*	*10.5*	*40*	*70*	*19.5*	*110*	1
	WBMF1120M	★	*12*	*16*	*10.5*	*40*	*110*	*19.5*	*150*	1
	WBMF1120L	★	*12*	*16*	*10.5*	*60*	*140*	*19.5*	*200*	1
	WBMF1160S	★	*16*	*20*	*12*	*50*	*80*	*25.5*	*130*	1
	WBMF1160M	★	*16*	*20*	*12*	*50*	*130*	*25.5*	*180*	1
	WBMF1160L	★	*16*	*20*	*12*	*70*	*150*	*25.5*	*220*	1
	WBMF1200S	★	*20*	*25*	*15*	*60*	*80*	*32*	*140*	1
	WBMF1200M	★	*20*	*25*	*15*	*60*	*140*	*32*	*200*	1
	WBMF1200L	★	*20*	*25*	*15*	*80*	*170*	*32*	*250*	1
	WBMF1250S	★	*25*	*32*	*18.5*	*70*	*80*	*36*	*150*	1
	WBMF1250M	★	*25*	*32*	*18.5*	*73*	*147*	*36*	*220*	1
	WBMF1250L	★	*25*	*32*	*18.5*	*100*	*200*	*36*	*300*	1
	WBMF1300S	★	*30*	*32*	*22.5*	*80*	*80*	*43*	*160*	1
	WBMF1300M	★	*30*	*32*	*22.5*	*85*	*155*	*43*	*240*	1
	WBMF1300L	★	*30*	*32*	*22.5*	*120*	*230*	*43*	*350*	1

Inserts are sold separately.

• USA stocked item ★ Worldwide Warehouse item

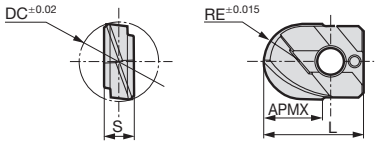
Insert

Dimensions (inch / *mm*)

Grade		Coated Carbide
Process	High-speed / Light	P
	General-purpose	
	Roughing	

Cat. No.	ACZ120	Dia. DC	Length L	Maximum Depth of Cut APMX	Thickness S	Nose Radius RE	Applicable Endmill	Fig
ZPGU2S	•	0.500	0.722	0.427	0.22	0.250	WBMF10500	1
ZPGU2.5S	•	0.625	0.805	0.470	0.24	0.313	WBMF10625	1
ZPGU3S	•	0.750	0.946	0.572	0.28	0.375	WBMF10750	1
ZPGU4S	•	1.000	1.130	0.736	0.30	0.500	WBMF11000	1
ZPGU5S	•	1.250	1.392	0.919	0.34	0.625	WBMF11250	1
ZPGU1551050	★	*10*	*15.6*	*9*	*5.1*	*5.0*	WBMF1100	1
ZPGU1856060	★	*12*	*18*	*10.5*	*5.6*	*6.0*	WBMF1120	1
ZPGU2061080	★	*16*	*20.5*	*12*	*6.1*	*8.0*	WBMF1160	1
ZPGU2471100	★	*20*	*24.5*	*15*	*7.1*	*10.0*	WBMF1200	1
ZPGU2876125	★	*25*	*28.5*	*18.5*	*7.6*	*12.5*	WBMF1250	1
ZPGU3486150	★	*30*	*34.4*	*22.5*	*8.6*	*15.0*	WBMF1300	1

Fig 1



• USA stocked item ★ Worldwide Warehouse item

N·m Recommended Tightening Torque (N·m)

■ Features

- ● Side Cutter Suitable For A Variety Of Applications
  Made-to-order bodies possible with cutting width of 17mm and up.
  Suitable for various applications such as groove milling and shoulder milling.
- ● Utilizes Low Resistance and Low Vibration Milling
  Design emphasizes cutting edge sharpness with +10° inclination angle.
  Excellent cutting edge sharpness suppresses chatter to enable stable machining.
- ● Excellent Machined Surface Quality
  Proprietary insert array design minimizes joint steps at the groove bottom for excellent machining quality.
- ● Neutral-handed 4-cornered Insert
  Easy management with neutral-handed insert design that eliminates the need to align right-hand and left-hand inserts.

■ Product Range (Body)

Body: Made-to-order (custom design)

Standard design

Multi-stage design

■ Chipbreaker

Work Material	P Steel, M stainless steel, K cast iron
Applications	General-purpose to roughing
Chipbreaker	G TGCX 13
Cutting Edge Cross Section	18°

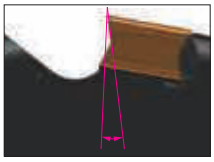
Insert Cat. No.	Width of Cut CW (*mm*)						
	17	*21*	*22*	*22.8*	*23.7*	*24.6*	*Over 24.6*
TGCX130704PNEN-G	Standard design						Multi-stage design
TGCX130708PNEN-G	Standard design					Multi-stage design	
TGCX130712PNEN-G	Standard design				Multi-stage design		
TGCX130716PNEN-G	Standard design			Multi-stage design			
TGCX130720PNEN-G	Standard design		Multi-stage design				

Standard design CW upper limit value varies with insert.

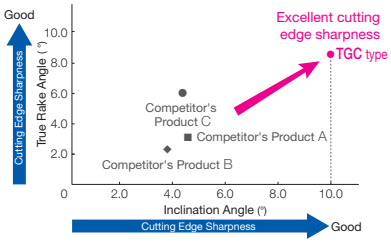
■ Sharp Edge Design

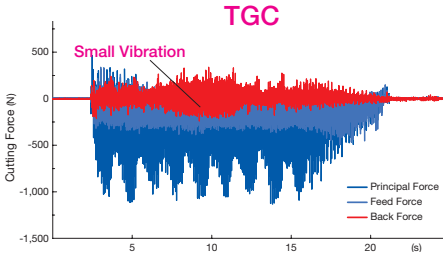
Design emphasizes cutting edge sharpness with +10° inclination angle.
Excellent cutting edge sharpness suppresses chatter to enable stable machining.

Inclination Angle

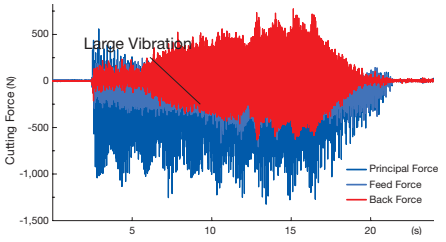


True Rake Angle

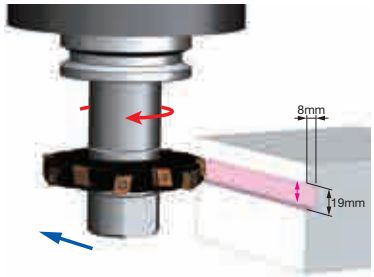


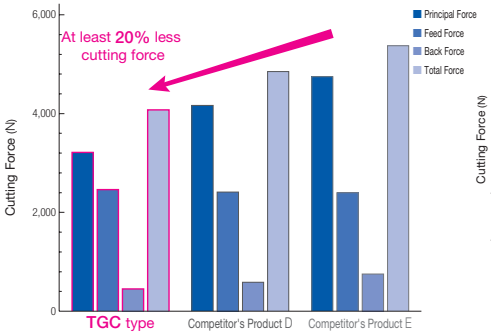


Competitor's Product F



● Low Cutting Force





Machine : Vertical Machining Center BT50, Work Material: 1050 Steel
Tool : TGC 13125W19Z12RS
(*ø125mm*, Width of Cut *19mm*, 12 teeth)
Insert : TGCX 130708PNEN-G (ACU2500)
Cutting Conditions : vc = 660 SFM fz = .009 IPT
ap = .748" ae = .315",
Down Cut, Dry

Excellent cutting edge sharpness eliminates chatter to enable stable machining

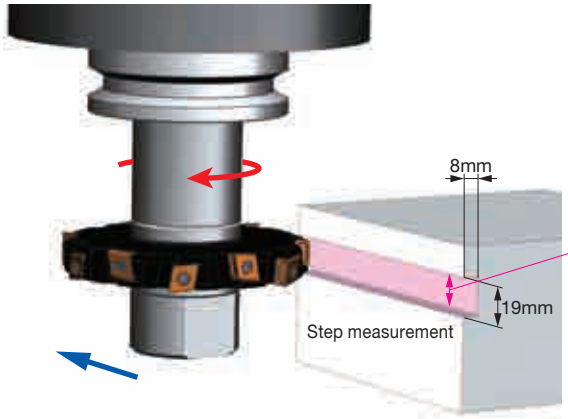
■ Product Range (Insert)

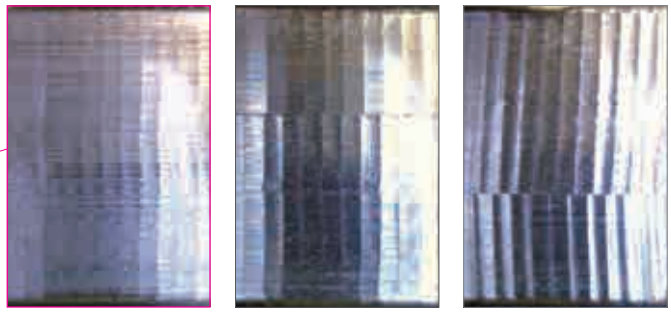
Cat. No.	Corner Radius RE (*mm*)				
	0.4	*0.8*	*1.2*	*1.6*	*2.0*
TGCX1307○○PNEN-G	★	★	★	★	★

★ Worldwide Warehouse item

● Small Joint Steps At Groove Bottom

Proprietary insert array design minimizes joint steps at groove bottom for excellent visual quality





Less than 0.0004" step | Step 0.0010" | Step 0.00094"

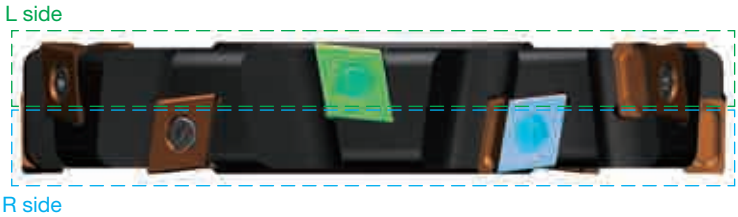
Machine	: Vertical Machining Centre BT50, Work Material: 1050
Tool	: TGC 13125W19Z12RS (ø125, Width of Cut 19mm, 12 teeth)
Insert	: TGCX 130708PNEN-G (ACU2500)
Cutting Conditions	: vc = 656 SFM, fz = 0.0078"/t, ap = 0.748", ae = 0.315", Down Cut, Dry

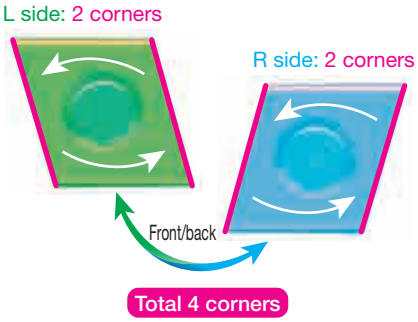
Excellent visual quality

*Results of in-house evaluation.

● Neutral-handed 4-cornered Insert

Easy management with neutral-handed insert design that eliminates the need to align right-hand and left-hand inserts



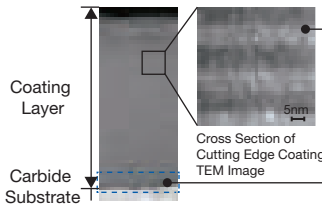


■ Grade Features

Work Material	Grade	Coating Thickness (μm)	Features
P M K S	ACU2500	3	Utilizes ABSOTECH™ coating technology with excellent wear and chipping resistance. Its carbide substrate, with excellent fracture and wear resistance, achieves stable and long tool life for a variety of work materials.

Coating Layer Features

ABSOTECH — PVD



New Super Multi-Layered Structure
Higher hardness and twice the conventional wear resistance due to a fine crystal structure AlTiCrBN-based nano-layered coating

High Adhesion Strength
Significantly improved coating adhesion has more than twice the chipping resistance of conventional coatings

■ Grade Application Range (TGC type)

Work Material		Finishing to Light Cutting	Medium Cutting	Rough to Heavy Cutting
P Steel	Coated Carbide	ACU2500		
M S	Coated Carbide	ACU2500		
K Cast Iron	Coated Carbide		ACU2500	

The letter "P" at the end of each grade indicates the coating type. ▲: PVD

TGC 13000

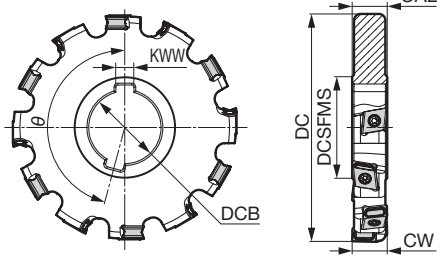
P Steel | M Stainless Steel | K Cast Iron

Rake Angle	Radial	-11.5° to -9.5°
	Axial	10°

17 to 24.6mm 90°

Face Milling | Shoulder Milling | Side Milling | Groove Milling | Back Spot Facing | Width Setting

Fig1



Body (Standard Disc Shape)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Width of Cut CW	Boss Thickness OAL	Hole Dia. DCB	Keyway Width KWW	Phase θ (°)	Total No. of Teeth	Weight (kg)	Fig
Metric	TGC13100W○○Z10RS		100	47	17 to 24.6	= CW	32	8	162	10	0.66 up	1
	TGC13125W○○Z12RS		125	55	17 to 24.6	= CW	40	10	165	12	1.29 up	1
	TGC13160W○○Z14RS		160	55	17 to 24.6	= CW	40	10	167.14	14	2.04 up	1
	TGC13200W○○Z16RS		200	69	17 to 24.6	= CW	50	12	168.75	16	3.33 up	1

Basic specifications have two keyways. (Also available with only one) Inserts are sold separately.
The upper limit of width of cut CW is the value of inserts with corner radius RE0.4. For the width of cut CW upper limit values for each corner radius RE, see the Insert Cat. No. Table.
Disc shapes other than the standard type can be designed.

Identification Code

TGC	13	125	W17	Z12	R	S
Series Code	Insert Size	Dia.	Width of Cut	Number of Teeth	Feed Direction	Metric Bore

Parts

Insert Screw		Wrench	Anti-seizure Cream
BFTX0412IP	3.0	TRDR15IP	SUMI-P

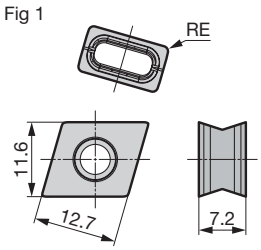
Insert

Dimensions (*mm*)

Grade Classification		Coated Carbide
Process	High-speed/Light Cutting	P K M
	Medium Cutting	P K M
	Roughing	P K M

Cat. No.	ACU2500	Corner Radius RE	Width of Cut CW Upper Limit	Fig
TGCX130704PNEN-G	★	0.4	24.6	1
TGCX130708PNEN-G	★	0.8	23.7	1
TGCX130712PNEN-G		1.2	22.8	1
TGCX130716PNEN-G		1.6	22.0	1
TGCX130720PNEN-G		2.0	21.0	1

Fig 1



Recommended Cutting Conditions

ISO	Work Material	Hardness	Chipbreaker	Cutting Speed vc (SFM) Min. - Max.	Feed Rate fz (IPT) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280HB	G	330 - 984	0.004 - 0.010"	ACU2500
	Alloy Steel	180 to 280HB	G	262 - 855	0.004 - 0.010"	ACU2500
M	Stainless Steel	180 to 280HB	G	300 - 600	0.004 - 0.008"	ACU2500
K	Cast Iron/Ductile Cast Iron	250HB	G	330 - 984	0.004 - 0.010"	ACU2500

Note · The above figures are guidelines for simultaneous cutting with one R/L cutting tooth each, on a BT50 machine tool.
· The above recommended cutting conditions may require adjustment depending on machine rigidity and workpiece rigidity.

N·m Recommended Tightening Torque (N·m)

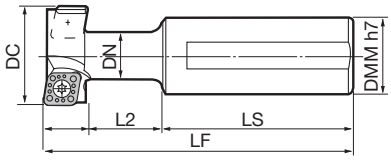
★Worldwide Warehouse item
Blank: Made-to-order item

P Steel | M Stainless Steel | K Cast Iron

Rake Angle		
	Radial	0°
	Axial	0°

9 to 22 mm 90°

Fig 1



Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Diameter DN	Shank DMM	Width CW	Length L2	Shank LS	Overall Length LF	Number of Teeth	Fig
TSE2125	★	*21*	*10.5*	*25*	*9*	*20*	*80*	*109*	2	1
TSE2525	★	*25*	*12.5*	*25*	*11*	*21*	*80*	*112*	2	1
TSE3232	★	*32*	*16.5*	*32*	*14*	*26*	*80*	*120*	2	1
TSE4032	★	*40*	*20.5*	*32*	*18*	*32*	*80*	*130*	2	1
TSE5032	★	*50*	*26.5*	*32*	*22*	*38*	*80*	*140*	4	1

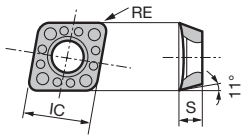
Inserts are sold separately.

Insert

Dimensions (*mm*)

	Grade		Coated Carbide	Carbide						
	Process	High-speed / Light								
		General-purpose	P M	P K	K					
		Roughing								
Cat. No. ANSI	ISO		AC630M	A30	G10E	Inscribed Circle IC	Thickness S	Nose Radius RE	Applicable Endmill	Fig
CPMT21.51ENS	**CPMT060204N-US**		●	●	●	6.35	2.38	0.4	TSE 2125	1
CPMT2.51.52ENS	**CPMT080308N-US**		●	●	●	7.938	3.18	0.8	TSE 2525	1
CPMT32.52ENX	**CPMT09T308N-US**		●	●	●	9.525	3.97	0.8	TSE 3232	1
CPMT432ENS	**CPMH120408N-US**		●	●	●	12.7	4.76	0.8	TSE 4032 TSE 5032	1

Fig 1



Parts

Flat Screw		Wrench	Applicable Endmill
BFTX02506N	N·m 1.5	TRX08	TSE2125
BFTX0307N	N·m 2.0	TRX10	TSE2525
BFTX0407N	N·m 3.0	TRX15	TSE3232
BFN0511T	N·m 5.0	TRX20	TSE4032 TSE5032

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
P	Carbon Steel	180 to 280 HB	100-150	0.05-0.10	AC630M
	Alloy Steel	180 to 280 HB	60-100	0.03-0.08	AC630M
K	Cast Iron	250HB	60-100	0.05-0.10	G10E

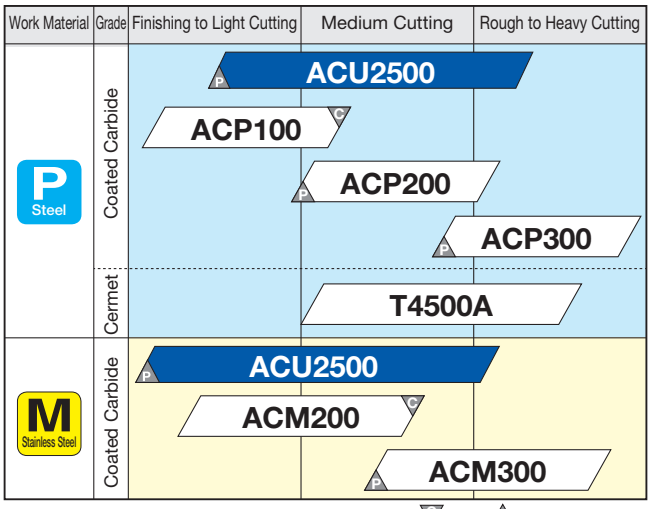
Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

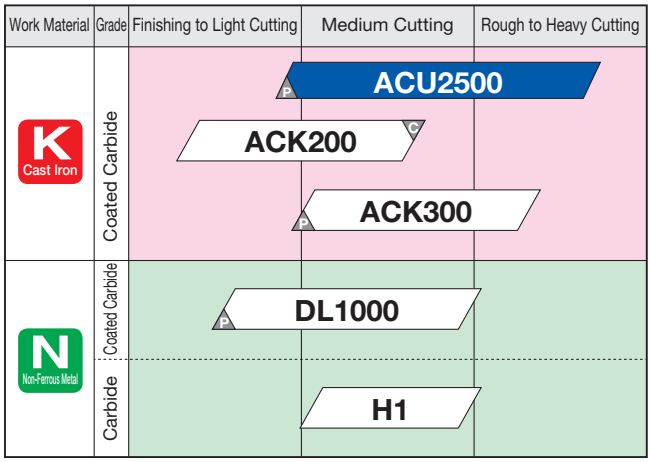
■ General Features

The WaveMill WFXC Series is a chamfering tool that uses a WFX series insert. A wide variety of grades support various work materials.

■ Grade Application Range



The letters "C" and "P" at the end of each grade indicate the coating type. C: CVD, P: PVD, Blank: Uncoated

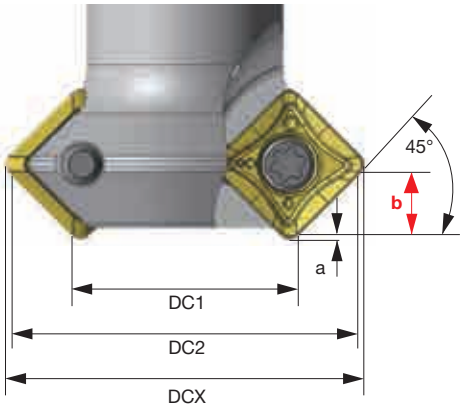


■ Precautions for Use

Chamfering tools use a straight cutting edge that enables the chamfering range to be changed depending on the nose radius (RE) of the insert mounted to the body.
Work diameter: Use within the range shown in the table below, no lower than DC1 and no higher than DC2.
Depth of cut: cutting to a depth shown by the distance from the tool tip (a) in a straight line to the cutting edge. (b) is possible.

Dimensions (*mm*)

Body	Insert		Min. Machining Dia.	Min. Machining Dia.	Minimum Depth	Maximum Depth	Maximum Dia.
	Cat. No.	RE	DC1	DC2	a	b	DCX
WFXC08008E	SOMT080304	0.4	7.5	15.8	0.1	4.1	17.8
	SOMT080308	0.8	8.0	15.8	0.2	3.9	17.5
	SOMT080312	1.2	8.5	15.8	0.4	3.6	17.2
WFXC08016E	SOMT080304	0.4	15.5	23.8	0.1	4.1	25.8
	SOMT080308	0.8	16.0	23.8	0.2	3.9	25.5
	SOMT080312	1.2	16.5	23.8	0.3	3.6	25.2
WFXC12025E	SOMT120404	0.4	24.6	38.3	0.1	6.8	41.3
	SOMT120408	0.8	25.0	38.3	0.2	6.6	41.0
	SOMT120412	1.2	25.6	38.3	0.4	6.3	40.7
	SOMT120416	1.6	26.1	38.3	0.5	6.1	40.4
WFXC12032E	SOMT120404	0.4	31.6	45.3	0.1	6.8	48.3
	SOMT120408	0.8	32.0	45.3	0.2	6.6	48.0
	SOMT120412	1.2	32.6	45.3	0.4	6.3	47.7
	SOMT120416	1.6	33.1	45.3	0.5	6.1	47.4



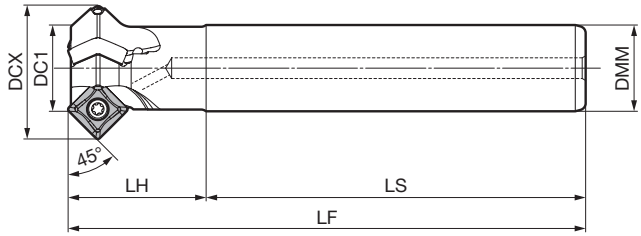
WFXC Endmill - *8mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	0°
	Axial	0°

45°

Fig 1



Body (Standard Type) Applicable Insert *8mm*

Dimensions (*mm*)

Cat. No.	Stock	Min. Machining Dia. DC1	Max. Dia. DCX	Overall Length LF	Head LH	Shank LS	Shank DMM	Number of Teeth	Weight (kg)	Fig
WFXC08008E	★	*8*	*17.5*	*120*	*30*	*90*	*10*	1	*0.1*	1
WFXC08016E	★	*16*	*25.5*	*120*	*30*	*90*	*16*	2	*0.2*	1

DC1 and DCX dimensions are values with an insert with 0.8 nose radius mounted.

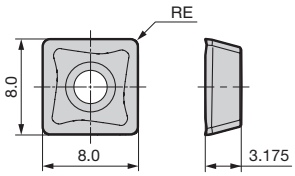
Insert

★Worldwide Warehouse Item

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet		
Process	High-speed / Light		P			K		M S		K N	N			
	General-purpose	P M S		P M	P M	K		M S	M S		N	P		
	Roughing	P M S		P M	P M		K		M S					
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Fig
SOMT080304PZER-L		★	★	★	★	★	★	★	★	-	-		*0.4*	1
SOMT080308PZER-L			★	★	★	★	★	★	★	-	-		*0.8*	1
SOMT080304PZER-G		★	★	★	★	★	★	★	★	-	-		*0.4*	1
SOMT080308PZER-G		★	★	★	★	★	★	★	★	-	-		*0.8*	1
SOMT080312PZER-G		★	★	★	★	★	★	★	★	-	-		*1.2*	1
SOMT080308PZER-H		★	★	★	★	★	★	★	★	-	-		*0.8*	1
SOMT080312PZER-H		★	★	★	★	★	★	★	★	-	-		*1.2*	1
SOET080304PZER-G		★	★	★	★	★	★	★	★	-	-	★	*0.4*	1
SOET080308PZER-G		★	★	★	★	★	★	★	★	-	-	★	*0.8*	1
SOET080312PZER-G		★	★	★	★	★	★	★	★	-	-	★	*1.2*	1
SOET080302PZFR-S		-	-	-	-	-	-	-	-	★	★	-	*0.2*	1
SOET080304PZFR-S		-	-	-	-	-	-	-	-	★	★	-	*0.4*	1
SOET080308PZFR-S		-	-	-	-	-	-	-	-	★	★	-	*0.8*	1

Fig 1



Parts

Applicable Cutter	Flat Screw		Wrench
		N·m	
WFXC08000M	BFTX0306IP	2.0	TRDR08IP

SUMI-P Anti-seizure Cream is included in the package.

Identification Code

WFX C 08 016 E

Cutter Series | Chamfering | Insert Size | Dia. | Endmill Type

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.
P	General Steel	180 to 280 HB	150-250	0.05-0.15
	Mild Steel	≤ 180HB	180-350	0.10-0.20
	Die Steel	200 to 220 HB	100-200	0.05-0.15
M	Stainless Steel	-	150-250	0.05-0.15
K	Cast Iron	250HB	100-250	0.05-0.15

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

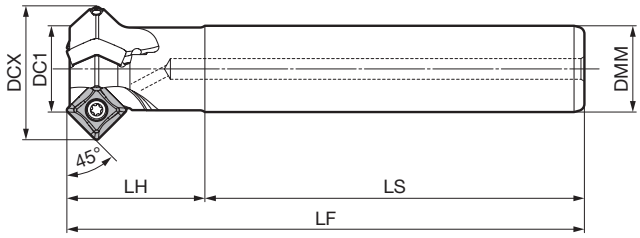
WFXC Endmill - *12mm* Inserts

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	0°
	Axial	0°

45°

Fig 1



Body (Standard Type) Applicable Insert *12mm*

Dimensions (*mm*)

Cat. No.	Stock	Min. Machining Dia. DC1	Max. Dia. DCX	Overall Length LF	Head LH	Shank LS	Shank DMM	Number of Teeth	Weight (kg)	Fig
WFXC12025E	★	*25*	*41.0*	*150*	*40*	*110*	*25*	3	*0.6*	1
WFXC12032E	★	*32*	*48.0*	*150*	*40*	*110*	*32*	3	*1.0*	1

DC1 and DCX dimensions are values with an insert with 0.8 nose radius mounted.

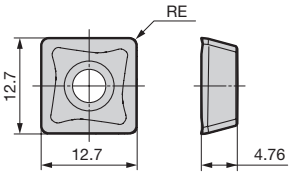
Insert

★Worldwide Warehouse Item ●USA stocked item

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet		
Process	High-speed / Light		P			K		M S		K N	N			
	General-purpose	K N M S		P M	P M	K		M S	M S		N	P		
	Roughing	K N M S		P M	P M		K		M S					
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Corner Radius RE	Fig
SOMT120408PDER-L		●	●	●	●	●	●	●	●	-	-	-	*0.8*	1
SOMT120404PDER-G		★	●	●	●	●	●	●	●	-	-	-	*0.4*	1
SOMT120408PDER-G		★	●	●	●	●	●	●	●	-	-	●	*0.8*	1
SOMT120412PDER-G		★	●	●	●	●	●	●	●	-	-	-	*1.2*	1
SOMT120416PDER-G			●	●	●	●	●	●	●	-	-	-	*1.6*	1
SOMT120408PDER-H		★	●	●	●	●	●	●	●	-	-	-	*0.8*	1
SOET120408PDFR-S			-	-	-	-	-	-	-	●	●	-	*0.8*	1

Fig 1



Parts

Applicable Cutter	Flat Screw		Wrench
		N·m	
WFXC12000M	BFTX03512IP	3.0	TRDR15IP

SUMI-P Anti-seizure Cream is included in the package.

Identification Code

WFX C 12 025 E

Cutter Series | Chamfering | Insert Size | Dia. | Endmill Type

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.
P	General Steel	180 to 280 HB	150-250	0.05-0.15
	Mild Steel	≤ 180HB	180-350	0.10-0.20
	Die Steel	200 to 220 HB	100-200	0.05-0.15
M	Stainless Steel	-	150-250	0.05-0.15
K	Cast Iron	250HB	100-250	0.05-0.15

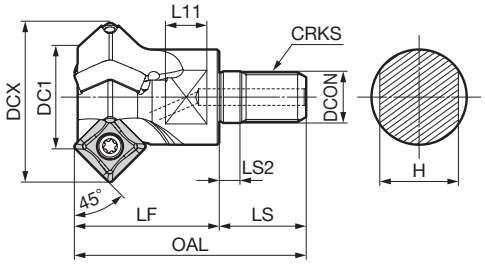
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

Rake Angle		
	Radial	0°
	Axial	0°

45°

Fig 1



Head (WFXC 08000M) Applicable Insert SOMT08

Dimensions (*mm*)

Cat. No.	Stock	Min. Machining Dia. DC1	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
WFXC08016M08Z2	★	*16*	*25.5*	*8.5*	**M8**	*42*	*25*	*5*	*17*	*8*	*13*	2	*0.1*	1

DC1 and DCON dimensions are values with an insert with 0.8 nose radius mounted.

Head (WFXC 12000M) Applicable Insert SOMT12

Dimensions (*mm*)

Cat. No.	Stock	Min. Machining Dia. DC1	Max. Dia. DCX	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Shank LS	Chamfer L11	Width H	Number of Teeth	Weight (kg)	Fig
WFXC12025M12Z3	★	*25*	*41.0*	*12.5*	**M12**	*56*	*32*	*5*	*21*	*10*	*19*	3	*0.1*	1
WFXC12032M16Z3	★	*32*	*48.0*	*17.0*	**M16**	*63*	*40*	*5*	*23*	*10*	*24*	3	*0.2*	1

DC1 and DCON dimensions are values with an insert with 0.8 nose radius mounted.

★ Worldwide Warehouse item

Insert

Dimensions (*mm*)

Grade		Coated Carbide								Carbide	DLC	Cermet
Process	High-speed / Light		P			K		M S		K N	N	
	General-purpose	P K M S		P M	P M	K		M S	M S		N	P
	Roughing	P K M S		P M	P M		K		M S			
Cat. No.		ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A

Cat. No.	ACU2500	ACP100	ACP200	ACP300	ACK200	ACK300	ACM200	ACM300	H1	DL1000	T4500A	Nose Radius RE	Fig
SOMT080304PZER-L	★	●	●	●	●	●	●	●	-	-		*0.4*	1
SOMT080308PZER-L		●	●	●	●	●	●	●	-	-		*0.8*	1
SOMT080304PZER-G	★	●	●	●	●	●	●	●	-	-		*0.4*	1
SOMT080308PZER-G	★	●	●	●	●	●	●	●	-	-		*0.8*	1
SOMT080312PZER-G	★	●	●	●	●	●	●	●	-	-		*1.2*	1
SOMT080308PZER-H	★	●	●	●	●	●	●	●	-	-		*0.8*	1
SOMT080312PZER-H	★	●	●	●	●	●	●	●	-	-		*1.2*	1
SOET080304PZER-G	★	●	●	●	●	●	●	●	-	-	●	*0.4*	1
SOET080308PZER-G	★	●	●	●	●	●	●	●	-	-	●	*0.8*	1
SOET080312PZER-G	★	●	●	●	●	●	●	●	-	-	●	*1.2*	1
SOET080302PZFR-S	-	-	-	-	-	-	-	-	●	●	-	*0.2*	1
SOET080304PZFR-S	-	-	-	-	-	-	-	-	●	●	-	*0.4*	1
SOET080308PZFR-S	-	-	-	-	-	-	-	-	●	●	-	*0.8*	1
SOMT120408PDER-L	●	●	●	●	●	●	●	●	-	-	-	*0.8*	2
SOMT120404PDER-G	★	●	●	●	●	●	●	●	-	-	-	*0.4*	2
SOMT120408PDER-G	★	●	●	●	●	●	●	●	-	-	●	*0.8*	2
SOMT120412PDER-G	★	●	●	●	●	●	●	●	-	-	-	*1.2*	2
SOMT120416PDER-G		●	●	●	●	●	●	●	-	-	-	*1.6*	2
SOMT120408PDER-H	★	●	●	●	●	●	●	●	-	-	-	*0.8*	2
SOET120408PDFR-S		-	-	-	-	-	-	-	●	●	-	*0.8*	2

Fig 1

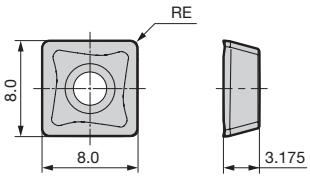
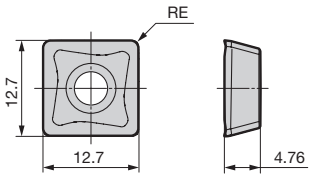


Fig 2



Parts

Applicable Endmill	Flat Screw		Wrench
		N·m	
WFXC08000M	BFTX0306IP	1.5	TRDR08IP
WFXC12000M	BFTX03512IP	3.0	TRDR15IP

SUMI-P Anti-seizure cream included in the package.

Identification Code

WFX C 08 016 M08 Z2

Cutter Series | Chamfering | Insert Size | Dia. | Mounting Screw Size | Number of Teeth

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.
P	General Steel	180 to 280 HB	150-250	0.05-0.15
	Mild Steel	≤ 180HB	180-350	0.10-0.20
	Die Steel	200 to 220 HB	100-200	0.05-0.15
M	Stainless Steel	-	150-250	0.05-0.15
K	Cast Iron	250HB	100-250	0.05-0.15

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

ALNEX ANX

■ Features

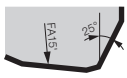
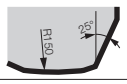
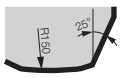
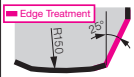
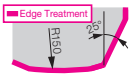
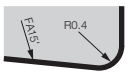
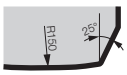
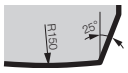
- Drastically Reduced Runout Adjustment Time
  Simple screw-fastening structure enables fine adjustments to be made easily
- Through-Tool Coolant
  Secures a supply of coolant to the cutting edge and breaks chips thoroughly
- Lightweight Aluminum Alloy Body
  Utilizing aluminum alloy to achieve a total weight of less than 2.87lbs for a ø125mm cutter with 22 teeth.
- Introducing the High-strength CVD Single Crystal Diamond SCV10 Wiper Blade: WS

Series

Number in circle is the number of teeth Inch Inch Arbor

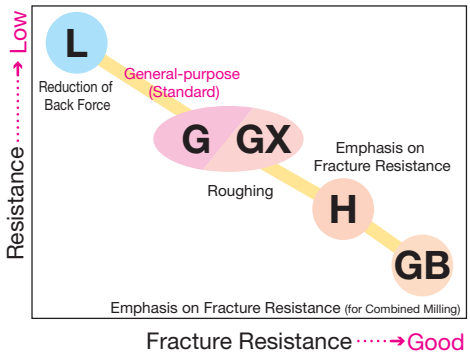
Type	Cat. No.	Body Material	Diameter Range (*mm*)							
			ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø160
Shell type	ANXA16000RS	Aluminum Alloy					10 14	12 18	14 22	20 28
Shell type	ANXA16000R Inch	Aluminum Alloy					10 14	12 18	14 22	20 28
Shell type	ANXS16000RS	Steel		6	6 9	8 12	10 14	12 18	14 22	
Shell type	ANXS16000R Inch	Steel				8 12	10 14	12 18	14 22	
Shank type	ANXS16000E	Steel	4	6						

■ Insert Selection Guide

Work Material	N								
Applications	Finishing/ Light Cutting	General-purpose	Roughing		Composite Milling *1	Corner Radius Milling	Corner Radius Milling	Finishing	Burr-free Mirror Finish
Features	Low Cutting Force	Standard	Long Edge	High Strength	High Strength	Corner Radius 0.4	Corner Radius 0.8	Wiper	Wiper
Cutting Edge Shape	L	G	GX	H	GB	—	—	W	WS
									
Edge Length (*2)	6.0mm	6.0mm	9.0mm	6.0mm	6.0mm	6.0mm	6.0mm	2.0mm	1.0mm

*1 Machining of components combining aluminum alloy and cast iron. W type and WS type cannot be used together.

■ Blade Selection Reference

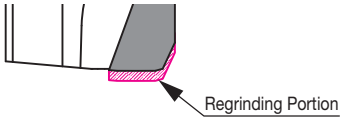


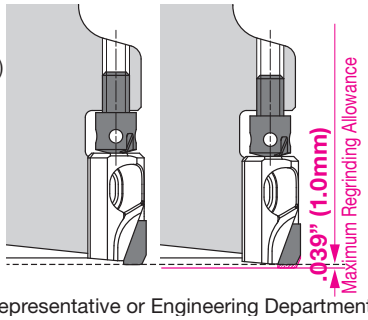
Sumitomo Services Offering in USA!

- Pre-setting
- Insert Reconditioning

Benefits of Reconditioning

- Reduces running costs by drastically increased insert regrinding allowance (to .039" / 1.0mm)
- Assuming .008" (0.2mm) of regrinding each time, an edge can be reground up to 5 times.
(*Peripheral edge cannot be reground.)





For service inquiries, please contact local Sumitomo Sales Representative or Engineering Department

■ Maximum Allowable Spindle Speed

(Aluminum alloy body)

Cat. No.	*n* max(RPM)
ANXA16080RS14	20,000
ANXA16100RS18	18,000
ANXA16125RS22	16,000
ANXA16160RS28	14,000
ANXA16080RS10	20,000
ANXA16100RS12	18,000
ANXA16125RS14	16,000
ANXA16160RS20	14,000
ANXA16080R14	20,000
ANXA16100R18	18,000
ANXA16125R22	16,000
ANXA16160R28	14,000
ANXA16080R10	20,000
ANXA16100R12	18,000
ANXA16125R14	16,000

Cat. No.	*n* max(RPM)
ANXA16160R20	14,000

(Steel body)

Cat. No.	*n* max(RPM)
ANXS16040RS06	25,000
ANXS16050RS09	25,000
ANXS16063RS12	22,000
ANXS16080RS14	20,000
ANXS16100RS18	18,000
ANXS16125RS22	16,000
ANXS16050RS06	25,000
ANXS16063RS08	22,000
ANXS16080RS10	20,000
ANXS16100RS12	18,000
ANXS16125RS14	16,000
ANXS16063R12	22,000
ANXS16080R14	20,000
ANXS16100R18	18,000
ANXS16125R22	16,000

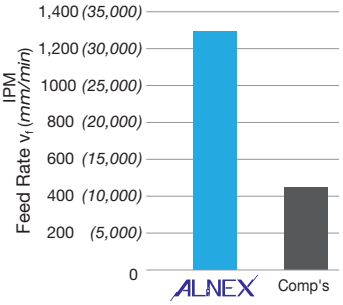
Cat. No.	*n* max(RPM)
ANXS16063R08	22,000
ANXS16080R10	20,000
ANXS16100R12	18,000
ANXS16125R14	16,000
ANXS16032E04	10,000
ANXS16040E06	10,000

High-speed/High-efficiency Cutting

Ultra-high efficiency machining with feed rates v_f = 1,200 IPM (*30,000 mm/min*)

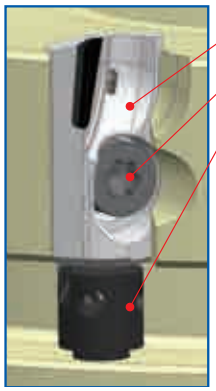
Cutter diameter ø100mm comparison

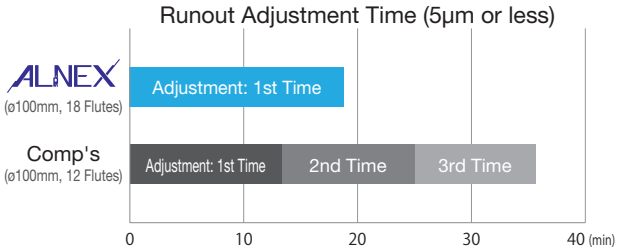
	Spindle Speed min^{-1}	Number of Teeth	Feed Rate IPM v_f (*mm/min*)
ALNEX	18,000	18	1,275 (*32,400*)
Comp's	9,500	12	450 (*11,400*)



Drastically Reduced Runout Adjustment Time

● Simple screw-fastening structure ● Enables fine adjustments to be made easily ● High-rigidity body





1st Time Completed, Adjustment Time Reduced

Chip Control

Coolant Through Inserts Chip Breaking

ALNEX

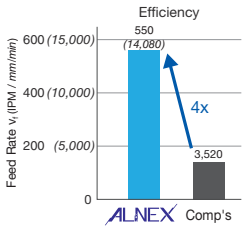
Competitor's

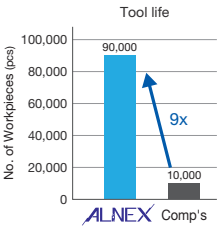
Part Material: ADC12
Cutting conditions:
v_c = *2,500m/min*,
f_z = *0.05mm/t*,
a_p = *0.5mm* Wet
Competitor: v_c = 8,200 SFM,
f_z = 0.002 IPT, a_p = 0.02"

■ Application Examples

Machine: Vertical Machining Center BT30, Part Material: ADC12 Automotive Component
Tool: ANXA 16125R22 (ø125, 22 teeth, aluminum alloy body *Total weight with arbor 1.75kg)
Insert: ANB 1600R-G (DA1000)
Cutting conditions: v_c = 10,300 SFM (*3,142m/min*),
v_f = 554 IPM (*14,080mm/min*),
a_p = .031" (*0.8mm*) Wet

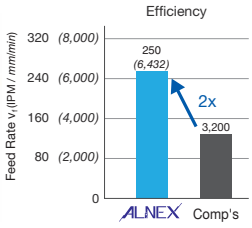
4 times the efficiency and 9 times the tool life

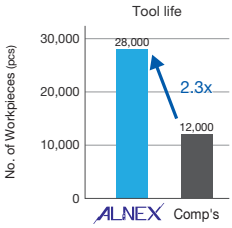




Machine: Vertical Machining Center HSK63, Part Material: ADC12 Cylinder Head Tool: ANXS 16063RS12 (ø63, 12 teeth, steel body)
Insert: ANB 1600R-G (DA1000)
Cutting conditions: v_c = 5,200 SFM (*1,583m/min*),
v_f = 250 IPM (*6,432mm/min*),
a_p = .02" (*0.5mm*) Wet

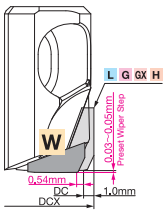
2 times the efficiency and 2.3 times the tool life





■ Precautions when Using Wiper Blades

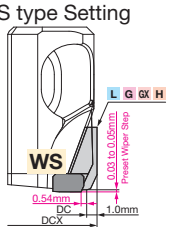
· W type Setting



⚠ Precautions

In order to maintain cutter balance when using the W type wiper blade, use a cutter with an even-number of cutting teeth and place another W type wiper blade at the opposite teeth position.

· WS type Setting



⚠ Precautions

(For more details, refer to the instruction manual included with the product)

In order to maintain cutter balance when using the WS type (SCV10 wiper blade), use a cutter with an even-number of cutting teeth and place another WS type wiper blade (or dummy blade ANBD) at opposite teeth positions.

*The dummy blade is dedicated for use with WS type.

ANXS R(S) Steel Shellmill

Rake Angle		
	Radial	5°
	Axial	5°

3mm 90°

Fig 1

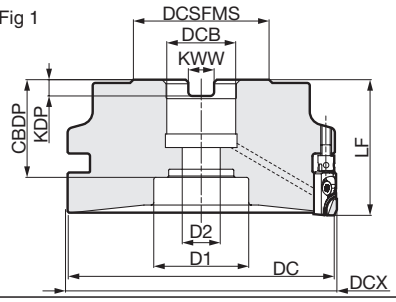
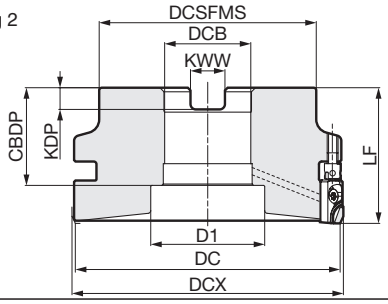


Fig 2



Body (Steel)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss Dia. DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Inch Arbors	ANXS16063R08	★	61	63	50	50	25.4	9.5	6	31	20	14	8	0.9	1
	ANXS16063R12	★	61	63	50	50	25.4	9.5	6	31	20	14	12	0.9	1
	ANXS16080R10	★	78	80	50	50	25.4	9.5	6	34	35	14	10	1.2	1
	ANXS16080R14	★	78	80	50	50	25.4	9.5	6	34	35	14	14	1.2	1
	ANXS16100R12	★	98	100	80	50	31.75	12.7	8	36	42	-	12	2.0	2
	ANXS16100R18	★	98	100	80	50	31.75	12.7	8	36	42	-	18	2.0	2
	ANXS16125R14	★	123	125	80	63	38.1	15.9	10	42.5	52	-	14	3.9	2
	ANXS16125R22	★	123	125	80	63	38.1	15.9	10	42.5	52	-	22	3.9	2
Metric Arbors	ANXS16040RS06	★	38	40	38.5	40	16	8.4	5.6	26	14	9	6	0.3	1
	ANXS16050RS06	★	48	50	48.5	40	22	10.4	6.3	26	18	11	6	0.4	1
	ANXS16050RS09	★	48	50	48.5	40	22	10.4	6.3	26	18	11	9	0.5	1
	ANXS16063RS08	★	61	63	50	40	22	10.4	6.3	26	18	11	8	0.7	1
	ANXS16063RS12	★	61	63	50	40	22	10.4	6.3	26	18	11	12	0.7	1
	ANXS16080RS10	★	78	80	50	50	27	12.4	7	34	35	14	10	1.2	1
	ANXS16080RS14	★	78	80	50	50	27	12.4	7	34	35	14	14	1.2	1
	ANXS16100RS12	★	98	100	80	50	32	14.4	8	32	46	-	12	2.0	2
	ANXS16100RS18	★	98	100	80	50	32	14.4	8	32	46	-	18	2.0	2
	ANXS16125RS14	★	123	125	80	63	40	16.4	9	35	52	-	14	3.9	2
	ANXS16125RS22	★	123	125	80	63	40	16.4	9	35	52	-	22	3.9	2

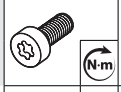
Inserts are sold separately. Center Bolt included with cutter purchase.
If using corner radius inserts (ANB1604R), DC = DCX.
★ = World Wide Warehouse Item

Parts Identification Code

ANX S 16 100 R S 18

Cutter Series | Steel Body | Blade Size | Cutter Dia. | Rotation | Metric Bore | Number of Teeth

(Sold Separately)

Applicable Cutter	Clamp Screw		Adjustment Screw	Wrench	Adjustment Wrench	Center Bolt	Assembly Wrench
							
ANXS16063R○○	BXA0310IP	2.0	HFJ	TRXW10IP	ANT	BXH1235-D18	HFVT
ANXS16080R○○						BXH1235-D33	
ANXS16100R○○						BXH1635-D40	
ANXS16125R○○						BXH2036-D50	
ANXS16040RS06						BXH0825-D13	
ANXS16050RS○○						BXH1030-D16	
ANXS16063RS○○							
ANXS16080RS○○						BXH1235-D33	
ANXS16100RS○○						BXH1635-D40	
ANXS16125RS○○						BXH2036-D50	

Maximum Allowable Spindle Speed

Cat. No.	n max(min^{-1})
ANXS16063R08	22,000
ANXS16063R12	22,000
ANXS16080R10	20,000
ANXS16080R14	20,000
ANXS16100R12	18,000
ANXS16100R18	18,000
ANXS16125R14	16,000
ANXS16125R22	16,000
ANXS16040RS06	25,000
ANXS16050RS06	25,000
ANXS16050RS09	25,000
ANXS16063RS08	22,000
ANXS16063RS12	22,000
ANXS16080RS10	20,000
ANXS16080RS14	20,000
ANXS16100RS12	18,000
ANXS16100RS18	18,000
ANXS16125RS14	16,000
ANXS16125RS22	16,000

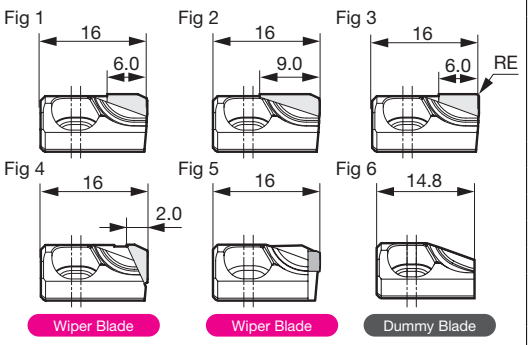
ANXS (RS) Steel Shellmill

Insert

Dimensions (*mm*)

Grade Classification		SUMIDIA		SUMICRYSTAL V
Process	High-speed/Light Cutting	N	K N	N
	General-purpose	N	K N	
	Roughing	N	K N	

Cat. No.	DA1000	DA90	SCV10	Cutting Edge Length	Corner Radius RE	Wiper Edge Shape	Applications	Fig
ANB 1600R-L	●		—	*6.0*	—	Linear	Low Cutting Force	1
ANB 1600R-G	●		—	*6.0*	—	Arc-Shaped	General-purpose	1
ANB 1600R-GB		●	—	*6.0*	—	Arc-Shaped	Composite Milling*1	1
ANB 1600R-H	●	—	—	*6.0*	—	Arc-Shaped	Strong Edge	1
ANB 1600R-GX	●		—	*9.0*	—	Arc-Shaped	Long Edge	2
ANB 1604R	●		—	*6.0*	*0.4*	Linear	Corner Radius	3
ANB 1608R	●		—	*6.0*	*0.8*	Linear	Corner Radius	3
ANB 1600R-W	●		—	—	—	Arc-Shaped	Wiper	4
ANB 1600R-WS	—	—	●	—	—	Arc-Shaped	Wiper	5
ANBD	—	—	●*2	—	—	—	Dummy Blade	6



Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed vc (*m/min*) Min. - Max.	Feed Rate fz (*mm/t*) Min. - Max.	Blade Grade
N	Aluminum Alloy	—	*2,000 - 3,000*	*0.05 - 0.20*	DA1000 SCV10

Si content of over 12.6%

ISO	Work Material	Hardness	Cutting Speed vc (*m/min*) Min. - Max.	Feed Rate fz (*mm/t*) Min. - Max.	Blade Grade
N	Aluminum Alloy	—	*400 - 800*	*0.05 - 0.20*	DA1000 DA90 SCV10

Combined Milling of Cast Iron/Aluminum Alloy

ISO	Work Material	Hardness	Cutting Speed vc (*m/min*) Min. - Max.	Feed Rate fz (*mm/t*) Min. - Max.	Blade Grade
K N	Cast Iron/ Aluminum Alloy	—	*300 - 500*	*0.05 - 0.20*	DA90

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.
For combined milling of cast iron/aluminum alloy, we recommend DA90.
When using wiper blade WS type, see the table below.

■ Wiper Blade WS Recommended Feed Rate

WS Cutting Edge Feed Rate per Tooth*1 fz_{WS} (mm/t_{WS})	D ≤ 0.5	0.5 < D ≤ 1.7	1.7 < D
Burr-free Finish	◎ Excellent		Impossible
Mirror Finishing	◎ Excellent	○ Good	
Target Surface Roughness Ra (μm)	0.015 to 0.05	up to 0.6	

*1 Feed Rate per WS Cutting Edge Tooth fz_{WS}

$$fz_{WS}\ (mm/t_{WS}) = \frac{fz \times (\text{Total No. of Teeth})^{*2}}{(\text{WS type No. of Teeth})^{*3}}$$

Feed Rate per Tooth fz

$$fz\ (mm/t) = \frac{\text{Feed Rate (vf) (mm/min)}}{\text{Spindle Speed n (min}^{-1}) \times (\text{Total No. of Teeth})}$$

*2 Total number of teeth includes dummy blade and wiper blade (WS type).

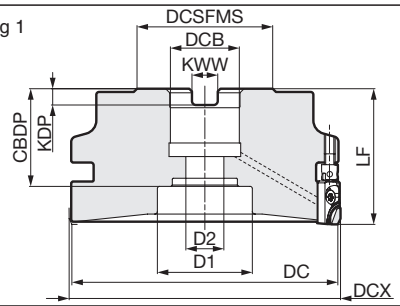
*3 WS type number of teeth does not include dummy blade.

ANXA R(S) Aluminum Shellmill

Rake Angle		
	Radial	5°
	Axial	5°

3mm 90°

Fig 1



Body (Aluminum Alloy)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss Dia. DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)
Inch Arbors	ANXA16080R10	●	78	80	50	50	25.4	9.5	6	34	35	14	10	0.5
	ANXA16080R14	●	78	80	50	50	25.4	9.5	6	34	35	14	14	0.5
	ANXA16100R12	●	98	100	50	50	25.4	9.5	6	34	35	14	12	0.9
	ANXA16100R18	●	98	100	50	50	25.4	9.5	6	34	35	14	18	0.9
	ANXA16125R14	●	123	125	50	50	25.4	9.5	6	34	35	14	14	1.2
	ANXA16125R22	●	123	125	50	50	25.4	9.5	6	34	35	14	22	1.3
	ANXA16160R20	●	158	160	80	63	38.1	15.9	10	42.5	55	30	20	2.4
	ANXA16160R28	●	158	160	80	63	38.1	15.9	10	42.5	55	30	28	2.6
Metric Arbors	ANXA16080RS10	★	78	80	50	50	27	12.4	7	34	35	14	10	0.5
	ANXA16080RS14	★	78	80	50	50	27	12.4	7	34	35	14	14	0.5
	ANXA16100RS12	★	98	100	50	50	27	12.4	7	34	35	14	12	0.8
	ANXA16100RS18	★	98	100	50	50	27	12.4	7	34	35	14	18	0.9
	ANXA16125RS14	★	123	125	50	50	27	12.4	7	34	35	14	14	1.2
	ANXA16125RS22	★	123	125	50	50	27	12.4	7	34	35	14	22	1.3
	ANXA16160RS20	★	158	160	80	63	40	16.4	9	35	52	29	20	2.6
	ANXA16160RS28	★	158	160	80	63	40	16.4	9	35	52	29	28	2.6

Inserts are sold separately. Center Bolt included with cutter purchase.
If using corner radius inserts (ANB1604R), DC = DCX.

●= USA Stocked Item ★= World Wide Warehouse Item

Identification Code

ANX A 16 100 R S 18

Cutter Series | Aluminum Alloy Body | Blade Size | Cutter Dia. | Rotation | Metric Bore | Number of Teeth

Parts

(Sold Separately)

Applicable Cutter	Clamp Screw		Adjustment Screw	Wrench	Adjustment Wrench	Center Bolt	Assembly Wrench
ANXA16080R○○	BXA0310IP	2.0	HFJ	TRXW10IP	ANT	BXH1235-D33	HFVT
ANXA16100R○○							
ANXA16125R○○							
ANXA16160R○○						BXH2036-D50	
ANXA16080RS○○						BXH1235-D33	
ANXA16100RS○○							
ANXA16125RS○○							
ANXA16160RS○○						BXH2036-D50	

Maximum Allowable Spindle Speed

Cat. No.	n max(min^{-1})
ANXA16080R10	20,000
ANXA16080R14	20,000
ANXA16100R12	18,000
ANXA16100R18	18,000
ANXA16125R14	16,000
ANXA16125R22	16,000
ANXA16160R20	14,000
ANXA16160R28	14,000
ANXA16080RS10	20,000
ANXA16080RS14	20,000
ANXA16100RS12	18,000
ANXA16100RS18	18,000
ANXA16125RS14	16,000
ANXA16125RS22	16,000
ANXA16160RS20	14,000
ANXA16160RS28	14,000

N·m Recommended Tightening Torque (N·m)

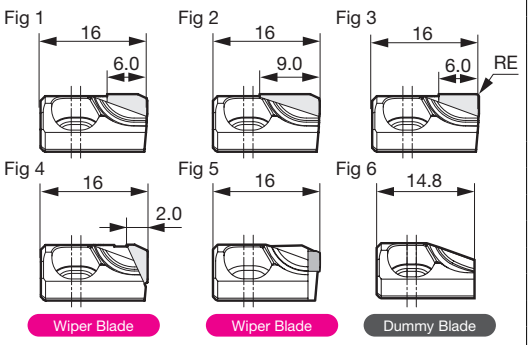
ANXA R(S) Aluminum Shellmill

Insert

Dimensions (*mm*)

Grade Classification		SUMIDIA		SUMICRYSTAL V
Process	High-speed/Light Cutting	N	K N	N
	General-purpose	N	K N	
	Roughing	N	K N	

Cat. No.	DA1000	DA90	SCV10	Cutting Edge Length	Corner Radius RE	Wiper Edge Shape	Applications	Fig
ANB 1600R-L	●		—	*6.0*	—	Linear	Low Cutting Force	1
ANB 1600R-G	●		—	*6.0*	—	Arc-Shaped	General-purpose	1
ANB 1600R-GB		●	—	*6.0*	—	Arc-Shaped	Composite Milling*	1
ANB 1600R-H	●	—	—	*6.0*	—	Arc-Shaped	Strong Edge	1
ANB 1600R-GX	●		—	*9.0*	—	Arc-Shaped	Long Edge	2
ANB 1604R	●		—	*6.0*	*0.4*	Linear	Corner Radius	3
ANB 1608R	●		—	*6.0*	*0.8*	Linear	Corner Radius	3
ANB 1600R-W	●		—	—	—	Arc-Shaped	Wiper	4
ANB 1600R-WS	—	—	●	—	—	Arc-Shaped	Wiper	5
ANBD	—	—	●	—	—	—	Dummy Blade	6



Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed vc (*m/min*) Min. - Max.	Feed Rate fz (*mm/t*) Min. - Max.	Blade Grade
N	Aluminum Alloy	—	*2,000 - 3,000*	*0.05 - 0.20*	DA1000 SCV10

Si content of over 12.6%

ISO	Work Material	Hardness	Cutting Speed vc (*m/min*) Min. - Max.	Feed Rate fz (*mm/t*) Min. - Max.	Blade Grade
N	Aluminum Alloy	—	*400 - 800*	*0.05 - 0.20*	DA1000 DA90 SCV10

Combined Milling of Cast Iron/Aluminum Alloy

ISO	Work Material	Hardness	Cutting Speed vc (*m/min*) Min. - Max.	Feed Rate fz (*mm/t*) Min. - Max.	Blade Grade
K N	Cast Iron/ Aluminum Alloy	—	*300 - 500*	*0.05 - 0.20*	DA90

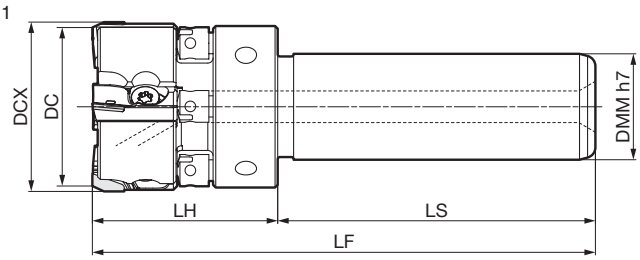
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.
For combined milling of cast iron/aluminum alloy, we recommend DA90.
When using wiper blade WS type, see the table below.

ANXS Steel Endmill

Rake Angle		
	Radial	-2° to 0°
	Axial	5°

3mm 90°

Fig 1



Body (Steel)

Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Shank Dia. DMM	Head LH	Shank Length LS	Overall Length LF	Number of Teeth	Weight (kg)
ANXS16032E04	★	30	32	20	35	60	95	4	0.3
ANXS16040E06	★	38	40	20	40	60	100	6	0.5

Dimensions (mm)

Inserts are sold separately.
If using corner radius inserts (ANB1604R), DC = DCX.

★= World Wide Warehouse Item

Identification Code

ANX S 16 032 E 04

Cutter Series | Steel Body | Blade Size | Cutter Dia. | With Shank | Number of Teeth

Parts

Applicable Cutter	Clamp Screw		Adjustment Screw	Wrench	Adjustment Wrench	Assembly Wrench (Sold Separately)
ANXS16032E04 ANXS16040E06	BXA0310IP	2.0 N·m	HFJ	TRXW10IP	ANT	HFVT

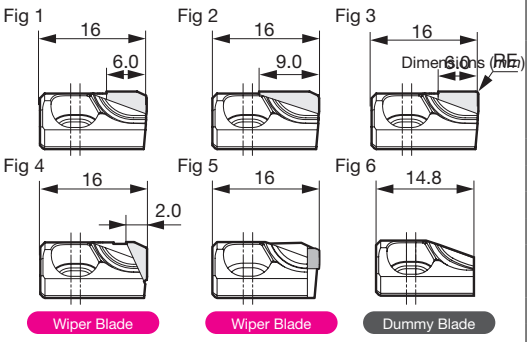
Maximum Allowable Spindle Speed

Cat. No.	n max(min^{-1})
ANXS16032E04	10,000
ANXS16040E06	10,000

Insert

Grade Classification		SUMIDIA		SUMICRYSTAL V
Process	High-speed/Light Cutting	N	K N	N
	General-purpose	N	K N	
	Roughing	N	K N	

Cat. No.	DA1000	DA90	SCV10	Cutting Edge Length	Corner Radius RE	Wiper Edge Shape	Applications	Fig
ANB 1600R-L	●		—	6.0	—	Linear	Low Cutting Force	1
ANB 1600R-G	●		—	6.0	—	Arc-Shaped	General-purpose	1
ANB 1600R-GB		●	—	6.0	—	Arc-Shaped	Composite Milling[1]	1
ANB 1600R-H	●	—	—	6.0	—	Arc-Shaped	Strong Edge	1
ANB 1600R-GX	●		—	9.0	—	Arc-Shaped	Long Edge	2
ANB 1604R	●		—	6.0	0.4	Linear	Corner Radius	3
ANB 1608R	●		—	6.0	0.8	Linear	Corner Radius	3
ANB 1600R-W	●		—	—	—	Arc-Shaped	Wiper	4
ANB 1600R-WS	—	—	●	—	—	Arc-Shaped	Wiper	5
ANBD	—	—	●	—	—	—	Dummy Blade	6



Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed vc (m/min) Min. - Max.	Feed Rate fz (mm/t) Min. - Max.	Blade Grade
N	Aluminum Alloy	—	2,000 - 3,000	0.05 - 0.20	DA1000 SCV10

Si content of over 12.6%

ISO	Work Material	Hardness	Cutting Speed vc (m/min) Min. - Max.	Feed Rate fz (mm/t) Min. - Max.	Blade Grade
N	Aluminum Alloy	—	400 - 800	0.05 - 0.20	DA1000 DA90 SCV10

Combined Milling of Cast Iron/Aluminum Alloy

ISO	Work Material	Hardness	Cutting Speed vc (m/min) Min. - Max.	Feed Rate fz (mm/t) Min. - Max.	Blade Grade
K N	Cast Iron/ Aluminum Alloy	—	300 - 500	0.05 - 0.20	DA90

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.
For combined milling of cast iron/aluminum alloy, we recommend DA90.
When using wiper blade WS type, see the table below.

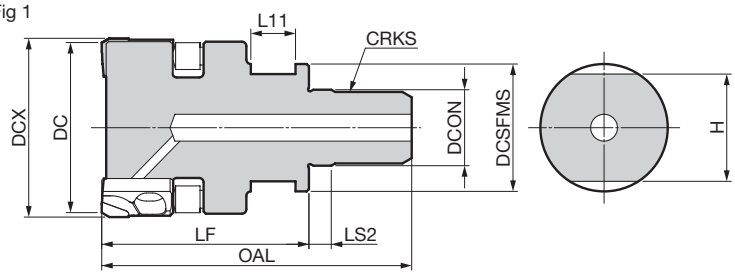
ANXS Modular

Rake Angle	Radial	-2° to 0°
	Axial	+5°

3mm 90°

Face Milling | Shoulder Milling | Slot Milling

Fig 1



Body (Steel)

Dimensions (*mm*)

	Cat. No.	Stock	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Mounting Dia. DCON	Screw CRKS	Overall Length OAL	Effective Length LF	Length LS2	Flat L11	Width H	Number of Teeth	Weight (kg)	Fig
Metric	**ANXS16025M12Z02**	★	25	23	23.0	12.5	M12	61	40	5	10	19	2	0.1	1
	ANXS16030M16Z03	★	30	28	28.5	17.0	M16	70	47	5	10	24	3	0.2	1
	ANXS16030M16Z04	★	30	28	28.5	17.0	M16	70	47	5	10	24	4	0.2	1
	ANXS16032M16Z03	★	32	30	28.5	17.0	M16	70	47	5	10	24	3	0.3	1
	ANXS16032M16Z04	★	32	30	28.5	17.0	M16	70	47	5	10	24	4	0.3	1
	ANXS16040M16Z04	★	40	38	28.5	17.0	M16	70	47	5	10	24	4	0.4	1
	ANXS16040M16Z06	★	40	38	28.5	17.0	M16	70	47	5	10	24	6	0.4	1

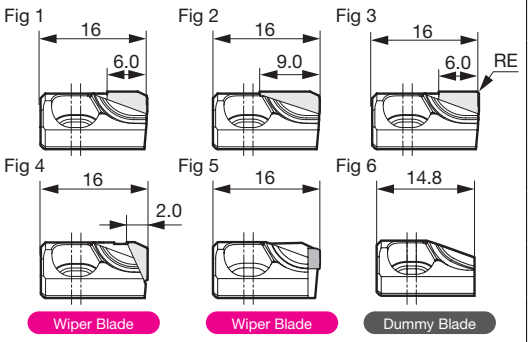
Blades are sold separately.
If using blades with corner radius (ANB1604R/ANB1608R), DC = DCX.
Weight indicated includes the weight with blades and other spare parts.

Insert

Dimensions (*mm*)

Grade Classification		SUMIDIA		SUMICRYSTAL V
Process	High-speed/Light Cutting	N	K N	N
	General-purpose	N	K N	
	Roughing	N	K N	

Cat. No.	DA1000	DA90	SCV10	Cutting Edge Length	Corner Radius RE	Wiper Edge Shape	Applications	Fig
ANB 1600R-L	●		—	6.0	—	Linear	Low Cutting Force	1
ANB 1600R-G	●		—	6.0	—	Arc-Shaped	General-purpose	1
ANB 1600R-GB		●	—	6.0	—	Arc-Shaped	Composite Milling*1	1
ANB 1600R-H	●	—	—	6.0	—	Arc-Shaped	Strong Edge	1
ANB 1600R-GX	●		—	9.0	—	Arc-Shaped	Long Edge	2
ANB 1604R	●		—	6.0	0.4	Linear	Corner Radius	3
ANB 1608R	●		—	6.0	0.8	Linear	Corner Radius	3
ANB 1600R-W	●		—	—	—	Arc-Shaped	Wiper	4
ANB 1600R-WS	—	—	●	—	—	Arc-Shaped	Wiper	5
ANBD	—	—	●*2	—	—	—	Dummy Blade	6



*1 Cast iron/aluminum alloy *2 Dummy blade for use with WS type (cemented carbide)
"Precautions when Using Wiper Blades" (Mounting Precautions). Se H218 for Recommended Cutting Conditions

Identification Code

ANX S 16 032 M16 Z03

Series Code	Steel Body	Blade Size	Max. Dia.	Screw Size	Number of Teeth

Parts

Cap Screw		Adjustment Screw	Wrench	Adjustment Wrench
	N·m			
BXA0310IP	2.0	HFJ	TRXW10IP	ANT

The adjustment wrench (ANT) can also be used for height adjustment of the High-speed Cutter RF type and High-efficiency Cutter HF type.

N·m Recommended Tightening Torque (N·m)

Maximum Allowable Spindle Speed

Cat. No.	n max(min^{-1})
ANXS16025M12Z02	10,000
ANXS16030M16Z03	10,000
ANXS16030M16Z04	10,000
ANXS16032M16Z03	10,000
ANXS16032M16Z04	10,000
ANXS16040M16Z04	10,000
ANXS16040M16Z06	10,000

*The maximum allowable spindle speeds are set to prevent the inserts from dislodging by centrifugal force.

■ General Features

The HF Type high-efficiency aluminum alloy cutter employs a unique blade design to achieve machining without burrs.
New HFFH with coolant holes is now available as a BBT30 (BIG-PLUS™) arbour integrated version.

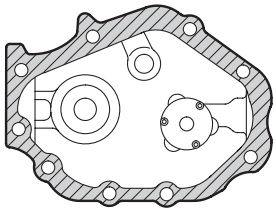
Work Material

· Aluminum and aluminum alloys
· Other non-ferrous metals
(Not suited for cast iron or steel.)

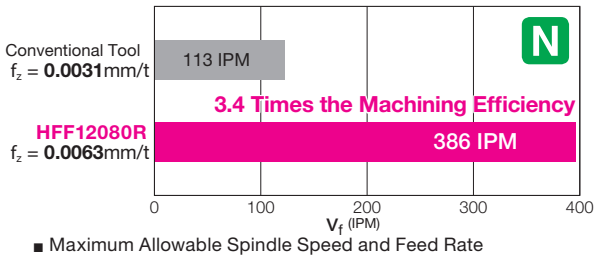
■ Features

● Achieves high-efficiency milling with v_f of over 787 IPM thanks to its multi-blade design (3 edges per inch)

High-feed, High-efficiency Milling by Multi-edge Design

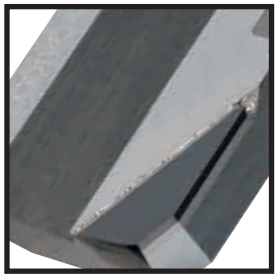


Workpiece: Aluminum Case (Frame Milling)
Tool: **HFF12080R-25.4** (ø80 10-flute),
Conventional Tool (ø80 6-flute)



■ Maximum Allowable Spindle Speed and Feed Rate

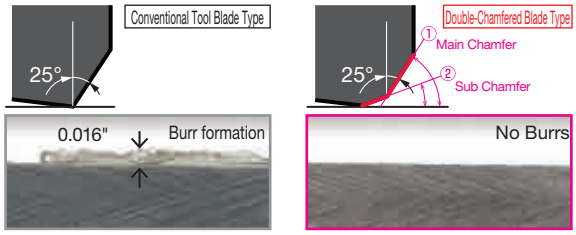
Cutter Dia. (mm)	nmax (RPM)	v_c (SFM)	f_z (IPT)	Maximum Number of Teeth	v_f (IPM)
ø80	11,000	9,065	up to 0.008"	10	up to 866"
ø100	9,500	9,787	up to 0.008"	12	up to 897"
ø125	7,500	9,659	up to 0.008"	15	up to 886"



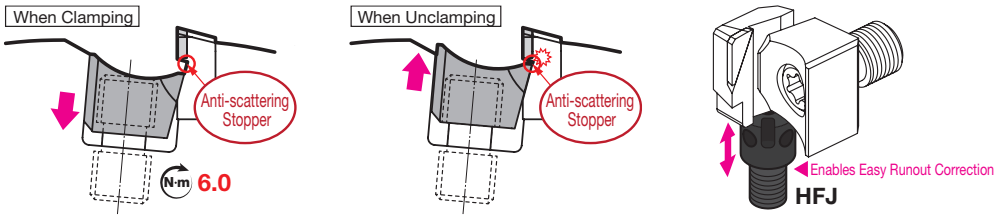
● Reduces burrs by using a double-chamfered blade

Drastically reduces burrs by preventing the plastic deformation that causes burrs.

Work Material: **A6061** Sheet Metal
Cutting Conditions: v_c = **10,308 SFM**, f_z = **0.004 IPT**, a_p = **0.02"**, Dry



● Wedge clamp with anti-scattering mechanism ensures safety and operability

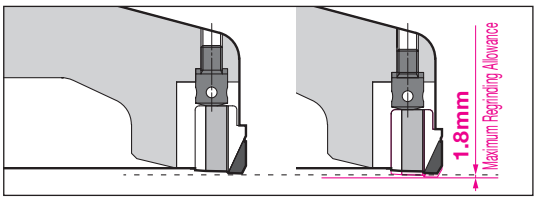


Ensure that the maximum allowable spindle speed (*n* max) specified for each cutter diameter is not exceeded. (See the table at upper right)

● Reduces running costs by drastically increasing blade regrinding allowance (to 0.071")

Assuming 0.008" of regrinding each time, an edge can be used up to 10 times.

(Given conditions of normal wear with a_p = **0.06"** or less)



The regrinding amount has been drastically increased compared to conventional screw-lock types

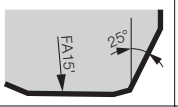
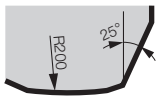
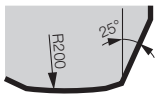
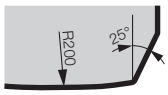
● Internal coolant improves chip evacuation performance (HFFH Type, HFFH-BBT30 Type)

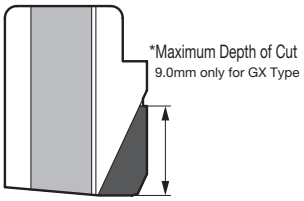
The internal coolant effectively prevents chips from becoming clogged or biting into the work material and achieves longer tool life. (Use an internal coolant compatible arbor)

*1 BIG-PLUS™ is a registered trademark of BIG DAISHOWA Co., Ltd.
*2 Can also be used with BT30 spindle machines.

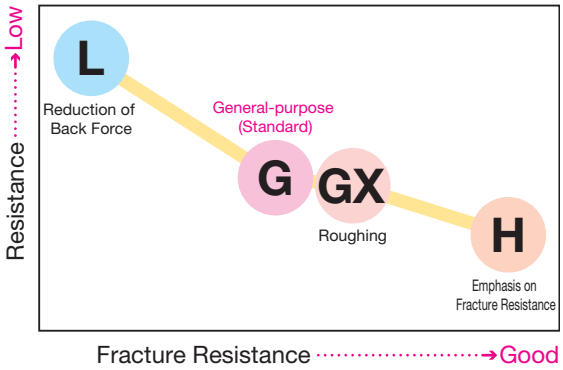
N·m Recommended Tightening Torque (N·m)

■ Chipbreaker Selection

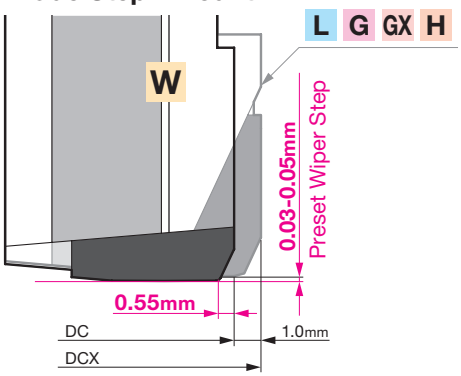
Work Material	N				
Type	L Type	G Type	GX Type	H Type	W Type
Cutting Edge Shape					
Features	Low Resistance	Standard	Long Edge	High Strength	Wiper
Applications	Reduction of Back Force	General-purpose	Roughing	Emphasis on Fracture Resistance	
Edge Length (*)	0.236”	0.236”	0.354”	0.236”	



■ Chipbreaker Selection Guide

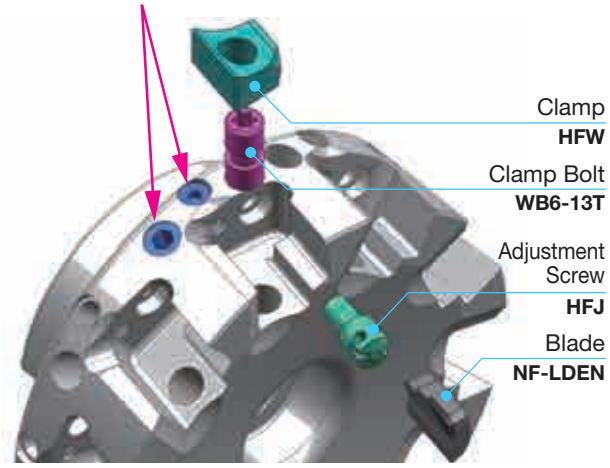


■ Wiper Blade Step Amount



■ Structure of HF

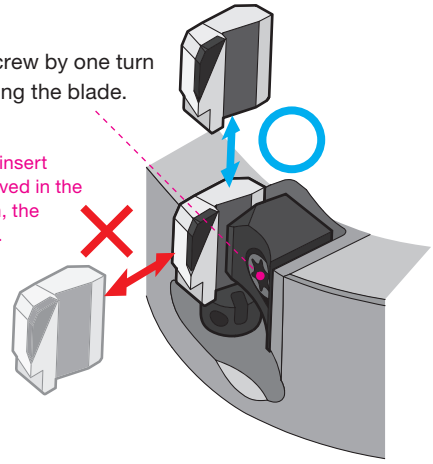
The axial set screw and balance adjustment screw hole have an embedded special part that prevents the insertion of screwdrivers or hex wrenches.



■ Blade Mounting Direction

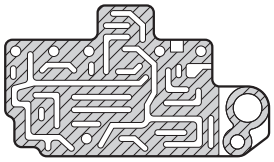
Loosen the screw by one turn before removing the blade.

⚠ Note that if the insert is forcibly removed in the wrong direction, the part may break.

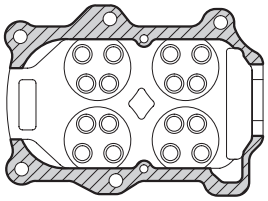


■ Application Examples

● Workpiece: Automotive Component		Sumitomo
Work Material: Aluminum Alloy	Body	HFFH12100R-25.4
	Blade Cat. No.	NF-LDEN12T3ZDTR-H
	Grade	DA1000
	Number of Teeth	12
	v_c(SFM)	6,181
	n(RPM)	6,000
	v_f(IPM)	236”
	f_z(IPT)	0.002”
	a_p(inch)	0.008”
	Coolant	Wet (Internal Coolant Supply)
	Results	Achieves 3,600 units, double the tool life of conventional external coolant supply types. Good machined surface



● Workpiece: Engine Component		Sumitomo
Work Material: Aluminum Alloy	Body	HFFH12125R-31.75
	Blade Cat. No.	NF-LDEN12T3ZDFR-G
	Grade	DA1000
	Number of Teeth	15
	v_c(SFM)	9,663
	n(RPM)	295
	v_f(IPM)	266”
	f_z(IPT)	0.0024”
	a_p(inch)	0.08”
	Coolant	Wet (Internal Coolant Supply)
	Results	In contrast to conventional external coolant supply types, the tool life has reached 1.7x greater at 17,000 units and creates finer chips



HFM SHELLMILL (Inch & Metric)

Rake Angle		
	Radial	4°
	Axial	10°

.118" 90° | 3mm 90°

Fig 1

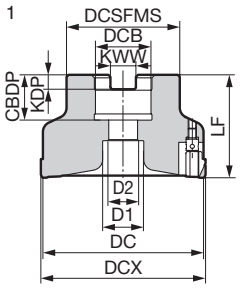


Fig 2

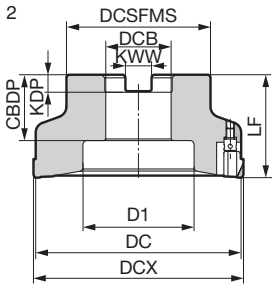
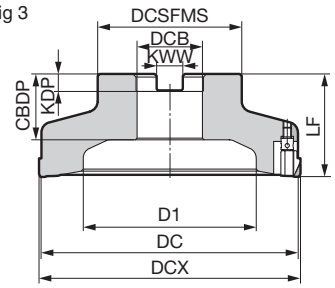


Fig 3



Body (Fine Pitch: 2-teeth / Inch)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Coolant Bolt	Number of Teeth	Weight (lbs / kg)	Fig
Inch	**HFMH42500R**	●	2.500	2.579	1.970	2.000	1.000	0.375	0.220	1.020	0.797	0.531	BFXH1/2X1 1/4	6	1.76	1
	HFMH43000R	●	3.000	3.079	1.970	2.000	1.000	0.375	0.220	1.020	0.797	0.531	BFXH1/2X1 1/4	6	2.42	1
	HFMH44000R	●	4.000	4.079	2.756	2.000	1.500	0.625	0.380	1.457	2.126	0.781	BFXH3/4X2	8	3.96	1
	HFMH45000R	●	5.000	5.079	3.150	2.000	1.500	0.625	0.380	1.457	2.126	0.781	BFXH3/4X2	10	6.17	1
	HFMH46000R	●	6.000	6.079	3.740	2.374	1.500	0.625	0.380	1.457	2.756	0.781	BFXH3/4X2	12	9.50	1
Metric	**HFM12080RS-22**	★	*80*	*82*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	-	6	*1.0*	1
	HFM12080RS-27	★	*80*	*82*	*55*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	-	6	*1.2*	1
	HFM12100RS-32	★	*100*	*102*	*70*	*50*	*32*	*14.4*	*8*	*32*	*54*	-	-	8	*1.7*	2
	HFM12125RS-32	★	*125*	*127*	*70*	*50*	*32*	*14.4*	*8*	*32*	*84*	-	-	10	*2.2*	3
	HFM12125RS-40	★	*125*	*127*	*90*	*63*	*40*	*16.4*	*9*	*35*	*84*	-	-	10	*2.8*	3
	HFM12080R-25.4	★	*80*	*82*	*50*	*50*	*25.4*	*9.5*	*6*	*30*	*35*	-	-	6	*1.0*	2
	HFM12100R-25.4	★	*100*	*102*	*50*	*50*	*25.4*	*9.5*	*6*	*30*	*54*	-	-	8	*1.5*	2
	HFM12100R-31.75	★	*100*	*102*	*70*	*50*	*31.75*	*12.7*	*8*	*32*	*54*	-	-	8	*1.7*	2
	HFM12125R-25.4	★	*125*	*127*	*50*	*50*	*25.4*	*9.5*	*6*	*30*	*84*	-	-	10	*2.0*	3
	HFM12125R-31.75	★	*125*	*127*	*70*	*50*	*31.75*	*12.7*	*8*	*32*	*84*	-	-	10	*2.2*	3
	HFM12125R-38.1	★	*125*	*127*	*80*	*63*	*38.1*	*15.9*	*10*	*36*	*84*	-	-	10	*2.5*	3

Inserts are sold separately.

Inserts

★Worldwide Warehouse Item ● USA stocked item

Dimensions (*mm*)

Grade		SUMIDIA
Process	High-speed / Light	N
	General-purpose	N
	Roughing	N

Cat. No.	DA1000	Cutting Edge Length	Wiper Length	Wiper Edge Shape	Applications	Fig
NF-LDEN12T3ZDFR-L	●	*6.0*	*2.2*	Linear	Low Resistance	1
NF-LDEN12T3ZDFR-G	●	*6.0*	*2.2*	Arc-Shaped	General-purpose	1
NF-LDEN12T3ZDTR-H	●	*6.0*	*2.2*	Arc-Shaped	Strong Edge	1
NF-LDEN12T3ZDFR-GX	●	*9.0*	*2.2*	Arc-Shaped	Long Edge	2
NF-LDEN12T3ZDFR-W	●	-	*4.0*	Arc-Shaped	Wiper	3

Fig 1

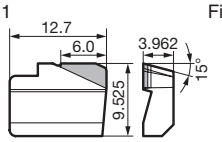


Fig 2

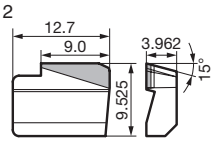
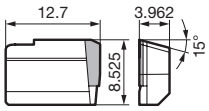


Fig 3 Wiper Blade



Parts

(Sold Separately)

Clamp	Bolt		Adjustment Screw	Wrench	Wrench	Assembly Wrench
		N·m				
HFW	WB6-13T	6.0	HFJ	TTX20	RFT	HFVT

Identification Code - Inch

HF M H 4 3000 R

Cutter Series | Course Pitch | Coolant | Insert Size | Cutter Dia. 3.000" | Feed Direction

Identification Code - Metric

HF M 12 080 R S - 22

Cutter Series | Pitch | Insert Size | Cutter Dia. | Feed Direction | Metric Bore | Bore Dia.

Recommended Cutting Conditions - Metric

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	6,560 - 9,850	0.002 - 0.008	DA1000

Si content of over 12.6%

N	Aluminum Alloy	-	1,315 - 2,630	0.002 - 0.008	DA1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions - Metric

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	2,000 -3,000	0.05-0.20	DA1000

Si content of over 12.6%

N	Aluminum Alloy	-	400-800	0.05-0.20	DA1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

HFF Shellmill Metric

Rake Angle		
	Radial	4°
	Axial	10°

3mm 90°

Fig 1

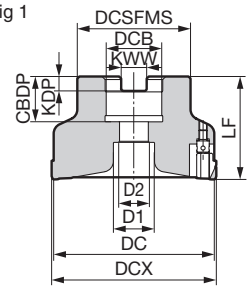


Fig 2

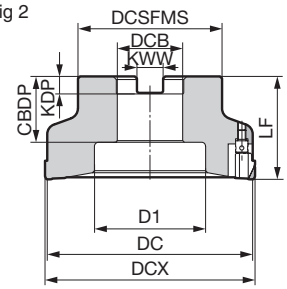
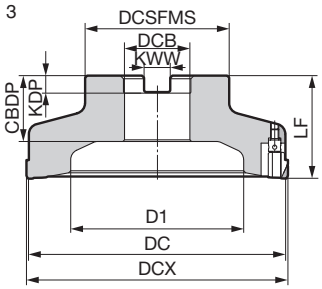


Fig 3



Body (Extra Fine Pitch: 3-teeth / Inch)

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Number of Teeth	Weight (kg)	Fig
Metric	**HFF12080RS-22**	★	80	82	50	40	22	10.4	6.3	20	18	11	10	1.0	1
	HFF12080RS-27	★	80	82	55	50	27	12.4	7	22	20	14	10	1.2	1
	HFF12100RS-32	★	100	102	70	50	32	14.4	8	32	54	-	12	1.7	2
	HFF12125RS-32	★	125	127	70	50	32	14.4	8	32	84	-	15	2.2	3
	HFF12125RS-40	★	125	127	90	63	40	16.4	9	35	84	-	15	2.8	3
	HFF12080R-25.4	★	80	82	50	50	25.4	9.5	6	30	35	-	10	1.0	2
	HFF12100R-25.4	★	100	102	50	50	25.4	9.5	6	30	54	-	12	1.5	2
	HFF12100R-31.75	★	100	102	70	50	31.75	12.7	8	32	54	-	12	1.7	2
	HFF12125R-25.4	★	125	127	50	50	25.4	9.5	6	30	84	-	15	2.0	3
	HFF12125R-31.75	★	125	127	70	50	31.75	12.7	8	32	84	-	15	2.2	3
	HFF12125R-38.1	★	125	127	80	63	38.1	15.9	10	36	84	-	15	2.5	3

Inserts are sold separately.

Inserts

★Worldwide Warehouse Item ● USA stocked item

Dimensions (*mm*)

Grade		SUMIDIA
Process	High-speed / Light	N
	General-purpose	N
	Roughing	N

Cat. No.	DA1000	Cutting Edge Length	Wiper Length	Wiper Edge Shape	Applications	Fig
NF-LDEN12T3ZDFR-L	●	6.0	2.2	Linear	Low Resistance	1
NF-LDEN12T3ZDFR-G	●	6.0	2.2	Arc-Shaped	General-purpose	1
NF-LDEN12T3ZDTR-H	●	6.0	2.2	Arc-Shaped	Strong Edge	1
NF-LDEN12T3ZDFR-GX	●	9.0	2.2	Arc-Shaped	Long Edge	2
NF-LDEN12T3ZDFR-W	●	-	4.0	Arc-Shaped	Wiper	3

Fig 1

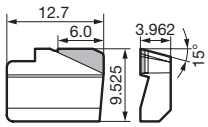


Fig 2

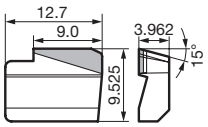
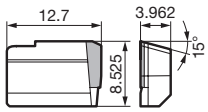


Fig 3 Wiper Blade



Parts

(Sold Separately)

Clamp	Bolt		Adjustment Screw	Wrench	Wrench	Assembly Wrench
		N·m				
HFW	WB6-13T	6.0	HFJ	TTX20	RFT	HFVT

Identification Code

HF F 12 080 R S - 22

HF	F	12	080	R	S	22
Cutter Series	Extra Fine Pitch	Blade Size	Cutter Dia.	Feed Direction	Metric Bore	Bore Dia.

Recommended Cutting Conditions - Metric

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Blade Grade
N	Aluminum Alloy	-	2,000- -3,000	0.05--0.20	DA1000

Si content of over 12.6%

N	Aluminum Alloy	-	400--800	0.05--0.20	DA1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

HFFH SHELLMILL (Inch & Metric)

Rake Angle		
	Radial	4°
	Axial	10°

.118" 90° | 3mm 90°

Fig 1

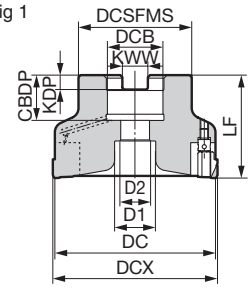


Fig 2

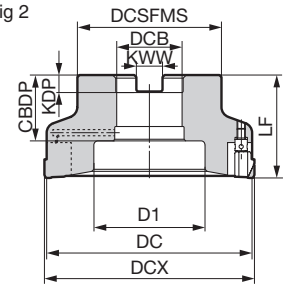
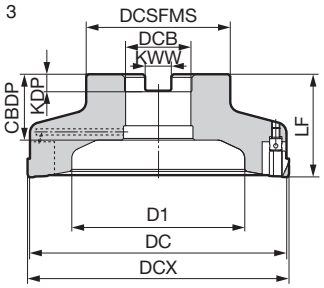


Fig 3



Body (Extra Fine Pitch: 3-teeth / Inch) With Coolant Holes

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Coolant Bolt	Number of Teeth	Weight (lbs / kg)	Fig
Inch	**HFFH43000R**	●	3.000	3.079	1.970	2.000	1.000	0.375	0.220	1.020	0.797	0.531	BFXH1/2X1 1/4	9	2.20	1
	HFFH44000R	●	4.000	4.079	2.756	2.000	1.500	0.625	0.380	1.457	2.126	0.781	BFXH3/4X2	12	3.75	1
	HFFH45000R	●	5.000	5.079	3.150	2.000	1.500	0.625	0.380	1.457	2.126	0.781	BFXH3/4X2	15	5.95	1
	HFFH46000R	●	6.000	6.079	3.740	2.374	1.500	0.625	0.380	1.457	2.756	0.781	BFXH3/4X2	18	9.30	1
Metric	**HFFH12080RS-22**	★	*80*	*82*	*50*	*40*	*22*	*10.4*	*6.3*	*20*	*18*	*11*	* BFXH1025-D16	10	*1.0*	1
	HFFH12080RS-27	★	*80*	*82*	*55*	*50*	*27*	*12.4*	*7*	*22*	*20*	*14*	* BFXH1230-D18	10	*1.2*	1
	HFFH12100RS-32	★	*100*	*102*	*70*	*50*	*32*	*14.4*	*8*	*32*	*54*	-	* BFXH1635-D40	12	*1.7*	2
	HFFH12125RS-32	★	*125*	*127*	*70*	*50*	*32*	*14.4*	*8*	*32*	*84*	-	* BFXH1635-D40	15	*2.2*	3
	HFFH12125RS-40	★	*125*	*127*	*90*	*63*	*40*	*16.4*	*9*	*35*	*84*	-	* BFXH2036-D50	15	*2.8*	3
	HFFH12080R-25.4	★	*80*	*82*	*50*	*50*	*25.4*	*9.5*	*6*	*30*	*35*	-	* BFXH1/2-20X1 1/4-D33	10	*1.0*	2
	HFFH12100R-25.4	★	*100*	*102*	*50*	*50*	*25.4*	*9.5*	*6*	*30*	*54*	-	* BFXH1/2-20X1 1/4-D40	12	*1.5*	2
	HFFH12100R-31.75	★	*100*	*102*	*70*	*50*	*31.75*	*12.7*	*8*	*32*	*54*	-	* BFXH5/8-18X1 1/2-D50	12	*1.7*	2
	HFFH12125R-25.4	★	*125*	*127*	*50*	*50*	*25.4*	*9.5*	*6*	*30*	*84*	-	* BFXH1/2-20X1 1/4-D40	15	*2.0*	3
	HFFH12125R-31.75	★	*125*	*127*	*70*	*50*	*31.75*	*12.7*	*8*	*32*	*84*	-	* BFXH5/8-18X1 1/2-D50	15	*2.2*	3
	HFFH12125R-38.1	★	*125*	*127*	*80*	*63*	*38.1*	*15.9*	*10*	*36*	*84*	-	* BFXH3/4X2	15	*2.5*	3

Inersts are sold separately.

Inserts

★Worldwide Warehouse Item ● USA stocked item * Sold Separately

Dimensions (*mm*)

Grade		SUMIDIA
Process	High-speed / Light	N
	General-purpose	N
	Roughing	N

Cat. No.	DA1000	Cutting Edge Length	Wiper Length	Wiper Edge Shape	Applications	Fig
NF-LDEN12T3ZDFR-L	●	*6.0*	*2.2*	Linear	Low Resistance	1
NF-LDEN12T3ZDFR-G	●	*6.0*	*2.2*	Arc-Shaped	General-purpose	1
NF-LDEN12T3ZDTR-H	●	*6.0*	*2.2*	Arc-Shaped	Strong Edge	1
NF-LDEN12T3ZDFR-GX	●	*9.0*	*2.2*	Arc-Shaped	Long Edge	2
NF-LDEN12T3ZDFR-W	●	-	*4.0*	Arc-Shaped	Wiper	3

Fig 1

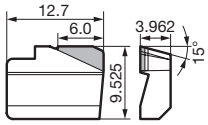


Fig 2

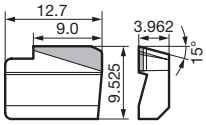
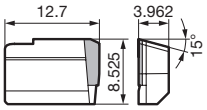


Fig 3 Wiper Blade



Parts

(Sold Separately)

Clamp	Bolt		Adjustment Screw	Wrench	Wrench	Assembly Wrench
		N·m				
HFW	WB6-13T	6.0	HFJ	TTX20	RFT	HFVT

Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Blade Grade
N	Aluminum Alloy	-	2,000- -3,000	0.05--0.20	DA1000

Si content of over 12.6%

N	Aluminum Alloy	-	400--800	0.05--0.20	DA1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Identification Code - Inch

HF F H 4 3000 R

Cutter Series | Fine Pitch | Coolant | Insert Size | Cutter Dia. 3.000" | Feed Direction

Identification Code - Metric

HF F H 12 080 R S - 22

Cutter Series | Extra Fine Pitch | Coolant | Insert Size | Cutter Dia. | Feed Direction | Metric Bore | Bore Dia.

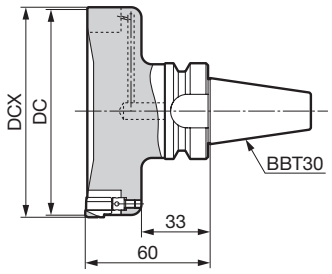
N·m Recommended Tightening Torque (N·m)

HFFH - BBT30 Series

Rake Angle		
	Radial	4°
	Axial	10°

3mm 90°

Fig 1



Body (Extra Fine Pitch: 3-teeth / Inch) With Coolant Holes

Dimensions (mm)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Number of Teeth	Weight (kg)	Fig
Inch	**HFFH12080R-BBT30**	★	*80*	*82*	10	*1.6*	1
	HFFH12100R-BBT30	★	*100*	*102*	12	*2.4*	1
	HFFH12125R-BBT30	★	*125*	*127*	15	*2.9*	1

Inserts are sold separately.

Inserts

Dimensions (mm)

Grade		SUMIDIA
Process	High-speed / Light	N
	General-purpose	N
	Roughing	N

Cat. No.	DA1000	Cutting Edge Length	Wiper Length	Wiper Edge Shape	Applications	Fig
NF-LDEN12T3ZDFR-L	•	6.0	*2.2*	Linear	Low Resistance	1
NF-LDEN12T3ZDFR-G	•	6.0	*2.2*	Arc-Shaped	General-purpose	1
NF-LDEN12T3ZDTR-H	•	6.0	*2.2*	Arc-Shaped	Strong Edge	1
NF-LDEN12T3ZDFR-GX	•	9.0	*2.2*	Arc-Shaped	Long Edge	2
NF-LDEN12T3ZDFR-W	•	-	*4.0*	Arc-Shaped	Wiper	3

Fig 1

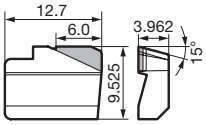


Fig 2

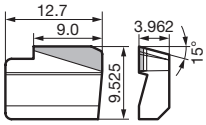
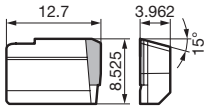


Fig 3 Wiper Blade



Parts

(Sold Separately)

Clamp	Bolt		Adjustment Screw	Wrench	Wrench	Assembly Wrench
		N·m				
HFW	WB6-13T	6.0	HFJ	TTX20	RFT	HFVT

Identification Code

HF F H 12 080 R - BBT30

HF	F	H	12	080	R	BBT30
Cutter Series	Extra Fine Pitch	With Oil Hole	Insert Size	Cutter Dia.	Feed Direction	Supported Arbor Symbol

Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	2,000 -3,000	0.05-0.20	DA1000

Si content of over 12.6%

N	Aluminum Alloy	-	400-800	0.05-0.20	DA1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

* BIG-PLUS™ is a registered trademark of BIG DAISHOWA Co., Ltd.
* Can also be used with BT30 spindle machines.

N·m Recommended Tightening Torque (N·m)

RF Series

■ General Features

The RF cutter for aluminum alloy has a lightweight body designed for high-speed, high-performance roughing to finish milling of aluminum alloy and other non-ferrous metals.

■ Work Material

- Aluminum and aluminum alloys
- Other Non-Ferrous Metals

(Not suited for cast iron or steel.)

■ Features

- From Roughing to Finishing Processes: Roughing: Economical carbide insert / Finishing: High-precision SUMIDIA insert
- Strong and Lightweight Body: Special aluminum alloy body. 40% lighter than steel cutters. Hard anodizing. Improved efficiency with higher spindle speeds, lower spindle loads and shorter tool change time
- Safety Design: Prevents inserts from dislodging from cutter due to centrifugal force. (Speeds must be within max. recommended conditions) To prevent warping, wedges are not used in the cutter construction
- Easy Runout Adjustment: External setting gauge is used for easy tool presetting. High-precision cutter construction - units fitted are within 10μm runout even before setting

■ Application Examples

Workpiece (Work Material)	Tool Cutting Blade (Insert Grade)	Cutting Conditions v_c = Cutting Speed (SFM) v_f = Feed Rate (IPM) a_p = Depth of Cut (inch)	Results
Case (ADC12)	RF4160R SUMIDIA Blade (DA2200)	v_c = 9,843 v_f = 225 a_p = 0.004"	Finished Surface Roughness: Ra=0.2μm, Number of Workpieces: 30,000 pcs (30x tool life of carbide inserts)
Contact Surface of Transmission Case (ADC12)	RF4125R SUMIDIA Insert (DA1000)	v_c = 9,843 v_f = 300 a_p = 0.06"	Finished Surface Roughness: Ra=0.3μm, Number of Workpieces: 20,000 units
Contact Surface of Cylinder Head (AC4C)	RF4250R Carbide Insert (H1)	v_c = 6,562 v_f = 296 a_p = 0.14"	Rough Cutting Number of Workpieces: 10,000 units

● Maximum Allowable Spindle Speed

Cat. No.	*n* max (RPM)
RF4080R	17,000
RF4100R	15,900
RF4125R	13,500
RF4160R	11,000
RF4200R	9,000
RF4250R	7,600
RF4315R	6,000

■ Finished Surface Roughness

- Process: Finish Milling
- Machine: Vertical Machining Centre
- Arbour: HSK63A
- Work Material: Si 10 to 12% Al Alloy
- Cutter: RF4100R 6-Flute (1 Wiper)
- Grade: SUMIDIA (DA1000)
- v_c = 16,372 SFM
- n = 15,900 RPM
- v_f = 450 IPMn
- f_z = 0.0047 IPT
- a_p = 0.0197", Wiper a_p = 0.0012"
- Dry

Rz (Highest Peak): 0.69μm Ra: 0.092μm

■ Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	6,560 - 16,400	0.002 - 0.008	DA1000 DA2200
		-	3,280 - 8,200	0.002 - 0.008	H1

Si content of over 12.6%

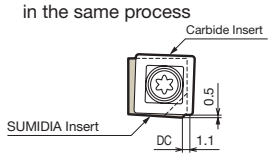
N	Aluminum Alloy	-	1,320 - 2,630	0.002 - 0.008	DA1000 DA2200
		-	660 - 1,320	0.002 - 0.008	H1

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

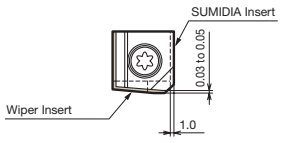
● Recommended Cutting Edge Position

We recommend positioning as in the figure below when mounting carbide inserts or SUMIDIA inserts (blades).

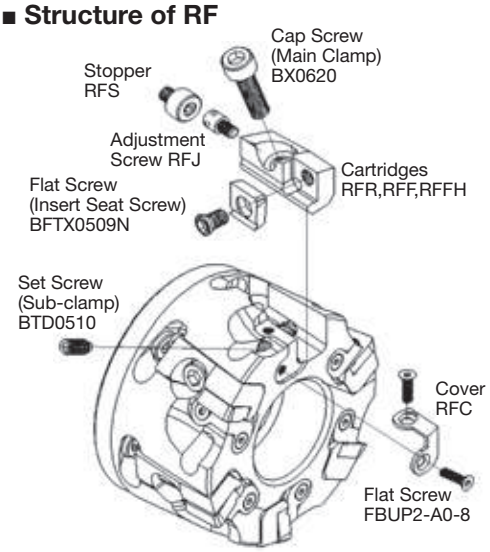
● When roughing and finishing in the same process



● When using wiper edge



■ Structure of RF



⚠ CAUTIONS (For more details, refer to the instruction manual included with the product)

As it is possible to mix different types of inserts/blades, it is important to take note of the following.

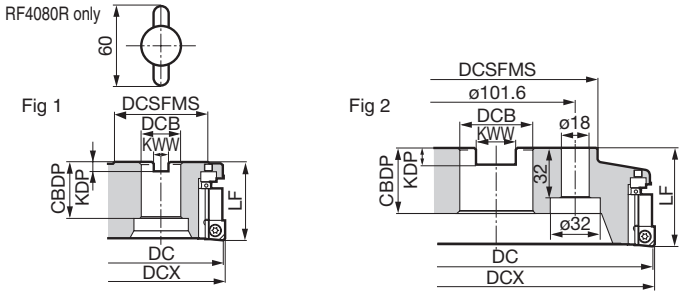
- Do not mix reground and new inserts or inserts with a different regrinding amount on the same cutter.
- Carbide and SUMIDIA inserts must be arranged alternately.
- Ensure proper balance by fixing the PCD inserts of the blades on opposite sides of the cutter.

RF Shellmill Metric

Rake Angle		
	Radial	4°
	Axial	10°

3mm 90° (SUMIDIA Insert)

10mm 87° (Carbide Insert)



Body

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Maximum Dia. DCX	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Weight (kg)	Fig
Inch	**RF4080R**	★	*80*	*82*	*60*	*50*	*25.40*	*9.5*	*6*	*30*	6	0.7	1
	RF4100R	★	*100*	*102*	*75*	*50*	*31.75*	*12.7*	*8*	*38*	6	1.0	1
	RF4125R	★	*125*	*127*	*75*	*63*	*38.10*	*15.9*	*10*	*38*	8	1.6	1
	RF4160R	★	*160*	*162*	*100*	*63*	*50.80*	*19.1*	*11*	*38*	10	2.6	1
	RF4200R	★	*200*	*202*	*130*	*63*	*47.625*	*25.4*	*14*	*42*	12	3.6	2
	RF4250R		*250*	*252*	*130*	*63*	*47.625*	*25.4*	*14*	*42*	16	6.0	2
	RF4315R		*315*	*317*	*240*	*80*	*47.625*	*25.4*	*14*	*42*	18	11.0	2

Cartridges, blades and inserts are sold separately. Use a collar bolt to mount the cutter to the arbor.

Insert / Cartridge

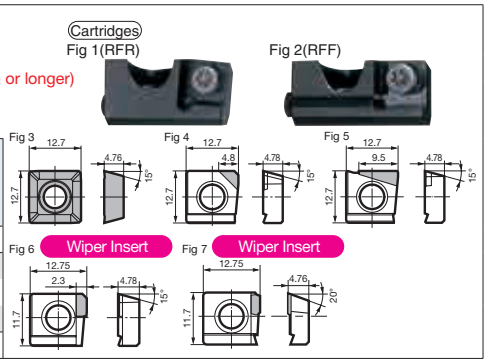
Dimensions (*mm*)

Grade		Carbide	DLC	SUMIDIA		SUMICRYSTAL
Process	High-speed / Light	N	N	N	N	N
	General-purpose	N	N	N	N	
	Roughing	N	N	N	N	

For SUMICRYSTAL details, refer to page M62

When using large depths of cut (a_p = 3mm or longer) with RF4080R, use the RFFH cartridge.
(RFF is possible for normal cutting.)

Cat. No.	H1	DL1000	DA1000	DA2200	SC10	Fig	Wiper Length	Cartridges Cat. No.	Cartridges Stock	Fig
SDET1204ZDFR	●	●	-	-	-	3	-	RFR	●	1
NF-SNEW1204ADFR	-	-	●	▲	-	4	*2.2*	RFF	●	2
NF-SNEW120404ADFR-H	-	-	●	-	-	5	*1.4*	RFF (Others) RFFH(RF4080R)	●	2
NF-SNEW1204ADFR-W	-	-	●	▲	-	6	*3.0*	RFF	●	2
SNEW1204ADFR-WS	-	-	-	-	●	7	*2.0*	RFF	●	2



An "H" at the end of the part number indicates large depth of cut type, while "W" or "WS" indicates a wiper insert.

Parts

Cover	Stopper	Cap Screw (Main Clamp)		Set Screw (Sub-clamp)		Flat Screw (Cover Mounting)	Adjustment Screw	Flat Screw (Insert Fastening)		Wrench	Wrench
RFC	RFS	BX0620	10.0	BTD0510	3.0	FBUP2 -A0-8	RFJ	BFTX0509N	5.0	TH050 TH025 RFT	TTX20

Description	Catalog No.	Stock	Appearance
Cartridge	RFF	●	
Coolant Through Arbor Bolt	RF-SCB80	●	
	RF-SCB100	●	
	RF-SCB125	●	
	RF-SCB160	●	

NOTES: Cartridges and inserts are sold separately.

Blades / Dummy Blades

Product Name	Cat. No.	SUMIDIA DA2200
SUMIDIA Blade	RFB	●
SUMIDIA Wiper Blade	RFBW	●
Dummy Blade	RFD	●(Steel)

Use dummy blades for unused teeth to protect the body as well as maintaining balance.

Setting Parts

Cartridge design allows inserts to be attached outside the machine with high precision.

Setting Gauge
RF-SET
(Sold Separately / Standard Stock)

Clamp Jig
RF-JIG
(Sold Separately / Standard Stock)

Internal Coolant Attachments

Use an internal coolant holder or a standard clamp bolt with a coolant hole when using internal coolant.
Typical examples are given in the table below. For standards, contact each manufacturer directly.

Body Cat. No.	Internal Coolant Holder	Standard Clamp Bolt with Coolant Hole (Example) MST Corporation	Big Daishowa Seiki Co. Ltd.
RF 4080R	—	MBC-M12	TMBA-M12
RF 4100R	—	MBC-M16	TMBA-M16
RF 4125R	—	MBC-M20	TMBA-M20
RF 4160R	—	MBC-M24	TMBA-M24
RF 4200R	RF-CLT	—	—
RF 4250R	RF-CLT	—	—
RF 4315R	RF-CLT	—	—

Direction of Coolant Ejection

Internal Coolant Holders
RF-CLT (Standard Stock)

Standard Clamp Bolt with Coolant Hole
[Typical Example] MBC-M12 to M24 (Sold Separately)

N·m Recommended tightening torque (N·m)

■ General Features

The SRF small diameter aluminum alloy cutter is ideal for aluminum alloy machining on high-performance small machines.

■ Features

- Ideal for small machines
  Especially reliable on BT30 class small machines.
- From roughing to finishing processes
  Utilizes SUMIDIA DA1000 inserts
  with effective cutting edge length of 5mm
- Economical NF-type Inserts:
  NF Type SUMIDIA inserts with tough DA1000 grade lower tooling costs.
- High-speed Cutting with PCD-SUMIDIA:
  Maximum spindle speeds of up to n = 20,000 RPM
  (Actual spindle speeds must be set within the rotational limits of your machine and holder)
- Simple Runout Adjustment Mechanism:
  Simple insert direct mounting design
  for runout precision with easy fine adjustment

■ Application Examples

Workpiece (Work Material)	Tool Insert Cat. No. (Insert Grade)	Cutting Conditions n = Spindle Speed (RPM) v_f = Feed Rate (IPM) a_p = Depth of Cut (inch)	Results
Cam Case (ADC12)	SRF50R NF-SNEW09T3ADTR (DA1000)	n = 6,000 v_f = 95 a_p= 0.02"	12,000 pcs machined with no problems
Computer Case (ADC12)	SRF50R NF-SNEW09T3ADTR (DA1000)	n = 15,000 v_f = 295 a_p= 0.008"	2.5 times more efficient endmill operation
Differential Case (ADC12)	SRF63R NF-SNEW09T3ADTR (DA1000)	n = 8,000 v_f = 160 a_p= 0.02"	No obstructions on tool magazine when mounting ø63 cutter on small machines.

■ Recommended Cutting Conditions

Si content of 12.6% or less

ISO	Work Material	Hardness	Cutting Speed v_C (SFM) Min. - Max.	Feed Rate f_Z (IPT) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	6,560 - 13,120	0.002 - 0.008	DA1000

Si content of over 12.6%

N	Aluminum Alloy	-	1,320 - 2,630	0.002 - 0.008	DA1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

SRF Series

Rake Angle		
	Radial	-2° to 4°
	Axial	6°

5mm 90°

Fig 1

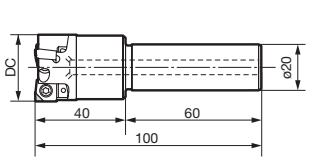


Fig 2

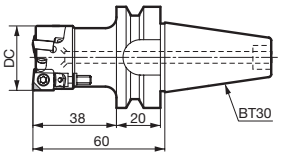


Fig 3

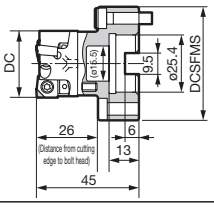
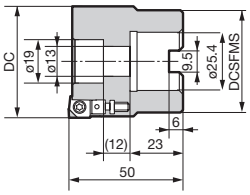


Fig 4

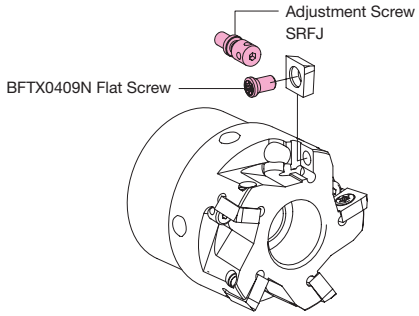


Body

Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Number of Teeth	Weight (kg)	Fig
Metric	**SRF30R-ST**	★	*30*	-	3	*0.34*	1
	SRF40R-ST	★	*40*	-	4	*0.50*	1
	SRF30R-BT30	★	*30*	-	3	*0.57*	2
	SRF40R-BT30	★	*40*	-	4	*0.72*	2
	SRF30R	★	*30*	*50.0*	3	*0.27*	3
	SRF40R	★	*40*	*50.0*	4	*0.35*	3
	SRF50R	★	*50*	*46.5*	5	*0.59*	4
	SRF63R	★	*63*	*45.0*	6	*0.67*	4

Inserts are sold separately.



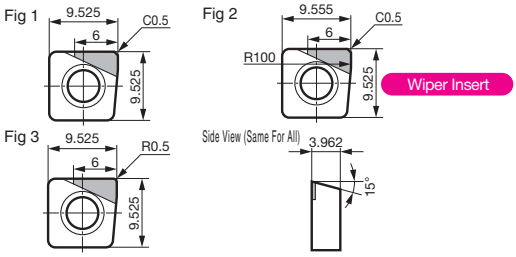
For securing the ø80mm and ø100mm cutters to the arbor, use a JIS B1176 hexagonal socket bolt (M12 x 1.18" to 1.38").

Insert

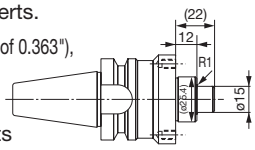
Dimensions (*mm*)

Grade		SUMIDIA	
Process	High-speed / Light	N	N
	General-purpose	N	N
	Roughing	N	N

Cat. No.	DA1000	DA2200	Wiper Length	Cutting Edge Shape	Fig
NF-SNEW09T3ADTR	●	▲	*2.0*	Standard	1
NF-SNEW09T3ADTR-U	●	▲	*2.2*	Wiper Edge	2
NF-SNEW09T3ADTR-R	●	▲	*2.0*	Nose Radius	3

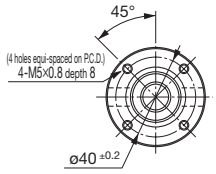


- Standard inserts and wiper inserts can be used on the same cutter body.
- Standard inserts with nose radius should be used where chatter is present. These cannot be used with wiper inserts.
- Inserts can be reground 3 times (up to minimum IC diameter of 0.363"), but the cutting edge height changes by the reground amount.
- Do not mix new and reground inserts or inserts with different regrind amounts on the same cutter.
- When using reground inserts, it is advisable to re-confirm cutting edge position with a tool pre-setter.



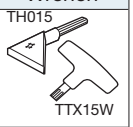
- Arbour for SRF30R, SRF40R

When using body SRF30R and SRF40R cutters, the arbor needs to be modified as shown above.



(1. Reduce part of the arbor's adapter shaft length from ø1.00" to ø0.590". Add 4 tap holes for (M5) mounting bolts.)
Use hex socket bolts M5 × 0.787" for securing the body.

Parts

Flat Screw		Adjustment Screw	Wrench
	N·m		TH015  TTX15W
BFTX0409N	**4.0**	SRFJ	TH015 TTX15W

N·m Recommended tightening torque (N/m)

● USA stocked item

★Worldwide Warehouse Item

Maximum Depth of Cut (SRF50R, 5-Flute)

The table below contains guidelines on the maximum depth of cut, determined from internal tests. 'O' marks indicate the possible application range. Actual cutting conditions should be set based on the actual machine and workpiece characteristics.

Depth of Cut a_p (inch) \ Feed Rate	Feed Rate v_f (IPM)		
	100	160	200
	Feed Rate Per Tooth f_z (IPT)		
	0.002	0.003	0.004
0.02	O	O	O
0.04	O	O	O
0.06	O	O	O
0.08	O	O	O
0.10	O	O	O
0.12	O	O	O
0.14	O	O	-
0.16	O	-	-
0.18	O	-	-
0.20	O	-	-

Cutting Conditions

Cutter: SRF50R

Insert: NF-SNEW 09T3ADTR (DA1000) n = 10,000 RPM

Arbour: BT30 FMA25.4-45

Workpiece: A-5052

Width: Maximum depth of cut at 1.38"

■ General Features

WaveMill WAX type is a high speed and high efficiency cutter capable of processes from rough milling to finishing of non-ferrous metals such as aluminum alloy.

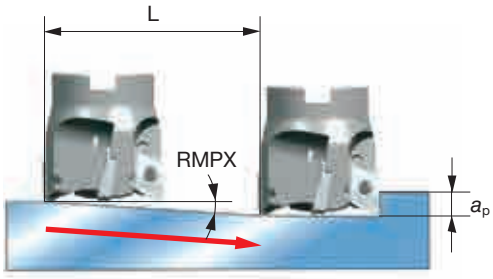
■ Features

- Ramping
- For Helical Milling
- Safety Design:
  - · Prevents dislodging of inserts caused
  - · by centrifugal force.
- Coolant Compatible:
  - · Coolant holes are a standard feature for the WAX series.
- Excellent Adhesion Resistance:
  - · Top rake face of the insert has a lapped finish.
  - · DLC Coat inserts are available for improved adhesion resistance.

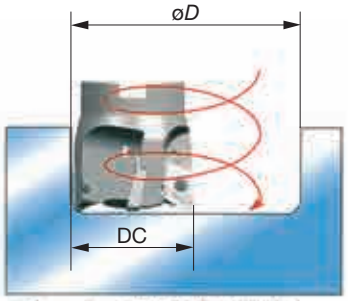
■ Ramping

Maximum ramping angle (RMPX) depends on cutter diameter.
Minimum milling distance (L) for any depth of cut can be calculated by the equation below:

$$L = \frac{a_p}{\tan \text{RMPX}} \quad \text{(mm)}$$



■ Helical Milling



■ Ramping Angle

Cutter Dia. DC(mm)	Maximum Ramping Angle RMPX	
	WAX3000 Type	WAX4000 Type
20	28°	
25	17°	26°
32	12°	18°30'
40	9°	13°
50	7°	9°30'
63	5°	7°
80	3°	5°
100	3°	4°
125	2°	3°

■ Helical Milling Diameter

Cutter Dia. DC(mm)	WAX3000 Type		WAX4000 Type	
	Min. Dia.	Max. Dia.	Min. Dia.	Max. Dia.
20	0.87	1.30		
25	1.14	1.69	1.06	1.69
32	1.69	2.24	1.50	2.24
40	2.32	2.87	2.13	2.87
50	3.11	3.66	2.91	3.66
63	4.13	4.69	3.94	4.69
80	5.47	6.02	5.28	6.02
100	7.76	7.60	6.85	7.60
125	9.02	9.57	8.82	9.57

■ Maximum Allowable Spindle Speed

Cutter Dia. DC(mm)	WAX3000 Type		WAX4000 Type	
	n max(RPM)	v_c(SFM)	*n* max(RPM)	v_c(SFM)
20	14,000	2,625		
25	29,000	7,218	11,000	2,821
32	25,000	8,203	9,000	2,953
40	23,000	9,515	20,000	8,203
50	20,000	10,171	18,000	9,187
63	18,000	11,484	16,000	10,171
80	16,000	14,324	14,000	11,484
100	14,000	14,436	12,000	12,140
125	13,000	16,733	11,000	14,108

The *n* maximum speeds are set to prevent the inserts from dislodging by centrifugal force.

■ Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	2000 - 4000	0.002 - 0.010	DL1000

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WAX 3000 Shell Mill

Rake Angle		
	Radial	6°
	Axial	19° to 25°

.63 - .71" 90° | 16 to 18mm 90°

Fig 1

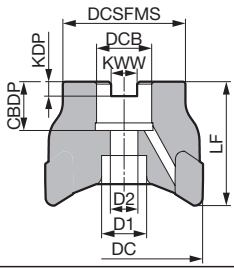


Fig 2

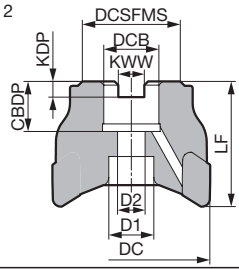
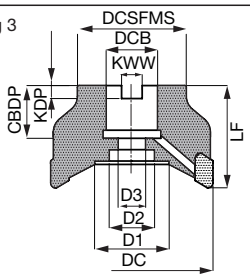


Fig 3



Body (RE = 3.2 or less)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lbs / kg)	Fig
Inch	**WAX32000-3.2**	●	2.000	1.772	1.750	0.750	0.312	0.187	0.750	.609	.406	—	4	0.75	1
Inch	**WAX32500-3.2**	●	2.500	1.772	1.750	1.000	0.375	0.220	0.750	.797	.531	—	5	0.95	1
Inch	**WAX33000-3.2**	●	3.000	2.205	2.000	1.000	0.375	0.220	0.750	1.260	.797	.531	5	1.94	3
Inch	**WAX34000-3.2**	●	4.000	3.386	2.500	1.250	0.500	0.280	0.750	1.969	1.000	.656	6	5.07	3
Inch	**WAX35000-3.2**	●	5.000	3.386	2.500	1.500	0.625	0.380	1.000	2.000	.781	—	7	6.61	1
Metric	**WAX3050-3.2**	★	*50*	*42*	*50*	*22*	*10.4*	*6.3*	*21*	*18*	*11*	—	4	*0.34*	1
Metric	**WAX3063-3.2**	★	*63*	*42*	*50*	*22*	*10.4*	*6.3*	*21*	*18*	*11*	—	5	*0.6*	2
Metric	**WAX3080-3.2**	★	*80*	*57*	*50*	*25.4*	*9.5*	*6*	*25*	*35*	*26*	*14*	5	*1.0*	3
Metric	**WAX3100-3.2**	★	*100*	*67*	*63*	*31.75*	*12.7*	*8*	*32.5*	*46*	*28*	*17*	6	*2.2*	3
Metric	**WAX3125-3.2**	★	*125*	*87*	*63*	*38.1*	*15.9*	*10*	*35.5*	*30*	*21*	—	7	*3.5*	1

Body (RE=4.0 or more)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lbs / kg)	Fig
Inch	**WAX32000-4.0**	●	2.000	1.772	1.750	0.750	0.312	0.187	0.750	.609	.406	—	4	0.79	1
Inch	**WAX32500-4.0**	●	2.500	1.772	1.750	1.000	0.375	0.220	0.750	.797	.531	—	5	1.04	1
Inch	**WAX33000-4.0**	●	3.000	2.205	2.000	1.000	0.375	0.220	0.750	1.260	.797	.531	5	1.98	3
Inch	**WAX34000-4.0**	●	4.000	3.386	2.500	1.250	0.500	0.280	0.750	1.969	1.000	.656	6	5.29	3
Inch	**WAX35000-4.0**	●	5.000	3.386	2.500	1.500	0.625	0.380	1.000	2.000	.781	—	7	6.61	1
Metric	**WAX3050-4.0**	★	*50*	*42*	*50*	*22*	*10.4*	*6.3*	*21*	*18*	*11*	—	4	*0.34*	1
Metric	**WAX3063-4.0**	★	*63*	*42*	*50*	*22*	*10.4*	*6.3*	*21*	*18*	*11*	—	5	*0.6*	2
Metric	**WAX3080-4.0**	★	*80*	*57*	*50*	*25.4*	*9.5*	*6*	*25*	*35*	*26*	*14*	5	*1.0*	3
Metric	**WAX3100-4.0**	★	*100*	*67*	*63*	*31.75*	*12.7*	*8*	*32.5*	*46*	*28*	*17*	6	*2.2*	3
Metric	**WAX3125-4.0**	★	*125*	*87*	*63*	*38.1*	*15.9*	*10*	*35.5*	*30*	*21*	—	7	*3.5*	1

Note For securing the ø80mm and ø100mm cutters to the arbors marked with * to an arbor, use a JIS B1176 hexagonal socket bolt (ø80mm: M12 x 30 to 35mm, ø100mm: M16 x 40 to 45mm).

Insert

Dimensions (inch / *mm*)

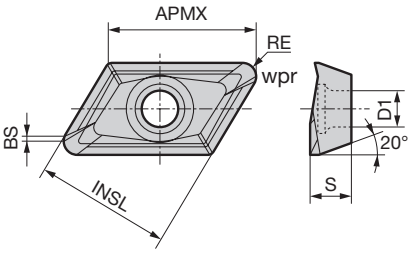
Grade		Carbide	DLC
Process	High-speed / Light	N	N
	General-purpose		N
	Roughing		

● USA stocked item

★ Worldwide Warehouse item

Cat. No.	H1	DL1000	Max. Depth of Cut APMX	Length INSL	Wiper BS	Nose Radius RE	Wiper Facet Length wpr	Thickness S	Bore Dia. D1	Fig
AECT160404PEFRA	●	●	0.708 (*18*)	0.6456 (*16.4*)	0.055 (*1.4*)	0.016 (*0.4*)	0.055 (*1.4*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160408PEFRA	●	●	0.708 (*18*)	0.6456 (*16.4*)	0.039 (*1.0*)	0.031 (*0.8*)	0.039 (*1.0*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160412PEFRA	●	●	0.708 (*18*)	0.6456 (*16.4*)	0.023 (*0.6*)	0.047 (*1.2*)	0.024 (*0.6*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160416PEFRA	●	●	0.689 (*17.5*)	0.6456 (*16.4*)	0.020 (*0.5*)	0.063 (*1.6*)	0.020 (*0.5*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160420PEFRA	●	●	0.689 (*17.5*)	0.6456 (*16.4*)	0.020 (*0.5*)	0.079 (*2.0*)	0.020 (*0.5*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160430PEFRA	●	●	0.669 (*17*)	0.6456 (*16.4*)	0.028 (*0.7*)	0.118 (*3.0*)	0.028 (*0.7*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160432PEFRA	●	●	0.669 (*17*)	0.6456 (*16.4*)	0.020 (*0.5*)	0.126 (*3.2*)	0.020 (*0.5*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160440PEFRA	●	●	0.649 (*16.5*)	0.6456 (*16.4*)	0.020 (*0.5*)	0.157 (*4.0*)	0.020 (*0.5*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160450PEFRA	●	●	0.630 (*16*)	0.6456 (*16.4*)	0.016 (*0.4*)	0.197 (*5.0*)	0.016 (*0.4*)	0.1968 (*5*)	0.1732 (*4.4*)	1

Fig 1



Inserts with a nose radius of RE = 4.0 or greater are for use with bodies that have a "-4.0" part number suffix.

Parts

Applicable Cutter	Flat Screw		Wrench	Anti-Seize Cream
WAX3000	BFTX0408	3.0	TRD15	SUMI-P

N·m Recommended Tightening Torque (N·m)

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	2,000 - 4,000	0.002 - 0.010	DL1000

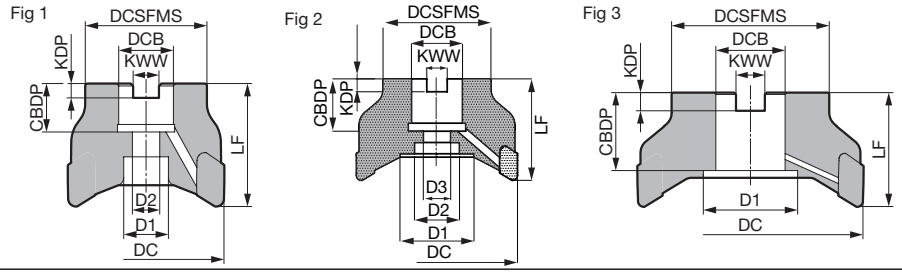
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WAX 4000 Shell Mill

Rake Angle		
	Radial	6°
	Axial	19° to 25°

.866" - .945" 90°

22 to 24mm 90°



Body (RE = 3.2 or less)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lbs / kg)	Fig
Inch	**WAX42000-3.2**	●	2.000	1.772	2.500	0.750	0.312	0.187	0.750	.609	.406	—	2	1.18	1
	WAX42500-3.2	●	2.500	2.205	2.000	1.000	0.375	0.220	0.750	.797	.531	—	3	1.31	1
	WAX43000-3.2	●	3.000	2.205	2.000	1.000	0.375	0.220	0.750	1.378	.797	.531	4	1.58	2
	WAX44000-3.2	●	4.000	2.874	2.500	1.250	0.500	0.280	0.750	1.811	1.000	.656	5	4.41	2
	WAX45000-3.2	●	5.000	3.386	2.500	1.500	0.625	0.380	1.000	2.000	.781	—	6	5.95	1
Metric	**WAX4050-3.2**	★	*50*	*42*	*50*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	—	2	*0.37*	1
	WAX4063-3.2	★	*63*	*49*	*50*	*22*	*10.4*	*6.3*	*21*	*18*	*11*	—	3	*0.54*	1
	WAX4080-3.2	★	*80*	*57*	*50*	*25.4*	*9.5*	*6*	*25*	*35*	*26*	*14*	4	*0.81*	2
	WAX4100-3.2	★	*100*	*67*	*63*	*31.75*	*12.7*	*8*	*32.5*	*46*	*28*	*17*	5	*1.70*	2
	WAX4125-3.2	★	*125*	*87*	*63*	*38.1*	*15.9*	*10*	*43*	*52*	-	—	6	*2.6*	3

Body (RE=4.0 or more)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Bolt D1	Bolt D2	Bolt D3	Number of Teeth	Weight (lbs / kg)	Fig
Inch	**WAX42000-4.0**	●	2.000	1.772	2.500	0.750	0.312	0.187	0.750	.609	.406	—	2	1.19	1
	WAX42500-4.0	●	2.500	2.205	2.000	1.000	0.375	0.220	0.750	.797	.531	—	3	1.37	1
	WAX43000-4.0	●	3.000	2.205	2.000	1.000	0.375	0.220	0.750	1.378	.797	.531	4	1.65	2
	WAX44000-4.0	●	4.000	2.874	2.500	1.250	0.500	0.280	0.750	1.811	1.000	.656	5	4.39	2
	WAX45000-4.0	●	5.000	3.386	2.500	1.500	0.625	0.380	1.000	2.000	.781	—	6	6.13	1
Metric	**WAX4050-4.0**	★	*50*	*42*	*50*	*16*	*8.4*	*5.6*	*18*	*14*	*9*	—	2	*0.38*	1
	WAX4063-4.0	★	*63*	*49*	*50*	*22*	*10.4*	*6.3*	*21*	*18*	*11*	—	3	*0.54*	1
	WAX4080-4.0	★	*80*	*57*	*50*	*25.4*	*9.5*	*6*	*25*	*35*	*26*	*14*	4	*0.83*	2
	WAX4100-4.0	★	*100*	*67*	*63*	*31.75*	*12.7*	*8*	*32.5*	*46*	*28*	*17*	5	*1.70*	2
	WAX4125-4.0	★	*125*	*87*	*63*	*38.1*	*15.9*	*10*	*43*	*52*	-	—	6	*2.8*	3

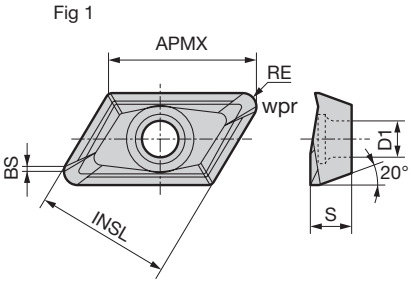
Note For securing the ø80mm and ø100mm cutters to the arbors marked with * to an arbor, use a JIS B1176 hexagonal socket bolt (ø80mm: M12 x 30 to 35mm, ø100mm: M16 x 40 to 45mm).

Insert

Dimensions (inch / *mm*)

Grade		Carbide	DLC
Process	High-speed / Light	N	N
	General-purpose		N
	Roughing		

Cat. No.	H1	DL1000	Max. Depth of Cut APMX	Length INSL	Wiper BS	Nose Radius RE	Wiper Facet Length wpr	Thickness S	Bore Dia. D1	Fig
AECT220604PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.059 (1.5)	0.016 (0.4)	0.059 (*1.5*)	0.250 (6.35)	0.236 (6.0)	1
AECT220608PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.047 (1.2)	0.031 (0.8)	0.047 (*1.2*)	0.250 (6.35)	0.236 (6.0)	1
AECT220612PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.031 (0.8)	0.047 (1.2)	0.031 (*0.8*)	0.250 (6.35)	0.236 (6.0)	1
AECT220616PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.016 (0.4)	0.063 (1.6)	0.016 (*0.4*)	0.250 (6.35)	0.236 (6.0)	1
AECT220620PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.020 (0.5)	0.079 (2.0)	0.020 (*0.5*)	0.250 (6.35)	0.236 (6.0)	1
AECT220630PEFRA	•	•	0.905 (23)	0.8563 (21.8)	0.023 (0.6)	0.118 (3.0)	0.024 (*0.6*)	0.250 (6.35)	0.236 (6.0)	1
AECT220632PEFRA	•	•	0.905 (23)	0.8563 (21.8)	0.016 (0.4)	0.126 (3.2)	0.016 (*0.4*)	0.250 (6.35)	0.236 (6.0)	1
AECT220640PEFRA	•	•	0.866 (22)	0.8563 (21.8)	0.047 (1.2)	0.157 (4.0)	0.047 (*1.2*)	0.250 (6.35)	0.236 (6.0)	1
AECT220650PEFRA	•	•	0.866 (22)	0.8563 (21.8)	0.016 (0.4)	0.197 (5.0)	0.016 (*0.4*)	0.250 (6.35)	0.236 (6.0)	1



Inserts with a nose radius of RE = 4.0 or greater are for use with bodies that have a "-4.0" part number suffix.

■ Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_C (SFM) Min. - Max.	Feed Rate f_Z (IPT) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	2000 - 4000	0.002 - 0.010	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

Parts

Applicable Cutter Diameter	Flat Screw	N·m	Wrench	Anti-Seize Cream
ø25 to ø32	BFTX0509N	5.0	TRD20	SUMI-P
ø40 to ø125	BFTX0511N			

WAX 3000 Endmill

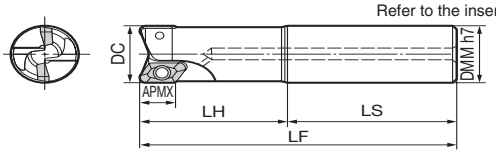
N Non-Ferrous Metal | N Aluminum Alloy

Rake Angle		
	Radial	6°
	Axial	19° to 25°

16 to 18mm 90° | .63 - .71" 90°

Refer to the insert dimensions for APMX.

Fig 1



Body (RE = 3.2 or less)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Overall Length LF	Head LH	Shank LS	Number of Teeth	Weight (lbs/*kg*)	Fig
Inch	**WAX30750EW-3.2**	●	0.750	0.750	4.281	2.000	2.281	1	0.55	1
	WAX31000EW-3.2	●	1.000	1.000	4.781	2.500	2.281	2	0.93	1
	WAX31250EW-3.2	●	1.250	1.250	4.781	2.500	2.281	2	1.65	1
	WAX31500EW-3.2	●	1.500	1.500	4.781	2.500	2.281	3	2.20	1
	WAX30750ELC-3.2	●	0.750	0.750	8.000	2.000	6.000	1	0.91	1
	WAX31000ELC-3.2	●	1.000	1.000	10.000	2.500	7.500	2	1.49	1
	WAX31250ELC-3.2	●	1.250	1.250	10.000	2.500	7.500	2	2.17	1
	WAX31500ELC-3.2	●	1.500	1.500	10.000	2.500	7.500	3	3.30	1
Metric	**WAX3020E-3.2**	★	*20*	*20*	*130*	*60*	*70*	1	*0.25*	1
	WAX3025E-3.2	★	*25*	*25*	*140*	*60*	*80*	2	*0.42*	1
	WAX3025EL-3.2	★	*25*	*25*	*200*	*60*	*140*	2	*0.63*	1
	WAX3032E-3.2	★	*32*	*32*	*150*	*70*	*80*	2	*0.75*	1
	WAX3032EL-3.2	★	*32*	*32*	*220*	*70*	*150*	2	*1.2*	1
	WAX3040E-3.2	★	*40*	*32*	*160*	*70*	*90*	3	*1.0*	1
	WAX3040EL-3.2	★	*40*	*32*	*220*	*70*	*150*	3	*1.4*	1

Body (RE=4.0 or more)

Dimensions (inch / *mm*)

	Cat. No.	Stock	Dia. DC	Shank DMM	Overall Length LF	Head LH	Shank LS	Number of Teeth	Weight (lbs/*kg*)	Fig
Inch	**WAX30750EW-4.0**	●	0.750	0.750	4.281	2.000	2.281	1	0.55	1
	WAX31000EW-4.0	●	1.000	1.000	4.281	2.000	2.281	2	0.93	1
	WAX31250EW-4.0	●	1.250	1.250	4.781	2.500	2.281	2	1.65	1
	WAX31500EW-4.0	●	1.500	1.500	4.781	2.500	2.281	3	2.20	1
	WAX30750ELC-4.0	●	0.750	0.750	8.000	2.000	6.000	1	0.91	1
	WAX31000ELC-4.0	●	1.000	1.000	10.000	2.500	7.500	2	1.49	1
	WAX31250ELC-4.0	●	1.250	1.250	10.000	2.500	7.500	2	2.17	1
	WAX31500ELC-4.0	●	1.500	1.500	10.000	2.500	7.500	3	3.30	1
Metric	**WAX3020E-4.0**	★	*20*	*20*	*130*	*60*	*70*	1	*0.25*	1
	WAX3025E-4.0	★	*25*	*25*	*140*	*60*	*80*	2	*0.42*	1
	WAX3025EL-4.0	★	*25*	*25*	*200*	*60*	*140*	2	*0.63*	1
	WAX3032E-4.0	★	*32*	*32*	*150*	*70*	*80*	2	*0.75*	1
	WAX3032EL-4.0	★	*32*	*32*	*220*	*70*	*150*	2	*1.2*	1
	WAX3040E-4.0	★	*40*	*32*	*160*	*70*	*90*	3	*1.0*	1
	WAX3040EL-4.0	★	*40*	*32*	*220*	*70*	*150*	3	*1.4*	1

● USA stocked item ★ Worldwide Warehouse item

Inserts are sold separately.

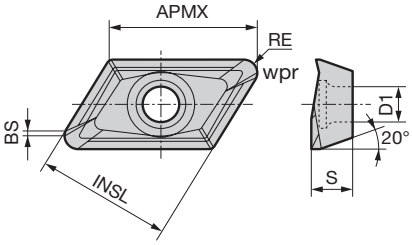
Insert

Dimensions (inch / *mm*)

Grade		Carbide	DLC
Process	High-speed / Light	N	N
	General-purpose		N
	Roughing		

Cat. No.	H1	DL1000	Max. Depth of Cut APMX	Length INSL	Wiper BS	Nose Radius RE	Wiper Facet Length wpr	Thickness S	Bore Dia. D1	Fig
AECT160404PEFRA	•	•	0.708 (*18*)	0.6456 (*16.4*)	0.055 (*1.4*)	0.016 (*0.4*)	0.055 (*1.4*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160408PEFRA	•	•	0.708 (*18*)	0.6456 (*16.4*)	0.039 (*1.0*)	0.031 (*0.8*)	0.039 (*1.0*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160412PEFRA	•	•	0.708 (*18*)	0.6456 (*16.4*)	0.023 (*0.6*)	0.047 (*1.2*)	0.024 (*0.6*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160416PEFRA	•	•	0.689 (*17.5*)	0.6456 (*16.4*)	0.020 (*0.5*)	0.063 (*1.6*)	0.020 (*0.5*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160420PEFRA	•	•	0.689 (*17.5*)	0.6456 (*16.4*)	0.020 (*0.5*)	0.079 (*2.0*)	0.020 (*0.5*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160430PEFRA	•	•	0.669 (*17*)	0.6456 (*16.4*)	0.028 (*0.7*)	0.118 (*3.0*)	0.028 (*0.7*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160432PEFRA	•	•	0.669 (*17*)	0.6456 (*16.4*)	0.020 (*0.5*)	0.126 (*3.2*)	0.020 (*0.5*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160440PEFRA	•	•	0.649 (*16.5*)	0.6456 (*16.4*)	0.020 (*0.5*)	0.157 (*4.0*)	0.020 (*0.5*)	0.1968 (*5*)	0.1732 (*4.4*)	1
AECT160450PEFRA	•	•	0.630 (*16*)	0.6456 (*16.4*)	0.016 (*0.4*)	0.197 (*5.0*)	0.016 (*0.4*)	0.1968 (*5*)	0.1732 (*4.4*)	1

Fig 1



Inserts with a nose radius of RE = 4.0 or greater are for use with bodies that have a "-4.0" part number suffix.

Parts

Applicable Cutter	Flat Screw		Wrench	Anti-Seize Cream
		N·m		
WAX3000E/EL	BFTX0408	3.0	TRD15	SUMI-P

■ Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	2000 - 4000	0.002 - 0.010	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

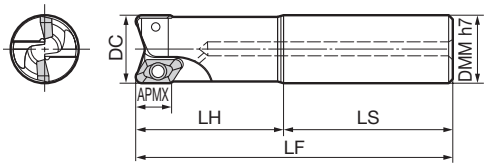
WAX 4000 Endmill

Rake Angle	Radial	6
	Axial	19° to 25°

.866" - .945" 90°

22 to 24 mm 90°

Fig 1



Refer to the insert dimensions for APMX.

Body (RE = 3.2 or less)

Dimensions (inch / *mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Overall Length LF	Head LH	Shank LS	Number of Teeth	Weight (lbs/*kg*)	Fig
WAX41000EW-3.2	•	1.000	1.000	4.781	2.500	2.281	1	1.49	1
WAX41250EW-3.2	•	1.250	1.250	4.781	2.500	2.281	1	1.65	1
WAX41500EW-3.2	•	1.500	1.500	4.781	2.500	2.281	2	2.20	1
WAX41000ELC-3.2	•	1.000	1.000	10.000	2.500	7.500	1	1.49	1
WAX41250ELC-3.2	•	1.250	1.250	10.000	2.500	7.500	1	2.17	1
WAX41500ELC-3.2	•	1.500	1.500	10.000	2.500	7.500	2	3.30	1
WAX4025E-3.2	★	*25*	*25*	*140*	*60*	*80*	1	*0.41*	1
WAX4025EL-3.2	★	*25*	*25*	*200*	*60*	*140*	1	*0.63*	1
WAX4032E-3.2	★	*32*	*32*	*150*	*70*	*80*	1	*0.72*	1
WAX4032EL-3.2	★	*32*	*32*	*220*	*70*	*150*	1	*1.2*	1
WAX4040E-3.2	★	*40*	*32*	*160*	*70*	*90*	2	*0.88*	1
WAX4040EL-3.2	★	*40*	*32*	*220*	*70*	*150*	2	*1.2*	1

Body (RE=4.0 or more)

Dimensions (inch / *mm*)

Cat. No.	Stock	Dia. DC	Shank DMM	Overall Length LF	Head LH	Shank LS	Number of Teeth	Weight (lbs/*kg*)	Fig
WAX41000EW-4.0	•	1.000	1.000	4.281	2.000	2.281	1	0.93	1
WAX41250EW-4.0	•	1.250	1.250	4.781	2.500	2.281	1	1.65	1
WAX41500EW-4.0	•	1.500	1.500	4.781	2.500	2.281	2	2.20	1
WAX41000ELC-4.0	•	1.000	1.000	10.000	2.500	7.500	1	1.49	1
WAX41250ELC-4.0	•	1.250	1.250	10.000	2.500	7.500	1	2.17	1
WAX41500ELC-4.0	•	1.500	1.500	10.000	2.500	7.500	2	3.30	1
WAX4025E-3.2	★	*25*	*25*	*140*	*60*	*80*	1	*0.41*	1
WAX4025EL-3.2	★	*25*	*25*	*200*	*60*	*140*	1	*0.63*	1
WAX4032E-3.2	★	*32*	*32*	*150*	*70*	*80*	1	*0.72*	1
WAX4032EL-3.2	★	*32*	*32*	*220*	*70*	*150*	1	*1.2*	1
WAX4040E-3.2	★	*40*	*32*	*160*	*70*	*90*	2	*0.88*	1
WAX4040EL-3.2	★	*40*	*32*	*220*	*70*	*150*	2	*1.2*	1

• USA stocked item ★ Worldwide Warehouse item

Inserts are sold separately.

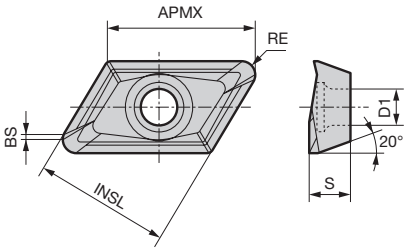
Insert

Dimensions (inch / *mm*)

Grade		Carbide	DLC
Process	High-speed / Light	N	N
	General-purpose		N
	Roughing		

Cat. No.	H1	DL1000	Max. Depth of Cut APMX	Length INSL	Wiper BS	Nose Radius RE	Thickness S	Bore Dia. D1	Fig
AECT220604PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.059 (1.5)	0.016 (0.4)	0.250 (6.35)	0.236 (6.0)	1
AECT220608PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.047 (1.2)	0.031 (0.8)	0.250 (6.35)	0.236 (6.0)	1
AECT220612PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.031 (0.8)	0.047 (1.2)	0.250 (6.35)	0.236 (6.0)	1
AECT220616PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.016 (0.4)	0.063 (1.6)	0.250 (6.35)	0.236 (6.0)	1
AECT220620PEFRA	•	•	0.945 (24)	0.8563 (21.8)	0.020 (0.5)	0.079 (2.0)	0.250 (6.35)	0.236 (6.0)	1
AECT220630PEFRA	•	•	0.905 (23)	0.8563 (21.8)	0.023 (0.6)	0.118 (3.0)	0.250 (6.35)	0.236 (6.0)	1
AECT220632PEFRA	•	•	0.905 (23)	0.8563 (21.8)	0.016 (0.4)	0.126 (3.2)	0.250 (6.35)	0.236 (6.0)	1
AECT220640PEFRA	•	•	0.866 (22)	0.8563 (21.8)	0.047 (1.2)	0.157 (4.0)	0.250 (6.35)	0.236 (6.0)	1
AECT220650PEFRA	•	•	0.866 (22)	0.8563 (21.8)	0.016 (0.4)	0.197 (5.0)	0.250 (6.35)	0.236 (6.0)	1

Fig 1



Inserts with a nose radius of RE = 4.0 or greater are for use with bodies that have a "-4.0" part number suffix.

Parts

Applicable Cutter Diameter	Flat Screw		Wrench	Anti-seize Cream
		N·m		
ø25 to ø32	BFTX0509N	5.0	TRD20	SUMI-P
ø40 to ø125	BFTX0511N			

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
N	Aluminum Alloy	-	600-1,200	0.05-0.25	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

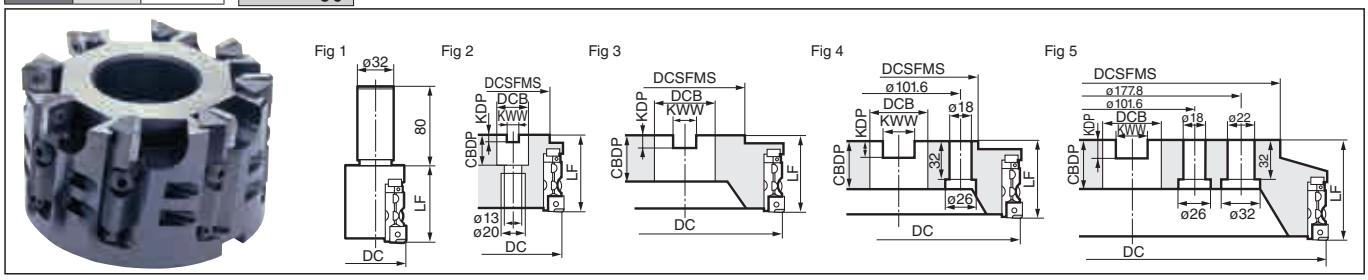
N·m Recommended Tightening Torque (N·m)

FMU / FMU-E / FM

K Cast Iron

Rake Angle		
	Radial	2°
	Axial	8°

0.5mm 90°



Body

★ Worldwide Warehouse item

Dimensions (mm)

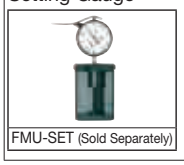
	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Weight (kg)	Fig
Inch	FMU4040ER	★	37	40	-	63	-	-	-	-	2	1.0	1
	FMU4050ER	★	47	50	-	63	-	-	-	-	3	1.2	1
	FMU4063ER	★	60	63	60	63	25.4	9.5	6	25	4	1.0	2
	FMU4080R	★	80	82.8	60	63	25.4	9.5	6	25	6	1.7	2
	FMU4100R	★	100	102.8	75	63	31.75	12.7	8	38	8	2.5	3
	FMU4125R	★	125	127.8	75	63	38.1	15.9	10	38	10	3.9	3
	FMU4160R	★	160	162.8	100	63	50.8	19.1	11	38	12	6.3	3
	FMU4200R	★	200	202.8	130	63	47.625	25.4	14	40	16	9.3	4
	FMU4250R		250	252.8	130	63	47.625	25.4	14	40	20	14.5	4
	FMU4315R		315	317.8	240	80	47.625	25.4	14	40	24	25.0	5

Inserts are sold separately.

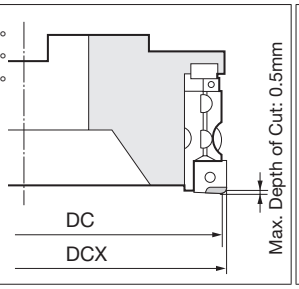
Maximum Depth of Cut

Approach Angle : 0°
Axial Rake Angle : +8°
Radial Rake Angle : +2°

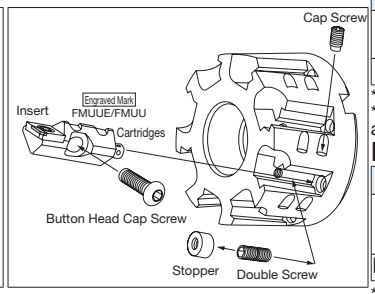
Setting Gauge



FMU-SET (Sold Separately)



Structure



Cartridges

Cartridges	Flat Screw		Adjustment Bolt	O-ring	Wrench	Wrench
		N·m			(For Flat Screws)	
FMUU(E)*	BFTX0509N	5.0	FMUJ	P3	TTX20	TH015

* FMU4040ER / 4050ER / 4063ER use FMUUE cartridges.
* FMUU / FMUUE are pre-assembled with flat screws and adjustment screws (with O-rings attached).

Parts

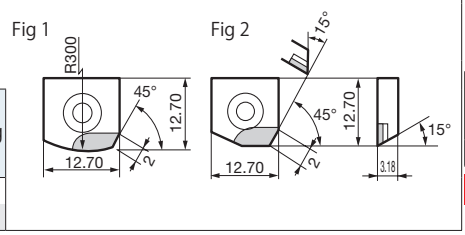
Bolt	Set Screw	Stopper	Double Screw	Wrench	Wrench	Wrench (Radial)
				(For Cartridges)	(For Cap Screws)	(For Stoppers)
BH0620*	BTD0609	FMUE	WB5-10	TH040	LH030	LH025

* FMU4040ER, 4050ER and 4063ER use BH0615 bolts.

Insert

Dimensions (mm)

Grade		CBN - SUMIBORON			
Process	High-speed / Light	K	K	K	
	General-purpose	K	K	K	
	Roughing				
Cat. No.		New BN7125	BN7000	BN700	Fig
SNEW1203ADTR		★	●	●	1
SNEW1203ADTR-S		★	●	●	2



Part number suffix -S denotes a low-thrust insert.

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
K	Gray Cast Iron	250HB	2,625 - 6,560	0.004 - 0.012	BN7000(Dry)

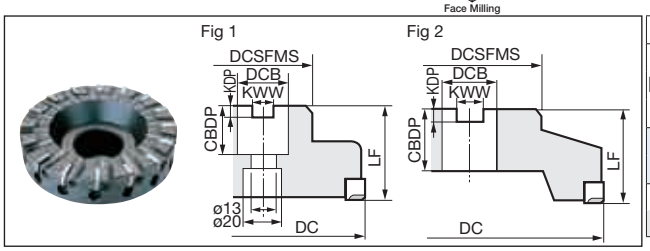
Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Expansion

Rake Angle		
	Radial	2°
	Axial	8°

0.5mm 45°

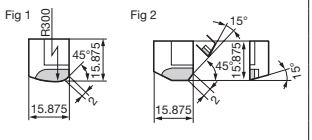
Face Milling



Insert

Dimensions (mm)

Grade Classification		CBN - SUMIBORON			
Process	High-speed/Light Cutting	K		K	
	General-purpose	K		K	
	Roughing				
Cat. No.		New BN7125		BN7000	Fig
		R	L	R	L	
SNEN1504ADT R/L		★		★		1
SNEN1504ADT R/L-S		★		★		2



Body

Dimensions (mm)

	Cat. No.	Stock R	Stock L	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Hole Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Weight (kg)	Fig
Inch Arbor	FM5080 R	★		80	82.8	60	50	25.4	9.5	6	25	6	1.6	1
	FM5125 R	★		125	127.8	75	63	38.1	15.9	10	38	10	3.4	2
	FM5160 R	★		160	162.8	100	63	50.8	19.1	11	38	12	5.6	2

Inserts are sold separately.

Parts

Applicable Cutter	Insert Clamp Plate	Adjustment Clamp	Adjustment Screw	Double Screw	Wrench	Wrench
FM5080R	FMW	–	FMJ	WB7F-20TL	TT25	1.8 x 45
FM5100R		FME	–			–
FM5315R						

N·m Recommended Tightening Torque (N·m)

Rake Angle		
	Radial	-6° 45'
	Axial	-5° 45'

3mm / 75°

Fig 1

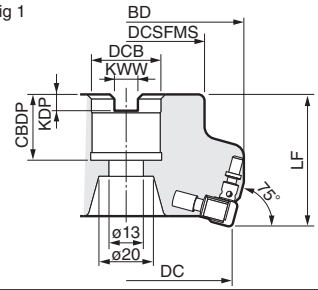
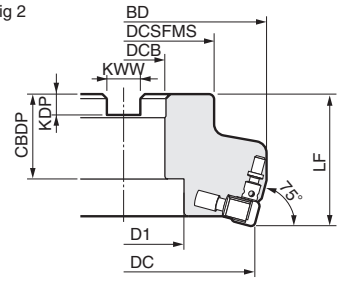


Fig 2



High-speed, High-efficiency Milling for Cast Iron

- High-Efficiency Milling of Gray Cast Iron
  - · Utilizes solid CBN - SUMIBORON BNS800 for high-speed cutting of v_c = 4,920 SFM.
  - · High speed roughing with depth of cut up to 0.118"
  - · Wiper insert for high-speed finishing
- Low Cost
  - · Economical double-sided insert with 8 usable corners
  - · Insert can be reground and used again
- Simple Runout Adjustment Mechanism
  - · Simple design for insert direct mounting
  - · Easy yet precise runout precision adjustment

Body

Dimensions (mm)

	Cat. No.	Stock	Dia. DC	O.D. BD	Boss DCSFMS	Bolt D1	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Maximum Spindle Speed (min⁻¹)	Weight (kg)	Fig
Inch	**RM3080R**	•	**80**	90	60	-	50	**25.40**	9.5	6	25	6	9,000	1.6	1
	RM3100R	•	**100**	110	70	46	50	**31.75**	12.7	8	32	8	8,000	2.1	2
	RM3125R	•	**125**	135	80	59	63	**38.10**	15.9	10	38	10	7,000	3.9	2
	RM3160R	•	**160**	170	100	80	63	**50.80**	19.1	11	38	12	6,000	5.9	2

Inserts are sold separately.

Insert

•USA Stock Standard Item

Dimensions (mm)

Grade		SUMIBORON
Process	High-speed / Light	K
	General-purpose	K
	Roughing	K

Cat. No.	BNS800	Fig
SNGN090308	•	1
SNGN090312	•	1
SNEN090308W	•	2

Fig 1

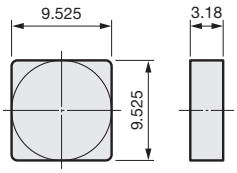
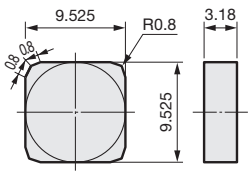
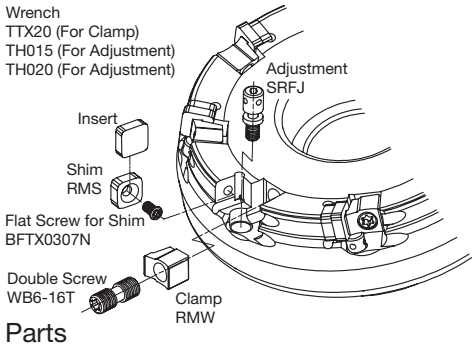


Fig 2 Wiper Insert





Parts

Clamp	Double Screw	Shim	Flat Screw for Shim		Adjustment Screw	Wrench (For Clamp)	Wrench (For Adjustment)	Wrench (For Adjustment)
RMW	WB6-16T	RMS	BFTX0307N	N·m 2.0	SRFJ	TTX20	TH015	TH020

N·m Recommended Tightening Torque (N·m)

⚠ CAUTION

- · Do not use inserts with different catalogue numbers, such as a mix of standard and wiper inserts, on a single cutter setting.
- · New and reground inserts cannot be mixed for use. Use either only new inserts or only reground inserts.
- · Inserts can only be reground once (inscribed circle dimension must be at least 9.125mm).

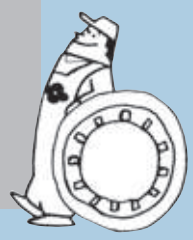
Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
K	Gray Cast Iron	250HB	2,625 - 5,000	0.002 - 0.008	BNS800 (Dry)

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Milling Cutters (Special Purpose)
H238 to H252

H



For High Feed Cast Iron Machining	SEC-Goal Mill Series / GFV	H239
	Expansion GFX(C) 13000	H240
	GFX 16000	H241
	GFS 13000	H242
	GRHNM 17000	H243
	GRHNF 17000	H244
For High Feed Cast Iron Machining	SEC-High-Feed Mill Series	H245
	Cutting Edge Reference System	H246
	NRV 4000 / 5000	H247
	DPV 4000 / 5000	H248
	NFV 4000 / 5000	H249
For High-Feed Milling of Non-Ferrous Alloys / Thin Workpieces	APV 5000	H250
QC System	IGETALLOY Quick Change System	H251
	Applicable Cutters for QC-System	H252

Stock Markings and Symbols

●: Standard stocked item
▲: To be replaced by a new product, made to order, or discontinued (please confirm stock availability).

Blank: Made-to-order item
— mark: Not available

GFV / GFX / GFS / GRHN

■ General Features

Goal Mill Series cutters have been developed for high-efficiency machining and finishing of cast iron parts (such as engine cylinder blocks and transmission cases).

■ Features

- Special cutters for high-feed machining of cast iron
- Multi-teeth design (approx. 3 teeth per inch)
- Finishing cutters feature an easy-to-use function for edge runout fine adjustment
- Highly reliable cutter with tangential inserts for finishing
- Chipbreaker type inserts for low cutting force

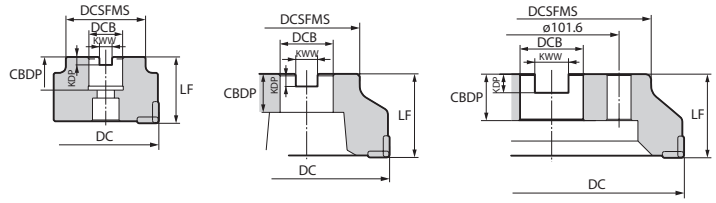
Material	Applications	High-speed Finishing	Finishing to General Cutting	Interrupted Cutting	Applicable Cutters
K Cast Iron	Finishing	BN7000	ACK260	ACK280	GFV GFX GFS

Material	Applications	Light Cutting	General Cutting	Heavy Interrupted Cutting	Applicable Cutters
K Cast Iron	For Roughing	ACK100	ACK200	ACK300	GRHN

■ Grade Characteristic Values

Classification	Grade	Hardness	Transverse Rupture Strength (GPa)	Main Coating Components	Coating Thickness (μm)	Features
K Cast Iron	ACK260	92.6HRA	2.6	Super ZX Coat	3	· From finishing to general machining of cast iron and ductile cast iron. · Employs new super multi-layered PVD coating consisting of nanometer-thin layers of TiAlN and AlCrN. Combines with a tough, thermal-resistant substrate for long and stable tool life.
K Cast Iron	ACK280	91.7HRA	3.0	Super ZX Coat	3	· For heavy interrupted cutting and wet cutting of cast iron and ductile cast iron. · Employs new super multi-layered PVD coating consisting of nanometer-thin layers of TiAlN and AlCrN. · Coupled with an ultra-tough substrate for superior fracture resistance and thermal crack resistance during wet cutting.

■ GFV - Inch



Body

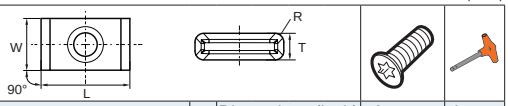
Inserts are sold separately. Left handed cutters are made to order. Dimensions (inch)

	Cat. No.	Stock	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth Roughing	Number of Teeth Wiper	Effective Cutting Diamater	Fig
Inch	GFV53000R	●	3.000	2.900	2.000	1.000	.375	.220	1.060	6	2	2.352	1
Inch	GFV54000R	●	4.000	3.380	2.000	1.500	.625	.385	1.060	10	2	3.342	1
Inch	GFV56000R	●	6.000	4.880	2.500	2.000	.761	.438	1.000	12	4	5.342	2
Inch	GFV58000R	●	8.000	6.040	2.500	2.500	1.00	-.560	1.595	20	4	7.342	3

Insert & Hardware

● USA stocked item

Dimensions (inch)



Catalog No.	Stock	Dimensions (inch) L	W	T	R	Insert Screw*	Insert Wrench
LNGX160516PNFN-W-K244L9	●	.625	.375	.187	.063	BFTX03588	TTX15W
LNGX160516PNFN-W-K246L9	●						
LNGX160516PNFN-W-SN2100K	●						
LNGX130516PNTN-W-BN7000**	●						

Parts

Wiper Cartridge*	Cartridge Mount Screw	Wrench for Cartridge Mount Screw	Axial Adjustment Screw	Wrench for Adjustment Screw
GFVK5R	BX0418	LT15	ED090225E	TTX15W

*Insert not included with cartridge

- Check each of the fixed pocket milling inserts to find the one at the highest setting.
- Load the wiper cartridges into the face mill body and torque the cartridge mount screw
- Adjust the wiper cartridge using the axial adjustment screw so that it is .0010" ~ .0012" above the highest fixed pocket milling insert

Parts - Special Wiper Cartridge

Special Wiper Cartridge*	Adjustment Screw	Wrench	Insert Screw		Wrench (For Adjustment Screw)	Cap Screw GFV5KR-13	Wrench (For Cartridges)	Anti-Seize Cream
				N·m				
GFV5KR-13	BTD05F09	TTX15W	BFTX03588	3.0	LT15	BX0414	TH030	SUMI-P

Finishing cartridges do not come assembled with inserts

*Insert not included with cartridge

Recommended Cutting Conditions

Gray Cast Iron				Ductile Cast Iron			
Grade	SFM	D.O.C.	IPT	Grade	SFM	D.O.C.	IPT
K244L9	450~1150	0.004~0.030	0.004~0.015	K244L9	450~800	0.004~0.030	0.004~0.015
K246L9	400~650			K246L9	400~600		
SN2100K	1000~3000	0.010~0.080	0.004~0.010				

*Greater depths of cut (up to 4mm) possible if wiper cartridges are removed.

NOTE: If the wiper inserts will be indexed without presetting the wiper cartridge heights again, the first preset height should be from 0.001" to 0.002" (0.025 to 0.050 mm) above the highest fixed pocket periphery insert.

Recommended Cutting Conditions - BN7000

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
K	Cast Iron	250HB	2640 - 3960	.0039 - .0197	BN7000

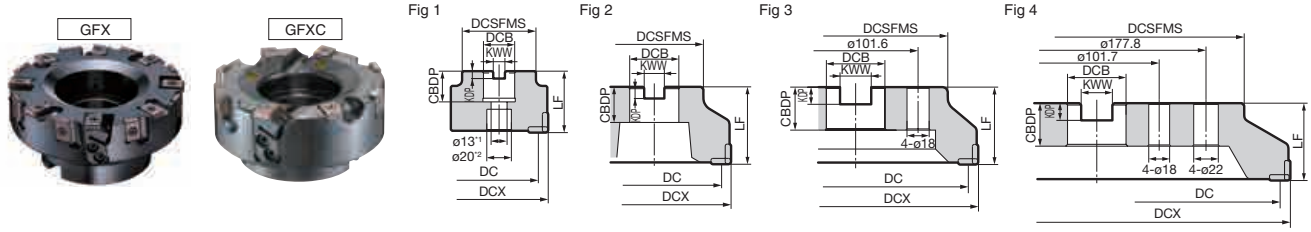
Note: Calculate cutting conditions based on effective no. of teeth.

GFX 13000 / GFXC 13000

K Cast Iron

Rake Angle		
	Radial	-8°
	Axial	-5°

1 mm 89°~89°30'



Body (GFX 13000)

Dimensions (mm)

	Cat. No.	Stock R	Stock L	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Total Number of Teeth	Finishing Number of Teeth	Effective Number of Teeth	Weight (kg)	Fig
Inch Arbor	**GFX13080R/L**	●		***80**	67.3	60	50	**25.4**	9.5	6	25	8	2	8	1.4	1
	GFX13100R/L	●		**100**	87.3	70	50	**31.75**	12.7	8	32	12	3	12	1.9	2
	GFX13125R/L	●		**125**	112.3	80	63	**38.1**	15.9	10	38	16	4	16	3.3	2
	GFX13160R/L	●		**160**	147.3	120	63	**50.8**	19	11	38	20	5	20	6.4	2
	GFX13200R/L			**200**	187.3	150	63	**47.625**	25.4	14	35	28	7	28	7.8	3
	GFX13250R/L			**250**	237.3	200	63	**47.625**	25.4	14	35	36	9	36	12.6	3
	GFX13315R/L			**315**	302.3	240	80	**47.625**	25.4	14	35	44	11	44	20.2	4

Body (GFXC 13000 Coarse Pitch)

Dimensions (mm)

	Cat. No.	Stock R	Stock L	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Total Number of Teeth	Finishing Number of Teeth	Effective Number of Teeth	Weight (kg)	Fig
Metric	**GFXC13063RS/LS**	●		**63**	50.3	50	50	**22**	10.4	6	20	4	1	4	0.9	1
Inch Arbor	**GFXC13080R/L**	●		***80**	67.3	60	50	**25.4**	9.5	6	25	6	1	6	1.4	1
	GFXC13100R/L	●		**100**	87.3	70	50	**31.75**	12.7	8	32	8	2	8	1.9	2
	GFXC13125R/L	●		**125**	112.3	80	63	**38.1**	15.9	10	38	10	2	10	3.3	2
	GFXC13160R/L	●		**160**	147.3	120	63	**50.8**	19	11	38	12	3	12	6.4	2
	GFXC13200R/L	●		**200**	187.3	150	63	**47.625**	25.4	14	35	16	4	16	7.8	3
	GFXC13250R/L	●		**250**	237.3	184	63	**47.625**	25.4	14	35	20	5	20	9.4	3
	GFXC13315R/L	●		**315**	302.3	240	80	**47.625**	25.4	14	35	24	6	24	17.9	4

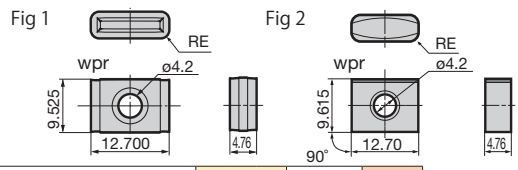
*1 GFXC13063RS/LS is ø11.
*2 GFXC13063RS/LS is ø18.
Inserts are sold separately.

● USA stocked item

For securing the ø80mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (M12 x 30 to 35mm).

Insert

Dimensions (mm)

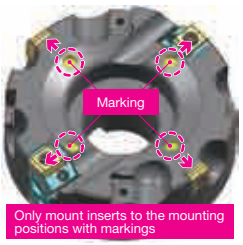


	Grade	Coated Carbide			Carbide	CBN
Process	High-speed Finishing					K
	Finishing / Medium Cutting	K				
	Roughing		K	K		

Cat. No.	ACK260	ACK280	ACK300	H10E	BN7000	Nose Radius RE	Wiper Facet Length wpr	Fig
LNGX130508PNFN-W	●	●		●	-	0.8	1.6	1
LNGX130516PNFN-W	●	●		●	-	1.6	1.6	1
LNGX130516PNTN-W	-	-	-	-	●	1.6	1.6	2

Precautions for Use of GFXC

GFXC can be used with fewer teeth attached. In this case, only mount inserts to the mounting positions with markings. Remove the screws from the mounting positions where inserts will not be mounted.



No. of GFXC inserts for all teeth mounted versus mounted number of teeth reduced.

Cat. No.	Diameter DC	Total No. of Teeth	Mounted No. of Teeth Reduced	Cat. No.	Diameter DC	Total No. of Teeth	Mounted No. of Teeth Reduced
GFXC13063RS/LS	*63mm*	4	**2**	**GFXC13160R/L**	*160mm*	12	**6**
GFXC13080R/L	*80mm*	6	**2**	**GFXC13200R/L**	*200mm*	16	**8**
GFXC13100R/L	*100mm*	8	**4**	**GFXC13250R/L**	*250mm*	20	**10**
GFXC13125R/L	*125mm*	10	**4**	**GFXC13315R/L**	*315mm*	24	**12**

The number of inserts mounted should always match either the "Total No. of Teeth" or "Mounted No. of Teeth Reduced" quantities.

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
K	Cast Iron	250HB	200-350	0.1-0.5	ACK260
K	Cast Iron	250HB	800-1,200	0.1-0.5	BN7000

Note Calculate cutting conditions based on effective no. of teeth.

GFX 16000

K Cast Iron

Rake Angle		
	Radial	-8°
	Axial	-5°

1 mm 89°~89°30'

Fig 1

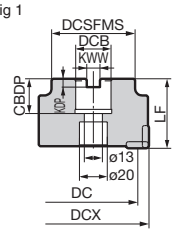


Fig 2

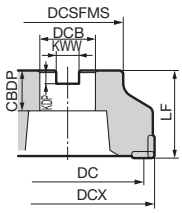


Fig 3

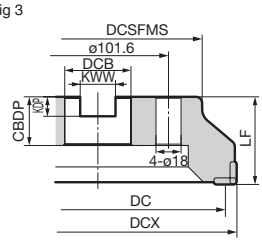
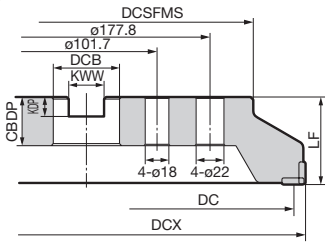


Fig 4



Body (GFX 16000)

Dimensions (mm)

	Cat. No.	Stock R	Stock L	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Total Number of Teeth	Finishing Number of Teeth	Effective Number of Teeth	Weight (kg)	Fig
Inch Arbor	**GFX16080R/L**			***80**	64.1	60	50	**25.4**	9.5	6	25	8	2	8	1.4	1
	GFX16100R/L	●		**100**	84.1	70	50	**31.75**	12.7	8	32	12	3	12	1.9	2
	GFX16125R/L	●		**125**	109.1	80	63	**38.1**	15.9	10	38	16	4	16	3.3	2
	GFX16160R/L	●		**160**	144.1	120	63	**50.8**	19	11	38	20	5	20	6.4	2
	GFX16200R/L	●		**200**	184.1	150	63	**47.625**	25.4	14	35	28	7	28	7.8	3
	GFX16250R/L			**250**	234.1	200	63	**47.625**	25.4	14	35	36	9	36	12.6	3
	GFX16315R/L			**315**	299.1	240	80	**47.625**	25.4	14	35	44	11	44	20.2	4

Inserts are sold separately.

For securing the ø80mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (M12 x 30 to 35mm).

● USA stocked item

Insert

Dimensions (mm)

Grade		Coated Carbide			Carbide	CBN		
Process	High-speed Finishing					K		
	Finishing / Medium Cutting	K						
	Roughing		K	K				
Cat. No.		ACK260	ACK280	ACK300	H10E	BN7000	Wiper Facet Length wpr	Fig
LNGX160516PNFN-W		●	●		●	-	1.6	1
LNGX160516PNTN-W		-	-	-	-		1.6	2

Fig 1

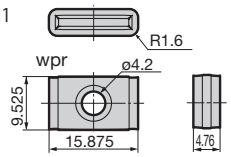
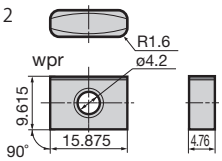


Fig 2



Parts

Cartridges (For 13000)	Cartridges (For 16000)	Adjustment Screw	Wrench	Insert Screw		Wrench (For Adjustment Screw)	Cap Screw/Radial Cartridge (For GFXK4R/L)	Cap Screw/Radial Cartridge (For GFVK5R/L)	Wrench (For Cartridges)	Anti-seize Cream
					N·m					
GFXK4R/L	GFVK5R/L	BTD05F09	TTX15W	BFTX03588	3.0	LT15	BX0414	BX0418	TH030	SUMI-P

Finishing cartridges do not come assembled with inserts.

- Permissible Spindle Speed for CBN Inserts by Size

Nominal Diameter (mm)	Allowable Spindle Speed (min⁻¹) n max.
ø63	6,000
ø80	4,700
ø100	3,800
ø125	3,000

Nominal Diameter (mm)	Allowable Spindle Speed (min⁻¹) n max.
ø160	2,300
ø200	1,900
ø250	1,500
ø315	1,200

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
K	Cast Iron	250HB	200-350	0.1-0.5	ACK260
K	Cast Iron	250HB	800-1,200	0.1-0.5	BN7000

Note Calculate cutting conditions based on effective no. of teeth.

N·m Recommended Tightening Torque (N·m)

GFS 13000

K Cast Iron

Rake Angle	Radial	-11°
	Axial	-3°

10mm 90°

Fig 1

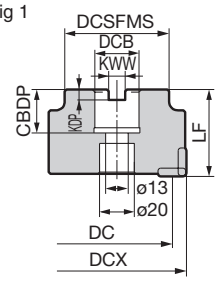
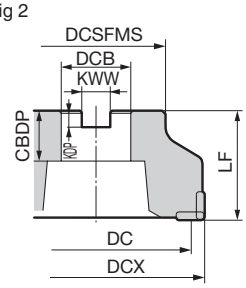


Fig 2



Body

Dimensions (mm)

	Cat. No.	Stock R	Stock L	Max. Dia. DCX	Dia. DC	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Total Number of Teeth	Finishing Number of Teeth	Effective Number of Teeth	Weight (kg)	Fig
Inch Arbor	**GFS13080R/L**			***80**	66.9	60	50	**25.4**	9.5	6	25	5	1	4	1.4	1
	GFS13100R/L			**100**	86.9	70	50	**31.75**	12.7	8	32	6	1	5	1.9	2
	GFS13125R/L			**125**	111.9	80	63	**38.1**	15.9	10	38	8	2	6	3.3	2
	GFS13160R/L			**160**	147.3	120	63	**50.8**	19	11	38	10	2	8	6.4	2

Inserts are sold separately. Made to Order

For securing the ø80mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (M12 x 30 to 35mm).

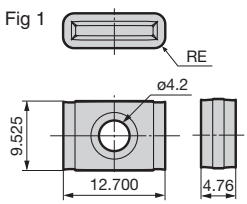
Insert

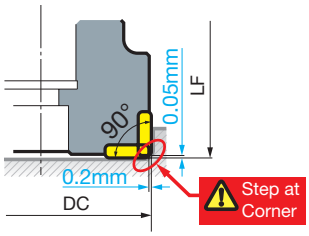
Dimensions (mm)

Grade		Coated Carbide			Carbide
Process	High-speed / Light	K			K
	General-purpose	K			
	Roughing		K	K	
Cat. No.		ACK260	ACK280	ACK300	H10E
LNGX130508PNFN-W		●	●		●
LNGX130516PNFN-W		●	●		●

Nose Radius RE	Fig
0.8	1
1.6	1

Fig 1





Parts

Finishing Cartridges*	Adjustment Screw	Wrench	Insert Screw		Wrench (For Adjustment)	Cap Screw (For Cartridges)	Wrench (For Cartridges)	Anti-seize Cream
GFSK4R/L	BTD05F09	TTX15W	BFTX03588	3.0	LT15	BX0520	TH040	SUMI-P

* marked finishing cartridges do not come assembled with inserts.

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
K	Cast Iron	250HB	200-300	0.10-0.30	ACK260

Note Calculate cutting conditions based on effective no. of teeth.

N·m Recommended Tightening Torque (N·m)

GRHNM 17000

K Cast Iron

Rake Angle		
	Radial	-6°30' to -5°
	Axial	-6°

6mm / 60°

Fig 1

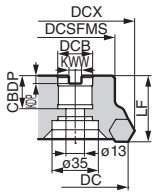


Fig 2

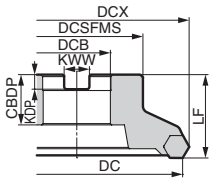


Fig 3

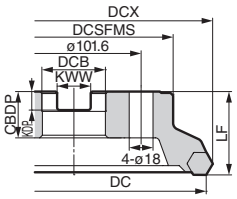
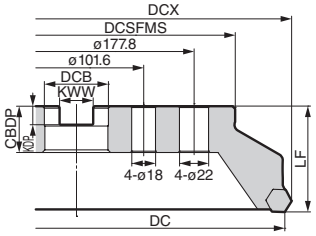


Fig 4



Body

Dimensions (mm)

	Cat. No.	Stock R	Stock L	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Total Number of Teeth	Weight (kg)	Fig
Inch Arbor	**GRHNM17080R/L**	●		***80**	90.5	60	50	**25.4**	9.5	6	25	8	1.2	1
	GRHNM17100R/L	●		**100**	110.5	70	50	**31.75**	12.7	8	32	10	1.7	2
	GRHNM17125R/L	●		**125**	135.5	80	63	**38.1**	15.9	10	38	12	2.9	2
	GRHNM17160R/L	●		**160**	170.5	100	63	**50.8**	19.1	11	38	16	4.5	2
	GRHNM17200R/L	●		**200**	210.5	150	63	**47.625**	25.4	14	35	20	7.3	3
	GRHNM17250R/L	●		**250**	260.5	200	63	**47.625**	25.4	14	35	24	13.1	3
	GRHNM17315R/L	●		**315**	325.5	240	80	**47.625**	25.4	14	35	28	24.5	4

Inserts are sold separately.

For securing the ø80mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (M12 x 30 to 35mm).

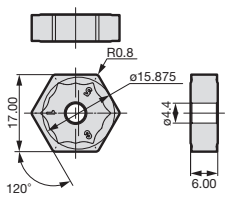
● USA stocked item

Insert

Dimensions (mm)

Grade		Coated Carbide			
Process	High-speed / Light	K	K		
	General-purpose	K	K		
	Roughing			K	
Cat. No.		ACK100	ACK200	ACK300	Fig
HNEF100608DNEN-G		●	●	●	1

Fig 1



Parts

Double Screw		Clamp	Wrench
	N·m		
WB6-20T	6.0	GRHNW	TTX20

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
K	Cast Iron	250HB	200--300	0.15--0.30	ACK200

Note Calculate cutting conditions based on effective no. of teeth.

N·m Recommended Tightening Torque (N·m)

GRHNF 17000

K Cast Iron

Rake Angle		
	Radial	-6°30' to -5°
	Axial	-6°

6mm / 60°

Fig 1

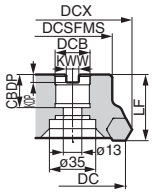


Fig 2

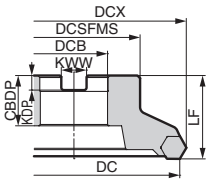


Fig 3

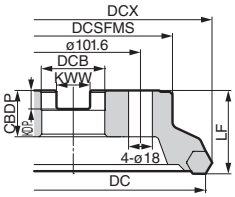
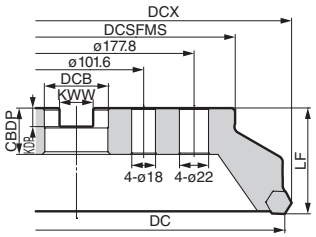


Fig 4



Body

Dimensions (*mm*)

	Cat. No.	Stock R	Stock L	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Total Number of Teeth	Weight (kg)	Fig
Metric	**GRHNF17080R/L**	★		*80	90.5	60	50	25.4	9.5	6	25	10	1.2	1
	GRHNF17100R/L	★		100	110.5	70	50	31.75	12.7	8	32	14	1.8	2
	GRHNF17125R/L	★		125	135.5	80	63	38.1	15.9	10	38	18	2.9	2
	GRHNF17160R/L	★		160	170.5	100	63	50.8	19.1	11	38	22	4.5	2
	GRHNF17200R/L	★		200	210.5	150	63	47.625	25.4	14	35	28	7.3	3
	GRHNF17250R/L	★		250	260.5	200	63	47.625	25.4	14	35	36	13.1	3
	GRHNF17315R/L	★		315	325.5	240	80	47.625	25.4	14	35	44	24.5	4

Inserts are sold separately.

For securing the ø80mm cutters to the arbors marked with *, use a JIS B1176 hexagonal socket bolt (M12 x 30 to 35mm).

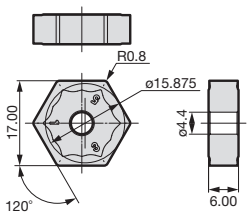
● USA stocked item ★ Worldwide Warehouse item

Insert

Dimensions (*mm*)

Grade		Coated Carbide			
Process	High-speed / Light	K	K		
	General-purpose	K	K		
	Roughing			K	
Cat. No.		ACK100	ACK200	ACK300	Fig
HNEF100608DNEN-G		●	●	●	1

Fig 1



Parts

Double Screw		Clamp	Wrench
WB6-20T	6.0	GRHNW	TTX20

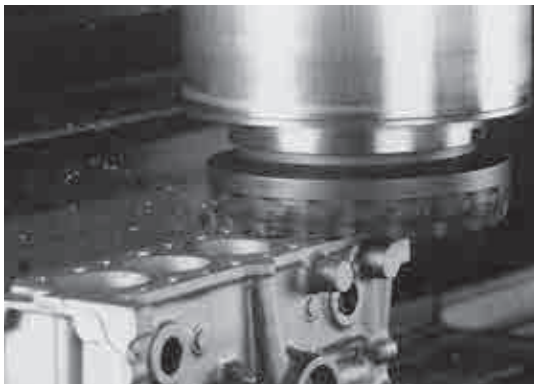
Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - Max.	Feed Rate f_z (mm/t) Min. - Max.	Insert Grade
K	Cast Iron	250HB	200-300	0.15-0.30	ACK200

Note Calculate cutting conditions based on effective no. of teeth.

N·m Recommended Tightening Torque (N·m)

High-Feed Facemills



■ General Features

Sumitomo Electric Hardmetal High Feed facemills achieve high-performance milling particularly suited for cast irons, aluminum and light alloys. Cutting edge reference system design is rugged, simple and easy to maintain.
A range of facemills are available to suit various applications.

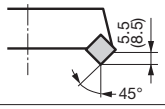
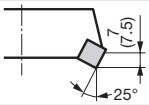
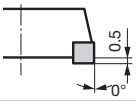
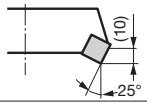
■ Series Common Features

- Dedicated cutter for high-feed machining of cast iron and light alloys
- Cutting edge reference system provides simple, easy and fast runout management.
- Fine pitch cutter design (*3 teeth per inch) is ideal for high-efficiency machining
  Cutting edge O.D. inch conversion (example: ø100 ≈ 4 inches x 3 = 12 blades)
- An excellent range of cutter designs and insert grades to suit various applications
- Quick change system enabling fast replacement of cutter

	Cat. No.	Specifications	Applicable Cutter Size
(1)	F Type/NF*	Quick Change System	*ø160mm* and below
(2)	2-piece	2-piece set indication	*ø200mm* and above
(3)		Two-piece cutter with centre bolt	

* The Quick Change System NF type is a made-to-order item. For details, please contact us directly.

■ Type / Specifications

Applications		Cat. No.	Approach Angle & Maximum Depth of Cut ( ) for 5000 Type	Rake Angle		Insert Cat. No.
Applications	Surface Roughness			Axial Rake	Radial Rake	
Roughing	25S	**NRV 4000**		-5°	-6°	SNC43MW
		NRV 5000				SNC535
Roughing / Finishing	18S	**DPV 4000**		+10°	+5°	SDCN42R/L
		DPV 5000				SDCN53R/L
Finishing	12.5S	**NFV 4000**		-5°	-6°	6SS43M
		NFV 5000				6SS53M
Roughing / Finishing of Light Alloy	12.5S	**APV 5000**		+18°	-2°	SDC53R/L

■ Recommended Cutting Conditions

Cat. No.	Insert Cat. No.	Insert Grade	Cutting Conditions (Min. - Max.)		
			v_c(m /min)	f_z(mm/t)	a_p (*mm*)
NRV 4000	SNC43MW	ACK200	80 - 120	0.1 - 0.2	*up to 3*
NRV 5000	SNC535	ACK200	80 - 120	0.1 - 0.2	*up to 3*
DPV 4000	SDCN42R/L	G10E	80 - 120	0.1 - 0.2	*up to 3*
DPV 5000	SDCN53R/L	G10E	80 - 120	0.1- 0.2	*up to 5*
NFV 4000	6SS43M	H10E	120 - 200	0.1 - 0.2	*up to 0.5*
NFV 5000	6SS53M	H10E	120 - 200	0.1 - 0.2	*up to 0.5*
APV 5000	SDC53R/L	H1	< 400	0.1 - 0.3	*up to 3*

Cutting Edge Reference System

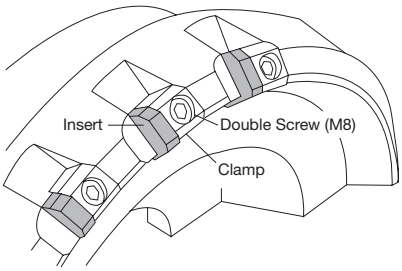
■ General Features

Conventional indexable cutters are designed to position and clamp two or three faces of the insert with locators, etc. The cutting edge reference cutter, on the other hand, retains the insert only with a clamp. (See Fig. 1) This system is adopted for our entire high-feed cutter series.

■ Features of the Cutting Edge Reference Cutter

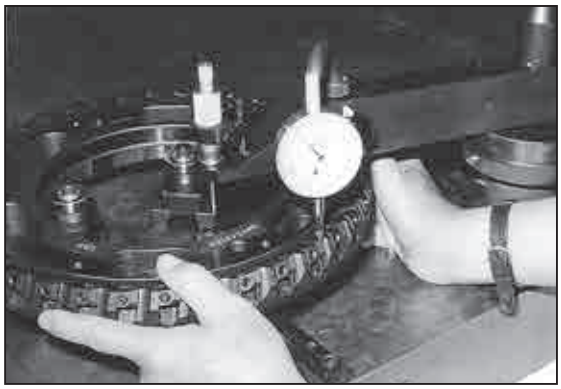
- Axial runout of the inserts is kept within 5 to 10μm to ensure stable surface roughness and longer tool life.
- Simple design with fewer parts compared to the locator type facilitates cleaning the typical cast iron machining dirt and is comparatively inexpensive.
- Fewer parts allow high-density cutter design, higher machining efficiency and longer tool life.

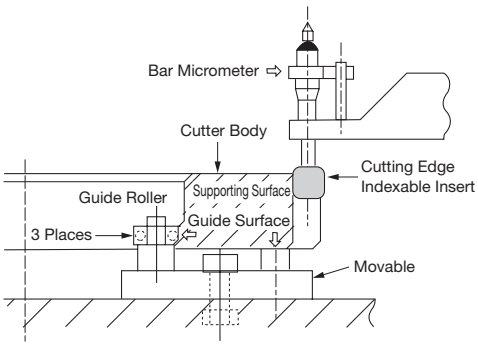
Fig. 1



■ Assembly Jig

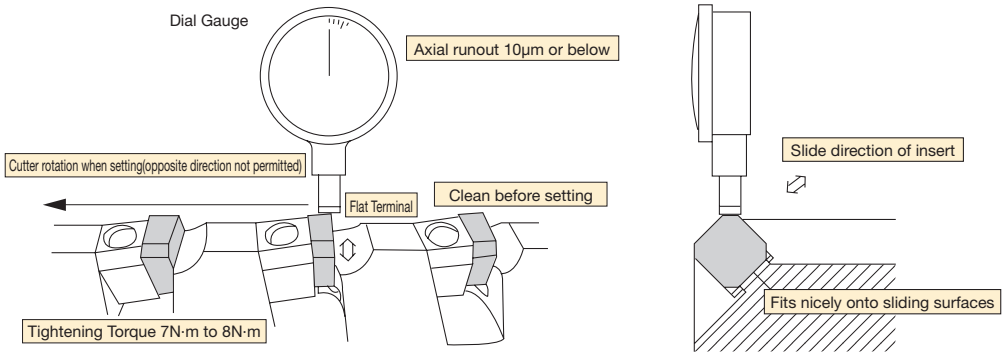
Application of a special assembly jig (as shown in the figure below) is recommended to accurately assemble the cutting edge reference cutter.





■ Insert Assembly Guidelines

When mounting (assembling) the inserts, pay careful attention to the points noted below in ☐.



NRV 4000 / 5000

Rake Angle		
	Radial	-6°
	Axial	-5°

5.5mm 45° (4000 Type)

8.5mm 45° (5000 Type)

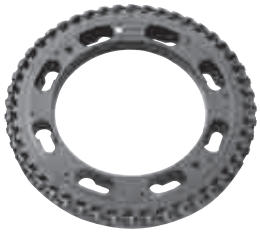


Fig 1

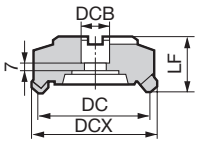
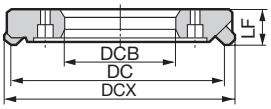


Fig 2



Body

Dimensions (*mm*)

Classification		Cat. No.	Stock R	Stock L	Dia. DC	Max. Dia. DCX*	Bore Dia. DCB	Height LF	Number of Teeth	Weight (kg)	Fig
Inch	F Type	**NRV100QR/L**			*100*	*112(118)*	*31.75*	*60*	10	2.7	1
		NRV125QR/L			*125*	*137(143)*	*38.1*	*60*	14	3.8	1
		NRV160QR/L			*160*	*172(177)*	*50.8*	*60*	18	6.3	1
	2-piece type	**NRVZ200R/L**			*200*	*212(218)*	*80*	*40*	24	5.8	2
		NRVZ250R/L			*250*	*262(268)*	*120*	*40*	30	9.0	2
		NRVZ315R/L			*315*	*326(332)*	*180*	*40*	36	12.5	2
		NRVZ355R/L			*355*	*366(372)*	*220*	*40*	42	15.5	2
		NRVZ400R/L			*400*	*411(417)*	*250*	*40*	48	18.8	2
		NRVZ450R/L			*450*	*461(467)*	*300*	*40*	54	22.0	2

Inserts are sold separately. Made to Order
Put 4 or 5 in "○" in the catalogue number.
Refer to page H251 for special arbors for the type of cutters shown in Fig. 1.
Refer to page H251 for dedicated adapters for the type of cutters shown in Fig. 2.
* marked dimensions in ( ) are for the 5000.

Insert

Dimensions (*mm*)

Grade		Coated Carbide		Carbide
Process	High-speed / Light	K		
	General-purpose	K		K
	Roughing		K	

Cat. No.	ACK200	ACK300	G10E	Inscribed Circle IC	Chamfer CHW	Nose Radius RE	Fig	Applicable Cutter
SNC43MW			●	*12.70*	*3.0*	-	1	NRV4000
SNC433				*12.70*	-	*1.2*	2	NRV4000
SNC434				*12.70*	-	*1.6*	2	NRV4000
SNC435				*12.70*	-	*2.0*	2	NRV4000
SNC436				*12.70*	-	*2.4*	2	NRV4000
SNC535				*15.875*	-	*2.0*	3	NRV5000
SNMN432			●	*12.70*	-	*0.8*	3	NRV4000
SNMN433		●	●	*12.70*	-	*1.2*	3	NRV4000
SNMN434				*12.70*	-	*1.6*	3	NRV4000
SNMN435				*12.70*	-	*2.0*	3	NRV4000
SNMN436				*12.70*	-	*2.4*	3	NRV4000

● USA stocked item

Fig 1

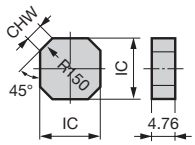


Fig 2

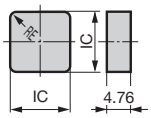
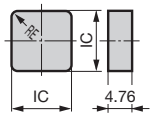


Fig 3



Parts

Applicable Cutters	Clamp ø160 and below	Clamp ø200 and above	Double Screw	Wrench	Jig
NRV4000R	NW41RR	NW42RR	WB6-20	TH030	· Arbor for F · Adapter for 2-piece type
NRV4000L	NW41RL	NW42RL			
NRV5000R	NW51R	NW52R	WV6-20		
NRV5000L	NW51L	NW52L			

DPV 4000 / 5000

K Cast Iron

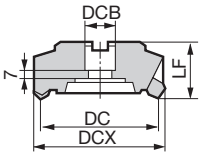
Rake Angle		
	Radial	5°
	Axial	10°

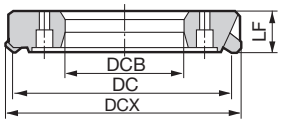
7mm / 65° (4000 Type)

7.5mm / 65° (5000 Type)

Fig 1

Fig 2





Body

Dimensions (*mm*)

Classification		Cat. No.	Stock R	Stock L	Dia. DC	Max. Dia. DCX*	Bore Dia. DCB	Height LF	Number of Teeth 4000	Number of Teeth 5000	Weight (kg)	Fig
Inch	F Type	**DPV100QR/L**			*100*	*107.2(109.6)*	*31.75*	*60*	12	10	2.6	1
		DPV125QR/L			*125*	*131.5(133.6)*	*38.1*	*60*	16	14	3.6	1
		DPV160QR/L			*160*	*165.8(176.6)*	*50.8*	*60*	20	18	6.0	1
	2-piece type	**DPVZ200R/L**			*200*	*206.5(208)*	*80*	*40*	26	24	5.5	2
		DPVZ250R/L			*250*	*256 (258)*	*120*	*40*	32	32	9.0	2
		DPVZ315R/L			*315*	*322.5(323)*	*180*	*40*	38	36	12.0	2
		DPVZ355R/L			*355*	*361.5(363)*	*220*	*40*	44	42	15.0	2
		DPVZ400R/L			*400*	*406.5(408)*	*250*	*40*	50	48	17.8	2
		DPVZ450R/L			*450*	*456.5(458)*	*300*	*40*	56	54	20.8	2

Inserts are sold separately. Made to Order
Put 4 or 5 in "○" in the catalogue number.
Refer to page H251 for special arbors for the type of cutters shown in Fig. 1.
Refer to page H251 for dedicated adapters for the type of cutters shown in Fig. 2.
* marked dimensions in ( ) are for the 5000 type.

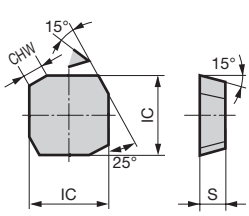
Insert

Dimensions (*mm*)

Grade		Coated Carbide		Carbide
Process	High-speed / Light	K		K
	General-purpose	K		
	Roughing		K	

Cat. No.	ACK200	ACK300	H10E	Inscribed Circle IC	Thickness S	Chamfer CHW	Applicable Cutter	Fig
SDCN42R			●	*12.70*	*3.18*	*3.5*	DPV4000R	1
SDCN42L			●	*12.70*	*3.18*	*3.5*	DPV4000L	1
SDCN53R			●	*15.875*	*5.0*	*5.0*	DPV5000R	1
SDCN53L				*15.875*	*5.0*	*5.0*	DPV5000L	1

Fig 1



Parts

● USA stocked item

Applicable Cutter	Clamp ø160 and below	Clamp ø200 and above	Double Screw	Wrench	Jig
DPV4000R	HTW40R	HTW41R	WB6-20	TH030	· Arbor for F Type · Adapter for 2-piece type
DPV4000L	HTW40L	HTW41L			
DPV5000R	HTW50R	HTW51R	WB6-20		
DPV5000L	HTW50L	HTW51L			

NFV 4000 / 5000

K Cast Iron

Rake Angle	Radial	-6°
	Axial	-5°

0.5mm 90°

Fig 1

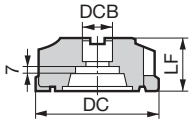
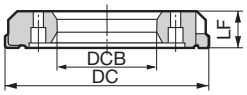


Fig 2



Body

Dimensions (*mm*)

Classification		Cat. No.	Stock R	Stock L	Dia. DC	Bore Dia. DCB	Height LF	Number of Teeth	Weight (kg)	Fig
Inch	F Type	**NFV100QR/L**			*100*	*31.75*	*60*	10	2.6	1
		NFV125QR/L			*125*	*38.1*	*60*	14	3.9	1
		NFV160QR/L			*160*	*50.8*	*60*	18	6.3	1
	2-piece type	**NFVZ200R/L**			*200*	*80*	*40*	24	5.3	2
		NFVZ250R/L			*250*	*120*	*40*	30	9.0	2
		NFVZ315R/L			*315*	*180*	*40*	36	11.3	2
		NFVZ355R/L			*355*	*220*	*40*	42	14.0	2
		NFVZ400R/L			*400*	*250*	*40*	48	16.5	2
		NFVZ450R/L			*450*	*300*	*40*	54	21.0	2

Inserts are sold separately. Made to Order.
Put 4 or 5 in "○" in the catalogue number.
Refer to page H251 for special arbors for the type of cutters shown in Fig. 1.
Refer to page H251 for dedicated adapters for the type of cutters shown in Fig. 2.

Insert

Dimensions (*mm*)

Grade		Carbide
Process	High-speed / Light	K
	General-purpose	
	Roughing	

Cat. No.	H10E	Inscribed Circle IC	Thickness S	Applicable Cutter	Fig
SNE 43W	●	*12.70*	*4.76*	NFV4000	1
6SS43M	●	*12.70*	*4.76*	NFV4000	2
SNEF53W	●	*15.875*	*4.76*	NFV5000	1
SNEF53WT		*15.875*	*4.76*	NFV5000	1
6SS53M	●	*15.875*	*4.76*	NFV5000	2
SNEN535W		*15.875*	*4.76*	NFV5000	3

Fig 1

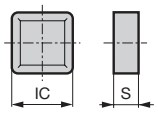


Fig 2

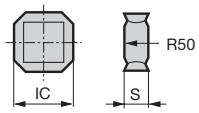
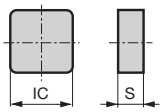


Fig 3



● USA stocked item

Recommended Cutting Conditions ☞ H245

Parts

Applicable Cutter	Clamp ø160 and below	Clamp ø200 and above	Double Screw	Wrench	Jig
NFV4000R	NW41FR	NW42FR	WB6-20	TH030	· Arbor for F Type · Adapter for 2-piece type
NFV4000L	NW41FL	NW42FL			
NFV5000R	NW51R	NW52R			
NFV5000L	NW51L	NW52L			

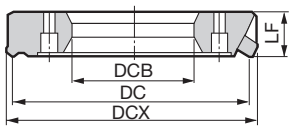
APV 5000

P Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy

Rake Angle		
	Radial	-2°
	Axial	18°

10mm / 65°

Fig 1



Body

Dimensions (mm)

Classification		Cat. No.	Stock R	Stock L	Dia. DC	Max. Dia. DCX	Bore Dia. DCB	Height LF	Number of Teeth	Weight (kg)	Fig
Inch	2-piece type	**APVZ5200R/L**			**200**	211	**80**	40	18	7.0	1
		APVZ5250R/L			**250**	261	**120**	40	22	10.8	1
		APVZ5315R/L			**315**	326	**180**	40	26	13.7	1
		APVZ5355R/L			**355**	366	**220**	40	32	16.3	1
		APVZ5400R/L			**400**	411	**250**	40	36	20.0	1
		APVZ5450R/L			**450**	461	**300**	40	40	23.6	1

Inserts are sold separately. Made to Order.

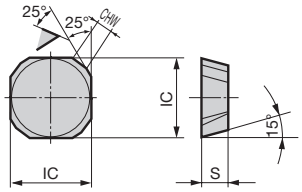
Insert

Dimensions (mm)

Grade		Carbide		Cermet
Process	High-speed / Light		K N	
	General-purpose	P		P
	Roughing			

Cat. No.	A30N	H1	T250A	Inscribed Circle IC	Thickness S	Chamfer CHW	Applicable Cutter	Fig
SDC53R		●		15.88	4.76	2.5	APV5000R	1
SDC53L		●		15.88	4.76	2.5	APV5000L	1
SDC53TR	●			15.88	4.76	2.5	APV5000R	1
SDC53TL				15.88	4.76	2.5	APV5000L	1
SDC53TR-R				15.88	4.76	2.5	APV5000R	1
SDCH53TR	●			15.88	4.76	2.5	APV5000R	1
SDCH53TR-R				15.88	4.76	2.5	APV5000R	1

Fig 1



● USA stocked item

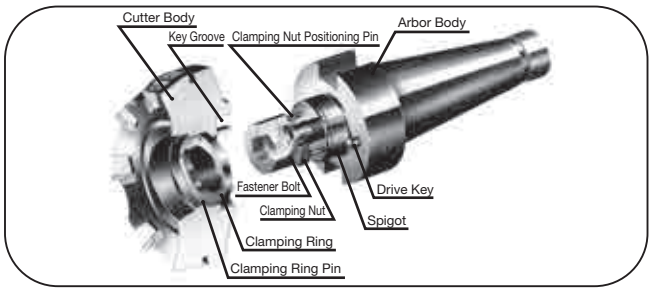
Parts

Applicable Cutter	Clamp ø200 and above	Double Screw	Wrench	Jig
APV5000R	AW52R	WB6-20	TH030	· Adapter for 2-piece type
APV5000L	AW52L			

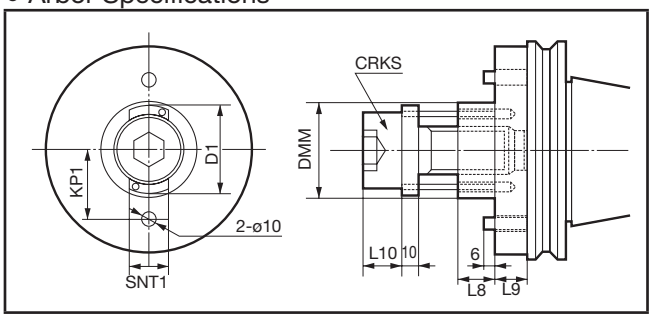
QC System

■ Quick-F Series

● Structure



● Arbor Specifications



Dimensions (mm)

Cat. No.	Shank DMM	Bolt D1	Screw CRKS	Key Groove Width SNT1	Length L8	Length L9	Length L10	Key Position KP1
○○○○QF4R/L	31.75	30.75	M14 P2.0	18	22	22	13	27.5
○○○○QF5R/L	38.10	37.10	M16 P2.0	20	20	24	14	27.5
○○○○QF6R/L	50.80	49.80	M20 P2.5	24	20	30	16	34

Enter the taper code in the ○ mark. (Example: BT50-QF4R)

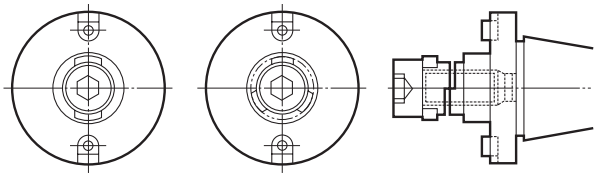
● Features and Applications

(1) Requires less time for mounting and removing.
(2) Can be used with cutter diameters of 4" (ø100) to 6" (ø160).

■ Quick-NF Series (Applicable to cutter diameters of 3" (ø80) to 6" (ø160))

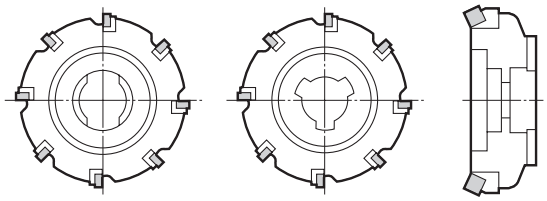
* Made-to-order item. Please contact us directly when ordering.

● Arbor specifications



QNF3R/L to QNF5R/L Shape　　QNF6R/L Shape

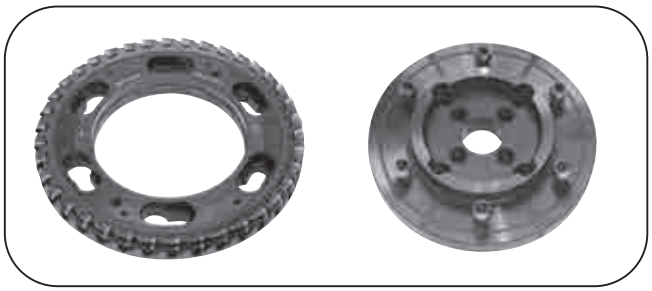
● Cutter specifications



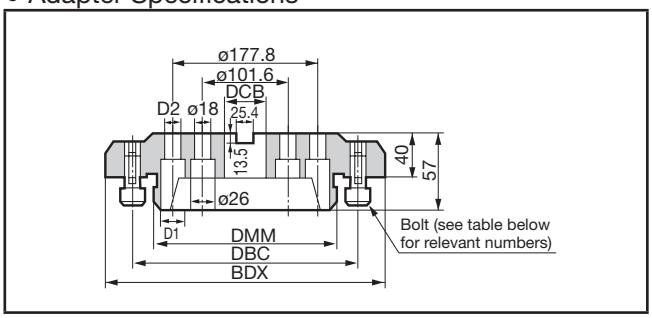
3 to 5 Inch　　6 Inch

■ Two-Piece Cutter with Slotted Hole

● Appearance of Slotted Hole Type Body



● Adapter Specifications



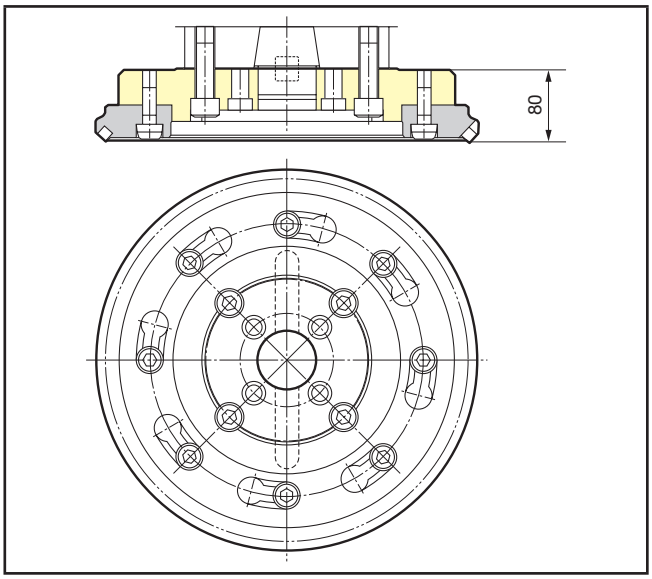
Dimensions (mm)

Cat. No.	Shank DMM	Max. O.D. BDX	Bore Dia. DCB	Bolt D1	Bolt D2	Hole Position DBC	No. of Bolts n	Cutter Size (mm)
QAD 200	80	180	47.625	—	—	120	4	ø200
250	120	230	47.625	—	—	170	4	ø250
315	180	295	47.625	32	22	230	6	ø315
355	220	335	63.50	32	22	270	6	ø355
400	250	370	63.50	32	22	300	6	ø400
450	300	420	63.50	32	22	350	6	ø450

● Features and Applications

(1) Lightweight ring cutter body.
(2) Cutter can be changed without removing the bolt.
(3) A tapered spline system is used to connect the adapter to the cutter.
(4) Can be used for cutters over ø200.
(5) Effective when mounting several cutter body sizes on the same adapter.

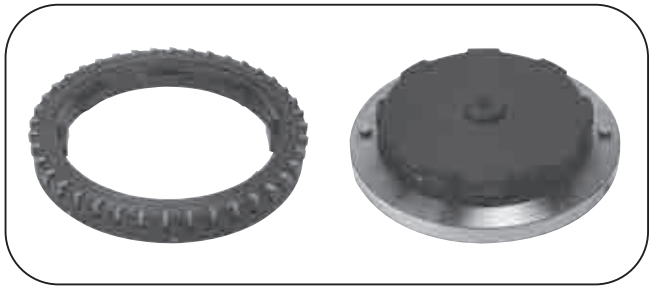
● Cutter Mounting Diagram



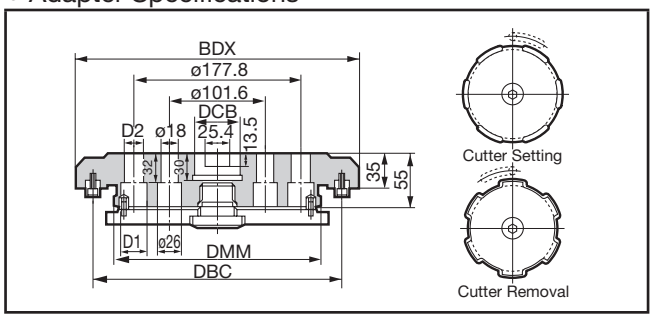
Applicable Cutters

■ Two-Piece Cutter with Centre Bolt

● Appearance



● Adapter Specifications



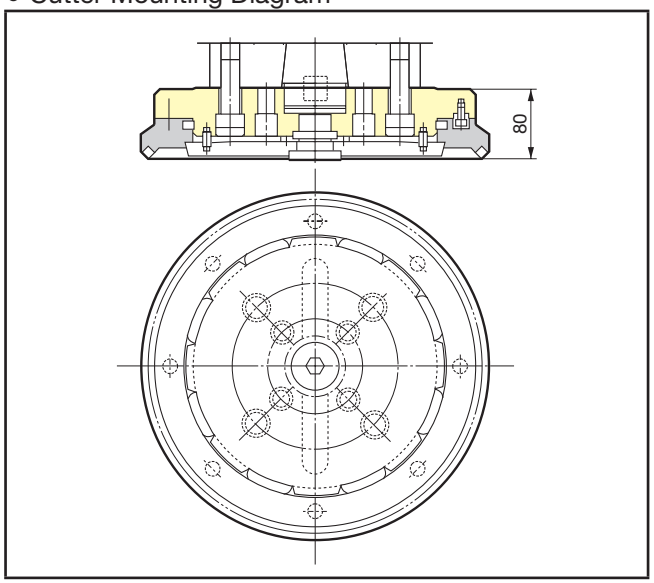
Dimensions (mm)

Cat. No.	Shank DMM	Max. O.D. BDX	Bore Dia. DCB	Bolt D1	Bolt D2	Hole Position DBC	Cutter Size (mm)
NQAD 200	105	180	**47.625**	—	—	155	ø200
250	155	240	**47.625**	—	—	205	ø250
315	220	305	**47.625**	32	22	270	ø315
355	260	345	**63.50**	32	22	310	ø355
400	305	390	**63.50**	32	22	355	ø400
450	355	440	**63.50**	32	22	405	ø450

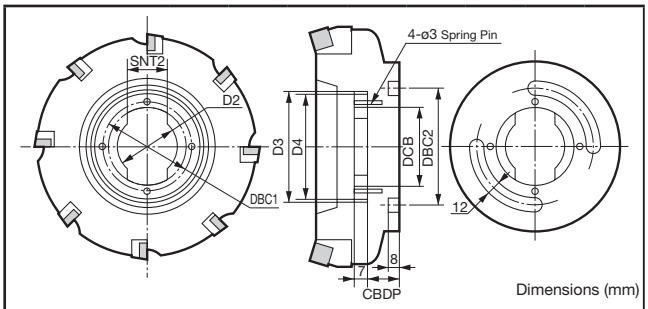
● Features and Applications

(1) With one clamping bolt, the total weight of the two-piece cutter is lighter.
(2) Cutter can be replaced quickly - simply turn one bolt halfway to mount and remove.
(3) A tapered spline system is used to connect the adapter to the cutter.
(4) Can be used for cutters over ø200.

● Cutter Mounting Diagram



■ Quick-F QF Cutter Specifications

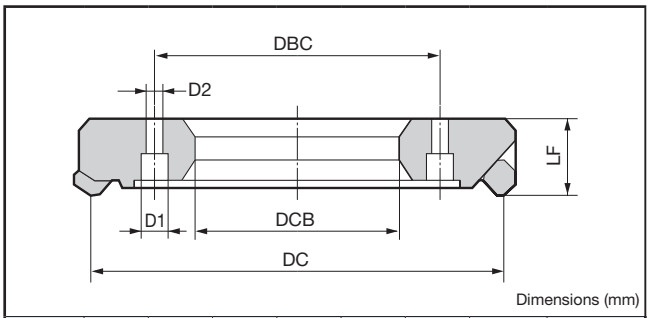


Dimensions (mm)

Cutter Size (mm)	Dia. DCB	Bolt D2	Bolt D3	Diameter D4	Hole position DBC1	Hole position DBC2	Key Groove Width SNT2	Mounting Depth CBDP
ø100	31.75	22	43.75	43.5	37.75	55	20	24
ø125	38.10	29	50.10	49.8	44.10	55	22	22
ø160	50.80	41	62.80	62.5	56.80	68	26	22

This design applies to all F type high-feed cutters (→ H234 to H237).
Conventional cutter can be easily adapted to quick change through slight modification.

■ QAD Cutter (Two-Piece) Specifications

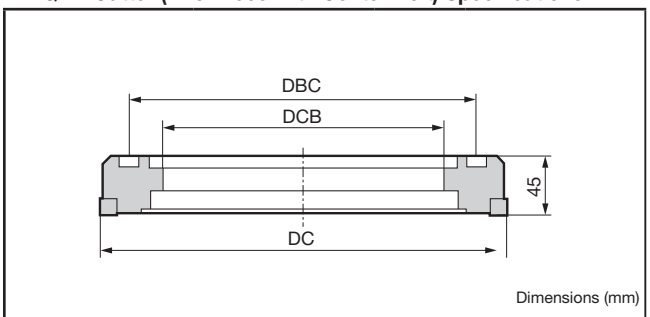


Dimensions (mm)

Cutter Size (mm)	Dia. DC	Bore Dia. DCB	Bolt D1	Bolt D2	Hole Position DBC	Height LF	Bolt Count	Adapter Cat. No.
ø200	**200**	**80**	24	14	120	40	4	QAD200
ø250	**250**	**120**	30	18	170	40	4	QAD250
ø315	**315**	**180**	30	18	230	40	6	QAD315
ø355	**355**	**220**	30	18	270	40	6	QAD355
ø400	**400**	**250**	30	18	300	40	8	QAD400
ø450	**450**	**300**	30	18	350	40	8	QAD450

This design applies to the 2-piece type high-feed cutters.

■ NQAD Cutter (Two-Piece with Center Bolt) Specifications



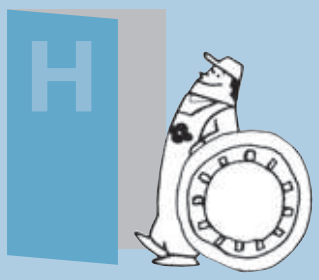
Dimensions (mm)

Cutter Size (mm)	Dia. DC	Bore Dia. DCB	Hole Position DBC	Adapter Cat. No.
ø200	**200**	**105**	155	NQAD200
ø250	**250**	**155**	205	NQAD250
ø315	**315**	**220**	270	NQAD315
ø355	**355**	**260**	310	NQAD355
ø400	**400**	**305**	355	NQAD400
ø450	**450**	**355**	405	NQAD450

This design applies to all two-piece type high feed cutters with a center bolt.

Discontinued Items - Milling
H253 to H262

H



WGC Series H254
UFO H255
APG/DNF H256
CHG/CPG H257
DPG Type H258
EHG/FPG H259
WEM/WRM/PWC H260
Spidermill H261
SMC Type H262

Stock Markings and Symbols	▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability).	Blank: Made-to-order item — mark: Not available

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

4mm 45° | 6mm 45°

Shank Endmill

Shellmill
Coarse Pitch

Shellmill
Fine Pitch

Insert

Dimensions (mm)

Grade		Coated Carbide					DLC	Carbide			Cermet	SUMIDIA	
Process	High-speed / Light	P			K		N			K N		N	N
	General-purpose		P M	M	K		N	P	K S		P	N	N
	Roughing		P M	P M		K						N	N
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	DL1000	A30N	EH520	H1	T250A	DA1000	DA2200
SEET0903AGFN-L		●	●	●	●	●	●			●			
SEET0903AGSN-G		●	●	●	●	●			●		●		
SEET0903AGSN-N		●	●	●	●	●					●		
SEMT0903AGSN-L		●	●	●	●	●							
SEMT0903AGSN-G		●	●	●	●	●		●					
SEET13T3AGFN-L		●	●	●	●	●	●		●	●			
SEET13T3AGSN-G		●	●	●	●	●			●		●		
SEET13T3AGSN-N		●	●	●	●	●		●			●		
SEMT13T3AGSN-L		●	●	●	●	●							
SEMT13T3AGSN-G		●	●	●	●	●		●					
SEMT13T3AGSN-H		●	●	●	●	●							
NF-SECW13T3AGTN-N												●	▲
NF-XEEW13T3AGFR-W												●	▲
XEEW13T3AGER-W						●					●		

Cat. No.	Applicable Cutter	Fig
SEET0903AGFN-L	WGC3000 Type	1
SEET0903AGSN-G		1
SEET0903AGSN-N		1
SEMT0903AGSN-L		1
SEMT0903AGSN-G		1
SEET13T3AGFN-L	WGC4000 Type WGCF4000 Type	2
SEET13T3AGSN-G		2
SEET13T3AGSN-N		2
SEMT13T3AGSN-L		2
SEMT13T3AGSN-G		2
SEMT13T3AGSN-H		2
NF-SECW13T3AGTN-N		2
NF-XEEW13T3AGFR-W		3
XEEW13T3AGER-W		3

Fig 1

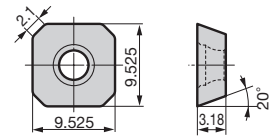


Fig 2

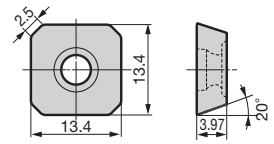
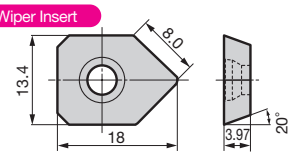


Fig 3

Wiper Insert



Spare Parts (Common)

Applicable Endmill	Shim	Shim Screw	Screw		Wrench	Wrench (For Shims)
WGC 3000RS Type	-	-	BFTX0307IP	N·m 2.0	TRDR10IP	-
WGC 4000RS Type WGCF 4000RS type	WGCS13R	BW0507F	BFTX03512IP	N·m 3.0	TRDR15IP	LH035

SUMI-P anti-seizure cream is included in the package.

Recommended Cutting Conditions WGC3000RS

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	General Steel	180 to 280 HB	150-**200**-250	0.10-**0.15**-0.20	ACP200
	Mild Steel	≤ 180HB	180-**250**-350	0.10-**0.18**-0.25	ACP200
	Die Steel	200 to 220 HB	100-**150**-200	0.15-**0.18**-0.20	ACP200
M	Stainless Steel	-	160-**200**-250	0.15-**0.18**-0.20	ACP300
K	Cast Iron	250HB	100-**200**-250	0.15-**0.18**-0.20	ACK200
N	Non-Ferrous Alloy	-	300-**500**-1,000	0.15-**0.18**-0.20	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WGC4000RS/WGCF4000RS

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	General Steel	180 to 280 HB	150-**200**-250	0.10-**0.20**-0.30	ACP200
	Mild Steel	≤ 180HB	180-**250**-350	0.10-**0.25**-0.40	ACP200
	Die Steel	200 to 220 HB	100-**150**-200	0.15-**0.20**-0.25	ACP200
M	Stainless Steel	-	160-**200**-250	0.15-**0.23**-0.30	ACP300
K	Cast Iron	250HB	100-**200**-250	0.15-**0.23**-0.30	ACK200
N	Non-Ferrous Alloy	-	300-**500**-1,000	0.15-**0.18**-0.20	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Recommended Cutting Conditions WGC3000EW

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	General Steel	180 to 280 HB	150-**200**-250	0.10-**0.15**-0.20	ACP200
	Mild Steel	≤ 180HB	180-**250**-350	0.10-**0.18**-0.25	ACP200
	Die Steel	200 to 220 HB	100-**150**-200	0.15-**0.18**-0.20	ACP200
M	Stainless Steel	-	160-**200**-250	0.15-**0.18**-0.20	ACP300
K	Cast Iron	250HB	100-**200**-250	0.15-**0.18**-0.20	ACK200
N	Non-Ferrous Alloy	-	300-**500**-1,000	0.15-**0.18**-0.20	DL1000

The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

WGC4000EW

ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	General Steel	180 to 280 HB	150-**200**-250	0.10-**0.20**-0.30	ACP200
	Mild Steel	≤ 180HB	180-**250**-350	0.10-**0.25**-0.40	ACP200
	Die Steel	200 to 220 HB	100-**150**-200	0.15-**0.20**-0.25	ACP200
M	Stainless Steel	-	160-**200**-250	0.15-**0.23**-0.30	ACP300
K	Cast Iron	250HB	100-**200**-250	0.15-**0.23**-0.30	ACK200
N	Non-Ferrous Alloy	-	300-**500**-1,000	0.15-**0.18**-0.20	DL1000

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended tightening torque (N·m) ▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

UFO & CHE

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy | S Exotic Alloy

Rake Angle		
	Radial	-7°
	Axial	27°

UFO Fine Pitch Face Mill Series UFO400

UFO Coarse Pitch Face Mill Series UFO400 & UFO500

UFO End Mill Series

UFOR Face Mill Series UFOR600

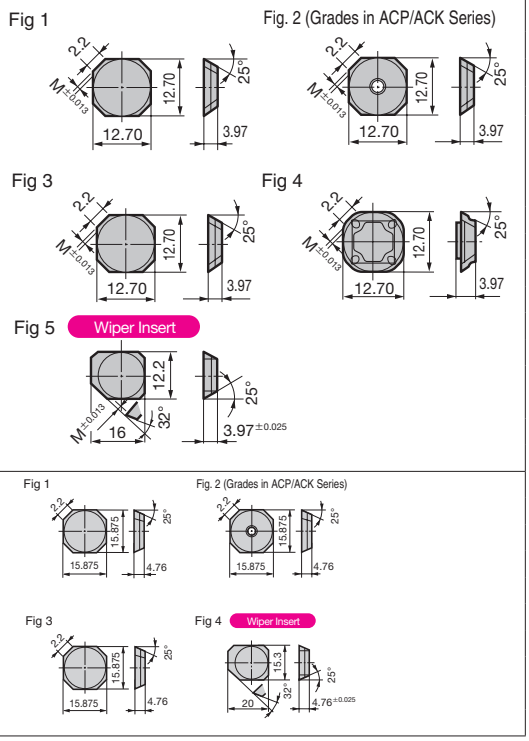
CHE Bridgeport Shank Series

CHE Weldon Shank Series

Inserts Apply to UFO Mills

Dimensions (mm)

Grade		Coated Carbide						Carbide				Cermet	
Process	High-speed / Light	P			K		M			K N			
	General-purpose		P M	P M	K			P	K		K	P	
	Roughing		P M	P M		K							
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	EH20Z	A30N	G10E	H1	H10E	T250A	Fig
SFEN12T3AZTN		●	●					●				●	1
SFEN12T3AZTN-S								●					1
SFEN12T3AZTN-W													1
SFEN12T3AZFN										●			1
SFKN12T3AZTN		●	●	●				●				●	2(3)
SFKN12T3AZTN-S								●					3
SFKN12T3AZTN-W												●	3
SFKN12T3AZFN					●	●	●		●				2(3)
SFKR12T3AZEN		●						●					4
UW12500R											●		5
SFEN1504AZTN		●	●					●				●	1
SFEN1504AZTN-S													1
SFEN1504AZTN-W													1
SFEN1504AZFN													1
SFKN1504AZTN		●	●	●				●				●	2(3)
SFKN1504AZTN-S													3
SFKN1504AZTN-W													3
SFKN1504AZFN					●		●		●				2(3)
UW15500R											●		4
UW15500L													—



-S: Sharp Edge, -W: Strong Edge.

UFO Parts

Applicable Cutter	Locator Clamp	Insert Clamp	Double Screw	Size	N·m	Seat	Locator
UFO 4000R Type	UFKWR	UFTWR	WB7-15T	M7	8.0	UF4SR	UF4KR
UFO 4000L Type	UFKWL	UFTWL	WB7-15T	M7	8.0	UF4SL	UF4KL

T-wrench (TT25) is included as a standard accessory.

UFO Recommended Cutting Conditions

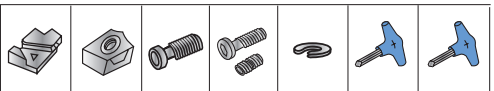
ISO	Work Material	Hardness	Cutting Speed v_c (m/min) Min. - **Optimum** - Max.	Feed Rate f_z (mm/t) Min. - **Optimum** - Max.	Insert Grade
P	General Steel	180 to 280 HB	100-**175**-250	0.15-**0.23**-0.30	ACP200
	Mild Steel	≤ 180HB	125-**210**-300	0.15-**0.23**-0.30	ACP200
	Die Steel	200 to 220 HB	80-**140**-200	0.15-**0.20**-0.25	ACP200
M	Stainless Steel	—	160-**190**-220	0.15-**0.23**-0.30	ACP300
K	Cast Iron	250HB	60-**155**-250	0.15-**0.23**-0.30	ACK200
N	Non-Ferrous Alloy	—	300-**550**-800	0.15-**0.23**-0.30	H1

Note: The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

Inserts Apply to CHE Shoulder Mills

Sumitomo Cat. No.	Coated	Cermet	Uncoated	PCD	Dimensions (Inches) I.C.	T	Figure
TECN32R					0.375	0.125	1
TEEN32R					0.375	0.125	2
NF-TEEN32R					0.375	0.125	2
TEKN32TR					0.375	0.125	1
TECN43R					0.500	0.1875	1
TEEN43R					0.500	0.1875	2
NF-TEEN43R					0.500	0.1875	2
TEKN43R					0.500	0.1875	1
TEKN43TR					0.500	0.1875	1

Hardware for CHE Bridgeport



Catalog Number	Locator	Clamp	Locator Screw	Clamp Screw	Retaining Ring	Clamp Wrench	Locator Wrench
CHE3-1 □ □ □ RR8	–	CCH5R	–	BHE0510	ER04	–	LH030
CHE4-2000RR8	LCE4R	CEWR	FBH0512	WB8R-16T	–	TT27	TH030

Hardware for CHE Weldon

Catalog Number	Locator	Clamp	Locator Screw	Clamp Screw	Retaining Ring	Clamp Wrench	Locator Wrench
CHE2- □ □ □ □RW	–	CCH4R	–	BHE0407	ER03	–	TH025
CHE3- 1□ □ □ RW	–	CCH5R	–	BHE0510	ER04	–	LH030
CHE4- 2000RW	LCE4R	CEWR	FBH0512	WB8R-16T	–	TT27	TH030

N·m Recommended Tightening Torque (N·m)

APG & DNF

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy

Rake Angle		
Radial	-2°	
Axial	18°	

7mm / 65°

Rake Angle		
Radial	-6°	
Axial	-5°	

6.5mm / 65°

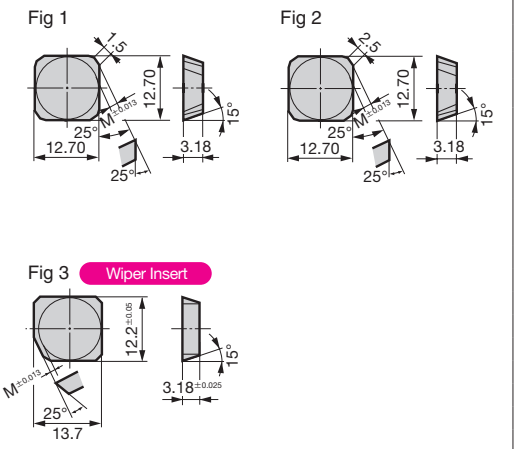
APG Face Mill Series

DNF Face Mill Series

Inserts Apply to APG Mills

Dimensions (mm)

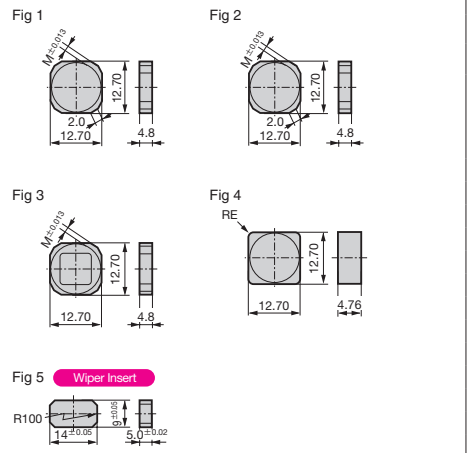
Grade		Coated Carbide						Carbide		Cermet		DLC	SUMIDIA		
Process	High-speed / Light	P			K		M		K/N	P		N	N	N	
	General-purpose		P/M	P/M	K			P			P	N	N	N	
	Roughing		P/M	P/M		K							N	N	
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	EH20Z	A30N	H1	T1500A	T250A	DL1000	DA1000	DA2200	Fig
SDCH42TR								●				—	—	—	1
SDCH42TL												—	—	—	1
SDCH42TR-R											●	—	—	—	1
SDCH42TL-R												—	—	—	1
SDC42R									●			●	—	—	2
NF-SDC42R		—	—	—	—	—	—	—	—	—	—	—	●	▲	2
SDC42L									●			—	—	—	2
SDC42TR								●				—	—	—	2
SDC42TL												—	—	—	2
SDC42TR-R											●	—	—	—	2
SDC42TL-R												—	—	—	2
APW4R										●		—	●	▲	3



Inserts Apply to DNF Mills

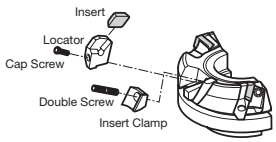
Dimensions (mm)

Grade		Coated Carbide						Carbide				Cermet		SUMIBORON	
Process	High-speed / Light	P			K							P		H	
	General-purpose		P/M		K			P	P	K	K		P	H	
	Roughing		P/M	P/M		K									
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	EH20Z	A30N	A30	H10E	G10E	T1500A	T250A	BN2000	Fig
CSNH43M					●	●		●		●	●			—	1
CSNH43MT												●	●	—	1
CSN43M								●			●			—	2
CSN43MT												●	●	●	2
CSNB43M								●			●			—	3
CSNB43MT													●	—	3
SNC433														—	—
SNC434														—	—
SNMN432									●		●	●		—	4
SNMN433						●			●		●		●	—	4
SNMN434														—	3
SNMN432TN-S														—	—
SNMN433TN-S														—	—
SNMN434TN-S														—	—
NW100										●		●		—	5



Double Screw (Common)	Size	N·m
	M8	8.0

Cap Screw	Size	N·m
	M5	5.0



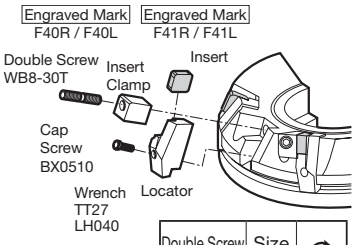
Parts Apply to APG Mills

Applicable Cutter	Locator	Insert Clamp	Double Screw	Cap Screw	Wrench
APG4080R	LAP40R	ATW45R	WB8-20	BXF0520R	TH040
APG4100R Up to APG4500R			WB8-22TL		TT27
APG4080L	LAP40L	ATW45L	WB8-20	BXF0520R	TH040
APG4100L Up to APG4500L			WB8-22T		TT27

Parts Apply to DNF Mills

Applicable Cutter	Locator (*)	Insert Clamp
DNF4080R DNF4100R	LNF40R	FTW40R
DNF4125R Up to DNF4500R	LNF40R	FTW41R
DNF4080L Up to DNF4100L	LNF40L	FTW40L
DNF4125L Up to DNF4500L	LNF40L	FTW41L

*: To use wiper inserts, change locators to LNFW40R(L). Leave wrench and cap screw as they are.



Double Screw	Size	N·m
WB8-30T	M8	8.0

N·m Recommended tightening torque (N·m) ▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

CHG & CPG

P Steel | M Stainless Steel | K Cast Iron | N Non-Ferrous Metal | N Aluminum Alloy

Rake Angle		
	Radial	4°
	Axial	15°

16mm 90°

CHG Face Mill Series

CPG 400 & 500 Face Mill Series

Inserts Apply to CHG

Dimensions (mm)

Grade		Coated Carbide						Carbide			Cermet	SUMIDIA			
Process	High-speed / Light	P			K		M			K/N		N	N	N	
	General-purpose		P/M	P/M	K			P	K		P	N	N	N	
	Roughing		P/M	P/M		K						N	N	N	
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	EH20Z	A30N	G10E	H1	T250A	DA150	DA1000	DA2200	Fig
TEEN43R*									●	●		●	-	▲	1-A
NF-TEEN43R		-	-	-	-	-	-	-	-	-	-	-	●	▲	1-A
TEEN 43TR		●	●	●				●			●	-	-	-	2(1)-B
TEKN43R					●	●			●			-	-	-	2(1)-A
TEKN43TR		●	●	●				●			●	-	-	-	2(1)-B

Fig 1

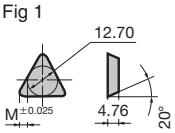
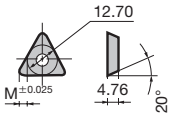


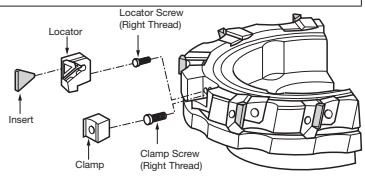
Fig. 2 (Grades in ACP/ACK Series)



Cutting Edge A

Cutting Edge B

DL1000 is also available for *-marked TEEN43R.
Upper face and wiper edge of H1 insert have a mirror finish.
Some E class precision inserts have different shapes.



Parts Apply to CHG

Applicable Cutter	Locator	Clamp	Clamp Screw			Locator Screw			Wrench
CHG 4080R Up to CHG 4125R	LCH4R	CHWR	FBX0811	M8	N·m 8.0	FBH0512	M5	N·m 5.0	TH030 TH040
CHG 4160R Up to CHG 4315R			FBX0817						

The wrench is for the locator screw for TH030 and for the clamp screw for TH040.

Inserts Apply to CPG 400 & 500 Face Mills

Figure 1

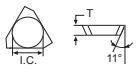


Figure 2

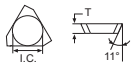
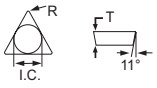
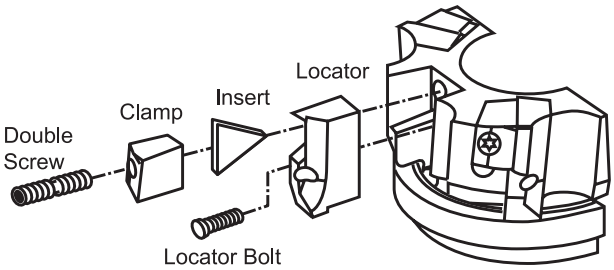


Figure 3

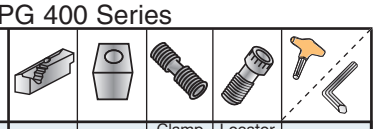


Sumitomo Cat. No.	Coated				Cermet				Uncoated				Dimensions (Inches)			
	AC230	AC325	AC211	EH20Z	T250A				A30N	G10E			I.C.	T	R	Figure
TPCH43R			▲							▲			0.500	0.1875		1
TPCH43TR	▲	▲			▲				▲				0.500	0.1875		1
TPC53P12R									▲				0.625	0.1875		2
TPC53P12RA									▲				0.625	0.1875		2
TPG431		▲							▲	▲			0.500	0.1875	0.0156	3
TPG432		▲		▲					▲	▲			0.500	0.1875	0.0312	3
TPG433		▲		▲									0.500	0.1875	0.0469	3
TPMN431		▲							▲				0.500	0.1875	0.0156	3
TPMN432		▲							▲				0.500	0.1875	0.0312	3
TPMN433		▲								▲			0.500	0.1875	0.0469	3
TPMN434									▲				0.500	0.1875	0.0625	3



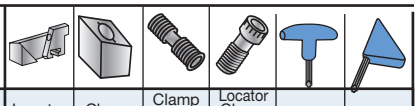
"T" denotes inserts with a T-Land.
USA limited availability item

Parts for CPG 400 Series



Catalog Number	Locator	Clamp	Clamp Bolt	Locator Bolt	Wrench
CPG03R	LCP40R	PTW40R	WB8-24T	BX0510	TT27 / LH040
CPG04R					
CPG05R		PTW41R			
CPG06R					

Parts for CPG 500 Series



Catalog Number	Locator	Clamp	Clamp Bolt	Locator Clamp Bolt	Wrench	Wrench
CPG504R	LCP50R	PTW50R	WB8-24T	BH0408	TT27	TT25
CPG505R						
CPG506R		PTW51R				
CPG508R						
CPG510R						

N·m Recommended tightening torque (N·m) ▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

DPG 400 & DPG 500 Type

P Steel | M Stainless Steel | K Cast Iron

Rake Angle		
	Radial	0°
	Axial	8°

9.5mm / 75°

Rake Angle		
	Radial	0°
	Axial	8°

12mm / 75°

DPG 400 Face Mill Series

DPG 500 Face Mill Series

Inserts Apply for DPG 400

Dimensions (mm)

Grade		Coated Carbide						Carbide				Cermet	
Process	High-speed / Light	P			K		M					P	
	General-purpose		P M	P M	K			P	P	K	K		P
	Roughing		P M	P M		K							
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	EH20Z	A30N	A30	H10E	G10E	T1500A	T250A
SPCH42R					●	●	●				●		
SPCH42L					●	●					●		
SPCH42TR		●	●	●				●		●			
SPCH42TL			●					●					
SPCH42TR-R												●	●
SPCH42TL-R													●
SPMN422									●		●	●	●
SPMN423					●	●			●		●	●	
SPG422									●		●	●	
SPG423											●		
DPW500R										●		●	
DPW500L										●			

Cat. No.	Fig
SPCH42R	1(2)
SPCH42L	2
SPCH42TR	1(2)
SPCH42TL	2
SPCH42TR-R	2
SPCH42TL-R	2
SPMN422	3
SPMN423	3
SPG422	-
SPG423	-
DPW500R	4
DPW500L	4

Fig. 1 (Grades in ACP/ACK Series) Fig 2

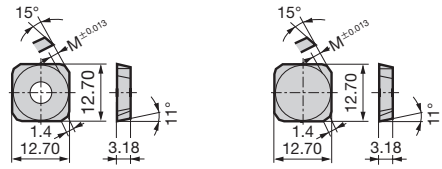


Fig 3

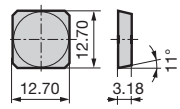
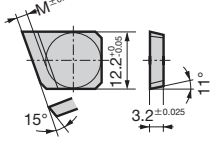
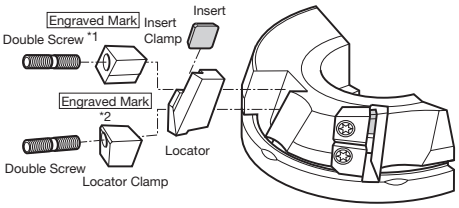


Fig 4 Wiper Insert



Parts Apply for DPG 400

Applicable Cutter	Locator	Locator Clamp For DPG	Locator Clamp For DPGF	Insert Clamp For DPG	Insert Clamp For DPGF	Double Screw	Wrench
DPG(F)4080R	GL40R	GLW40R	GLWF80R	GTW40R	GTWF80R	WB8-22T	TT27
DPG(F)4100R Up to DPG(F)4160R	GL40R	GLW41R	GLWF41R	GTW41R	GTWF41R	WB8-30T	TT27
DPG4200R	GL40R	GLW42R	-	GTW42R	-	WB8-30T	TT27
DPG(F)4080L	GL40L	GLW40L	GLWF80L	GTW40L	GTWF80L	WB8-22T	TT27
DPG(F)4100L Up to DPG(F)4160L	GL40L	GLW41L	GLWF41L	GTW41L	GTWF41L	WB8-30T	TT27
DPG4200L	GL40L	GLW42L	-	GTW42L	-	WB8-30T	TT27



*1 Engraved Mark: T40R,T40L,T41R,T41L,T42R,T42L, TF80R,TF80L,TF41R,TF41L

*2 Engraved Mark: L40R,L40L,L41R,L41L,L42R,L42L, LF80R,LF80L,LF41R,LF41L

Double Screw (Common)	Size	N·m
	M8	8.0

Inserts Apply for DPG 500

Dimensions (mm)

Grade		Coated Carbide						Carbide				Cermet	
Process	High-speed / Light	P			K		M					P	
	General-purpose		P M	P M	K			P	P	K	K		P
	Roughing		P M	P M		K							
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	EH20Z	A30N	A30	H10E	G10E	T1500A	T250A
SPCH53R-R					●	●	●				●		
SPCH53L-R											●		
SPCH53TR-R		●	●					●		●		●	●
SPCH53TL-R			●					●		●			
SPMN532									●		●		
SPMN533									●		●		
GW500R										●		●	
GW500L													

Cat. No.	Fig
SPCH53R-R	1
SPCH53L-R	1
SPCH53TR-R	1
SPCH53TL-R	1
SPMN532	2
SPMN533	2
GW500R	3
GW500L	3

Fig 1 Fig 2

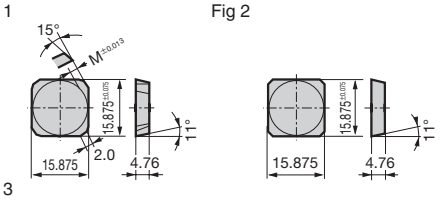
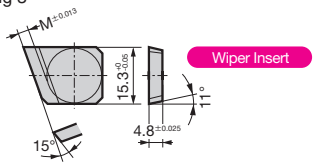


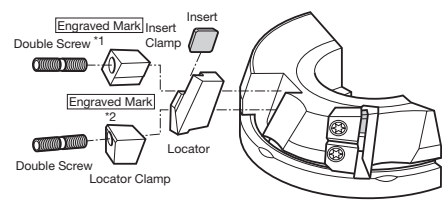
Fig 3



Wiper Insert

Parts Apply for DPG 500

Applicable Cutter	Locator	Locator Clamp	Insert Clamp	Double Screw	Wrench
DPG5080R	GL50R	GLW50R	GTW50R	WB8-22T	TT27
DPG5100R Up to DPG5160R	GL50R	GLW51R	GTW51R	WB8-30T	TT27
DPG5200R Up to DPG5500R	GL50R	GLW52R	GTW52R	WB8-30T	TT27
DPG5080L	GL50L	GLW50L	GTW50L	WB8-22T	TT27
DPG5100L Up to DPG5160L	GL50L	GLW51L	GTW51L	WB8-30T	TT27
DPG5200L Up to DPG5500L	GL50L	GLW52L	GTW52L	WB8-30T	TT27



*1 Engraved Mark: T50R,T50L,T51R,T51L,T52R,T52L

*2 Engraved Mark: L50R,L50L,L51R,L51L,L52R,L52L

Double Screw (Common)	Size	N·m
	M8	8.0

N·m Recommended tightening torque (N·m) ▲ mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability)

EHG 400 & FPG 400 / 500 Type

P Steel | M Stainless Steel | K Cast Iron | S Exotic Alloy

Rake Angle	Radial	-3°
	Axial	20°

5.5mm 45°

Rake Angle	Radial	-4°
	Axial	15°

6.5mm 45° | 8.5mm 45°

EHG 400 Face Mill Series

FPG 400 & 500 Face Mill Series

Inserts Apply to EHG 400

Dimensions (mm)

Grade		Coated Carbide						Carbide		Cermet			
Process	High-speed / Light	P			K		M						
	General-purpose		P M	P M	K			P	K	P			
	Roughing		P M	P M		K							
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	EH20Z	A30N	G10E	T250A	Inscribed Circle IC	Thickness S	Fig
SECN42MT								●		●	12.70	3.18	1
SECN42M											12.70	3.18	1
SEEN42MT		●	●	●							12.70	3.18	3*
SEKN42MT		●	●	●				●		●	12.70	3.18	2(3)
SECN42MT-W										●	12.70	3.18	3
SECN42M					●	●	●		●		12.70	3.18	2(3)
SENN1203AFTN*		●	-	-	-	-	-	●	-	●	12.70	3.18	3
SEMR1203AFEN		●	-	-	-	-	-	●	-	-	12.70	3.18	4
SEER1203AFEN**		●	-	-	-	-	-	●	-	-	12.70	3.18	4

Fig 1

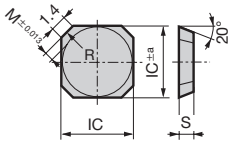


Fig. 2 (Grades in ACP/ACK Series)

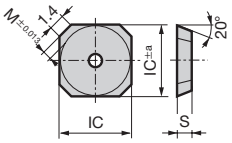


Fig 3

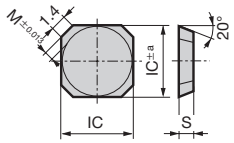
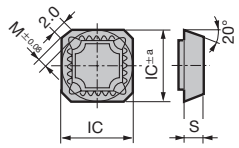


Fig 4



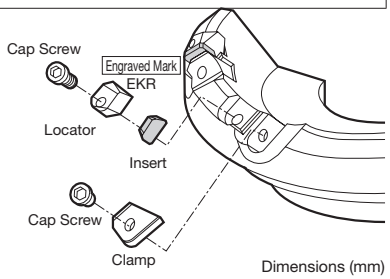
Cat. No. marked *: M ±0.08 Chamfer 1.4 → 2.0.
The shape of *-marked E class inserts differs slightly from the above figures.

Parts Apply to EHG 400

Applicable Cutter	Locator	Clamp	Cap Screw	Size	N·m	Wrench
EHG4000R Type	EHK4R	EHW4R	EHBX0512	**M5**	**5.0**	TH040
EHG5000R Type	EHK5R	EHW5R		**M5**		

Insert Application Table

Body	Insert
EHG4000 Type	SESN42·· SESS12··
EHG5000 Type	SESN53··



Dimensions (mm)

Inserts Apply to FPG 400 & 500

Grade		Coated Carbide						Carbide		Cermet		SUMIDIA	
Process	High-speed / Light	P			K		M			P		N	N
	General-purpose		P M	P M	K			P	K		P	N	N
	Roughing		P M	P M		K						N	N
Cat. No.		ACP100	ACP200	ACP300	ACK200	ACK300	EH20Z	A30N	G10E	T1500A	T250A	DA1000	DA2200	Fig
SDEX42MT								●		●	●	-	-	2
SDKN42M					●	●	●		●			-	-	1(2)
NF-SDKN42M		-	-	-	-	-	-	-	-		-	●	▲	2
SDKN42MT		●	●	●				●		●	●	-	-	1(2)
SDKN42MT-W											●	-	-	2
SDNN1203AETN*		●	●	-	-	-	-	●	-	-	●	-	-	2
SDMR1203AEEN		●	●					●			-	-	-	3
SDMR1203AETN		-	-	-	-	-	-	-	-	-	●	-	-	3
SDEX53MT								●			●	-	-	5
SDKN53M					●	●	●		●			-	-	4(5)
SDKN53MT		●	●	●				●			●	-	-	4(5)

Fig. 1 (Grades in ACP/ACK Series)

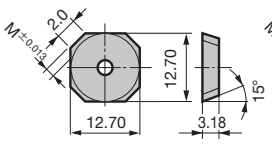


Fig 2

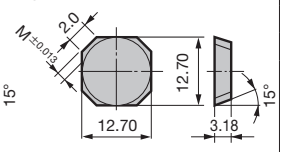


Fig 3

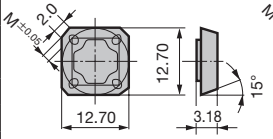


Fig. 4 (Grades in ACP/ACK Series)

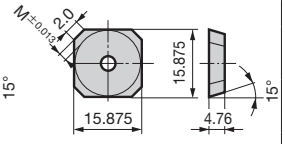


Fig.5: Same as Fig. 4 without hole

Cat. No. marked *: M ±0.08.

Parts Apply to FPG 400 & 500

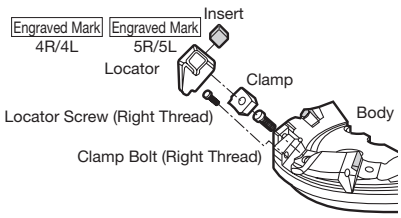
Applicable Cutter	Locator Screw	Size	N·m	Clamp Screw	Clamp	Locator
FPG4000R Type	FBH0512	**M5**	**5.0**	FBX0817	FPWR	LFP4R
FPG4000L Type					FPWL	LFP4L
FPG5000R Type					FPWR	LFP5R
FPG5000L Type					FPWL	LFP5L

T-wrenches used are TH030 (locator screw) and TH040 (clamp screw).

N·m Recommended Tightening Torque (N·m)

Insert Application Table

Body	Insert
FPG4000	SDSS42·· SDSS12··
FPG5000	SDSS53··



WEM 4000/5000

Hardware

Catalog Number	Screw	Wrench
WEM3□□□RW□	BFTX02506N	TRD08
WEM3□□EX	BFTX02506N	TRD08

Torque specifications for BFTX02506N insert screw=10-14 inch/lbs.

Hardware for WEM

Catalog Number	Screw	Wrench
WMM10□□□M	BFTX02506N	TRD08

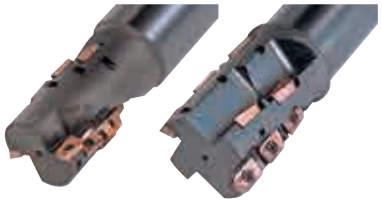
Torque specifications for BFTX02506N insert screw=10-14 inch/lbs.

Hardware

Catalog Number	Screw	Wrench
WMM16□□□M	BFTX03584	TRD15

Torque specifications for BFTX03584 insert screw=27-31 inch/lbs.

WRM 10000/16000



Hardware

Catalog Number	Screw	Wrench
WRM10□□□M	BFTX02506N	TRD08

Torque specifications for BFTX02506N insert screw=10-14 inch/lbs.

Hardware

Catalog Number	Screw	Wrench
WRM16□□□M	BFTX03588	TRD15

Torque specifications for BFTX03588 insert screw=27-31 inch/lbs.

PWC

Fig. 1

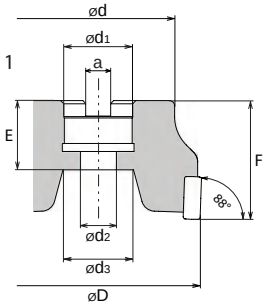
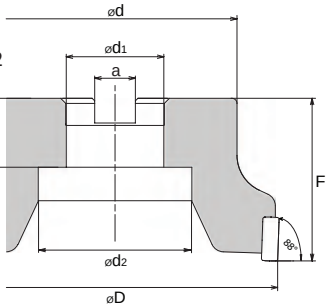
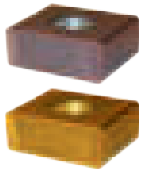
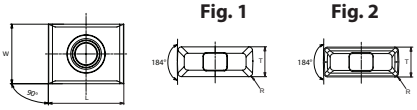


Fig. 2



Inserts Apply to SumiEdge Mill Cutter Bodies





Sumitomo Cat. No.	Grade ACK200	Grade ACK300	Dimensions (Inches) L	W	T	R	Facet Width	Fig.
LNMX160608PNSN-G	▲	▲	0.634	0.476	0.250	0.032	0.218	1
LNMX160608PNSN-H	▲	▲	0.634	0.476	0.250	0.032	0.218	2
LNMX1606-W		▲	0.636	0.476	0.250	0.032	*	-

Hardware

Applicable Cutter	Insert Screw	Wrench
PWC Series	BFTX0511N	TTX15W

High Productivity Cast Iron Milling Cutter with 8 cutting edges

■ General Features

- Double negative milling cutter with positive cutting insert geometry
- High productivity shell mill for gray cast iron and ductile iron face milling
- Eight (8) cutting edges per insert
- Available in the grades: ACK100 and ACK200
- Unique positive chipbreaker insert provides less cutting force, more productivity and longer tool life

Fig. 1

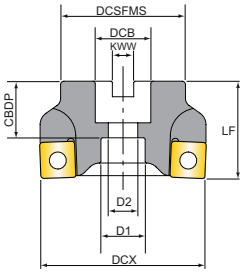
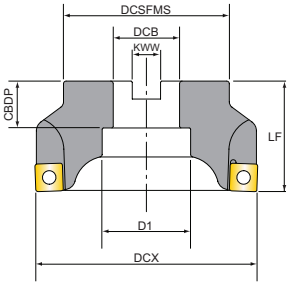


Fig. 2



Body (Standard Type)

Dimensions (inch)

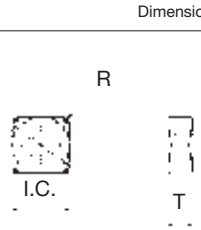
	Cat. No.	Stock	Diameter DC	Boss DCSFMS	Bore Dia. DCB	Keyway Width KWW	Bolt D1	Bolt D2	Mounting Depth CBDP	Height LF	Number of Teeth	Fig	Insert Screw	Wrench
Inch	**SDP42000R**	•	2.000	1.500	.750	.312	.609	.406	1.020	1.750	4	1	BFTX0412N	TRD15
	SDP42500R	•	2.500	1.750	1.000	.375	.797	.531	1.020	1.750	5	1		
	SDP43000R	•	3.000	2.250	1.000	.375	.797	.531	1.020	1.750	6	1		
	SDP53000R	•	3.000	2.250	1.000	.385	.797	.531	1.020	1.750	5	1	BFTX0513N	TTX20
	SDP54000R	•	4.000	2.756	1.250	.515	1.030	.656	1.090	2.000	7	1		
	SDP55000R	•	5.000	3.750	1.500	.635	2.000	N/A	1.060	2.500	8	2		
	SDP56000R	•	6.000	4.380	1.500	.635	2.000	N/A	1.060	2.500	10	2		

Inserts are sold separately. Torque specifications for BFTX0513N is 45-49 in/lbs.

Insert

Dimensions (Inch)

Cat. No.	Grade ACK100	Grade ACK200	Inscribed Circle I.C.	Thickness T	Radius R
SNMX120412DP	•	•	.500	.1875	.031
SNEX156612DP	•	•	.625	.2660	.047

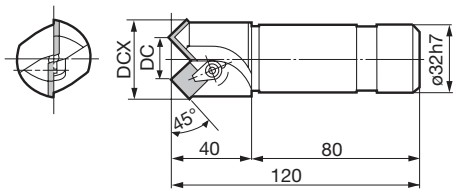


Please refer to Section N: Technical Guidance for Recommended Cutting Conditions

P Steel K Cast Iron

Rake Angle	Radial	0°
	Axial	0°

Fig 1



(Figure shows SMC420)

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Number of Teeth	Hole Chamfering Machining Range	Fig
SMC407	▲	*7*	*24.3*	1	ø11.0 to ø23.8	1
SMC420	▲	*20*	*37.3*	2	ø21.2 to ø36.8	1
SMC435	▲	*35*	*52.3*	2	ø36.2 to ø51.8	1

Inserts are sold separately.

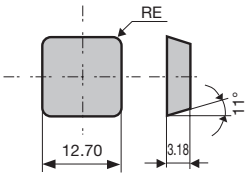
Insert

▲: Limited Availabilty Item
●: USA Stocked Item

Dimensions (*mm*)

Grade		Coated Carbide		Carbide			Cermet			
Process	High-speed / Light	K					P			
	General-purpose	K		P	P/K	K		P		
	Roughing		K							
Cat. No.		ACK200	ACK300	ST20E	A30	G10E	T1500A	T250A	Nose Radius RE	Fig
SPMN422				●	●	●	●	●	0.8	1
SPMN423		●	●		●	●	●		1.2	1
SPG422				●	●	●	●		0.8	1

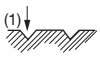
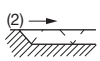
Fig 1



Parts

Clamp	Double Screw			Wrench
		Size	N·m	
CCM6BR	WB616	**M6**	**5.0**	LH030

Applications

(1) Single Sided	(2) Double Sided	(3) Hole Chamfering	(4) Stepping	(5) Small Plunging, Traverse Cutting	
					

N·m Recommended Tightening Torque (N·m)

Endmills I

I1 to I122

Selection Guide I2
Cutting Edge Length List by Diameter I4
Endmill Coating I13
GSX MILL Series I14
SUMIDIA Coated SSDC Series I19
SSEH Series I20
AURORA Coat Endmills I22
MOLD FINISH MASTER Series I23

Square	General-purpose	GSX MILL Ballnose 2 Flutes	GSXB 20000 - Inch	I27
		GSX MILL 2 Flutes	GSX 200C-1.5D - Inch	I28
		GSX MILL 2 Flutes	GSX 200C-2D - Inch	I29
		GSX MILL 2 Flutes	GSX 200C-3D - Inch	I30
		GSX MILL 2 Flutes	GSX 200C-4D - Inch	I31
		GSX MILL 2 Flutes	GSX 200S-2D - Inch	I32
		GSX MILL 2 Flutes	GSX 200S-3D - Inch	I33
		GSX MILL 4 Flutes	GSX 400C-1.5D - Inch	I34
		GSX MILL 4 Flutes	GSX 400C-2D - Inch	I35
		GSX MILL 4 Flutes	GSX 400C-3D - Inch	I36
		GSX MILL 4 Flutes	GSX 400C-4D - Inch	I37
		GSX MILL 4 Flutes	GSX 400S-2D - Inch	I38
		GSX MILL 4 Flutes	GSX 400S-3D - Inch	I39
		GSX MILL 2 Flutes	GSX 20000C-1.5D - Metric	I40
		GSX MILL 2 Flutes	GSX 20000S-2D/20000C-2D - Metric	I42, I46
		GSX MILL 2 Flutes	GSX 20000S-3D/20000C-3D - Metric	I48, I50
		GSX MILL 2 Flutes	GSX 20000S-4D/20000C-4D - Metric	I52, I54
		GSX MILL 3 Flutes	GSX 30000C-1.5D - Metric	I56
		GSX MILL 3 Flutes	GSX 30000C-2D - Metric	I58
		GSX MILL 4 Flutes	GSX 40000C-1.5D - Metric	I60
		GSX MILL 4 Flutes	GSX 40000S-2D/40000C-2D - Metric	I62, I64
		GSX MILL 4 Flutes	GSX 40000S-3D/40000C-3D - Metric	I66, I68
		GSX MILL 4 Flutes	GSX 40000S-4D/40000C-4D - Metric	I70, I72
	High Efficiency	GSX MILL Anti-vibration 4 Flutes	GSV 4000-2.5D	I74
		GSX MILL Anti-vibration 4 Flutes	GSXVL 4000-2.5D/4000S-2.5D	I76, I78
	Hardened Steel	SUMIBORON Helical Master 1 Flute	Helical Master BNES	I80
	Non-ferrous Metal	Non-Ferrous Metals AURORA Coat 2/4 Flutes	ASM 2000DL/4000DL	I82, I83
		Non-Ferrous Metals 2 Flutes	ASM 2000	I84
		Non-Ferrous Metals SUMIDIA 2/4 Flutes	DFE	I85
		Non-Ferrous Metals SUMIDIA 1/2 Flutes	DAE	I87
	CFRP Graphite	SUMIDIA Coated for CFRP 4 Flutes	SSDC 4000(RL)	I89
Radius		GSX MILL 4 Flutes	GSX 40000-R-2D	I90
		GSX MILL Anti-vibration 4 Flutes	GSV 4000-R-2.5D	I92
		GSX MILL Anti-vibration 4 Flutes	GSXVL 4000-R-2.5D	I94
		Exotic Alloy SSEH Anti-vibration 4 Flutes	SSEHVL 4000W-R	I96
		Exotic Alloy SSEH 4 Flutes	SSEH 4000W-R	I98
		Exotic Alloy SSEH Anti-vibration 4 Flutes	SSEHVL 4000-R	I100
		Exotic Alloy SSEH 4 Flutes	SSEH 4000-R	I101
		MOLD FINISH MASTER Series 1 Flute	NPDRS	I102
		MOLD FINISH MASTER Series 2 Flutes	BNBR	I104
Ballnose		GSX MILL Ballnose 2 Flutes	GSXB 20000 - Metric	I106
		Non-Ferrous Metals AURORA Coat Ballnose 2 Flutes	SNB 2000DL	I109
		Non-Ferrous Metals AURORA Coat Long Neck Ballnose 2 Flutes	SNB2	I110
		MOLD FINISH MASTER Series 1 Flute	NPDBS/NPDB	I112, I113
		SUMIDIA Coated Ballnose 2 Flutes	SDCB	I114
		MOLD FINISH MASTER Series 2 Flutes	BNBP/BNBC	I116, I118
Multi-Purpose		GSX MILL Slot 3 Flutes	GSXSLT 30000C-1.5D	I119

Stock Markings and Symbols

●: Standard stocked item
★: Worldwide Warehouse Item
▲: Limited Availability Item, made to order, or discontinued (please confirm stock availability).

Blank: Made-to-order item
— mark: Not available

Square Endmill Selection Guide

◎: 1st Recommendation, ◎: 2nd Recommendation, ○: Good, Blank: Not recommended, ×: Unsuitable

Applications / Features	Diameter DC (Min. to Max.) inch (mm)	Series Name / Series Code	Appearance	Work Material: P					H			M	S	K	N			
				General Structure Rolled Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	30 to 45HRC Tempered Steel/Die Steel	Hardened Steel 45 to 55HRC	Hardened Steel 55 to 60HRC	Hardened Steel 60 up HRC	Stainless Steel	Titanium Alloy/Heat-Resistant Alloy	Cast Iron	Aluminum Alloy	Copper Alloy	Graphite	CFRP
General-purpose	ø0.0625" to ø1.0000" ø0.5 to 25mm	GSXMILL 2 Flutes GSX200C/ *GSX20000C*		◎	◎	◎	◎	◎	◎	○		◎	○	◎				
	ø0.0625" to ø1.0000" ø0.5 to 25mm	GSXMILL 2 Flutes GSX200S/ *GSX20000S*		○	◎	◎	◎	◎	◎	○		◎	○	○				
	ø1 to 12	GSXMILL 3 Flutes GSX30000C		○	◎	◎	◎	◎	◎			◎	○	○				
	ø0.0625" to ø1.0000" *ø1 to 25mm*	GSXMILL 4 Flutes GSX400C/ *GSX40000C*		◎	◎	◎	◎	◎	◎	○		◎	○	◎				
	ø0.0625" to ø1.0000" *ø1 to 25mm*	GSXMILL 4 Flutes GSX400S/ *GSX40000S*		○	◎	◎	◎	◎	◎	○		◎	○	○				
High Efficiency	*ø2 to 25 mm*	GSXMILL Anti-vibration 4 Flutes GSXVL 4000		◎	◎	◎	◎	◎	◎	○		◎	○	○				
	ø2 to 25 mm	GSV Anti-vibration 4 Flutes GSV 4000		◎	◎	◎	◎	◎	◎	○		◎	○	○				
Hardened Steel	*ø6 to 16 mm*	CBN - SUMIBORON Helical Master BNES BNES					○		○	◎	◎				×	×		

❹❻❽: Number of teeth

◎: 1st Recommendation, ◎: 2nd Recommendation, ○: Good, Blank: Not recommended, ×: Unsuitable

Applications / Features	Diameter DC (Min. to Max.) inch (mm)	Series Name / Series Code	Appearance	Work Material: P					H			M	S	K	N			
				General Structure Rolled Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	30 to 45HRC Tempered Steel/Die Steel	Hardened Steel 45 to 55HRC	Hardened Steel 55 to 60HRC	Hardened Steel 60 up HRC	Stainless Steel	Titanium Alloy/Heat-Resistant Alloy	Cast Iron	Aluminum Alloy	Copper Alloy	Graphite	CFRP
Aluminum and Non-Ferrous Metal	*ø2 to 16*	DLC - AURORA Coat 2 Flutes ASM 2000DL													◎	○		
	ø2 to 16	DLC - AURORA Coat 4 Flutes ASM 4000DL													◎	◎		
	ø2 to 16	Solid Carbide Endmills for Non-ferrous Cutting ASM 2000													◎	○		
	❶ *ø4 to 5* ❷ *ø6 to 12*	SUMIDIA Endmills DAE Type DAE		×	×	×	×	×	×	×	×	×	×	×	◎	◎	○	
	❷ *ø4 to 10* ❹ *ø9 to 13*	SUMIDIA Endmills DFE Type DFE		×	×	×	×	×	×	×	×	×	×	×	◎	◎	○	
CFRP/ Graphite	*ø6 to 12*	SUMIDIA Coated SSDC SSDC 4000		×	×	×	×	×	×	×	×	×	×	×			○	◎
	ø6 to 12	SUMIDIA Coated SSDCRL SSDC 4000RL		×	×	×	×	×	×	×	×	×	×	×			○	◎
Multi-Purpose	*ø1 to 12*	GSX MILL Slot 3 Flutes GSXSLT 30000C		○	◎	◎	◎	◎	◎			◎	○	○				

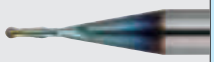
❶❷❹: Number of teeth

Corner Radius & Ballnose Endmill Selection Guide

◎: 1st Recommendation, ◎: 2nd Recommendation, ○: Good, Blank: Not recommended, ×: Unsuitable

Applications / Features	Diameter DC (Min. to Max.) inch (mm)	Series Name / Series Code	Appearance	Material														
				P					H			M	S	K	N			
				General Structure Rolled Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	Tempered Steel/Die Steel	Hardened Steel 45 to 55HRC	Hardened Steel 55 to 60HRC	Hardened Steel 60 up HRC	Stainless Steel	Titanium Alloy/Heat-Resistant Alloy	Cast Iron	Aluminum Alloy	Copper Alloy	Graphite	CFRP
General Endmilling with Corner Radius	ø3 to 12	GSX MILL Radius GSX 40000-R		◎	◎	◎	◎	◎	◎			◎	○	○				
High Efficiency Endmill with Corner Radius	ø3 to 25	GSV Anti-vibration Radius GSV 4000-R		○	◎	◎	◎	◎	◎	○		◎	○	○				
Exotic Material	ø4.5 to 16	SSEH Anti-vibration Radius SSEHVL 4000-R										○	◎					
	ø4.5 to 16	SSEH Radius SSEH 4000-R										○	◎					
High-precision Mold Profiling	ø0.2 to 2	MOLD FINISH MASTER SUMIBORON Radius Endmills BNBR					○		○	◎	◎				×	×		
Cemented Carbide and Hard Brittle Material	ø0.2 to 2	MOLD FINISH MASTER SUMIDIA BINDERLESS Radius Endmills NPDRS		Cemented Carbide						◎		Hard Brittle Material					○	

◎: 1st Recommendation. ◎: 2nd Recommendation, ○: Good, Blank: Not recommended, ×: Unsuitable

Applications / Features	Ballnose Radius (Min. to Max.) / Tolerance inch (mm)	Series Name / Series Code	Appearance	Material														
				P					H			M	S	K	N			
				General Structure Rolled Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	Tempered Steel/Die Steel	Hardened Steel 45 to 55HRC	Hardened Steel 55 to 60HRC	Hardened Steel 60 up HRC	Stainless Steel	Titanium Alloy/Heat-Resistant Alloy	Cast Iron	Aluminum Alloy	Copper Alloy	Graphite	CFRP
General-purpose	R0.2 to 10 .0625-1.00" ± 0.01	GSXMILL Ballnose GSXB		◎	◎	◎	◎	◎	◎	○		◎	○	○				
Aluminum and Non-Ferrous Metal	R1 to 8 ± 0.01	DLC - AURORA Coat Ballnose SNB 2000DL													◎	◎		
Copper Electrodes	R0.05 to 2 ± 0.005	AURORA Coat Long Neck Ballnose Endmills SNB2													◎	◎		
	R0.1 to 0.5 ± 0.005	MOLD FINISH MASTER SUMIBORON Ballnose Endmills BNBC														◎		
High-precision Mold Profiling	R0.2 to 1 ± 0.005	MOLD FINISH MASTER SUMIBORON Ballnose Endmills BNBP					○		○	◎	◎				×	×		
Cemented Carbide and Hard Brittle Material	R0.1 to 1	MOLD FINISH MASTER SUMIDIA BINDERLESS Ballnose Endmills NPDBS (For Standard Finishing)		Cemented Carbide						◎		Hard Brittle Material					○	
	R0.1 to 1	MOLD FINISH MASTER SUMIDIA BINDERLESS Ballnose Endmills NPDB (For Precision Finishing)		Cemented Carbide						◎		Hard Brittle Material					○	
	R0.5 to 1	SUMIDIA Coat Ballnose Endmills SDCB		Cemented Carbide						◎		Hard Brittle Material					○	

Cutting Edge Length List by Diameter

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
0.3	0.6	GSX20030S-2D	40.0
0.4	0.8	GSX20040S-2D	40.0
0.5	1.0	GSX20050C-1.5D	40.0
		GSX20050C-2D	40.0
	1.3	GSX20050S-2D	40.0
	1.5	GSX20050C-3D	40.0
		GSX20050S-3D	40.0
	2.0	GSX20050C-4D	40.0
		GSX20050S-4D	40.0
0.6	1.3	GSX20060S-2D	40.0
0.7	1.4	GSX20070S-2D	40.0
0.8	1.6	GSX20080S-2D	40.0
0.9	1.8	GSX20090S-2D	40.0
1.0	1.5	GSX20100C-1.5D	40.0
		GSX30100C-1.5D	40.0
		GSX40100C-1.5D	40.0
		GSXSLT30100C-1.5D	40.0
	2.0	GSX20100C-2D	40.0
		GSX40100C-2D	40.0
	2.5	GSX20100S-2D	40.0
		GSX30100C-2D	40.0
		GSX40100S-2D	40.0
		GSX40100S-2D-S3	38.0
	3.0	GSX20100C-3D	40.0
		GSX20100S-3D	40.0
		GSX40100C-3D	40.0
		GSX40100S-3D	40.0
	4.0	GSX20100C-4D	40.0
		GSX40100C-4D	40.0
		GSX40100S-4D	40.0
	5.0	GSX20100S-4D	40.0
1.1	2.5	GSX20110S-2D	40.0
1.2	2.5	GSX20120S-2D	40.0
1.3	2.6	GSX20130S-2D	40.0
1.4	2.8	GSX20140S-2D	40.0
1.5	2.3	GSX20150C-1.5D	40.0
		GSX30150C-1.5D	40.0
		GSX40150C-1.5D	40.0
		GSXSLT30150C-1.5D	40.0
	3.0	GSX20150C-2D	40.0
		GSX40150C-2D	40.0
	3.8	GSX20150S-2D	40.0
		GSX20150S-2D-S3	38.0
		GSX30150C-2D	40.0
		GSX40150S-2D	40.0
	4.5	GSX20150C-3D	40.0
		GSX20150S-3D	40.0
		GSX40150C-3D	40.0
		GSX40150S-3D	40.0
	6.0	GSX20150C-4D	40.0
		GSX40150C-4D	40.0
		GSX40150S-4D	40.0
	7.0	GSX20150S-4D	40.0
1.6	3.8	GSX20160S-2D	40.0
0.0625	0.0938	GSX204C-1.5D	1.5000
		GSX404C-1.5D	1.5000
	0.1250	GSX404C-2D	1.5000
		GSX204C-2D	1.5000
		GSX204C-3D	1.5000
		GSX204S-2D	1.5000
		GSX404S-2D	1.5000
	0.1875	GSX204S-3D	1.5000
		GSX404C-3D	1.5000
		GSX404S-3D	1.5000
	0.2500	GSX204C-4D	1.5000
	0.2500	GSX404C-4D	1.5000
1.7	3.8	GSX20170S-2D	40.0
1.8	3.8	GSX20180S-2D	40.0
1.9	3.8	GSX20190S-2D	40.0
2.0	3.0	GSX20200C-1.5D	40.0
		GSX30200C-1.5D	40.0
		GSX40200C-1.5D	40.0

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
2.0	3.0	GSXSLT30200C-1.5D	40.0
	4.0	GSX20200C-2D	40.0
		GSX40200C-2D	40.0
	5.0	GSV4020-2.5D	50.0
		GSX20200S-2D	40.0
		GSX20200S-2D-S3	38.0
		GSX30200C-2D	40.0
		GSX40200S-2D	40.0
		GSX40200S-2D-S3	38.0
		GSXVL4020-2.5D	50.0
	6.0	ASM2020	40.0
		ASM2020DL	40.0
		ASM4020DL	40.0
		GSX20200C-3D	40.0
		GSX20200S-3D	40.0
		GSX40200C-3D	40.0
		GSX40200S-3D	40.0
	8.0	GSX20200C-4D	40.0
		GSX40200C-4D	40.0
		GSX40200S-4D	40.0
	9.0	GSX20200S-4D	40.0
2.1	6.0	GSX20210S-2D	40.0
2.2	6.0	GSX20220S-2D	40.0
2.3	6.0	GSX20230S-2D	40.0
0.0938	0.1406	GSX206C-1.5D	1.5000
		GSX406C-1.5D	1.5000
	0.1875	GSX406C-2D	1.5000
		GSX206C-2D	1.5000
		GSX206C-3D	1.5000
		GSX206S-2D	1.5000
		GSX406S-2D	1.5000
	0.2813	GSX206S-3D	1.5000
		GSX406C-3D	1.5000
		GSX406S-3D	1.5000
	0.3750	GSX406C-4D	1.5000
		GSX206C-4D	2.0000
2.4	6.0	GSX20240S-2D	40.0
2.5	3.8	GSX20250C-1.5D	40.0
		GSX30250C-1.5D	40.0
		GSX40250C-1.5D	40.0
		GSXSLT30250C-1.5D	40.0
	5.0	GSX20250C-2D	40.0
		GSX40250C-2D	40.0
	6.3	GSX20250S-2D	40.0
		GSX30250C-2D	40.0
		GSX40250S-2D	40.0
	7.5	GSX20250C-3D	40.0
		GSX20250S-3D	40.0
		GSX40250C-3D	40.0
	8.0	GSX40250S-3D	40.0
	10.0	GSX20250C-4D	50.0
		GSX40250C-4D	50.0
		GSX40250S-4D	50.0
	12.0	GSX20250S-4D	50.0
2.6	7.0	GSX20260S-2D	40.0
	8.0	GSX20260S-3D	50.0
2.7	7.0	GSX20270S-2D	40.0
	8.5	GSX20270S-3D	50.0
2.8	7.0	GSX20280S-2D	40.0
	9.0	GSX20280S-3D	50.0
2.9	7.0	GSX20290S-2D	40.0
	9.0	GSX20290S-3D	50.0
3.0	4.5	GSX20300C-1.5D	45.0
		GSX30300C-1.5D	45.0
		GSX40300C-1.5D	45.0
		GSXSLT30300C-1.5D	45.0
	6.0	GSX20300C-2D	45.0
		GSX40300C-2D	45.0
	7.5	GSX20300S-2D	45.0
		GSX20300S-2D-S3	38.0
		GSX30300C-2D	45.0
		GSX40300S-2D	45.0

: 0.5mm Increments

: Inch Diameters

Cutting Edge Length List by Diameter

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
3.0	7.5	GSX40300S-2D-S3	38.0
	8.0	GSV4030-2.5D	50.0
		GSXVL4030-2.5D	50.0
	9.0	GSX20300C-3D	50.0
		GSX20300S-3D	50.0
		GSX40300C-3D	50.0
		GSX40300S-3D	50.0
	10.0	ASM2030	45.0
		ASM2030DL	45.0
		ASM4030DL	45.0
	12.0	GSX20300C-4D	50.0
		GSX20300S-4D	50.0
		GSX40300C-4D	50.0
		GSX40300S-4D	50.0
3.1	7.5	GSX20310S-2D	45.0
0.1250	0.1875	GSX208C-1.5D	2.0000
		GSX408C-1.5D	2.0000
	0.2500	GSX408C-2D	2.0000
		GSX208C-2D	2.0000
		GSX208C-3D	2.0000
		GSX208S-2D	2.0000
		GSX408S-2D	2.0000
	0.3750	GSX208S-3D	2.0000
		GSX408C-3D	2.0000
		GSX408S-3D	2.0000
	0.5000	GSX208C-4D	2.0000
		GSX408C-4D	2.0000
3.2	7.5	GSX20320S-2D	45.0
3.3	7.5	GSX20330S-2D	45.0
3.4	7.5	GSX20340S-2D	45.0
3.5	5.3	GSX20350C-1.5D	45.0
		GSX40350C-1.5D	45.0
	7.0	GSX20350C-2D	45.0
		GSX40350C-2D	45.0
	8.8	GSX20350S-2D	45.0
		GSX40350S-2D	45.0
	11.0	GSX20350C-3D	50.0
		GSX40350C-3D	50.0
		GSX40350S-3D	50.0
	12.0	GSX20350S-3D	50.0
	14.0	GSX20350C-4D	50.0
		GSX20350S-4D	50.0
		GSX40350C-4D	50.0
		GSX40350S-4D	50.0
3.6	8.8	GSX20360S-2D	45.0
3.7	8.8	GSX20370S-2D	45.0
3.8	8.8	GSX20380S-2D	45.0
3.9	8.8	GSX20390S-2D	45.0
0.1563	0.2344	GSX210C-1.5D	2.0000
		GSX410C-1.5D	2.0000
	0.3125	GSX410C-2D	2.0000
		GSX210C-2D	2.0000
		GSX210C-3D	2.0000
		GSX210S-2D	2.0000
		GSX410S-2D	2.0000
	0.4688	GSX210S-3D	2.0000
		GSX410C-3D	2.0000
		GSX410S-3D	2.0000
	0.6250	GSX210C-4D	2.0000
		GSX410C-4D	2.0000
4.0	6.0	GSX20400C-1.5D	45.0
		GSX30400C-1.5D	45.0
		GSX40400C-1.5D	45.0
		GSXSLT 30400C-1.5D	45.0
	8.0	GSX20400C-2D	45.0
		GSX40400C-2D	45.0
	10.0	GSV4040-2.5D	50.0
		GSXVL4040-2.5D	50.0
	11.0	GSX20400S-2D	45.0
		GSX20400S-2D-S4	45.0
		GSX30400C-2D	45.0
		GSX40400S-2D	45.0

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
4.0	11.0	GSX40400S-2D-S4	45.0
	12.0	ASM2040	45.0
		ASM2040DL	45.0
		ASM4040DL	45.0
		GSX20400C-3D	50.0
		GSX20400S-3D	50.0
		GSX40400C-3D	50.0
		GSX40400S-3D	50.0
	16.0	GSX20400C-4D	50.0
		GSX20400S-4D	50.0
		GSX40400C-4D	50.0
		GSX40400S-4D	50.0
4.1	11.0	GSX20410S-2D	45.0
4.2	11.0	GSX20420S-2D	45.0
4.3	11.0	GSX20430S-2D	45.0
4.4	11.0	GSX20440S-2D	45.0
4.5	6.8	GSX20450C-1.5D	50.0
		GSX40450C-1.5D	50.0
	9.0	GSX20450C-2D	50.0
		GSX40450C-2D	50.0
	11.3	GSX20450S-2D	50.0
		GSX40450S-2D	50.0
	14.0	GSX20450C-3D	50.0
		GSX40450C-3D	50.0
	15.0	GSX20450S-3D	50.0
		GSX40450S-3D	50.0
	18.0	GSX20450C-4D	60.0
		GSX20450S-4D	60.0
		GSX40450C-4D	60.0
		GSX40450S-4D	60.0
4.6	11.3	GSX20460S-2D	50.0
4.7	11.3	GSX20470S-2D	50.0
0.1875	0.2813	GSX212C-1.5D	2.0000
		GSX412C-1.5D	2.0000
	0.3750	GSX412C-2D	2.0000
		GSX212C-2D	2.0000
		GSX212C-3D	2.0000
		GSX212S-2D	2.0000
		GSX412S-2D	2.0000
	0.5625	GSX212S-3D	2.0000
		GSX412C-3D	2.0000
		GSX412S-3D	2.0000
	0.7500	GSX212C-4D	2.5000
		GSX412C-4D	2.5000
4.8	11.3	GSX20480S-2D	50.0
4.9	11.3	GSX20490S-2D	50.0
5.0	7.5	GSX20500C-1.5D	50.0
		GSX30500C-1.5D	50.0
		GSX40500C-1.5D	50.0
		GSXSLT30500C-1.5D	50.0
	10.0	GSX20500C-2D	50.0
		GSX40500C-2D	50.0
	13.0	GSV4050-2.5D	60.0
		GSX20500S-2D	50.0
		GSX30500C-2D	50.0
		GSX40500S-2D	50.0
		GSXVL4050-2.5D	60.0
	15.0	ASM2050	50.0
		ASM2050DL	50.0
		ASM4050DL	50.0
		GSX20500C-3D	50.0
		GSX20500S-3D	50.0
		GSX40500C-3D	50.0
		GSX40500S-3D	50.0
	20.0	GSX20500C-4D	60.0
		GSX20500S-4D	60.0
		GSX40500C-4D	60.0
		GSX40500S-4D	60.0
5.1	13.0	GSX20510S-2D	50.0
5.2	13.0	GSX20520S-2D	50.0
5.3	13.0	GSX20530S-2D	50.0
		GSX20540S-2D	50.0

: 0.5mm Increments

: Inch Diameters

Cutting Edge Length List by Diameter

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
5.5	8.3	GSX20550C-1.5D	50.0
		GSX40550C-1.5D	50.0
	11.0	GSX20550C-2D	50.0
		GSX40550C-2D	50.0
	13.0	GSX20550S-2D	50.0
		GSX40550S-2D	50.0
	17.0	GSX20550C-3D	50.0
		GSX40550C-3D	50.0
	18.0	GSX20550S-3D	50.0
		GSX40550S-3D	50.0
	22.0	GSX20550C-4D	60.0
		GSX20550S-4D	60.0
		GSX40550C-4D	60.0
		GSX40550S-4D	60.0
0.2188	0.3282	GSX214C-1.5D	2.0000
		GSX414C-1.5D	2.0000
	0.4376	GSX414C-2D	2.0000
		GSX214C-2D	2.0000
		GSX214C-3D	2.0000
		GSX214S-2D	2.0000
		GSX414S-2D	2.0000
	0.6564	GSX214S-3D	2.0000
		GSX414C-3D	2.0000
		GSX414S-3D	2.0000
	0.8752	GSX214C-4D	2.5000
		GSX414C-4D	2.5000
5.6	13.0	GSX20560S-2D	50.0
5.7	13.0	GSX20570S-2D	50.0
5.8	13.0	GSX20580S-2D	50.0
5.9	13.0	GSX20590S-2D	50.0
6.0	9.0	GSX20600C-1.5D	50.0
		GSX30600C-1.5D	50.0
		GSX40600C-1.5D	50.0
		GSXSLT30600C-1.5D	50.0
	12.0	GSX20600C-2D	50.0
		GSX40600C-2D	50.0
	13.0	GSX20600S-2D	50.0
		GSX30600C-2D	50.0
		GSX40600S-2D	50.0
	15.0	ASM2060	50.0
		ASM2060DL	50.0
		ASM4060DL	50.0
		GSV4060-2.5D	60.0
		GSXVL4060-2.5D	60.0
	18.0	GSX20600C-3D	50.0
		GSX20600S-3D	50.0
		GSX40600C-3D	50.0
		GSX40600S-3D	50.0
	24.0	GSX20600C-4D	60.0
		GSX20600S-4D	60.0
		GSX40600C-4D	60.0
		GSX40600S-4D	60.0
6.1	13.0	GSX20610S-2D	50.0
6.2	13.0	GSX20620S-2D	50.0
6.3	13.0	GSX20630S-2D	50.0
0.2500	0.3750	GSX216C-1.5D	2.0000
		GSX416C-1.5D	2.0000
	0.5000	GSX416C-2D	2.0000
		GSX216C-2D	2.0000
		GSX216C-3D	2.0000
		GSX216S-2D	2.0000
		GSX416S-2D	2.0000
	0.7500	GSX216S-3D	2.0000
		GSX416C-3D	2.0000
		GSX416S-3D	2.0000
	1.0000	GSX216C-4D	2.5000
		GSX416C-4D	2.5000
6.4	13.0	GSX20640S-2D	50.0
6.5	10.0	GSX20650C-1.5D	60.0
		GSX40650C-1.5D	60.0
	13.0	GSX20650C-2D	60.0
		GSX20650S-2D	60.0

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
6.5	13.0	GSX40650C-2D	60.0
		GSX40650S-2D	60.0
	20.0	GSX20650C-3D	70.0
		GSX20650S-3D	70.0
		GSX40650C-3D	70.0
		GSX40650S-3D	70.0
	26.0	GSX20650C-4D	70.0
		GSX20650S-4D	70.0
		GSX40650C-4D	70.0
		GSX40650S-4D	70.0
6.6	13.2	GSX20660S-2D	60.0
6.7	13.4	GSX20670S-2D	60.0
6.8	13.6	GSX20680S-2D	60.0
6.9	13.8	GSX20690S-2D	60.0
7.0	11.0	GSX20700C-1.5D	60.0
		GSX30700C-1.5D	60.0
		GSX40700C-1.5D	60.0
		GSXSLT30700C-1.5D	60.0
	14.0	GSX20700C-2D	60.0
		GSX40700C-2D	60.0
	16.0	GSX20700S-2D	60.0
		GSX30700C-2D	60.0
		GSX40700S-2D	60.0
	18.0	GSV4070-2.5D	70.0
		GSXVL4070-2.5D	70.0
	21.0	GSX20700C-3D	70.0
		GSX20700S-3D	70.0
		GSX40700C-3D	70.0
		GSX40700S-3D	70.0
	28.0	GSX20700C-4D	80.0
		GSX20700S-4D	80.0
		GSX40700C-4D	80.0
	28.0	GSX40700S-4D	80.0
7.1	16.0	GSX20710S-2D	60.0
0.2813	0.4220	GSX218C-1.5D	2.5000
		GSX418C-1.5D	2.5000
	0.5626	GSX418C-2D	2.5000
		GSX218C-2D	2.5000
		GSX218C-3D	2.5000
		GSX218S-2D	2.5000
		GSX418S-2D	2.5000
	0.8439	GSX218S-3D	3.0000
		GSX418C-3D	3.0000
		GSX418S-3D	3.0000
	1.1252	GSX218C-4D	3.0000
		GSX418C-4D	3.0000
7.2	16.0	GSX20720S-2D	60.0
7.3	16.0	GSX20730S-2D	60.0
7.4	16.0	GSX20740S-2D	60.0
7.5	12.0	GSX20750C-1.5D	60.0
		GSX40750C-1.5D	60.0
	15.0	GSX20750C-2D	60.0
		GSX40750C-2D	60.0
	16.0	GSX20750S-2D	60.0
		GSX40750S-2D	60.0
	23.0	GSX20750C-3D	70.0
		GSX20750S-3D	70.0
		GSX40750C-3D	70.0
		GSX40750S-3D	70.0
	30.0	GSX20750C-4D	80.0
		GSX20750S-4D	80.0
		GSX40750C-4D	80.0
		GSX40750S-4D	80.0
7.6	16.0	GSX20760S-2D	60.0
7.7	16.0	GSX20770S-2D	60.0
7.8	16.0	GSX20780S-2D	60.0
7.9	16.0	GSX20790S-2D	60.0
0.3125	0.4688	GSX220C-1.5D	2.5000
		GSX420C-1.5D	2.5000
	0.6250	GSX420C-2D	2.5000
		GSX220C-2D	2.5000
		GSX220C-3D	2.5000

: 0.5mm Increments

: Inch Diameters

Cutting Edge Length List by Diameter

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
0.3125	0.6250	GSX220S-2D	2.5000
		GSX420S-2D	2.5000
	0.9375	GSX220S-3D	3.0000
		GSX420C-3D	3.0000
		GSX420S-3D	3.0000
	1.2500	GSX220C-4D	3.0000
		GSX420C-4D	3.0000
8.0	12.0	GSX20800C-1.5D	60.0
		GSX30800C-1.5D	60.0
		GSX40800C-1.5D	60.0
		GSXSLT30800C-1.5D	60.0
	16.0	GSX20800C-2D	60.0
		GSX40800C-2D	60.0
	18.0	ASM2080	60.0
		ASM2080DL	60.0
		ASM4080DL	60.0
	19.0	GSX20800S-2D	60.0
		GSX30800C-2D	60.0
		GSX40800S-2D	60.0
	20.0	GSV4080-2.5D	80.0
		GSXVL4080-2.5D	80.0
	24.0	GSX20800C-3D	70.0
		GSX20800S-3D	70.0
		GSX40800C-3D	70.0
		GSX40800S-3D	70.0
	32.0	GSX20800C-4D	80.0
		GSX20800S-4D	80.0
		GSX40800C-4D	80.0
		GSX40800S-4D	80.0
8.1	19.0	GSX20810S-2D	60.0
8.2	19.0	GSX20820S-2D	60.0
8.3	19.0	GSX20830S-2D	60.0
8.4	19.0	GSX20840S-2D	60.0
8.5	13.0	GSX20850C-1.5D	70.0
		GSX40850C-1.5D	70.0
	17.0	GSX20850C-2D	70.0
		GSX40850C-2D	70.0
	19.0	GSX20850S-2D	70.0
		GSX40850S-2D	70.0
	26.0	GSX20850C-3D	75.0
		GSX20850S-3D	75.0
		GSX40850C-3D	75.0
		GSX40850S-3D	75.0
	34.0	GSX20850C-4D	90.0
		GSX20850S-4D	90.0
		GSX40850C-4D	90.0
		GSX40850S-4D	90.0
8.6	19.0	GSX20860S-2D	70.0
8.7	19.0	GSX20870S-2D	70.0
8.8	19.0	GSX20880S-2D	70.0
8.9	19.0	GSX20890S-2D	70.0
9.0	14.0	GSX20900C-1.5D	70.0
		GSX30900C-1.5D	70.0
		GSX40900C-1.5D	70.0
		GSXSLT30900C-1.5D	70.0
	18.0	GSX20900C-2D	70.0
		GSX40900C-2D	70.0
		GSX20900S-2D	70.0
		GSX30900C-2D	70.0
		GSX40900S-2D	70.0
	23.0	GSV4090-2.5D	90.0
		GSXVL4090-2.5D	90.0
	27.0	GSX20900C-3D	75.0
		GSX20900S-3D	75.0
		GSX40900C-3D	75.0
		GSX40900S-3D	75.0
	36.0	GSX20900C-4D	90.0
		GSX20900S-4D	90.0
		GSX40900C-4D	90.0
		GSX40900S-4D	90.0
9.1	19.0	GSX20910S-2D	70.0
9.2	19.0	GSX20920S-2D	70.0

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
9.3	19.0	GSX20930S-2D	70.0
9.4	19.0	GSX20940S-2D	70.0
9.5	15.0	GSX20950C-1.5D	70.0
		GSX40950C-1.5D	70.0
	19.0	GSX20950C-2D	70.0
		GSX40950C-2D	70.0
		GSX40950S-2D	70.0
	20.0	GSX20950S-2D	70.0
	29.0	GSX20950C-3D	75.0
		GSX20950S-3D	75.0
		GSX40950C-3D	75.0
		GSX40950S-3D	75.0
	38.0	GSX20950C-4D	90.0
		GSX20950S-4D	90.0
	39.0	GSX40950C-4D	90.0
		GSX40950S-4D	90.0
0.3750	0.5625	GSX224C-1.5D	3.0000
		GSX424C-1.5D	3.0000
	0.7500	GSX424C-2D	3.0000
		GSX224C-2D	3.0000
		GSX224C-3D	3.0000
		GSX224S-2D	3.0000
		GSX424S-2D	3.0000
	1.1250	GSX224S-3D	3.5000
		GSX424C-3D	3.5000
		GSX424S-3D	3.5000
	1.5000	GSX224C-4D	3.5000
		GSX424C-4D	3.5000
9.6	20.0	GSX20960S-2D	70.0
9.7	20.0	GSX20970S-2D	70.0
9.8	20.0	GSX20980S-2D	70.0
9.9	20.0	GSX20990S-2D	70.0
10.0	15.0	GSX21000C-1.5D	70.0
		GSX31000C-1.5D	70.0
		GSX41000C-1.5D	70.0
		GSXSLT 31000C-1.5D	70.0
	20.0	GSX21000C-2D	70.0
		GSX41000C-2D	70.0
	22.0	ASM2100	71.0
		ASM2100DL	71.0
		GSX21000S-2D	70.0
		GSX31000C-2D	70.0
		GSX41000S-2D	70.0
	25.0	GSV4100-2.5D	90.0
		GSXVL4100-2.5D	90.0
	30.0	GSX21000C-3D	90.0
		GSX21000S-3D	90.0
		GSX41000C-3D	90.0
		GSX41000S-3D	90.0
	40.0	GSX21000C-4D	90.0
		GSX21000S-4D	90.0
		GSX41000C-4D	90.0
		GSX41000S-4D	90.0
	22.0	ASM4100DL	71.0
10.5	16.0	GSX21050C-1.5D	75.0
		GSX41050C-1.5D	75.0
	21.0	GSX21050C-2D	75.0
		GSX41050C-2D	75.0
	22.0	GSX21050S-2D	75.0
		GSX41050S-2D	75.0
	32.0	GSX21050C-3D	90.0
		GSX21050S-3D	90.0
		GSX41050C-3D	90.0
		GSX41050S-3D	90.0
	42.0	GSX21050C-4D	100.0
		GSX21050S-4D	100.0
		GSX41050C-4D	100.0
		GSX41050S-4D	100.0
11.0	17.0	GSX21100C-1.5D	75.0
		GSX41100C-1.5D	75.0
	22.0	GSX21100C-2D	75.0
		GSX21100S-2D	75.0

: 0.5mm Increments

: Inch Diameters

Cutting Edge Length List by Diameter

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
11.0	28.0	GSX41100C-2D	75.0
		GSX41100S-2D	75.0
		GSV4110-2.5D	90.0
		GSXVL4110-2.5D	90.0
	33.0	GSX21100C-3D	90.0
		GSX21100S-3D	90.0
		GSX41100C-3D	90.0
		GSX41100S-3D	90.0
	44.0	GSX 21100C-4D	100.0
		GSX 21100S-4D	100.0
		GSX 41100C-4D	100.0
		GSX 41100S-4D	100.0
0.4375	0.6563	GSX228C-1.5D	3.0000
		GSX428C-1.5D	3.0000
	0.8750	GSX428C-2D	3.0000
		GSX228C-2D	3.0000
		GSX228C-3D	3.0000
		GSX228S-2D	3.0000
		GSX428S-2D	3.0000
	1.3125	GSX228S-3D	3.5000
		GSX428C-3D	3.5000
		GSX428S-3D	3.5000
	1.7500	GSX228C-4D	4.0000
		GSX428C-4D	4.0000
11.5	18.0	GSX21150C-1.5D	75.0
		GSX41150C-1.5D	75.0
	23.0	GSX21150C-2D	75.0
		GSX21150S-2D	75.0
		GSX41150C-2D	75.0
		GSX41150S-2D	75.0
	35.0	GSX21150C-3D	90.0
		GSX21150S-3D	90.0
		GSX41150C-3D	90.0
		GSX41150S-3D	90.0
	46.0	GSX21150C-4D	100.0
		GSX21150S-4D	100.0
		GSX41150C-4D	100.0
		GSX41150S-4D	100.0
12.0	18.0	GSX21200C-1.5D	75.0
		GSX31200C-1.5D	75.0
		GSX41200C-1.5D	75.0
		GSXSLT31200C-1.5D	75.0
	24.0	GSX21200C-2D	75.0
		GSX41200C-2D	75.0
	25.0	ASM2120	75.0
		ASM2120DL	75.0
		ASM4120DL	75.0
	26.0	GSX21200S-2D	75.0
		GSX31200C-2D	75.0
		GSX41200S-2D	75.0
	30.0	GSV4120-2.5D	90.0
		GSXVL4120-2.5D	90.0
	36.0	GSX21200C-3D	90.0
		GSX21200S-3D	90.0
		GSX41200C-3D	90.0
		GSX41200S-3D	90.0
	48.0	GSX21200C-4D	100.0
		GSX21200S-4D	100.0
		GSX41200C-4D	100.0
		GSX41200S-4D	100.0
12.5	26.0	GSX21250S-2D	75.0
0.5000	0.7500	GSX232C-1.5D	3.0000
		GSX432C-1.5D	3.0000
	1.0000	GSX432C-2D	3.0000
		GSX232C-2D	3.0000
		GSX232C-3D	3.0000
		GSX232S-2D	3.0000
		GSX432S-2D	3.0000
	1.5000	GSX232S-3D	3.5000
		GSX432C-3D	3.5000
		GSX432S-3D	3.5000
	2.0000	GSX232C-4D	4.0000

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
0.5000	2.0000	GSX432C-4D	4.0000
13.0	20.0	GSX21300C-1.5D	90.0
		GSX41300C-1.5D	90.0
	26.0	GSX21300C-2D	90.0
		GSX21300S-2D	90.0
		GSX41300C-2D	90.0
		GSX41300S-2D	90.0
	39.0	GSX21300C-3D	100.0
		GSX21300S-3D	100.0
		GSX41300C-3D	100.0
		GSX41300S-3D	100.0
	52.0	GSX21300C-4D	110.0
		GSX21300S-4D	110.0
		GSX41300C-4D	110.0
		GSX41300S-4D	110.0
13.5	27.0	GSX41350S-2D	90.0
14.0	21.0	GSX21400C-1.5D	90.0
		GSX41400C-1.5D	90.0
	28.0	GSX21400C-2D	90.0
		GSX21400S-2D	90.0
		GSX41400C-2D	90.0
		GSX41400S-2D	90.0
	32.0	ASM2140	90.0
	35.0	GSV4140-2.5D	110.0
		GSXVL4140-2.5D	110.0
	42.0	GSX21400C-3D	110.0
		GSX21400S-3D	110.0
		GSX41400C-3D	110.0
		GSX41400S-3D	110.0
	56.0	GSX21400C-4D	120.0
		GSX21400S-4D	120.0
		GSX41400C-4D	120.0
		GSX41400S-4D	120.0
0.5625	0.8438	GSX236C-1.5D	3.5000
		GSX436C-1.5D	3.5000
	1.1250	GSX436C-2D	3.5000
		GSX236C-2D	3.5000
		GSX236C-3D	3.5000
		GSX236S-2D	3.5000
		GSX436S-2D	3.5000
	1.6875	GSX236S-3D	4.5000
		GSX436C-3D	4.5000
		GSX436S-3D	4.5000
	2.2500	GSX236C-4D	5.0000
		GSX436C-4D	5.0000
15.0	23.0	GSX21500C-1.5D	90.0
		GSX41500C-1.5D	90.0
	30.0	GSX21500C-2D	90.0
		GSX21500S-2D	90.0
		GSX41500C-2D	90.0
		GSX41500S-2D	90.0
	32.0	ASM2150	90.0
	38.0	GSV4150-2.5D	110.0
		GSXVL4150-2.5D	110.0
	45.0	GSX21500C-3D	110.0
		GSX21500S-3D	110.0
		GSX41500C-3D	110.0
		GSX41500S-3D	110.0
	60.0	GSX21500C-4D	120.0
		GSX21500S-4D	120.0
		GSX41500C-4D	120.0
		GSX41500S-4D	120.0
0.6250	0.9375	GSX240C-1.5D	3.5000
		GSX440C-1.5D	3.5000
	1.2500	GSX440C-2D	3.5000
		GSX240C-2D	3.5000
		GSX240C-3D	3.5000
		GSX240S-2D	3.5000
		GSX440S-2D	3.5000
	1.8750	GSX240S-3D	4.5000
		GSX440C-3D	4.5000
		GSX440S-3D	4.5000

: 0.5mm Increments

: Inch Diameters

Cutting Edge Length List by Diameter

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
0.6250	2.5000	GSX240C-4D	5.0000
		GSX440C-4D	5.0000
16.0	24.0	GSX21600C-1.5D	90.0
		GSX41600C-1.5D	90.0
	32.0	ASM2160	90.0
		ASM2160DL	90.0
		ASM4160DL	90.0
		GSX21600C-2D	90.0
		GSX21600S-2D	90.0
		GSX41600C-2D	90.0
		GSX41600S-2D	90.0
	40.0	GSV4160-2.5D	115.0
		GSXVL4160-2.5D	115.0
	48.0	GSX21600C-3D	110.0
		GSX21600S-3D	110.0
		GSX41600C-3D	110.0
		GSX41600S-3D	110.0
	64.0	GSX21600C-4D	120.0
		GSX21600S-4D	120.0
		GSX41600C-4D	120.0
		GSX41600S-4D	120.0
17.0	26.0	GSX21700C-1.5D	100.0
		GSX41700C-1.5D	100.0
	34.0	GSX21700C-2D	100.0
		GSX41700C-2D	100.0
	35.0	GSX21700S-2D	100.0
		GSX41700S-2D	100.0
	51.0	GSX21700C-3D	110.0
		GSX21700S-3D	110.0
		GSX41700C-3D	110.0
		GSX41700S-3D	110.0
	68.0	GSX21700C-4D	130.0
		GSX21700S-4D	130.0
		GSX41700C-4D	130.0
		GSX41700S-4D	130.0
0.6875	1.0313	GSX244C-1.5D	4.0000
		GSX444C-1.5D	4.0000
	1.3750	GSX444C-2D	4.0000
		GSX244C-2D	4.0000
		GSX244C-3D	4.0000
		GSX244S-2D	4.0000
		GSX444S-2D	4.0000
	2.0625	GSX244S-3D	4.5000
		GSX444C-3D	4.5000
		GSX444S-3D	4.5000
	2.7500	GSX244C-4D	5.0000
		GSX444C-4D	5.0000
18.0	27.0	GSX21800C-1.5D	100.0
		GSX41800C-1.5D	100.0
	36.0	GSX21800C-2D	100.0
		GSX41800C-2D	100.0
	40.0	GSX21800S-2D	100.0
		GSX41800S-2D	100.0
	45.0	GSV4180-2.5D	120.0
		GSXVL4180-2.5D	120.0
	54.0	GSX21800C-3D	120.0
		GSX21800S-3D	120.0
		GSX41800C-3D	120.0
		GSX41800S-3D	120.0
	72.0	GSX21800C-4D	130.0
		GSX21800S-4D	130.0
		GSX41800C-4D	130.0
		GSX41800S-4D	130.0
19.0	29.0	GSX21900C-1.5D	100.0
		GSX41900C-1.5D	100.0
	38.0	GSX21900C-2D	100.0
		GSX41900C-2D	100.0
	40.0	GSX21900S-2D	100.0
		GSX41900S-2D	100.0
	57.0	GSX21900C-3D	120.0
		GSX21900S-3D	120.0
		GSX41900C-3D	120.0

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
19.0	57.0	GSX41900S-3D	120.0
	76.0	GSX21900C-4D	140.0
		GSX21900S-4D	140.0
		GSX41900C-4D	140.0
		GSX41900S-4D	140.0
0.7500	1.1250	GSX248C-1.5D	4.0000
		GSX448C-1.5D	4.0000
	1.5000	GSX448C-2D	4.0000
		GSX248C-2D	4.0000
		GSX248C-3D	4.0000
		GSX248S-2D	4.0000
		GSX448S-2D	4.0000
	2.2500	GSX248S-3D	5.0000
		GSX448C-3D	5.0000
		GSX448S-3D	5.0000
	3.0000	GSX248C-4D	5.5000
		GSX448C-4D	5.5000
20.0	30.0	GSX22000C-1.5D	100.0
		GSX42000C-1.5D	100.0
	40.0	GSX22000C-2D	100.0
		GSX22000S-2D	100.0
		GSX42000C-2D	100.0
		GSX42000S-2D	100.0
	50.0	GSV4200-2.5D	125.0
		GSXVL4200-2.5D	125.0
	60.0	GSX22000C-3D	120.0
		GSX22000S-3D	120.0
		GSX42000C-3D	120.0
		GSX42000S-3D	120.0
	80.0	GSX22000C-4D	140.0
		GSX22000S-4D	140.0
		GSX42000C-4D	140.0
		GSX42000S-4D	140.0
21.0	42.0	GSX22100S-2D	110.0
22.0	44.0	GSX22200S-2D	110.0
		GSX42200S-2D	110.0
	66.0	GSX42200S-3D	130.0
0.8750	1.3125	GSX256C-1.5D	4.0000
		GSX456C-1.5D	4.0000
	1.7500	GSX456C-2D	4.0000
		GSX256C-2D	4.0000
		GSX256C-3D	4.0000
		GSX256S-2D	4.0000
		GSX456S-2D	4.0000
	2.6250	GSX256S-3D	5.0000
		GSX456C-3D	5.0000
		GSX456S-3D	5.0000
	3.5000	GSX256C-4D	5.5000
		GSX456C-4D	5.5000
23.0	46.0	GSX22300S-2D	120.0
24.0	48.0	GSX22400S-2D	120.0
		GSX42400S-2D	120.0
	72.0	GSX22400S-3D	130.0
25.0	38.0	GSX22500C-1.5D	120.0
		GSX42500C-1.5D	120.0
	50.0	GSX22500C-2D	120.0
		GSX22500S-2D	120.0
		GSX42500C-2D	120.0
		GSX42500S-2D	120.0
	63.0	GSV4250-2.5D	140.0
		GSXVL4250-2.5D	140.0
	75.0	GSX22500C-3D	130.0
		GSX22500S-3D	130.0
		GSX42500C-3D	130.0
		GSX42500S-3D	130.0
	100.0	GSX22500C-4D	160.0
		GSX22500S-4D	160.0
		GSX42500C-4D	160.0
		GSX42500S-4D	160.0
1.0000	1.5000	GSX264C-1.5D	4.0000
		GSX464C-1.5D	4.0000
	2.0000	GSX464C-2D	4.0000

: 0.5mm Increments

: Inch Diameters

Cutting Edge Length List by Diameter

Endmill Sizes by Diameter — Square

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
1.0000	2.0000	GSX264C-2D	4.0000
		GSX264C-3D	4.0000
		GSX264S-2D	4.0000
		GSX464S-2D	4.0000
	3.0000	GSX264S-3D	5.5000
		GSX464C-3D	5.5000
		GSX464S-3D	5.5000
	4.0000	GSX264C-4D	6.0000
		GSX464C-4D	6.0000

Endmill Sizes by Diameter — Radius

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
3.0	8.0	GSV4030-R02-2.5D	50.0
		GSV4030-R05-2.5D	50.0
		GSX40300-R02-2D	45.0
		GSX40300-R05-2D	45.0
		GSXVL4030-R02-2.5D	50.0
		GSXVL4030-R05-2.5D	50.0
4.0	10.0	GSV4040-R02-2.5D	50.0
		GSV4040-R05-2.5D	50.0
		GSV4040-R10-2.5D	50.0
		GSXVL4040-R02-2.5D	50.0
		GSXVL4040-R05-2.5D	50.0
		GSXVL4040-R10-2.5D	50.0
	11.0	GSX40400-R02-2D	45.0
		GSX40400-R05-2D	45.0
		GSX40400-R10-2D	45.0
4.5	12.0	SSEH4045-R05	50.0
		SSEH4045W-R05	50.0
		SSEHVL4045-R05	50.0
		SSEHVL4045-R10	50.0
		SSEHVL4045W-R05	50.0
		SSEHVL4045W-R10	50.0
5.0	13.0	GSV4050-R02-2.5D	60.0
		GSV4050-R05-2.5D	60.0
		GSV4050-R10-2.5D	60.0
		GSX40500-R02-2D	50.0
		GSX40500-R05-2D	50.0
		GSX40500-R10-2D	50.0
		GSXVL4050-R02-2.5D	60.0
		GSXVL4050-R05-2.5D	60.0
		GSXVL4050-R10-2.5D	60.0
		SSEH4050-R05	60.0
		SSEH4050W-R05	60.0
		SSEHVL4050-R05	60.0
		SSEHVL4050-R10	60.0
		SSEHVL4050W-R05	60.0
		SSEHVL4050W-R10	60.0
6.0	13.0	GSX40600-R02-2D	50.0
		GSX40600-R05-2D	50.0
		GSX40600-R10-2D	50.0
		GSX40600-R15-2D	50.0
		SSEH4060-R10	60.0
		SSEH4060W-R10	60.0
		SSEHVL4060-R10	60.0
		SSEHVL4060W-R10	60.0
	15.0	GSV4060-R03-2.5D	60.0
		GSV4060-R05-2.5D	60.0
		GSV4060-R10-2.5D	60.0
		GSV4060-R15-2.5D	60.0
		GSXVL4060-R03-2.5D	60.0
		GSXVL4060-R05-2.5D	60.0
		GSXVL4060-R10-2.5D	60.0
		GSXVL4060-R15-2.5D	60.0
8.0	19.0	GSX40800-R02-2D	60.0
		GSX40800-R05-2D	60.0
		GSX40800-R10-2D	60.0
		GSX40800-R15-2D	60.0
		SSEH4080-R10	80.0
		SSEH4080W-R10	80.0

Endmill Sizes by Diameter — Radius

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
8.0	19.0	SSEHVL4080-R10	80.0
		SSEHVL4080W-R10	80.0
	20.0	GSV4080-R03-2.5D	80.0
		GSV4080-R05-2.5D	80.0
		GSV4080-R10-2.5D	80.0
		GSV4080-R15-2.5D	80.0
		GSV4080-R20-2.5D	80.0
		GSXVL4080-R03-2.5D	80.0
		GSXVL4080-R05-2.5D	80.0
		GSXVL4080-R10-2.5D	80.0
		GSXVL4080-R15-2.5D	80.0
		GSXVL4080-R20-2.5D	80.0
10.0	22.0	GSX41000-R02-2D	70.0
		GSX41000-R05-2D	70.0
		GSX41000-R10-2D	70.0
		GSX41000-R15-2D	70.0
		GSX41000-R20-2D	70.0
		SSEH4100-R10	90.0
		SSEH4100-R30	90.0
		SSEH4100W-R10	90.0
		SSEH4100W-R30	90.0
		SSEHVL4100-R10	90.0
		SSEHVL4100-R30	90.0
		SSEHVL4100W-R10	90.0
		SSEHVL4100W-R30	90.0
	25.0	GSV4100-R03-2.5D	90.0
		GSV4100-R05-2.5D	90.0
		GSV4100-R10-2.5D	90.0
		GSV4100-R15-2.5D	90.0
		GSV4100-R20-2.5D	90.0
		GSXVL4100-R03-2.5D	90.0
		GSXVL4100-R05-2.5D	90.0
		GSXVL4100-R10-2.5D	90.0
		GSXVL4100-R15-2.5D	90.0
		GSXVL4100-R20-2.5D	90.0
12.0	26.0	GSX41200-R02-2D	70.0
		GSX41200-R05-2D	70.0
		GSX41200-R10-2D	70.0
		GSX41200-R15-2D	70.0
		GSX41200-R20-2D	70.0
		SSEH4120-R10	90.0
		SSEH4120-R30	90.0
		SSEH4120W-R10	90.0
		SSEH4120W-R30	90.0
		SSEH4120WS-R10	90.0
		SSEH4120WS-R30	90.0
		SSEHVL4120-R10	90.0
		SSEHVL4120-R30	90.0
		SSEHVL4120W-R10	90.0
		SSEHVL4120W-R30	90.0
		SSEHVL4120WS-R10	90.0
		SSEHVL4120WS-R30	90.0
	30.0	GSV4120-R05-2.5D	90.0
		GSV4120-R10-2.5D	90.0
		GSV4120-R15-2.5D	90.0
		GSV4120-R20-2.5D	90.0
		GSV4120-R30-2.5D	90.0
		GSXVL4120-R05-2.5D	90.0
		GSXVL4120-R10-2.5D	90.0
		GSXVL4120-R15-2.5D	90.0
		GSXVL4120-R20-2.5D	90.0
		GSXVL4120-R30-2.5D	90.0
16.0	32.0	SSEH4160-R10	115.0
		SSEH4160-R30	115.0
		SSEH4160W-R10	115.0
		SSEH4160W-R30	115.0
		SSEH4160WS-R10	115.0
		SSEH4160WS-R30	115.0
		SSEHVL4160-R10	115.0
		SSEHVL4160-R30	115.0
		SSEHVL4160W-R10	115.0
		SSEHVL4160W-R30	115.0

: 0.5mm Increments

: Inch Diameters

Cutting Edge Length List by Diameter

Endmill Sizes by Diameter — Radius

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
16.0	32.0	SSEHVL4160WS-R10	115.0
		SSEHVL4160WS-R30	115.0
	40.0	GSV4160-R10-2.5D	115.0
		GSV4160-R15-2.5D	115.0
		GSV4160-R20-2.5D	115.0
		GSV4160-R30-2.5D	115.0
		GSXVL4160-R10-2.5D	115.0
		GSXVL4160-R15-2.5D	115.0
		GSXVL4160-R20-2.5D	115.0
		GSXVL4160-R30-2.5D	115.0
20.0	40.0	SSEH4200W-R10	125.0
		SSEH4200W-R30	125.0
		SSEH4200WS-R10	125.0
		SSEH4200WS-R30	125.0
		SSEHVL4200W-R10	125.0
		SSEHVL4200W-R30	125.0
		SSEHVL4200WS-R10	125.0
		SSEHVL4200WS-R30	125.0
	50.0	GSV4200-R10-2.5D	125.0
		GSV4200-R15-2.5D	125.0
		GSV4200-R20-2.5D	125.0
		GSV4200-R30-2.5D	125.0
		GSXVL4200-R10-2.5D	125.0
		GSXVL4200-R15-2.5D	125.0
		GSXVL4200-R20-2.5D	125.0
		GSXVL4200-R30-2.5D	125.0
25.0	50.0	SSEH4250W-R10	140.0
		SSEH4250W-R30	140.0
		SSEH4250WS-R10	140.0
		SSEH4250WS-R30	140.0
		SSEHVL4250W-R10	140.0
		SSEHVL4250W-R30	140.0
		SSEHVL4250WS-R10	140.0
		SSEHVL4250WS-R30	140.0
	63.0	GSV4250-R10-2.5D	140.0
		GSV4250-R15-2.5D	140.0
		GSV4250-R20-2.5D	140.0
		GSV4250-R30-2.5D	140.0
		GSXVL4250-R10-2.5D	140.0
		GSXVL4250-R15-2.5D	140.0
		GSXVL4250-R20-2.5D	140.0
		GSXVL4250-R30-2.5D	140.0

Endmill Sizes by Diameter — Ballnose

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
0.1	0.1	SNB200050034DL	45.0
		SNB200050064DL	45.0
0.2	0.2	SNB200100054DL	45.0
		SNB200100104DL	45.0
		SNB200100204DL	45.0
0.3	0.3	SNB200150054DL	45.0
		SNB200150104DL	45.0
		SNB200150204DL	45.0
		SNB200150304DL	45.0
0.4	0.4	SNB200200104DL	45.0
		SNB200200204DL	45.0
		SNB200200304DL	45.0
		SNB200200404DL	45.0
	0.6	GSXB20020	50.0
0.5	0.45	SNB200250104DL	45.0
		SNB200250204DL	45.0
		SNB200250304DL	45.0
		SNB200250404DL	45.0
0.6	0.6	SNB200300204DL	45.0
		SNB200300304DL	45.0
		SNB200300404DL	45.0
		SNB200300504DL	45.0
		SNB200300604DL	45.0
	0.9	GSXB20030	50.0

Endmill Sizes by Diameter — Ballnose

Dia. DC	Cutting Edge Length APMX	Cat. No.	Overall Length LF
1.0	1.5	GSXB20050	50.0
		SNB200500304DL	45.0
		SNB200500404DL	45.0
		SNB200500604DL	45.0
		SNB200500804DL	50.0
		SNB200501004DL	50.0
1.5	2.3	SNB200750304DL	45.0
		SNB200750604DL	45.0
		SNB200751004DL	50.0
	2.5	GSXB20075	50.0
0.0625	0.0938	GSXB204	2.0000
2.0	3.0	GSXB20100	60.0
		SNB2020DL	60.0
		SNB201000304DL	50.0
		SNB201000604DL	50.0
		SNB201001004DL	50.0
		SNB201001504DL	60.0
		SNB201002004DL	60.0
2.5	4.0	GSXB20125	60.0
3.0	4.5	GSXB20150	60.0
		SNB2030DL	80.0
0.0938	0.1406	GSXB206	2.5000
4.0	6.0	GSXB20200	70.0
		SNB2040DL	80.0
		SNB202001606DL	80.0
		SNB202002006DL	80.0
		SNB202003006DL	80.0
0.1250	0.1875	GSXB208	2.5000
5.0	7.5	GSXB20250	80.0
		SNB2050DL	90.0
0.1563	0.2344	GSXB210	3.0000
6.0	9.0	GSXB20300	80.0
		SNB2060DL	100.0
7.0	11.0	GSXB20350	90.0
0.1875	0.2813	GSXB212	3.0000
8.0	12.0	GSXB20400	90.0
		SNB2080DL	100.0
0.2188	0.3282	GSXB214	3.0000
0.2500	0.3750	GSXB216	3.0000
10.0	15.0	GSXB20500	100.0
		SNB2100DL	120.0
0.2813	0.4220	GSXB218	3.5000
0.3125	0.4688	GSXB220	3.5000
12.0	18.0	GSXB20600	110.0
		SNB2120DL	120.0
14.0	21.0	GSXB20700	110.0
0.3750	0.5625	GSXB224	4.0000
16.0	24.0	GSXB20800	140.0
		SNB2160DL	160.0
0.4375	0.6563	GSXB228	4.0000
18.0	27.0	GSXB20900	140.0
0.5000	0.7500	GSXB232	4.5000
20.0	30.0	GSXB21000	160.0
0.5625	0.8438	GSXB236	4.5000
0.6250	0.9375	GSXB240	5.5000
0.6875	1.0313	GSXB244	5.5000
0.7500	1.1250	GSXB248	6.0000
0.8750	1.3125	GSXB256	6.5000
1.0000	1.5000	GSXB264	7.0000

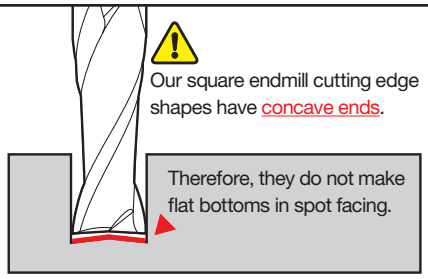
: Inch Diameters : 0.5mm Increments

Material Selection Guide

Target Material (What to machine?)	Cutting Applications	Recommended Tool	Ref. Page
Steel, Cast Iron, Stainless Steel, Titanium Alloy	High Efficiency Machining Chatter Countermeasures	GSXVL GSV	I76,I78 I74
	Medium Finishing to Finishing (Good Machining Accuracy)	GSX	I40 to I72
	Roughing (Large Stock Removal)	GSXVL	I76,I78
Aluminum Alloy	All Aluminum Alloys	ASM	I82 to I84

Target Material (What to machine?)	Cutting Applications	Recommended Tool	Ref. Page
Steel, Cast Iron, Stainless Steel, Titanium Alloy	High Efficiency Machining Chatter Countermeasures	GSXVL GSV	I76,I78 I92
	Medium Finishing to Finishing (Good Machining Accuracy)	GSX	I90
	Roughing (Large Stock Removal)	GSXVL	I76,I94
	Stainless Steel, Titanium Alloy	SSEH SSEHVL	I102,I104 I98,I100

Target Material (What to machine?)	Cutting Applications	Recommended Tool	Ref. Page
Steel, Cast Iron, Stainless Steel, Titanium Alloy	General Machining	GSXB	I27, I112
Aluminum Alloy Copper Alloy	All Aluminum Alloys, Copper	SNB	I115, I116



If a flat bottom is required, we recommend using the **Flat Bottom MDF**.

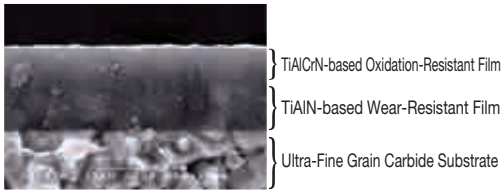
■ Endmill Coating

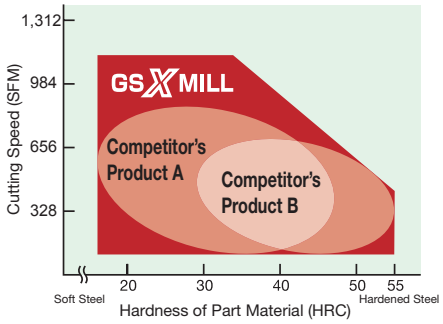
Coating Name	GSX Coat	ZX Coat	AURORA Coat	SUMIDIA Coat
Coating Type	TiAlCrN Type	TiAlN Type	DLC	Diamond
Wear Resistance	◎	○	○	◎
Adhesion Resistance	◎	○	◎	△
Thermal Resistance	◎	○	△	○
Coating Thickness	up to 2μm	up to 2μm	up to 0.5μm	up to 15μm
Features	Excellent thermal resistance and adhesion resistance	General-purpose	Low coefficient of friction and excellent adhesion resistance	Excellent hardness and wear resistance
Main Application	For general steel and stainless steel milling	For general steel and cast iron milling	For aluminum alloy and copper alloy milling	Milling of CFRP
Main Applicable Products	GSX/GSXB/GSXVL Type	UPMILL Type	ASM/SNB/SNB2 Type	SSDC Type

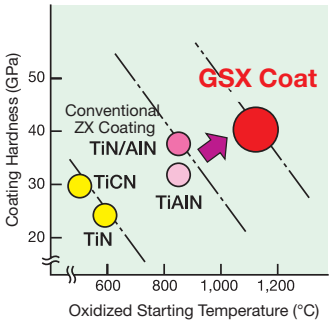
● GSX Coat

- Micro-grain carbide substrate provides high transverse rupture strength and excellent thermal shock resistance, improving reliability in wet cutting applications.
- Adopts GSX Coat for better wear resistance and thermal resistance, improving reliability and tool life when machining a wide range of work materials.

[Coating Structure]

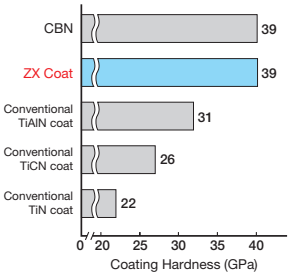


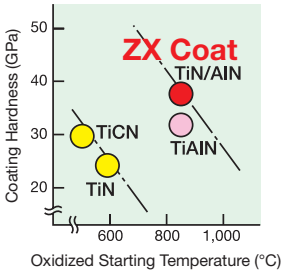




● ZX Coat

- Hardness almost equivalent to that of CBN
- Improvement in wear resistance, oxidation resistance and peel-off resistance
- Approx. 6 times longer tool life compared with uncoated products





● AURORA Coat

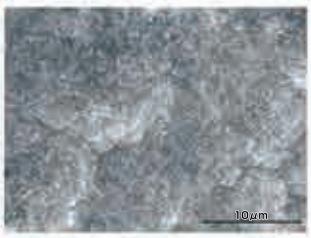
- Very smooth AURORA COAT results in low adhesion as well as good surface finish
- Low cutting force enables high feed machining and milling of low rigidity workpieces
- Ideal for machining non-ferrous metal/copper electrodes

AURORA Coat

Competitor's Diamond Coating

● SUMIDIA Coat

- Our original polycrystalline diamond coating technology achieves over 10 times higher wear resistance than uncoated carbide.
- Provides a micro-grain diamond film that provides the required combination of high strength and high wear resistance on smooth surfaces for CFRP milling

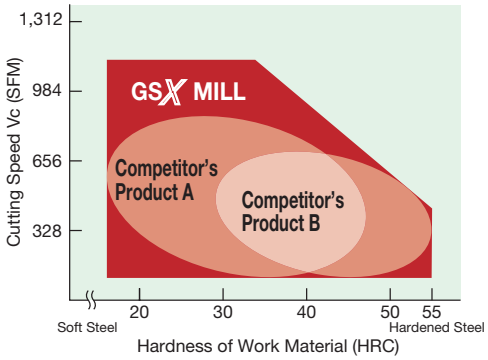


GSX MILL Series

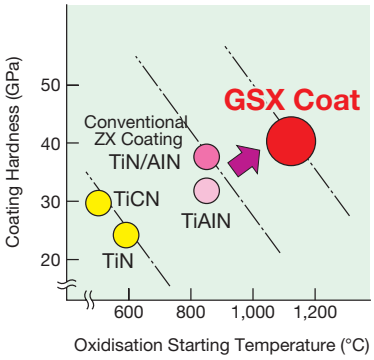
■ Features and Applications

- A wide selection from 3 types of cutting flute configuration and 4 cutting lengths to cover a wide range of applications.
- Micro-grain carbide substrate provides high transverse rupture strength and excellent thermal shock resistance, improving reliability in wet cutting applications
- GSX Coat has increased wear resistance and thermal resistance for improved reliability and longer tool life
- Large rake angle and unique flute design improve sharpness and chip evacuation
- Cutting teeth with gash land improve corner cutting edge strength
- New lineup of radius types and 4D size S types

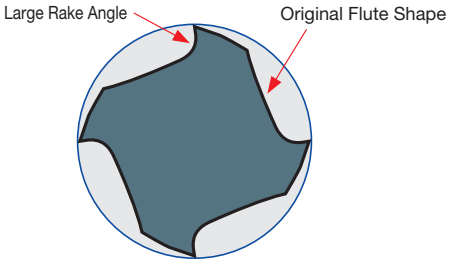
● Wear resistance



● Thermal resistance



● Improved chip evacuation

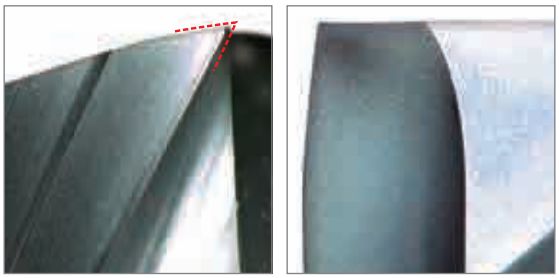


Large rake angle combined with our unique flute design improves sharpness and chip evacuation

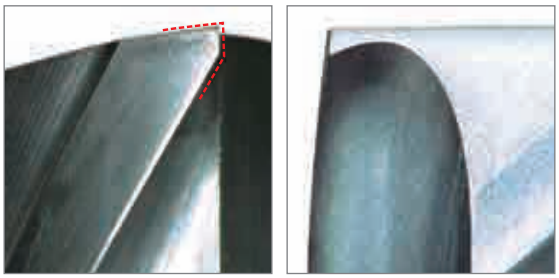
■ 2 cutting edge shapes, expanding machining applications

Sharper edge S type and fracture-resistant C type added to the 2D size series.

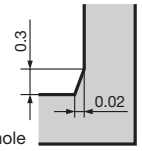
S Type Sharp Corner: Sharper Edge Design



C Type Gash Land: Fracture-Resistant Design



Note: When using endmills with gash land, some material remains as shown at right.
If you need sharp corners, use the S type.



Example: Corner on a ø10mm hole (Unit: mm)

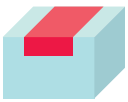
■ Part Material

◎: Great, ○: Suitable, Blank: Not recommended

P					H			M	S		K	N			
					Hardened Steel										
General Structure Rolled Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	Die Steel	45 to 55HRC	55 to 60HRC	60HRC	Stainless Steel	Titanium Alloy	Heat-Resistant Alloy	Cast Iron	Aluminum Alloy	Copper Alloy	Graphite	CFRP
○	◎	◎	◎	◎	◎ *1			◎	○	○	○				

*1: GSXSLT30000C is recommended for 50 HRC or less.

■ Recommended Milling Examples

Application	Side Milling		Groove Milling		Groove Finishing	
Form						
	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
S Type		◎		○ *2		◎
C Type	◎	○	◎	◎	◎	○

The S type is best for removing inside corners.

*2: Use with low depth of cut.

GSX MILL Series

■ Product Range

Applications	Number of Teeth	Cutting Edge Length						
		1.5D	2D		3D		4D	
		C Type	S Type	C Type	S Type	C Type	S Type	C Type
General-purpose	2 Flutes	GSX20000C-1.5D ø0.5 to ø25.0mm	GSX20000S-2D ø0.3 to ø25.0mm	GSX20000C-2D ø0.5 to ø25.0mm	GSX20000S-3D ø0.5 to ø25.0mm	GSX20000C-3D ø0.5 to ø25.0mm	GSX20000S-4D ø0.5 to ø25.0mm	GSX20000C-4D ø0.5 to ø25.0mm
General-purpose	3 Flutes	GSX30000C-1.5D ø1.0 to ø12.0mm		GSX30000C-2D ø1.0 to ø20.0mm				
General-purpose	4 Flutes	GSX40000C-1.5D ø1.0 to ø25.0mm	GSX40000S-2D ø1.0 to ø25.0mm	GSX40000C-2D ø1.0 to ø25.0mm	GSX40000S-3D ø1.0 to ø25.0mm	GSX40000C-3D ø1.0 to ø25.0mm	GSX40000S-4D ø1.0 to ø25.0mm	GSX40000C-4D ø1.0 to ø25.0mm
Multi-Purpose	3 Flutes	GSXSLT30000C-1.5D ø1.0 to ø12.0mm						
Radius	4 Flutes		GSX40000-R-2D ø3.0 to ø12.0mm					

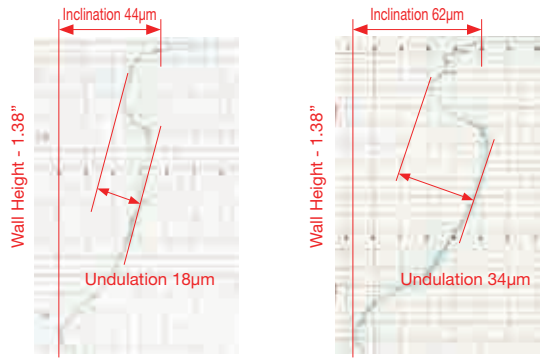
■ High Precision

- Diametrical tolerance decreased to 2/3 of the previous type. Also features reduced variation and does not require tool diameter correction when replacing tools.

■ Multi-Purpose

- Optimized flute design of slotted 3 flute (short) type reduces cutting force.
  (1) Allows drilling, slot milling and other continuous (compound) applications
  (2) Perfect for use with thin sheets and small machining centers.

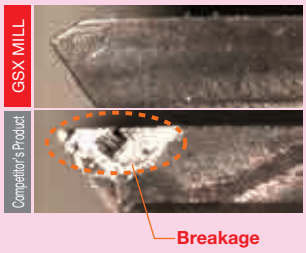
■ Long, High Rigidity Flutes (C Type)



GSX MILL-4D		Competitor's Product	
Tool Diameter	ø10 (2 Flutes)	Depth of Cut	a_p = 1.38"
Work Material	S50C		a_e = 0.004" x 25 times
Cutting Speed	144 SFM (1400 RPM)	Coolant	Wet
Feed Rate	9.45" (0.0034" IPT)	Vertical Machining Centre	BT30

■ Application Examples

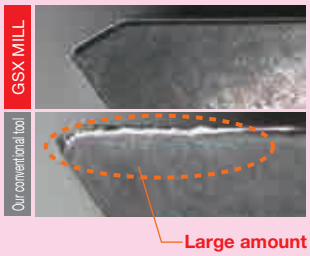
• Carbon Steel Groove Milling with GSX20000C



Gash land for stronger cutting edge.

Tool Diameter	ø6 (2 Flutes)
Part Material	1050 Steel
Cutting Speed	285 SFM (4,615 RPM)
Feed Rate	21.78" IPM (0.0024" IPT)
Depth of Cut	a_p = 0.118"
	a_e = 0.236"
Coolant	Dry
Vertical Machining Centre	BT50

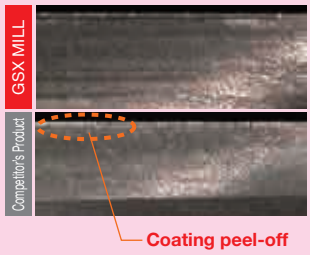
• Cast Iron Groove Milling with GSX20000C



GSX coat for improved wear resistance.

Tool Diameter	ø10 (2 Flutes)
Part Material	Cast Iron - FCD600
Cutting Speed	217 SFM (2,100 RPM)
Feed Rate	11.89" IPM (0.0028" IPT)
Depth of Cut	a_p = 0.197" x 5 times
	a_e = 0.394"
Coolant	Dry
Vertical Machining Centre	BT40

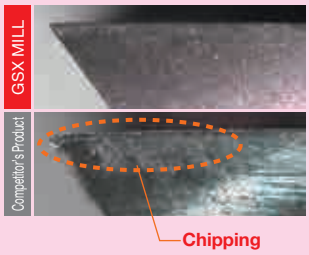
• Stainless Steel Machining with GSX20000C



Improved reliability even under wet machining.

Tool Diameter	ø10 (2 Flutes)
Part Material	304 Stainless
Cutting Speed	164 SFM (1,591 RPM)
Feed Rate	5.00" IPM (0.0016" IPT)
Depth of Cut	a_p = 0.394"
	a_e = 0.0197"
Coolant	Wet
Vertical Machining Centre	BT50

• 1050 Steel Side Milling with GSX20000S



The S type delivers optimum sharpness.

Tool Diameter	ø6 (2 Flutes)
Part Material	1050 Steel
Cutting Speed	285 SFM (4,615 RPM)
Feed Rate	21.8" IPM (0.0024" IPT)
Depth of Cut	a_p = 0.394"
	a_e = 0.012"
Coolant	Dry
Vertical Machining Centre	BT50

GSX MILL Series

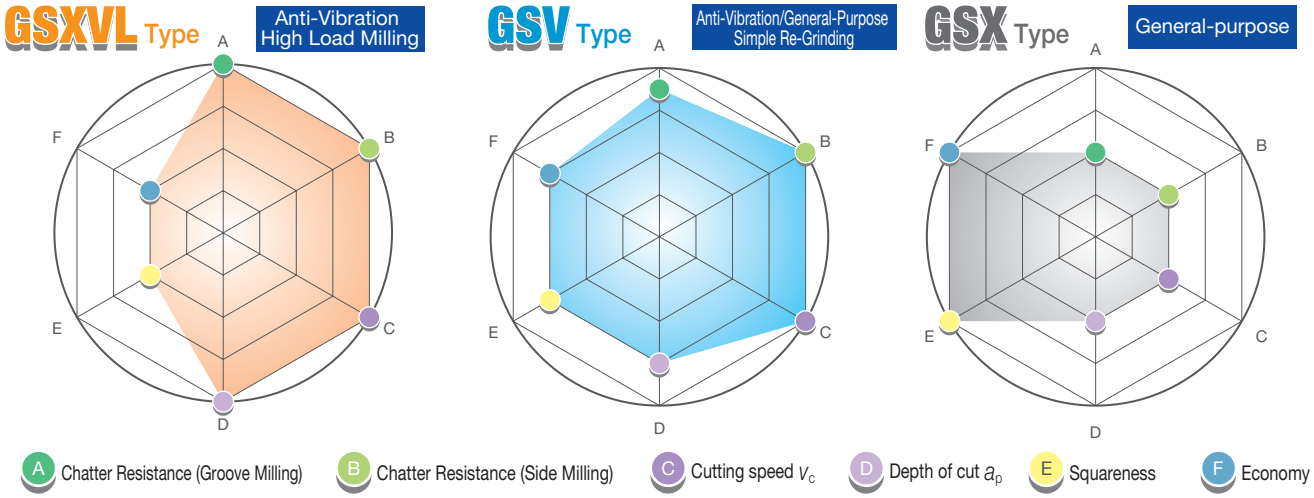
■ Recommended Milling Examples

Application	Side Milling		Groove Milling		Groove Finishing	
	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
GSXVL Type	◎	○	◎	◎	◎	○
GSV Type	◎	◎	○	◎	◎	○

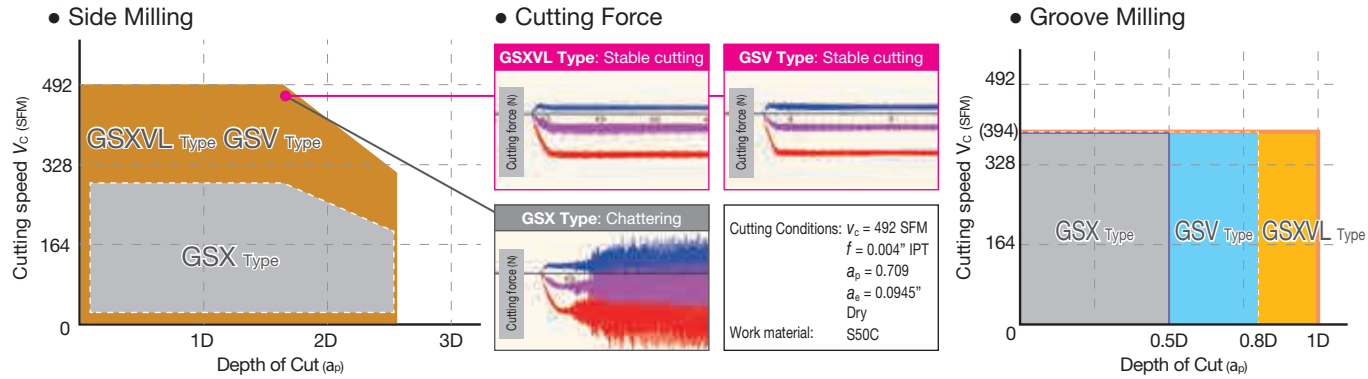
■ Diameter

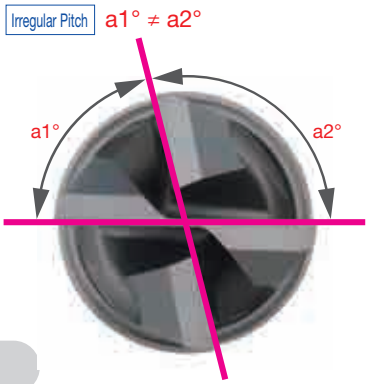
■ Differentiating GSXVL / GSV Type Use

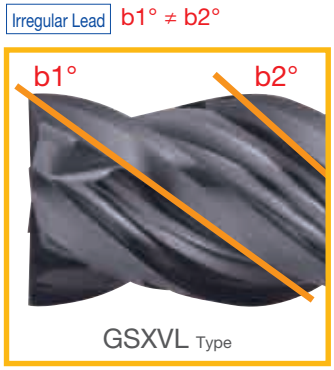
GSXVL types exhibit outstanding performance for high load milling. GSV types are both chatter-resistant and economical.



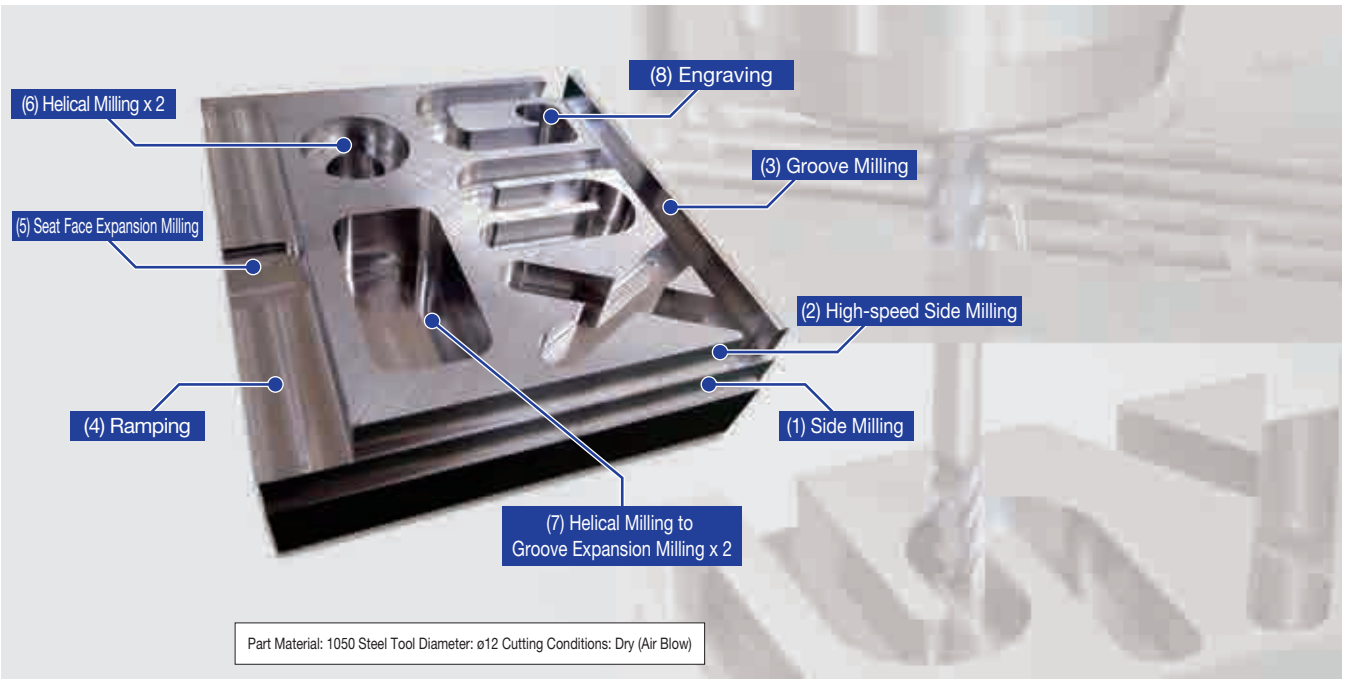
■ Cutting Range





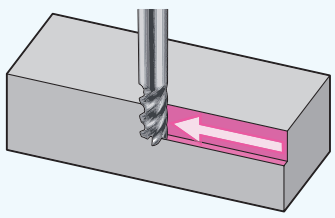


■ Application Examples



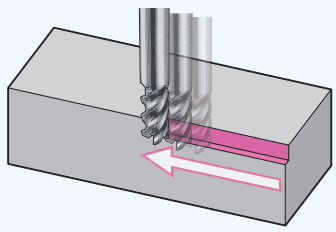
Part Material: 1050 Steel Tool Diameter: ø12 Cutting Conditions: Dry (Air Blow)

(1) Side Milling GSXVL Type ◯ / GSV Type ◎



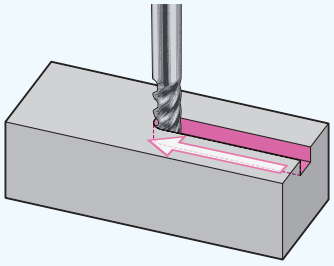
Cutting Conditions: v_c = 335 SFM (n = 4,100 RPM) Tool Diameter: ø8
v_f = 42.52" IPM (0.004" IPT)
a_p = 0.945", a_e = 0.787"

(2) High-speed Side Milling GSXVL Type ◎ / GSV Type ◎



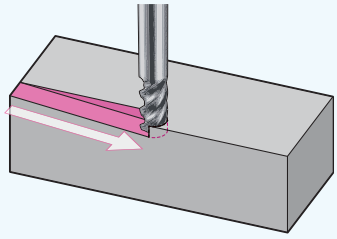
Cutting Conditions: v_c = 945 SFM (n = 4,000 RPM) Tool Diameter: ø12
v_f = 189" IPM (0.012' IPT)
a_p = 0.472" , a_e = 0.787"

(3) Groove Milling GSXVL Type ◎ / GSV Type ◯



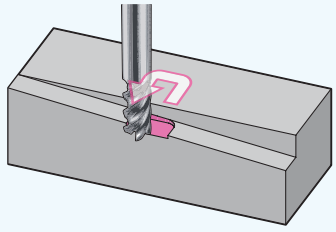
Cutting Conditions: v_c = 295 SFM (n = 2,400 RPM) Tool Diameter: ø12
v_f = 37.80" IPM (0.004" IPT)
a_p = 0.472"

(4) Ramping GSXVL Type ◎ / GSV Type ◯



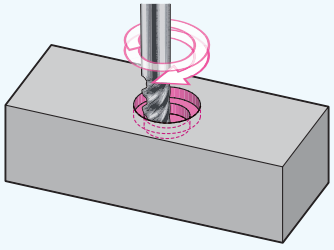
Cutting Conditions: v_c = 295 SFM (n = 2,400 RPM) Tool Diameter: ø12
v_f = 18.90" IPM (0.002" IPT)
Ramp Angle 5°

(5) Seat Face Expansion Milling GSXVL Type ◎ / GSV Type ◎



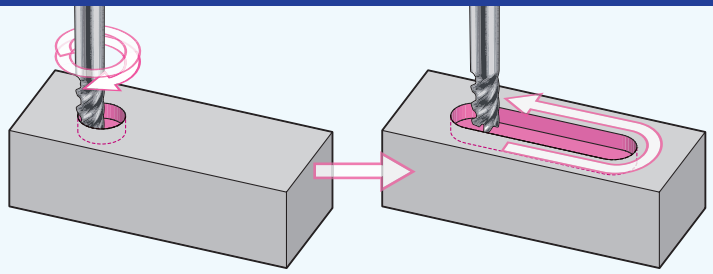
Cutting Conditions: v_c = 295 SFM (n = 2,400 RPM) Tool Diameter: ø12
v_f = 37.80" IPM (0.004" IPT)

(6) Helical Milling x 2 GSXVL Type ◎ / GSV Type ◎



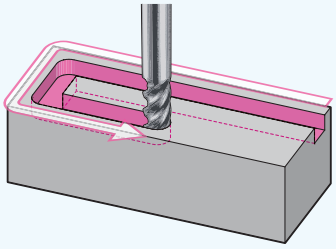
Cutting Conditions: v_c = 295 SFM (n = 2,400 RPM) Tool Diameter: ø12
v_f = 18.90" IPM (0.002" IPT)
Ramp Angle 3°

(7) Helical Milling to Groove Expansion Milling x 2 GSXVL Type ◎ / GSV Type ◎



Cutting Conditions: v_c = 295 SFM (n = 2,400 RPM) Tool Diameter: ø12
[Helical] v_f = 18.90" IPM (0.002" IPT) [Groove Expansion] v_f = 26.46" IPM (0.0028" IPT) [Finishing] v_f = 75.59" IPM (0.0079" IPT)
Ramp Angle 3°
a_p = 0.945", a_e = 0.004"

(8) Engraving GSXVL Type ◎ / GSV Type ◯



Cutting Conditions: v_c = 259 SFM (n = 2,100 RPM[1]) Tool Diameter: ø12
v_f = 23.19" IPM (0.0028" IPT)
a_p = 0.472"

■ Recommended Milling Examples

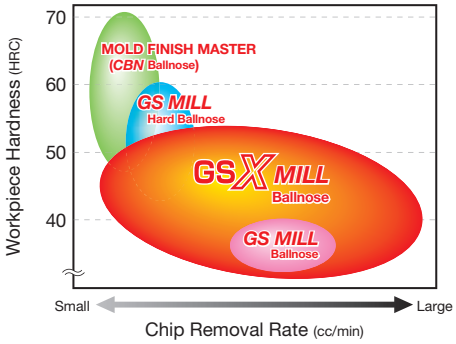
Application	Radius Milling		Profiling		Pocketing	
	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
Ballnose Type	◎	◎	◎	◎	◎	◎

■ Diameter

■ Improved Thermal Resistance and Wear Resistance

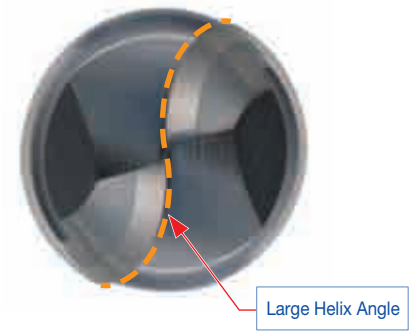
New coating combined with an ultra-fine grain carbide substrate for better thermal and wear resistance.

■ Application Range



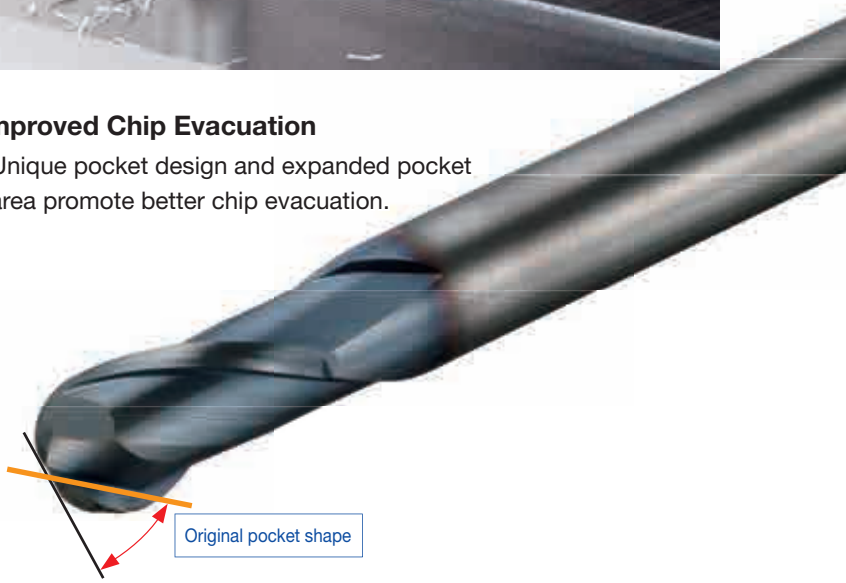
■ Reduced Cutting Force

Large helix angle on curved cutting edge reduces cutting force

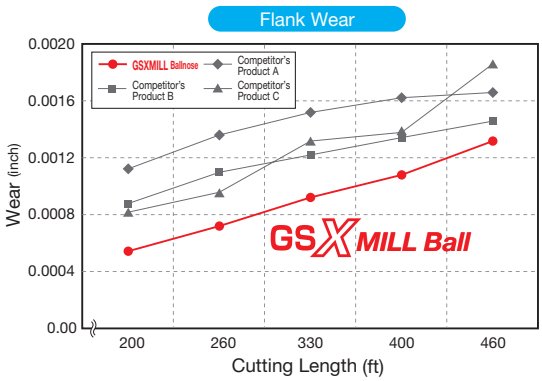


■ Improved Chip Evacuation

Unique pocket design and expanded pocket area promote better chip evacuation.



■ Application Examples



GSX Ballnose (Cutting Length 459 ft)

Conventional Tool (Cutting Length 262 ft)

Breakage in center, severe wear on rake face

Part Material: H13 Tool Steel (50HRC)
Tool Diameter: R3 (2 Flutes)
Cutting Conditions: v_c = 587 SFM (n = 9,500 RPM), v_f = 88.58" IPM (f_z=0.0047" IPT)
a_p = 0.0787"~0.0393", p_f = 0.0118" Wet
Equipment: Vertical Machining Center BT40

SUMIDIA Coated SSDC Type Series

☞ I89

■ Product Range

Cat. No.	Number of teeth	Shape	Diameter (mm)
SSDC 4000	4 Flutes	Right-hand Helix ☞ I89	ø6 to ø12
SSDC 4000RL	4 Flutes	Right/Left-hand Helix ☞ I89	ø6 to ø12

■ Features and Applications

- Two different types of flute shapes are available.

SSDC Type (Right-hand Helix Type)

Achieving both better sharpness and longer tool life through optimizing the rake and relief angles, along with a small helix angle.

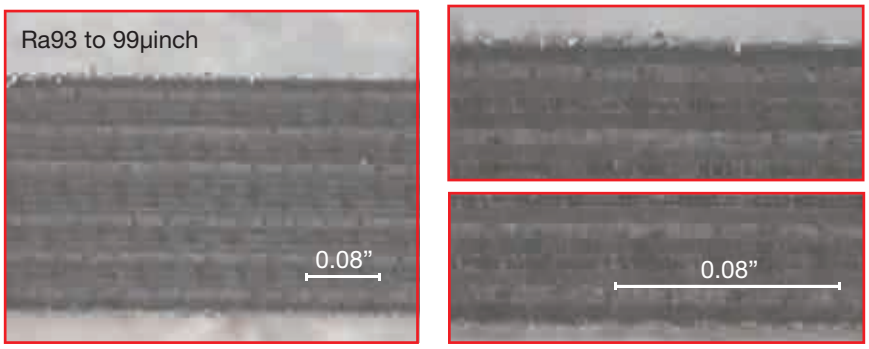
SSDCRL Type (Right/Left-hand Helix Type)

Right/left-hand helix prevents delamination on top and bottom surfaces.
Cutting force is dispersed even with unstable clamping, improving surface quality.

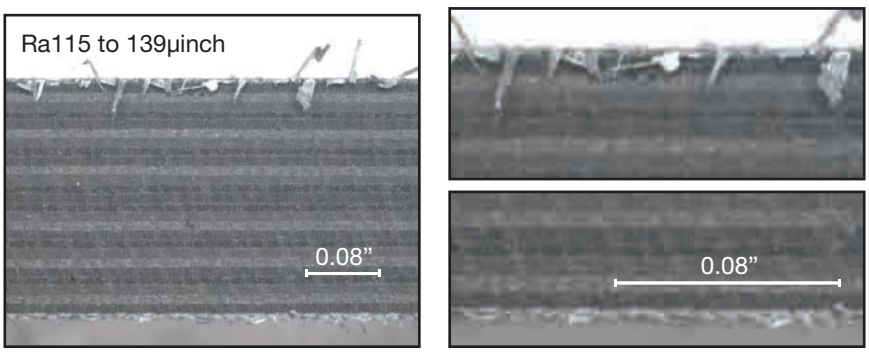
■ Performance

- Surface Finish Comparison

SSDC Type



Competitor's Product



Work Material:	CFRP
Tool Diameter:	ø10 (4 Flutes)
Cutting Conditions:	v_c = 1,030 SFM
	(n = 10,000 RPM)
	v_f = 39.37”
	(f_z = 0.001” IPT))
	Dry

Results

SSDC Type

High surface quality with no burrs

Competitor's Product

Burrs are formed. Low surface quality

SSEH Type Series

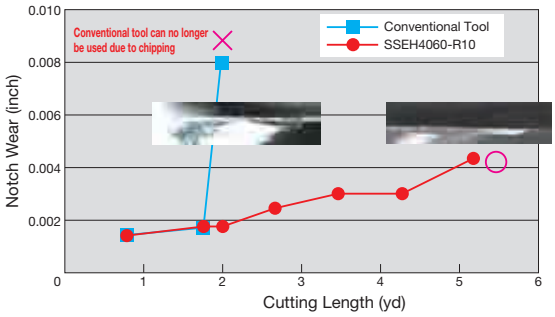
SSEH Type Radius

■ Features and Applications

- Steep helix (45° helix) improves sharpness
- Combination of unique flute design and semi-mirrored rake face improves chip evacuation and adhesion resistance.
- Ultra-smooth coating with improved hardness and thermal resistance combined with tough carbide substrate improves tool life when working with heat-resistant alloys.
- Unique, smooth radius shape mitigates cutting impact and improves fracture resistance.
- Both coated and uncoated types are in stock to meet various conditions.

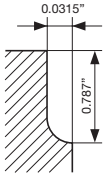
■ Application Examples

- Inconel 718 (Side Milling)



Tool Diameter: ø6 × R1
Cutting Conditions: v_c = 66 SFM, f_z = 0.001" IPT,
a_p = 0.197", a_e = 0.0197" Wet

- Inconel 713 (Side Milling)

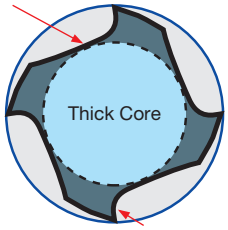


In Sumitomo Electric Hardmetal tests, the special coating with excellent adhesion resistance provided less cutting edge adhesion than the competitor's product and enabled fracture-free machining. The competitor's product suffered from edge adhesion leading to breakage.

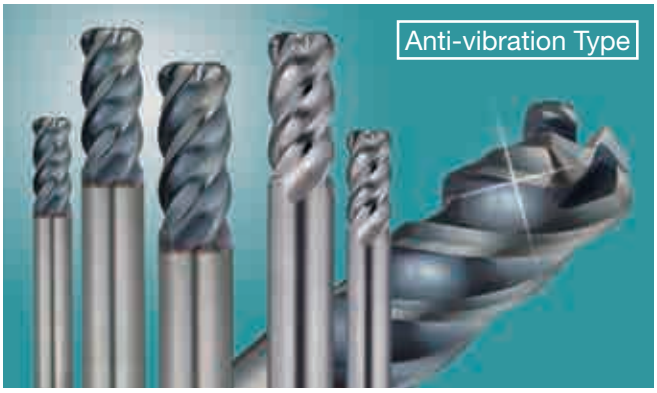
Tool Diameter: ø10 × R1 Number of Workpieces: 150pcs/unit
Cutting Conditions: v_c = 105 SFM, f_z = 0.0007" IPT,
a_p = 0.787", a_e = 0.0315" Dry

Unique, smooth radius design

Original wide arc flute



Semi-mirrored Rake Face

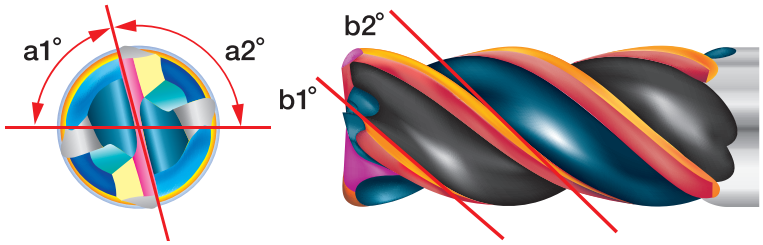


SSEH Radius Anti-vibration Type

■ Features and Applications

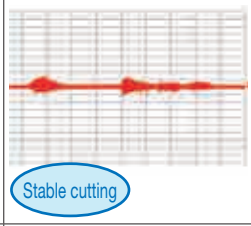
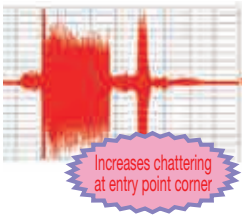
- New anti-vibration type added to the SSEH type endmill for exotic alloys.
- Builds on the same features of existing endmills by adding an irregular lead for exceptional anti-vibration performance.
- Compatible with a wide range of milling for exotic alloys including Stainless Steel, Inconel and titanium.
- Reduces chattering for high-speed, high-feed cutting.
- Both coated and uncoated types are in stock to meet various conditions.

Irregular Pitch + Irregular Lead



■ Application Examples

- Corner Finishing for Titanium Alloy

	SSEH Radius Anti-Vibration Endmill SSEHVL 4120W-30	No Anti-Vibration Mechanism Endmill ø12 × R3.0
Machined Surface		
Vibration Data		
Tool Breakage		

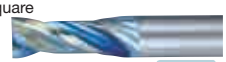
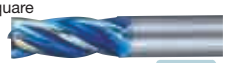
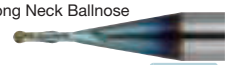
Cutting Conditions: v_c = 139 SFM (n = 1,125 RPM)
v_f = 7.87" IPM (f_z = 0.0017" IPT)
a_p = 0.197", a_e = 0.472" Wet

AURORA Coat Endmills

■ Features and Applications

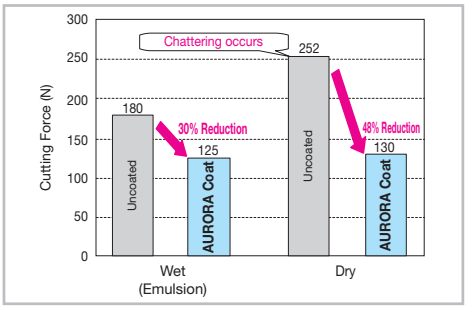
- Very smooth AURORA Coat results in low adhesion as well as a good surface finish
- With lower cutting forces and high rigidity, this series is suitable for low rigidity machines
- Available in 2- and 4-flute square type as well as ballnose type endmills
- Added R0.05 to R2.00mm long neck ballnose endmills for machining copper electrodes

■ Product Range

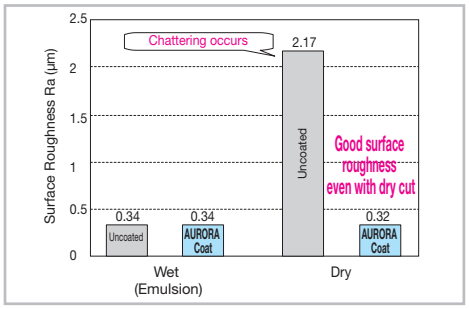
Cat. No.	No. of Teeth	Shape	Diameter (mm)
ASM 2000DL	2 Flutes	Square  ☞ I82	ø2 to ø16
ASM 4000DL	4 Flutes	Square  ☞ I83	ø2 to ø16
SNB 2000DL	2 Flutes	Ballnose ☞ I115	R1 to R8 (ø2 to ø16)
SNB2	2 Flutes	Long Neck Ballnose  ☞ I116	R0.05 to R2 (ø0.1 to ø4)

■ Performance

- Comparison of Cutting Force



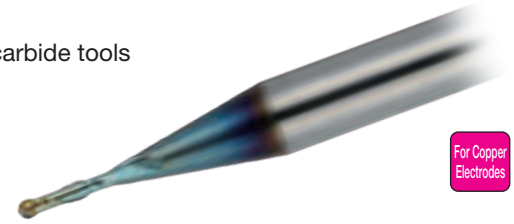
- Surface Roughness Comparison



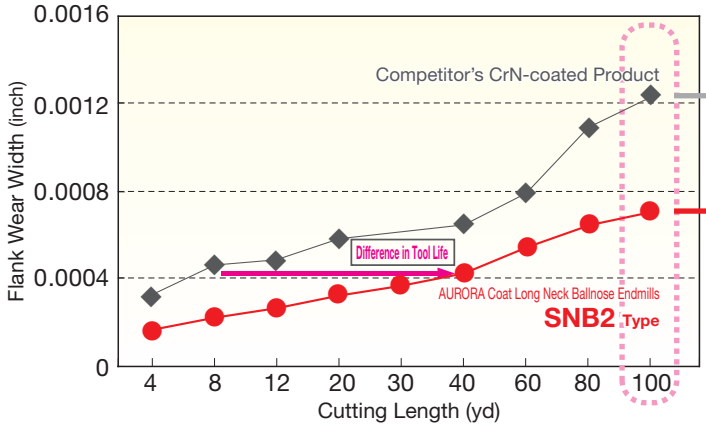
Work Material: A5052
Tool: ASM4100DL
ø10 (4 Flutes)
Cutting Conditions:
v_c = 656 SFM
n = 6,300 RPM
f_z = 0.002" IPT
v_f = 51.2" IPM
a_p = 0.40"
a_e = 0.04"
Down-cut

■ AURORA Coat Long Neck Ballnose Endmill SNB 2 Type

- Achieves longer tool life compared with chromium nitride (CrN)-coated carbide tools
- Products with ballnose radii of 0.05 to 2.00mm
- Reduced coefficient of friction
- Extremely smooth coating structure



- Tool Wear Comparison



Tool	Cutting Length 100m	Cutting Conditions
Competitor's CrN-coated Product	Large amount of wear	Work Material: Tough-Pitch Copper Tool: R0.3mm Ballnose Endmill Cutting Conditions: v_c = 187 SFM n = 30,000 RPM a_p = 0.0014" a_e = 0.0012" Oil Mist
SNB2 Type		

Excellent adhesion resistance in copper alloy milling with long tool life!

MOLD FINISH MASTER

SUMIDIA Binderless Endmills

NPDRS Type/NPDBS Type/NPDB Type

SUMIDIA Coated Endmills

SDCB Type

SUMIBORON Endmills

BNBR Type/BNBP Type/BNBC Type

SUMIDIA Binderless Radius Endmills

NPDRS Type

Radius r

☞ I102

For Finishing of Cemented Carbide and Hard Brittle Material

SUMIDIA Binderless Ballnose Endmills

NPDBS Type/NPDB Type

Ball-nose R

☞ I112, I113

For Finishing of Cemented Carbide and Hard Brittle Material

- Adopts nano-polycrystalline diamond for the cutting edge, with higher hardness than single-crystal diamond
- This enables direct engraving of cemented carbide, which is impossible for existing single-crystal or polycrystalline diamonds
- Ideal for finishing hard brittle materials, including cemented carbide. Provides high-precision machining and long tool life
- Standard finish NPDBS type dramatically reduces machining cost
- Precision finish NPDB type is polish-less to prevent shape deformation

SUMIDIA Coat Ballnose Endmills

SDCB Type

Ball-nose R

☞ I114

For Rough/Medium Finishing of Cemented Carbide and Hard Brittle Materials

- Provides high efficiency rough/medium finishing of carbide molds
- Newly developed diamond coating exhibits stable tool life
- PCD - SUMIDIA Binderless Endmill combination provides the highest-level machining precision

CBN - SUMIBORON Radius Endmills

BNBR Type

Radius r

For Hardened Steel

CBN - SUMIBORON Ballnose Endmills

BNBP Type

Ball-nose R

For Hardened Steel

- Achieves longer tool life in high-speed, high-precision machining from pre-hardened steel to high-hardness steel in excess of 60HRC
- Excellent machined surface quality drastically reduces the grinding process
- Cutting edge design suited to profiling and face milling, plus an extensive selection of grades allows a wide range of machining applications

CBN -SUMIBORON Ballnose Endmills

BNBC Type

Ball-nose R

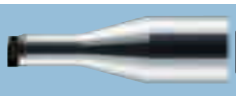
For Copper Electrodes

- Ballnose radii of R0.1mm to R0.5mm are covered by this series
- Adoption of grade with high CBN content provides excellent edge-sharpness performance and wear resistance
- Achieves high quality milling with high precision cutting edge

Radius r

SUMIDIA Binderless Radius Endmills

NPDRS Type

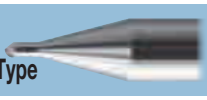


Hard Brittle Material

Ball-nose R

SUMIDIA Binderless Ballnose Endmills

NPDBS Type/NPDB Type



Hard Brittle Material

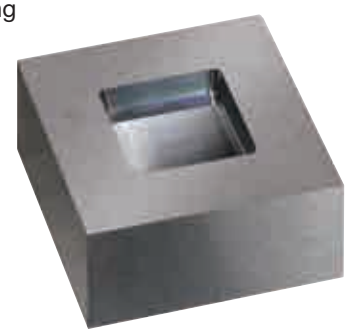
■ General Features

SUMIDIA Binderless is polycrystalline diamond that directly binds nano-order diamond particles with high strength without using any binders. Harder than single-crystal diamond, it has no cleavability, enabling machining of hard brittle material such as cemented carbide and making new machining methods possible.

■ Features

- SUMIDIA Binderless is a pure diamond material, but unlike single-crystal diamonds, it has no anisotropy. It therefore displays excellent wear resistance with less uneven wear.
- Thanks to its polycrystalline structure, SUMIDIA Binderless does not have the cleavability peculiar to single-crystal diamonds and displays excellent fracture resistance.

● Pocketing

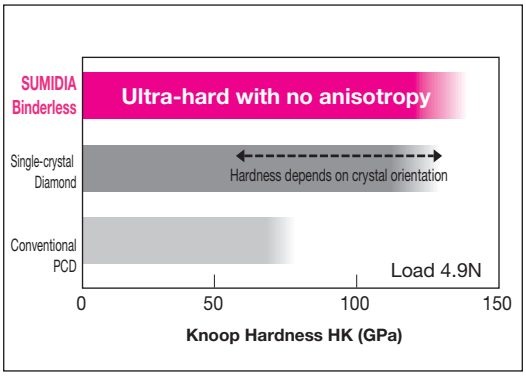


Part Material:	Cemented Carbide AF1 (Ultra-Fine Grained Carbide)
Machining Details:	0.40" × 0.40" × depth 0.08"
Tool:	NPDRS 1100R005-030
Cutting Conditions:	n = 40,000 RPM, v_f = 7.87" IPM p_f = 0.0002", Oil Mist
Surface Roughness:	Ra 0.015μm
Cutting Time:	2 Hours

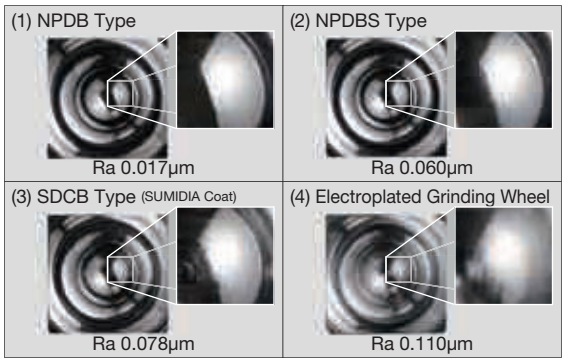
● Application to Medical Use (μ-TAS Mold)

Part Material:	Cemented Carbide AF1 (Ultra-Fine Grained Carbide)
Tool:	NPDB 1030-010 (R0.3)
Cutting Conditions:	n = 38,000 RPM, v_f = 3.74" IPM p_f = 0.00004", Wet (Oil-based)
Machining Allowance:	0.00012"
Surface Roughness:	Ra 0.016 to 0.020μm
Cutting Distance:	9 yds
Cutting Time:	Finishing 1 Hour 28 Minutes

■ Hardness



● Hemispherical Surface Milling



Part Material:	Cemented Carbide AF1 (Ultra-Fine Grained Carbide)
Machining Details:	ø6 (Hemispherical Surface Milling)
Tool:	(1) NPDB 1050-020 (2) NPDBS 1050-020 (3) SDCB 2R050-020 (4) R0.5, #400
Cutting Conditions:	n = 40,000 RPM, v_f = 4.72" IPM p_f = 0.0002", Oil Mist
Cutting Time:	1 Hour 30 Minutes

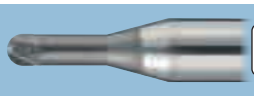
● Application to Optical Use (Fly-Eye Lens Mold)

Part Material:	Cemented Carbide AF1 (Ultra-Fine Grained Carbide)
Tool:	Finishing NPDB 1050-020 (R0.5) Roughing Diamond Coated Endmill (R0.5)
Cutting Conditions:	n = 60,000 RPM, v_f = 11.8" IPM p_f = 0.0002", Oil Mist
Surface Roughness:	Ra 0.015μm
Cutting Time:	Finishing 2 Hour 40 Minutes Roughing 55 Minutes

MOLD FINISH MASTER

SUMIDIA Coat Ballnose Endmills SDCB Type

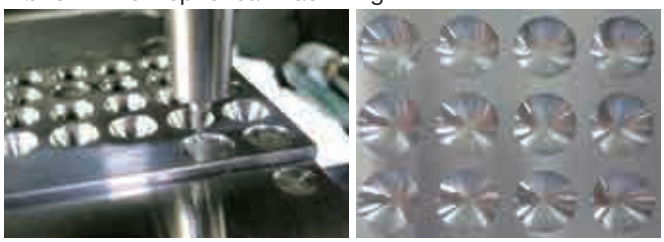
Ball-nose R



Hard Brittle Material

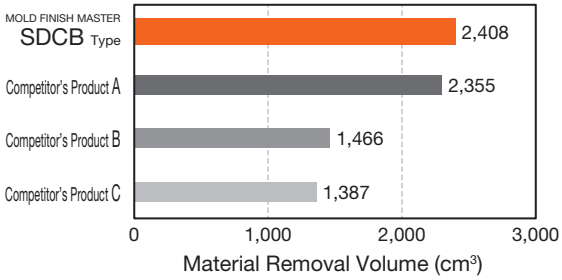
- Produces high efficiency roughing/medium finishing of carbide molds
- Newly developed diamond coating exhibits stable tool life
- SUMIDIA Binderless Endmill combination provides the highest-level machining precision

- ø10mm hemispherical machining

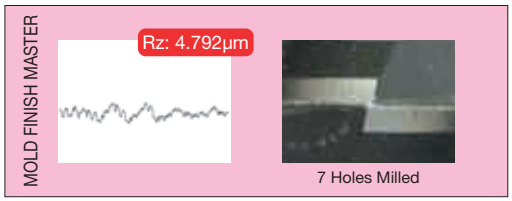


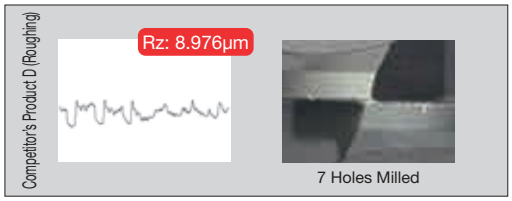
Part Material:	Cemented Carbide AF1 (Ultra-Fine Grained Carbide)
Tool:	SDCB 2R100-060
Cutting Conditions:	n = 30,000 RPM, v_f = 11.8" IPM
	a_e = 0.012", a_p = 0.004", Air Blow

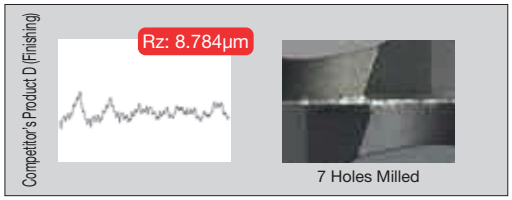
Tool Life



- ø2.0 (R1.0) number of workpieces and tool damage (Delamination)

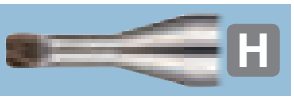






SUMIBORON Mold Finish Master BNBR Type

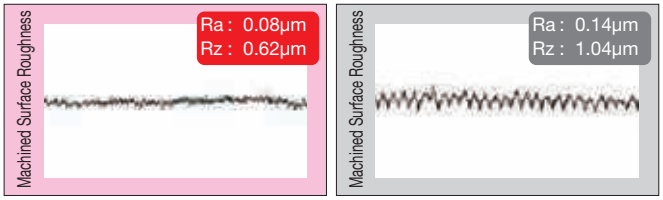
Radius r



H

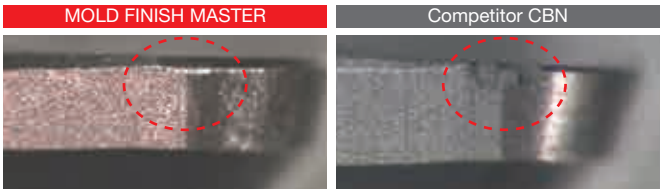
- Improved machined surface quality through use of a wiper edge (available on ø1.0mm drills and larger).

Machined Surface Comparison



With Wiper Edge | Without Wiper Edge

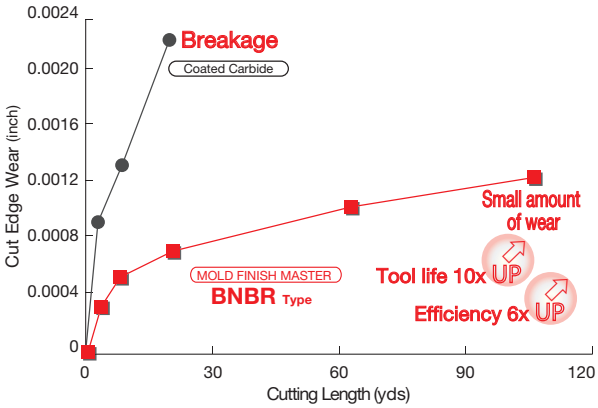
- Combination of CBN SUMIBORON BNX20 with excellent wear resistance and optimal cutting edge design provides longer tool life.



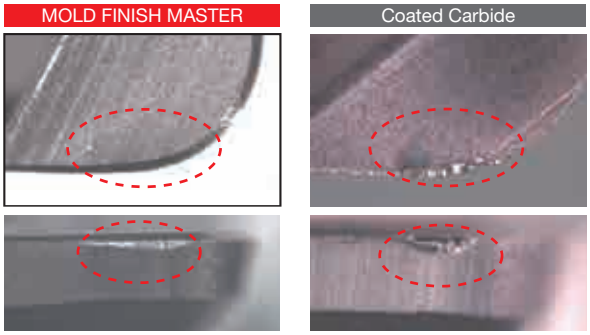
Small amount of wear | Breakage

Part Material:	STAVAX(52HRC)
Tool:	BNBR 2D200R050-0604 (ø2 × r 0.5)
Cutting Conditions:	n = 20,000 RPM, v_f = 15.75" IPM
	a_p = 0.0012", p_f = 0.0276" Oil Mist

- Excellent wear resistance delivers almost 10 times longer tool life than carbide endmills.



Tool Wear Comparison



Small amount of wear | Breakage

Work Material: STAVAX(52HRC)
Tool: BNBR 2D200R050-0604 (ø2 × r 0.5)

MOLD FINISH MASTER
Cutting Conditions: n = 20,000 RPM, v_f = 31.5" IPM
a_p = 0.0012", p_f = 0.0276" Oil Mist

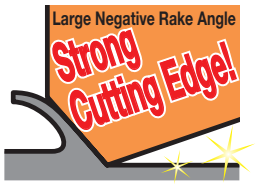
Coated Carbide
Cutting Conditions: n = 4,800 RPM, v_f = 4.72" IPM
a_p = 0.0012", p_f = 0.0276" Oil Mist

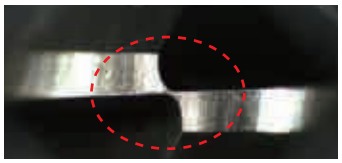
SUMIBORON Mold Finish Master BNBP Type

Ballnose R

H

- Achieves high precision machining with precise ball radius of ±0.005mm.
- Combination of SUMIBORON BN350 with excellent fracture resistance and cutting edge designed with negative rake angle provides stable, interrupted cutting.



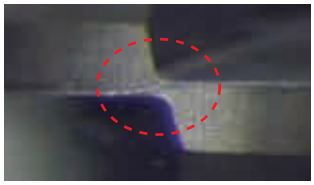


Central edge stabilizes machined surface quality

- Strong cutting edge enables use in roughing applications

MOLD FINISH MASTER | Coated Carbide

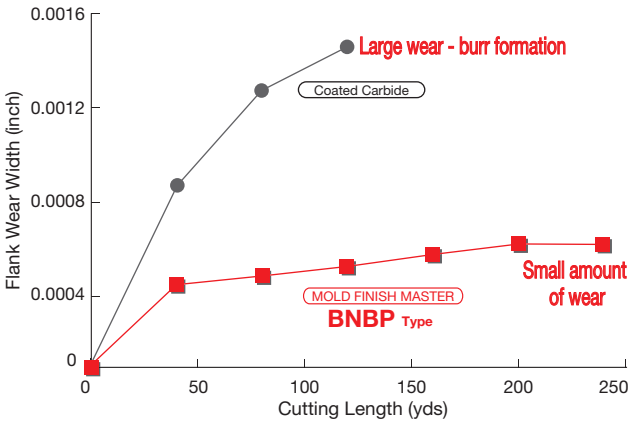
No fracture



Breakage on central edge

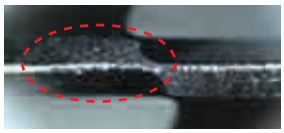
Work Material:	STAVAX(52HRC)
Tool:	BNBP 2R100-0554 (*R*1.0)
Cutting Conditions:	n = 25,000 RPM, v_f = 59" IPM
	a_p = 0.004", p_f = 0.008" Oil Mist

- Excellent wear resistance and machined surface quality



Tool Wear Comparison

MOLD FINISH MASTER (6 passes) | Coated Carbide (2 passes)



Small amount of wear

Large amount of wear

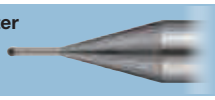
Good machined surface

Burr formation

Work Material:	STAVAX(52HRC)
Tool:	BNBP 2R030-0154 (*R*0.3)
Cutting Conditions:	n = 25,000 RPM, v_f = 59" IPM
	a_p = 0.002", p_f = 0.004" Oil Mist

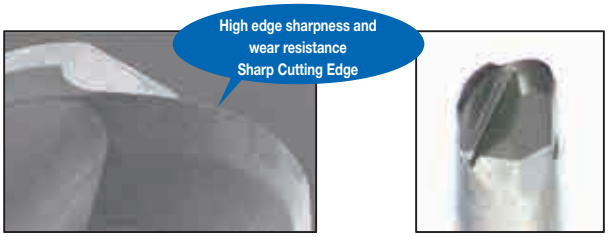
SUMIBORON Mold Finish Master BNBC Type

Ballnose R



For Copper Electrodes

- Ballnose radii of 0.1 to 0.5mm are covered by this series.
- Achieves high quality milling with high precision cutting edge.



- Achieves further improved tool life

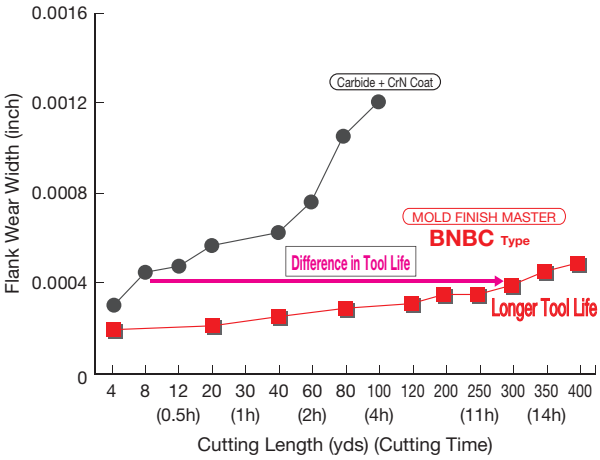
MOLD FINISH MASTER | Competitor's Carbide + CrN-Coated Product

Low Wear (Cutting Length 15.75")

High Wear (Cutting Length 3.94")

Work Material:	Tough-Pitch Copper (Side Milling)
Tool:	BNBC 2R030-0304 (*R*0.3)
Cutting Conditions:	n = 30,000 RPM, v_f = 27.56" IPM
	a_p = 0.014", a_e = 0.0012" Oil Mist

- Adoption of material with high CBN content provides excellent edge-sharpness performance and wear resistance.

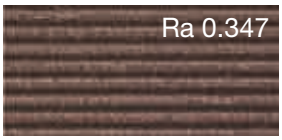


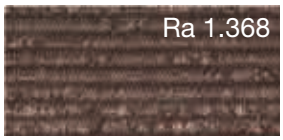
Tool Wear Comparison

MOLD FINISH MASTER | Competitor's Carbide + CrN-Coated Product

Microwear, can still be used

Large amount of wear





Good cutter mark surface on BNBC Type

Work Material:	Tough-Pitch Copper
Tool:	BNBC 2R030-0304 (*R*0.3)
Cutting Conditions:	v_c = 187 SFM, n = 30,000 RPM
	f_z = 0.0003" IPT, v_f = 15.75" IPM
	a_p = 0.0002", a_e = 0.002" Oil Mist

GSXB INCH Type

2 Flutes | GSX Coat | Ballnose R | 30° Helix Angle | Side Milling | Face Milling | R-Grooving | Profiling

Fig 1

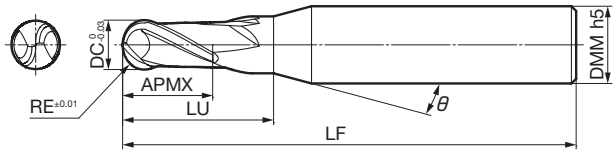
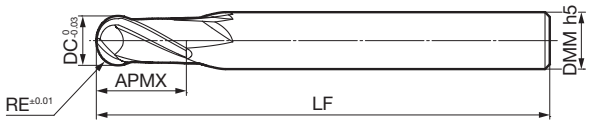


Fig 2



DC	θ
< ø2	10°
ø2 or more	15°

Body

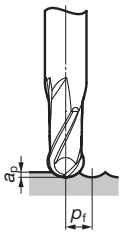
Dimensions (inch)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSXB204	•	0.0313	0.0625	0.0938	0.1331	2.000	0.1250	1
GSXB206	•	0.0469	0.0938	0.1406	0.1800	2.500	0.1250	1
GSXB208	•	0.0625	0.1250	0.1875	-	2.500	0.1250	2
GSXB210	•	0.0781	0.1563	0.2344	0.2934	3.000	0.1875	1
GSXB212	•	0.0938	0.1875	0.2813	-	3.000	0.1875	2
GSXB214	•	0.1094	0.2188	0.3282	0.407	3.000	0.2500	1
GSXB216	•	0.1250	0.2500	0.3750	-	3.000	0.2500	2
GSXB218	•	0.1407	0.2813	0.4220	0.501	3.500	0.3125	1
GSXB220	•	0.1563	0.3125	0.4688	-	3.500	0.3125	2
GSXB224	•	0.1875	0.3750	0.5625	-	4.000	0.3750	2
GSXB228	•	0.2188	0.4375	0.6563	-	4.000	0.4375	2
GSXB232	•	0.2500	0.5000	0.7500	-	4.500	0.5000	2
GSXB236	•	0.2813	0.5625	0.8438	-	4.500	0.5625	2
GSXB240	•	0.3125	0.6250	0.9375	-	5.500	0.6250	2
GSXB244	•	0.3438	0.6875	1.0313	-	5.500	0.6875	2
GSXB248	•	0.3750	0.7500	1.1250	-	6.000	0.7500	2
GSXB256	•	0.4375	0.8750	1.3125	-	6.500	0.8750	2
GSXB264	•	0.5000	1.0000	1.5000	-	7.000	1.0000	2

Grade: ACB20

Recommended Cutting Conditions

1. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.
2. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Radius Milling

Work Material / Cutting Conditions / RE (inch)	Carbon Steel / Alloy Steel (Below 25HRC)		Carbon Steel / Alloy Steel (Below 50HRC)		Cast Iron Special Cast Iron		Stainless Steel Titanium Alloy	
	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)
0.0313	50,000	2,100	35,000	1,150	50,000	2,100	50,000	1,750
0.0469	50,000	2,500	35,000	1,350	50,000	2,500	50,000	2,100
0.0625	50,000	3,000	35,000	1,600	50,000	3,000	50,000	2,500
0.0781	35,000	3,000	24,000	1,650	35,000	3,200	34,000	2,500
0.0938	27,500	3,000	19,000	1,700	35,000	3,900	26,000	2,500
0.1094	22,500	3,000	15,500	1,700	28,000	3,900	21,000	2,500
0.1250	19,000	3,000	13,000	1,700	24,000	3,900	17,500	2,500
0.1407	17,000	3,800	12,000	2,100	20,000	4,100	15,000	2,700
0.1563	15,500	4,300	11,000	2,200	18,000	4,600	12,000	2,500
0.1875	14,000	4,700	10,500	2,500	16,500	5,300	10,500	2,500
0.2188	12,500	4,200	9,000	2,100	14,000	4,500	9,000	2,200
0.2500	11,000	3,500	7,900	1,900	12,500	4,000	7,800	1,900
0.2813	9,000	2,800	6,300	1,500	10,500	3,300	6,300	1,500
0.3125	7,500	2,400	5,200	1,250	8,700	2,800	5,200	1,250
0.3438	6,400	2,100	4,500	1,100	7,400	2,400	4,500	1,100
0.3750	5,600	1,800	3,900	950	6,500	2,100	3,900	950
0.4375	5,000	1,600	3,500	850	5,800	1,900	3,500	850
0.5000	4,500	1,450	3,100	750	5,200	1,700	3,150	750
Standard Depth of Cut a_p	0.02DC		0.02DC		0.02DC		0.02DC	
Standard Depth of Cut p_f	0.05DC		0.05DC		0.05DC		0.05DC	

GSX 200C-1.5D INCH Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

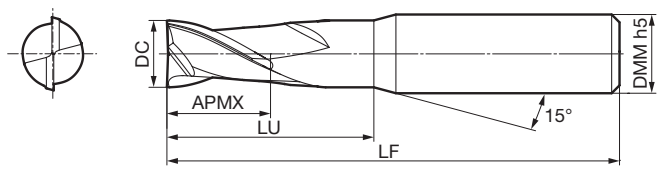
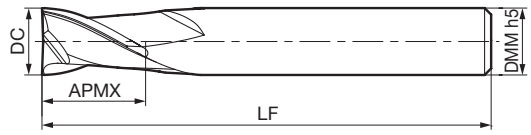


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX204C-1.5D		0.0625	0.0938	0.1331	1.500	0.1250	1
GSX206C-1.5D		0.0938	0.1406	0.1800	1.500	0.1250	1
GSX208C-1.5D		0.1250	0.1875	-	2.000	0.1250	2
GSX210C-1.5D		0.1563	0.2344	0.2934	2.000	0.1875	1
GSX212C-1.5D		0.1875	0.2813	-	2.000	0.1875	2
GSX214C-1.5D		0.2188	0.3282	0.407	2.000	0.2500	1
GSX216C-1.5D		0.2500	0.3750	-	2.000	0.2500	2
GSX218C-1.5D		0.2813	0.4219	0.501	2.500	0.3125	1
GSX220C-1.5D		0.3125	0.4688	-	2.500	0.3125	2
GSX224C-1.5D		0.3750	0.5625	-	3.000	0.3750	2
GSX228C-1.5D		0.4375	0.6563	-	3.000	0.4375	2
GSX232C-1.5D		0.5000	0.7500	-	3.000	0.5000	2
GSX236C-1.5D		0.5625	0.8438	-	3.500	0.5625	2
GSX240C-1.5D		0.6250	0.9375	-	3.500	0.6250	2
GSX244C-1.5D		0.6875	1.0313	-	4.000	0.6875	2
GSX248C-1.5D		0.7500	1.1250	-	4.000	0.7500	2
GSX256C-1.5D		0.8750	1.3125	-	4.000	0.8750	2
GSX264C-1.5D		1.0000	1.5000	-	4.000	1.0000	2

Grade: ACF20

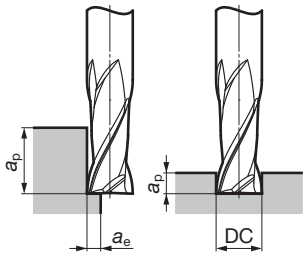
Endmill Identification (GSXMILL Series Only)

GSX 2 04 C - 1.5D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (C: Gash Land) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	19,600	250	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	70	9,000	50
< 0.078	11,200	340	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	90	5,300	70
< 0.156	6,400	460	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	120	3,000	90
< 0.236	4,600	560	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	140	2,200	100
< 0.315	3,400	560	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	140	1,600	100
< 0.393	2,800	560	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	140	1,300	100
< 0.472	2,300	560	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	140	1,100	100
< 0.630	1,700	450	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	110	800	85
< 0.787	1,350	380	1,350	380	1,350	380	1,300	280	900	160	650	90	800	100	650	75
< 1.000	1,080	300	1,080	300	1,080	300	1,040	220	720	130	520	70	640	80	520	60
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	19,600	200	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	50	4,500	20
< 0.078	11,200	270	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	65	2,650	25
< 0.156	6,400	370	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	80	1,500	35
< 0.236	4,600	450	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	100	1,100	40
< 0.315	3,400	450	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	100	800	40
< 0.393	2,800	450	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	100	650	40
< 0.472	2,300	450	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	100	500	40
< 0.630	1,700	360	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	80	400	35
< 0.787	1,350	300	1,350	380	1,350	380	1,300	280	900	160	650	90	800	70	320	30
< 1.000	1,080	240	1,080	304	1,080	304	1,040	224	720	128	520	72	640	56	256	24
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 200C-2D INCH Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

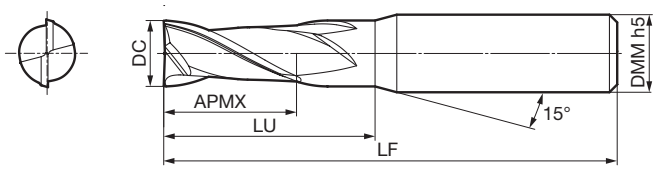
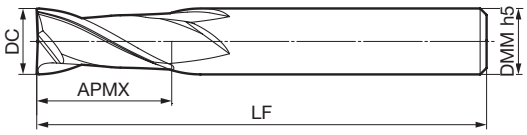


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX204C-2D		0.0625	0.1250	0.1644	1.500	0.1250	1
GSX206C-2D		0.0938	0.1875	0.2269	1.500	0.1250	1
GSX208C-2D		0.1250	0.2500	-	2.000	0.1250	2
GSX210C-2D		0.1563	0.3125	0.3716	2.000	0.1875	1
GSX212C-2D		0.1875	0.3750	-	2.000	0.1875	1
GSX214C-2D		0.2188	0.4376	0.516	2.000	0.2500	1
GSX216C-2D		0.2500	0.5000	-	2.000	0.2500	2
GSX218C-2D		0.2813	0.5626	0.641	2.500	0.3125	1
GSX220C-2D		0.3125	0.6250	-	2.500	0.3125	2
GSX224C-2D		0.3750	0.7500	-	3.000	0.3750	2
GSX228C-2D		0.4375	0.8750	-	3.000	0.4375	2
GSX232C-2D		0.5000	1.0000	-	3.000	0.5000	2
GSX236C-2D		0.5625	1.1250	-	3.500	0.5625	2
GSX240C-2D		0.6250	1.2500	-	3.500	0.6250	2
GSX244C-2D		0.6875	1.3750	-	4.000	0.6875	2
GSX248C-2D		0.7500	1.5000	-	4.000	0.7500	2
GSX256C-2D		0.8750	1.7500	-	4.000	0.8750	2
GSX264C-2D		1.0000	2.0000	-	4.000	1.0000	2

Grade: ACF20

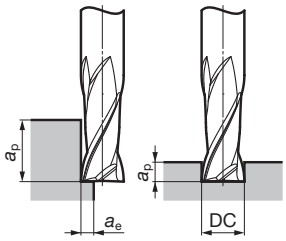
Endmill Identification (GSXMILL Series Only)

GSX 2 04 C - 2D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (C: Gash Land) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
5. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	19,600	250	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	70	9,000	50
< 0.078	11,200	340	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	90	5,300	70
< 0.156	6,400	460	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	120	3,000	90
< 0.236	4,600	560	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	140	2,200	100
< 0.315	3,400	560	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	140	1,600	100
< 0.393	2,800	560	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	140	1,300	100
< 0.472	2,300	560	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	140	1,100	100
< 0.630	1,700	450	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	110	800	85
< 0.787	1,350	380	1,350	380	1,350	380	1,300	280	900	160	650	90	800	100	650	75
< 1.000	1,000	300	1,000	300	1,000	300	1,000	220	700	120	500	70	640	80	500	60
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	19,600	200	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	50	4,500	20
< 0.078	11,200	270	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	65	2,650	25
< 0.156	6,400	370	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	80	1,500	35
< 0.236	4,600	450	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	100	1,100	40
< 0.315	3,400	450	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	100	800	40
< 0.393	2,800	450	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	100	650	40
< 0.472	2,300	450	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	100	500	40
< 0.630	1,700	360	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	80	400	35
< 0.787	1,350	300	1,350	380	1,350	380	1,300	280	900	160	650	90	800	70	320	30
< 1.000	1,000	240	1,000	300	1,000	300	1,000	220	700	120	500	70	640	55	250	25
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 200C-3D INCH Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Spot Facing

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

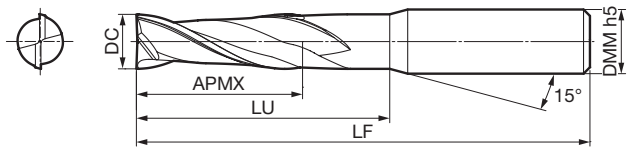
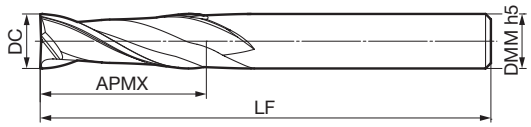


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX204C-3D		0.0625	0.1250	0.1644	1.500	0.1250	1
GSX206C-3D		0.0938	0.1875	0.2269	1.500	0.1250	1
GSX208C-3D		0.1250	0.2500	-	2.000	0.1250	2
GSX210C-3D		0.1563	0.3125	0.3716	2.000	0.1875	1
GSX212C-3D		0.1875	0.3750	-	2.000	0.1875	2
GSX214C-3D		0.2188	0.4376	0.516	2.000	0.2500	1
GSX216C-3D		0.2500	0.5000	-	2.000	0.2500	2
GSX218C-3D		0.2813	0.5626	0.641	2.500	0.3125	1
GSX220C-3D		0.3125	0.6250	-	2.500	0.3125	2
GSX224C-3D		0.3750	0.7500	-	3.000	0.3750	2
GSX228C-3D		0.4375	0.8750	-	3.000	0.4375	2
GSX232C-3D		0.5000	1.0000	-	3.000	0.5000	2
GSX236C-3D		0.5625	1.1250	-	3.500	0.5625	2
GSX240C-3D		0.6250	1.2500	-	3.500	0.6250	2
GSX244C-3D		0.6875	1.3750	-	4.000	0.6875	2
GSX248C-3D		0.7500	1.5000	-	4.000	0.7500	2
GSX256C-3D		0.8750	1.7500	-	4.000	0.8750	2
GSX264C-3D		1.0000	2.0000	-	4.000	1.0000	2

Grade: ACF20

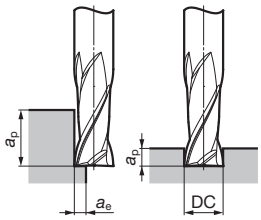
Endmill Identification (GSXMILL Series Only)

GSX 2 04 C - 3D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (C: Gash Land) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	16,600	190	16,600	190	16,600	190	15,500	140	10,500	70	7,500	45	9,400	50	7,500	35
< 0.078	9,500	250	9,500	250	9,500	250	9,000	200	6,200	120	4,500	60	5,200	70	4,500	50
< 0.156	5,200	330	5,200	330	5,200	330	4,800	200	3,400	150	2,250	75	2,600	90	2,250	65
< 0.236	3,500	360	3,500	360	3,500	360	3,200	250	2,550	170	1,500	90	1,700	100	1,500	80
< 0.315	2,600	320	2,600	320	2,600	320	2,400	240	1,900	170	1,100	90	1,300	100	1,100	80
< 0.393	2,100	300	2,100	300	2,100	300	1,900	230	1,500	170	900	90	1,000	100	900	80
< 0.472	1,750	280	1,750	280	1,750	280	1,600	230	1,250	170	750	90	850	100	750	80
< 0.630	1,300	240	1,300	240	1,300	240	1,200	200	950	150	550	75	650	85	550	65
< 0.787	1,050	220	1,050	220	1,050	220	950	180	750	140	450	70	500	75	450	60
< 1.000	840	180	840	180	840	180	760	140	600	110	360	55	400	60	360	45
Standard Depth of Cut a_p	2.5DC								2.0DC							
Standard Depth of Cut a_e	Below ø3: 0.05DC, Above ø3: 0.1DC								0.02DC							

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	16,600	70	16,600	80	16,600	80	15,500	50	10,500	50	7,500	35	9,400	30	3,750	10
< 0.078	9,500	80	9,500	100	9,500	100	9,000	90	6,200	60	4,500	45	5,200	40	2,250	15
< 0.156	5,200	120	5,200	150	5,200	150	4,800	120	3,400	80	2,200	50	2,600	50	1,250	20
< 0.236	3,500	140	3,500	170	3,500	170	3,200	130	2,550	100	1,500	50	1,700	60	950	25
< 0.315	2,600	140	2,600	160	2,600	160	2,400	130	1,900	100	1,100	50	1,300	60	700	25
< 0.393	2,100	130	2,100	150	2,100	150	1,900	120	1,500	90	900	50	1,000	60	550	25
< 0.472	1,750	130	1,750	150	1,750	150	1,600	120	1,250	90	750	50	850	60	450	25
< 0.630	1,300	110	1,300	130	1,300	130	1,200	110	950	80	550	45	650	50	350	20
< 0.787	1,050	100	1,050	120	1,050	120	950	100	750	70	450	40	500	40	280	15
< 1.000	840	80	840	96	840	96	760	80	600	56	360	32	400	32	224	12
Standard Depth of Cut a_p	0.1DC		0.2DC								0.05DC		0.1DC			

GSX 200C-4D INCH Type

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing | Face Milling | Spot Facing

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

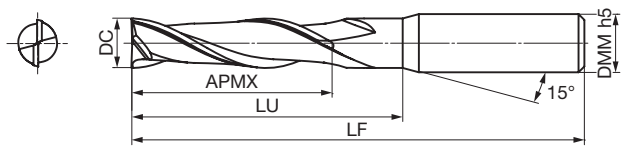
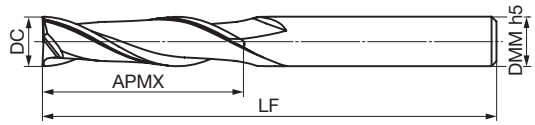


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX204C-4D		0.0625	0.2500	0.2894	1.500	0.1250	1
GSX206C-4D		0.0938	0.3750	0.4144	2.000	0.1250	1
GSX208C-4D		0.1250	0.5000	-	2.000	0.1250	2
GSX210C-4D		0.1563	0.6250	0.6841	2.000	0.1875	1
GSX212C-4D		0.1875	0.7500	-	2.500	0.1875	2
GSX214C-4D		0.2188	0.8752	0.954	2.500	0.2500	1
GSX216C-4D		0.2500	1.0000	-	2.500	0.2500	2
GSX218C-4D		0.2813	1.1252	1.204	3.000	0.3125	1
GSX220C-4D		0.3125	1.2500	-	3.000	0.3125	2
GSX224C-4D		0.3750	1.5000	-	3.500	0.3750	2
GSX228C-4D		0.4375	1.7500	-	4.000	0.4375	2
GSX232C-4D		0.5000	2.0000	-	4.000	0.5000	2
GSX236C-4D		0.5625	2.2500	-	5.000	0.5625	2
GSX240C-4D		0.6250	2.5000	-	5.000	0.6250	2
GSX244C-4D		0.6875	2.7500	-	5.000	0.6875	2
GSX248C-4D		0.7500	3.0000	-	5.500	0.7500	2
GSX256C-4D		0.8750	3.5000	-	5.500	0.8750	2
GSX264C-4D		1.0000	4.0000	-	6.000	1.0000	2

Grade: ACF20

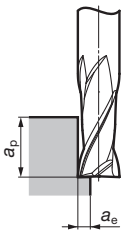
Endmill Identification (GSXMILL Series Only)

GSX 2 04 C - 4D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (C: Gash Land) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. This series is not recommended for groove milling.
7. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	9,000	130	9,000	130	9,000	130	7,000	95	6,500	50	4,500	30	5,400	40	4,500	25
< 0.078	4,500	180	4,500	180	4,500	180	3,500	120	3,200	70	2,300	40	2,700	50	2,300	35
< 0.156	2,250	240	2,250	240	2,250	240	1,750	160	1,600	95	1,200	60	1,350	65	1,200	40
< 0.236	1,500	300	1,500	300	1,500	300	1,150	170	1,050	110	800	70	900	70	800	50
< 0.315	1,100	260	1,100	260	1,100	260	850	170	800	110	600	70	660	70	600	50
< 0.393	900	250	900	250	900	250	700	160	650	110	460	70	540	70	460	50
< 0.472	750	240	750	240	750	240	580	160	520	110	400	70	450	70	400	50
< 0.630	550	200	550	200	550	200	440	140	400	95	300	55	330	60	300	45
< 0.787	450	180	450	180	450	180	350	120	320	85	240	45	270	50	240	40
< 1.000	360	140	360	140	360	140	280	95	250	65	190	35	210	40	192	30
Standard Depth of Cut a_p	3.5DC										3.0DC					
Standard Depth of Cut a_e	0.08DC						0.04DC									

GSX MILL 2 Flute Endmills Sharp Edge

GSX 200S-2D INCH Type

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

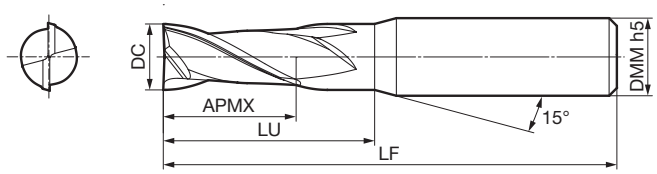
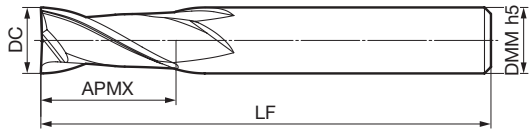


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX204S-2D		0.0625	0.1250	0.1644	1.500	0.1250	1
GSX206S-2D		0.0938	0.1875	0.2269	1.500	0.1250	1
GSX208S-2D		0.1250	0.2500	-	2.000	0.1250	2
GSX210S-2D		0.1563	0.3125	0.3716	2.000	0.1875	1
GSX212S-2D		0.1875	0.3750	-	2.000	0.1875	2
GSX214S-2D		0.2188	0.4376	0.516	2.000	0.2500	1
GSX216S-2D		0.2500	0.5000	-	2.000	0.2500	2
GSX218S-2D		0.2813	0.5626	0.641	2.500	0.3125	1
GSX220S-2D		0.3125	0.6250	-	2.500	0.3125	2
GSX224S-2D		0.3750	0.7500	-	3.000	0.3750	2
GSX228S-2D		0.4375	0.8750	-	3.000	0.4375	2
GSX232S-2D		0.5000	1.0000	-	3.000	0.5000	2
GSX236S-2D		0.5625	1.1250	-	3.500	0.5625	2
GSX240S-2D		0.6250	1.2500	-	3.500	0.6250	2
GSX244S-2D		0.6875	1.3750	-	4.000	0.6875	2
GSX248S-2D		0.7500	1.5000	-	4.000	0.7500	2
GSX256S-2D		0.8750	1.7500	-	4.000	0.8750	2
GSX264S-2D		1.0000	2.0000	-	4.000	1.0000	2

Grade: ACF20

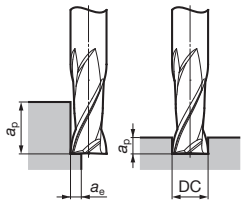
Endmill Identification (GSXMILL Series Only)

GSX 2 04 S - 2D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (S: Sharp Edge) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions / DC (inch)	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	16,600	180	16,600	180	16,600	180	15,500	130	10,500	70	7,500	45	9,400	50	7,500	35
< 0.078	9,500	250	9,500	250	9,500	250	9,000	200	6,200	100	4,500	60	5,400	70	4,500	50
< 0.156	5,400	330	5,400	330	5,400	330	5,000	250	3,400	120	2,500	75	3,000	90	2,500	65
< 0.236	4,000	400	4,000	400	4,000	400	3,700	300	2,550	150	1,900	100	2,300	110	1,900	80
< 0.315	3,000	400	3,000	400	3,000	400	2,800	300	1,900	150	1,400	100	1,700	110	1,400	80
< 0.393	2,400	400	2,400	400	2,400	400	2,200	300	1,500	150	1,100	100	1,300	110	1,100	80
< 0.472	2,000	400	2,000	400	2,000	400	1,850	300	1,300	150	950	100	1,100	110	950	80
< 0.630	1,500	330	1,500	330	1,500	330	1,400	250	950	120	700	75	850	85	700	60
< 0.787	1,200	280	1,200	280	1,200	280	1,100	220	750	110	550	65	650	75	550	55
< 1.000	960	220	960	220	960	220	880	170	600	85	440	50	520	60	440	45
Standard Depth of Cut a_p	2.0DC															
Standard Depth of Cut a_e	0.02DC										0.01DC					

Groove Finishing

Work Material / Cutting Conditions / DC (inch)	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	16,600	180	16,600	180	16,600	180	15,500	130	10,500	70	7,500	45	9,400	50	7,500	35
< 0.078	9,500	250	9,500	250	9,500	250	9,000	200	6,200	100	4,500	60	5,400	70	4,500	50
< 0.156	5,400	330	5,400	330	5,400	330	5,000	250	3,400	120	2,500	75	3,000	90	2,500	65
< 0.236	4,000	400	4,000	400	4,000	400	3,700	300	2,550	150	1,900	100	2,300	110	1,900	80
< 0.315	3,000	400	3,000	400	3,000	400	2,800	300	1,900	150	1,400	100	1,700	110	1,400	80
< 0.393	2,400	400	2,400	400	2,400	400	2,200	300	1,500	150	1,100	100	1,300	110	1,100	80
< 0.472	2,000	400	2,000	400	2,000	400	1,850	300	1,300	150	950	100	1,100	110	950	80
< 0.630	1,500	330	1,500	330	1,500	330	1,400	250	950	120	700	75	850	85	700	60
< 0.787	1,200	280	1,200	280	1,200	280	1,100	220	750	110	550	65	650	75	550	55
< 1.000	960	220	960	220	960	220	880	170	600	85	440	50	520	60	440	45
Standard Depth of Cut a_p	1.5DC															
Standard Depth of Cut a_e	Below 0.02DC															

GSX 200S-3D INCH Type

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

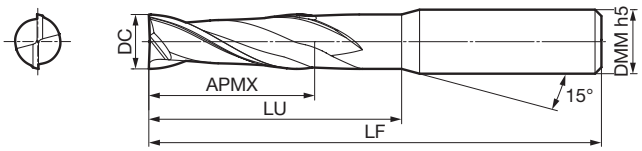
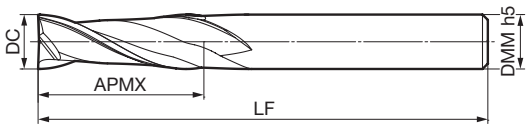


Fig 2



DC	Tolerance	
D≤3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX204S-3D		0.0625	0.1875	0.2269	1.500	0.1250	1
GSX206S-3D		0.0938	0.2813	0.3206	1.500	0.1250	1
GSX208S-3D		0.1250	0.3750	-	2.000	0.1250	2
GSX210S-3D		0.1563	0.4688	0.5278	2.000	0.1875	1
GSX212S-3D		0.1875	0.5625	-	2.000	0.1875	2
GSX214S-3D		0.2188	0.6564	0.735	2.000	0.2500	1
GSX216S-3D		0.2500	0.7500	-	2.000	0.2500	2
GSX218S-3D		0.2813	0.8439	0.923	3.000	0.3125	1
GSX220S-3D		0.3125	0.9375	-	3.000	0.3125	2
GSX224S-3D		0.3750	1.1250	-	3.500	0.3750	2
GSX228S-3D		0.4375	1.3125	-	3.500	0.4375	2
GSX232S-3D		0.5000	1.5000	-	3.500	0.5000	2
GSX236S-3D		0.5625	1.6875	-	4.500	0.5625	2
GSX240S-3D		0.6250	1.8750	-	4.500	0.6250	2
GSX244S-3D		0.6875	2.0625	-	4.500	0.6875	2
GSX248S-3D		0.7500	2.2500	-	5.000	0.7500	2
GSX256S-3D		0.8750	2.6250	-	5.000	0.8750	2
GSX264S-3D		1.0000	3.0000	-	5.500	1.0000	2

Grade: ACF20

Endmill Identification (GSXMILL Series Only)

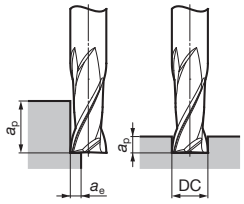
GSX 2 04 S - 3D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge | Cutting Edge Length

S: Sharp Edge

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	14,000	140	14,000	140	14,000	140	13,200	100	8,900	50	6,300	30	8,000	35	6,300	25
< 0.078	8,100	180	8,100	180	8,100	180	7,600	150	5,300	90	3,700	45	4,400	50	3,800	40
< 0.156	4,400	240	4,400	240	4,400	240	4,000	150	2,900	110	1,900	55	2,200	65	1,900	50
< 0.236	2,900	260	2,900	260	2,900	260	2,700	180	2,100	130	1,200	65	1,400	75	1,200	60
< 0.315	2,200	230	2,200	230	2,200	230	2,000	180	1,600	130	900	65	1,100	75	900	60
< 0.393	1,800	220	1,800	220	1,800	220	1,600	170	1,300	130	750	65	850	75	750	60
< 0.472	1,500	200	1,500	200	1,500	200	1,300	170	1,000	130	630	65	700	75	600	60
< 0.630	1,100	170	1,100	170	1,100	170	1,000	150	800	110	450	55	550	65	450	50
< 0.787	850	160	850	160	850	160	800	130	600	100	350	50	400	55	350	45
< 1.000	680	130	680	130	680	130	640	100	480	80	280	40	320	45	280	35
Standard Depth of Cut a_p	2.5DC								2.0DC							
Standard Depth of Cut a_e	Below ø3: 0.02DC, Above ø3: 0.05DC								0.01DC							

Groove Finishing

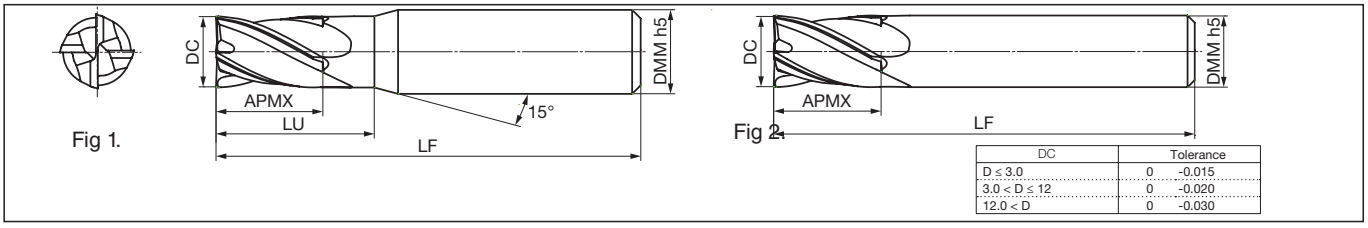
Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	14,000	140	14,000	140	14,000	140	13,200	100	8,900	50	6,300	30	8,000	35	6,300	25
< 0.078	8,100	180	8,100	180	8,100	180	7,600	150	5,300	90	3,700	45	4,400	50	3,800	40
< 0.156	4,400	240	4,400	240	4,400	240	4,000	150	2,900	110	1,900	55	2,200	65	1,900	50
< 0.236	2,900	260	2,900	260	2,900	260	2,700	180	2,100	130	1,200	65	1,400	75	1,200	60
< 0.315	2,200	230	2,200	230	2,200	230	2,000	180	1,600	130	900	65	1,100	75	900	60
< 0.393	1,800	220	1,800	220	1,800	220	1,600	170	1,300	130	750	65	850	75	750	60
< 0.472	1,500	200	1,500	200	1,500	200	1,300	170	1,000	130	630	65	700	75	600	60
< 0.630	1,100	170	1,100	170	1,100	170	1,000	150	800	110	450	55	550	65	450	50
< 0.787	850	160	850	160	850	160	800	130	600	100	350	50	400	55	350	45
< 1.000	680	130	680	130	680	130	640	100	480	80	280	40	320	45	280	35
Standard Depth of Cut a_p	1.5DC															
Standard Depth of Cut a_e	Below 0.02DC															

GSX 400C-1.5D INCH Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Helical Milling | Ramping

GSX INCH PRODUCTS ARE MADE TO ORDER



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX404C-1.5D		0.0625	0.0938	0.1331	1.500	0.1250	1
GSX406C-1.5D		0.0938	0.1406	0.1800	1.500	0.1250	1
GSX408C-1.5D		0.1250	0.1875	-	2.000	0.1250	2
GSX410C-1.5D		0.1563	0.2344	0.2934	2.000	0.1875	1
GSX412C-1.5D		0.1875	0.2813	-	2.000	0.1875	2
GSX414C-1.5D		0.2188	0.3282	0.407	2.000	0.2500	1
GSX416C-1.5D		0.2500	0.3750	-	2.000	0.2500	2
GSX418C-1.5D		0.2813	0.4220	0.501	2.500	0.3125	1
GSX420C-1.5D		0.3125	0.4688	-	2.500	0.3125	2
GSX424C-1.5D		0.3750	0.5625	-	3.000	0.3750	2
GSX428C-1.5D		0.4375	0.6563	-	3.000	0.4375	2
GSX432C-1.5D		0.5000	0.7500	-	3.000	0.5000	2
GSX436C-1.5D		0.5625	0.8438	-	3.500	0.5625	2
GSX440C-1.5D		0.6250	0.9375	-	3.500	0.6250	2
GSX444C-1.5D		0.6875	1.0313	-	4.000	0.6875	2
GSX448C-1.5D		0.7500	1.1250	-	4.000	0.7500	2
GSX456C-1.5D		0.8750	1.3125	-	4.000	0.8750	2
GSX464C-1.5D		1.0000	1.5000	-	4.000	1.0000	2

Grade: ACF20

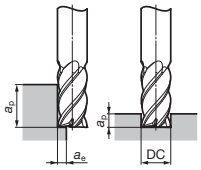
Endmill Identification (GSXMILL Series Only)

GSX 4 04 C - 1.5D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (C: Gash Land) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK, HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	24,000	470	24,000	470	24,000	470	21,000	290	14,500	180	10,500	120	12,600	120	10,500	85
< 0.078	12,800	570	12,800	570	12,800	570	12,000	380	8,300	230	6,000	150	7,200	160	6,000	110
< 0.156	6,800	730	6,800	730	6,800	730	6,400	490	4,400	300	3,200	200	3,800	210	3,200	130
< 0.236	4,600	780	4,600	780	4,600	780	4,300	520	3,000	320	2,200	210	2,650	220	2,200	150
< 0.315	3,400	780	3,400	780	3,400	780	3,200	520	2,200	320	1,600	210	2,000	220	1,600	150
< 0.393	2,800	780	2,800	780	2,800	780	2,600	520	1,800	320	1,300	210	1,500	220	1,300	150
< 0.472	2,300	780	2,300	780	2,300	780	2,200	520	1,500	320	1,100	210	1,300	220	1,100	150
< 0.630	1,700	650	1,700	650	1,700	650	1,600	420	1,100	280	800	170	1,000	180	800	120
< 0.787	1,350	600	1,350	600	1,350	600	1,300	380	900	260	650	150	800	160	650	100
< 1.000	1,050	470	1,050	470	1,050	470	1,050	300	720	210	520	120	640	130	520	80
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Side Milling (High Speed Machining Centre)

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK, HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	60,000	1,200	60,000	1,200	60,000	1,200	60,000	850	60,000	720	48,000	500	32,000	300	—	—
< 0.078	47,800	2,200	47,800	2,200	47,800	2,200	47,800	1,600	39,800	1,200	31,800	900	15,900	400	—	—
< 0.156	23,900	2,600	23,900	2,600	23,900	2,600	23,900	1,900	19,900	1,400	15,900	1,100	8,000	490	—	—
< 0.236	16,000	2,700	16,000	2,700	16,000	2,700	16,000	2,000	13,300	1,500	10,600	1,200	5,300	520	—	—
< 0.315	12,000	2,700	12,000	2,700	12,000	2,700	12,000	2,000	10,000	1,500	8,000	1,200	4,000	520	—	—
< 0.393	9,600	2,700	9,600	2,700	9,600	2,700	9,600	2,000	8,000	1,500	6,400	1,200	3,200	520	—	—
< 0.472	8,000	2,700	8,000	2,700	8,000	2,700	8,000	2,000	6,700	1,500	5,300	1,200	2,700	520	—	—
< 0.630	6,000	2,200	6,000	2,200	6,000	2,200	6,000	1,600	5,000	1,200	4,000	900	2,000	450	—	—
< 0.787	4,800	2,000	4,800	2,000	4,800	2,000	4,800	1,400	4,000	1,100	3,200	750	1,600	380	—	—
< 1.000	3,800	1,500	3,800	1,500	3,800	1,500	3,800	1,150	3,200	850	2,600	600	1,300	300	—	—
Standard Depth of Cut a_p	1.5DC										1.0DC				—	
Standard Depth of Cut a_e	0.05DC										0.02DC				—	

Groove Milling

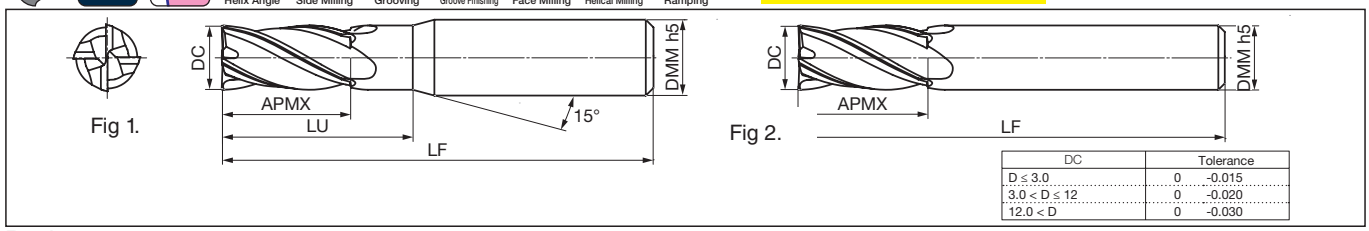
Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK, HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	24,000	380	24,000	470	24,000	470	21,000	290	14,500	180	10,500	120	12,600	85	5,200	30
< 0.078	12,800	460	12,800	570	12,800	570	12,000	380	8,300	230	6,000	150	7,200	110	3,000	40
< 0.156	6,800	580	6,800	730	6,800	730	5,400	490	4,400	300	3,200	200	3,800	130	1,600	55
< 0.236	4,600	620	4,600	780	4,600	780	4,300	520	3,000	320	2,200	210	2,650	160	1,100	65
< 0.315	3,400	620	3,400	780	3,400	780	3,200	520	2,200	320	1,600	210	2,000	160	800	65
< 0.393	2,800	620	2,800	780	2,800	780	2,600	520	1,800	320	1,300	210	1,600	160	650	65
< 0.472	2,300	620	2,300	780	2,300	780	2,200	520	1,500	320	1,100	210	1,300	160	550	65
< 0.630	1,700	520	1,700	560	1,700	560	1,600	420	1,100	280	800	170	1,000	130	400	55
< 0.787	1,350	480	1,350	600	1,350	600	1,300	380	900	260	650	150	800	110	320	50
< 1.000	1,080	384	1,080	480	1,080	480	1,040	304	720	208	520	120	640	88	256	40
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 400C-2D INCH Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Helical Milling | Ramping

GSX INCH PRODUCTS ARE MADE TO ORDER



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX404C-2D		0.0625	0.1250	0.1644	1.500	0.1250	1
GSX406C-2D		0.0938	0.1875	0.2269	1.500	0.1250	1
GSX408C-2D		0.1250	0.2500	-	2.000	0.1250	2
GSX410C-2D		0.1563	0.3125	0.3716	2.000	0.1875	1
GSX412C-2D		0.1875	0.3750	-	2.000	0.1875	2
GSX414C-2D		0.2188	0.4376	0.516	2.000	0.2500	1
GSX416C-2D		0.2500	0.5000	-	2.000	0.2500	2
GSX418C-2D		0.2813	0.5626	0.641	2.500	0.3125	1
GSX420C-2D		0.3125	0.6250	-	2.500	0.3125	2
GSX424C-2D		0.3750	0.7500	-	3.000	0.3750	2
GSX428C-2D		0.4375	0.8750	-	3.000	0.4375	2
GSX432C-2D		0.5000	1.0000	-	3.000	0.5000	2
GSX436C-2D		0.5625	1.1250	-	3.500	0.5625	2
GSX440C-2D		0.6250	1.2500	-	3.500	0.6250	2
GSX444C-2D		0.6875	1.3750	-	4.000	0.6875	2
GSX448C-2D		0.7500	1.5000	-	4.000	0.7500	2
GSX456C-2D		0.8750	1.7500	-	4.000	0.8750	2
GSX464C-2D		1.0000	2.0000	-	4.000	1.0000	2

Grade: ACF20

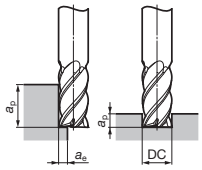
Endmill Identification (GSXMILL Series Only)

GSX 4 04 C - 2D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (C: Gash Land) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	24,000	470	24,000	470	24,000	470	21,000	290	14,500	180	10,500	120	12,600	120	10,500	85
< 0.078	12,800	570	12,800	570	12,800	570	12,000	380	8,300	230	6,000	150	7,200	160	6,000	110
< 0.156	6,800	730	6,800	730	6,800	730	6,400	490	4,400	300	3,200	200	3,800	210	3,200	130
< 0.236	4,600	780	4,600	780	4,600	780	4,300	520	3,000	320	2,200	210	2,650	220	2,200	150
< 0.315	3,400	780	3,400	780	3,400	780	3,200	520	2,200	320	1,600	210	2,000	220	1,600	150
< 0.393	2,800	780	2,800	780	2,800	780	2,600	520	1,800	320	1,300	210	1,500	220	1,300	150
< 0.472	2,300	780	2,300	780	2,300	780	2,200	520	1,500	320	1,100	210	1,300	220	1,100	150
< 0.630	1,700	650	1,700	650	1,700	650	1,600	420	1,100	280	800	170	1,000	180	800	120
< 0.787	1,350	600	1,350	600	1,350	600	1,300	380	900	260	650	150	800	160	650	100
< 1.000	1,000	480	1,000	480	1,000	480	1,000	300	700	200	500	120	640	120	500	80
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Side Milling (High Speed Machining Centre)

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	60,000	1,200	60,000	1,200	60,000	1,200	60,000	850	60,000	720	48,000	500	32,000	300	-	-
< 0.078	47,800	2,200	47,800	2,200	47,800	2,200	47,800	1,600	39,800	1,200	31,800	900	15,900	400	-	-
< 0.156	23,900	2,600	23,900	2,600	23,900	2,600	23,900	1,900	19,900	1,400	15,900	1,100	8,000	490	-	-
< 0.236	16,000	2,700	16,000	2,700	16,000	2,700	16,000	2,000	13,300	1,500	10,600	1,200	5,300	520	-	-
< 0.315	12,000	2,700	12,000	2,700	12,000	2,700	12,000	2,000	10,000	1,500	8,000	1,200	4,000	520	-	-
< 0.393	9,600	2,700	9,600	2,700	9,600	2,700	9,600	2,000	8,000	1,500	6,400	1,200	3,200	520	-	-
< 0.472	8,000	2,700	8,000	2,700	8,000	2,700	8,000	2,000	6,700	1,500	5,300	1,200	2,700	520	-	-
< 0.630	6,000	2,200	6,000	2,200	6,000	2,200	6,000	1,600	5,000	1,200	4,000	900	2,000	450	-	-
< 0.787	4,800	2,000	4,800	2,000	4,800	2,000	4,800	1,400	4,000	1,100	3,200	750	1,600	380	-	-
< 1.000	3,800	1,500	3,800	1,500	3,800	1,500	3,800	1,100	3,200	900	2,500	600	1,300	300	-	-
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	24,000	380	24,000	470	24,000	470	21,000	290	14,500	180	10,500	120	12,600	85	5,200	30
< 0.078	12,800	460	12,800	570	12,800	570	12,000	380	8,300	230	6,000	150	7,200	110	3,000	40
< 0.156	6,800	580	6,800	730	6,800	730	5,400	490	4,400	300	3,200	200	3,800	130	1,600	55
< 0.236	4,600	620	4,600	780	4,600	780	4,300	520	3,000	320	2,200	210	2,650	160	1,100	65
< 0.315	3,400	620	3,400	780	3,400	780	3,200	520	2,200	320	1,600	210	2,000	160	800	65
< 0.393	2,800	620	2,800	780	2,800	780	2,600	520	1,800	320	1,300	210	1,600	160	650	65
< 0.472	2,300	620	2,300	780	2,300	780	2,200	520	1,500	320	1,100	210	1,300	160	550	65
< 0.630	1,700	520	1,700	560	1,700	560	1,600	420	1,100	280	800	170	1,000	130	400	55
< 0.787	1,350	480	1,350	600	1,350	600	1,300	380	900	260	650	150	800	110	320	50
< 1.000	1,000	380	1,000	450	1,000	450	1,000	300	700	200	500	120	640	80	250	40
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 400C-3D INCH Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

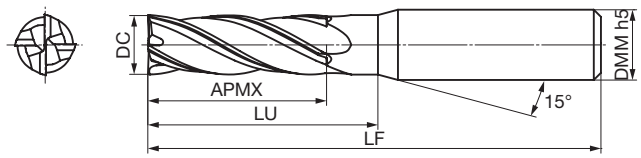
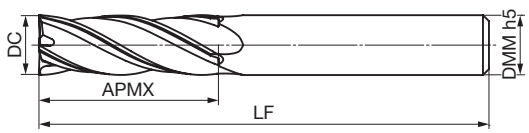


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX404C-3D		0.0625	0.1875	0.2269	1.500	0.1250	1
GSX406C-3D		0.0938	0.2813	0.3206	1.500	0.1250	1
GSX408C-3D		0.1250	0.3750	-	2.000	0.1250	2
GSX410C-3D		0.1563	0.4688	0.5278	2.000	0.1875	1
GSX412C-3D		0.1875	0.5625	-	2.000	0.1875	2
GSX414C-3D		0.2188	0.6564	0.735	2.000	0.2500	1
GSX416C-3D		0.2500	0.7500	-	2.000	0.2500	2
GSX418C-3D		0.2813	0.8439	0.923	3.000	0.3125	1
GSX420C-3D		0.3125	0.9375	-	3.000	0.3125	2
GSX424C-3D		0.3750	1.1250	-	3.500	0.3750	2
GSX428C-3D		0.4375	1.3125	-	3.500	0.4375	2
GSX432C-3D		0.5000	1.5000	-	3.500	0.5000	2
GSX436C-3D		0.5625	1.6875	-	4.500	0.5625	2
GSX440C-3D		0.6250	1.8750	-	4.500	0.6250	2
GSX444C-3D		0.6875	2.0625	-	4.500	0.6875	2
GSX448C-3D		0.7500	2.2500	-	5.000	0.7500	2
GSX456C-3D		0.8750	2.6250	-	5.000	0.8750	2
GSX464C-3D		1.0000	3.0000	-	5.500	1.0000	2

Grade: ACF20

Endmill Identification (GSXMILL Series Only)

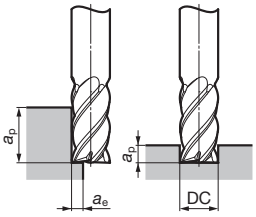
GSX 4 04 C - 3D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge | Cutting Edge Length

C: Gash Land

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	21,000	360	21,000	360	21,000	360	19,000	220	13,000	140	9,000	90	10,500	90	9,000	65
< 0.078	10,500	360	10,500	360	10,500	360	9,600	290	7,500	180	4,500	110	5,200	120	4,500	85
< 0.156	5,200	500	5,200	500	5,200	500	4,800	370	4,000	280	2,250	150	2,600	160	2,250	100
< 0.236	3,500	560	3,500	560	3,500	560	3,200	400	2,700	300	1,500	160	1,700	170	1,500	120
< 0.315	2,600	520	2,600	520	2,600	520	2,400	400	2,000	300	1,100	160	1,300	170	1,100	120
< 0.393	2,100	500	2,100	500	2,100	500	1,900	400	1,600	300	900	160	1,000	160	900	120
< 0.472	1,750	500	1,750	500	1,750	500	1,600	400	1,350	300	750	150	850	160	750	120
< 0.630	1,300	420	1,300	420	1,300	420	1,200	330	1,000	260	550	120	650	140	550	100
< 0.787	1,050	380	1,050	380	1,050	380	950	290	800	230	450	110	500	120	450	90
< 1.000	840	300	840	300	840	300	760	230	640	180	360	85	400	95	360	70
Standard Depth of Cut a_p	2.5DC										2.0DC					
Standard Depth of Cut a_e	Below ø3: 0.05DC , Above ø3 to Below ø8: 0.1DC, Above ø8: 0.15DC								0.02DC							

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	16,600	140	16,600	140	16,600	140	15,500	100	10,500	100	7,500	70	9,400	60	3,750	20
< 0.078	9,500	160	9,500	160	9,500	160	9,000	180	6,200	120	4,500	90	5,200	80	2,250	30
< 0.156	5,200	160	5,200	180	5,200	180	4,800	160	3,400	110	2,200	65	2,600	70	1,250	25
< 0.236	3,500	160	3,500	200	3,500	200	3,200	160	2,550	120	1,500	65	1,700	70	950	25
< 0.315	2,600	160	2,600	200	2,600	200	2,400	160	1,900	120	1,100	65	1,300	70	700	25
< 0.393	2,100	160	2,100	200	2,100	200	1,900	160	1,500	120	900	65	1,000	70	550	25
< 0.472	1,750	160	1,750	200	1,750	200	1,600	160	1,250	120	750	65	850	70	450	25
< 0.630	1,300	160	1,300	200	1,300	200	1,200	160	950	120	550	65	650	70	350	25
< 0.787	1,050	160	1,050	200	1,050	200	950	160	750	120	450	65	500	70	280	55
< 1.000	840	128	840	160	840	160	760	128	600	96	360	52	400	56	224	44
Standard Depth of Cut a_p	0.1DC		0.2DC								0.05DC		0.1DC			

GSX 400C-4D INCH Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

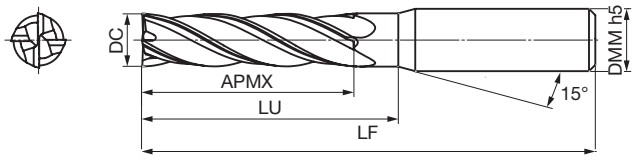
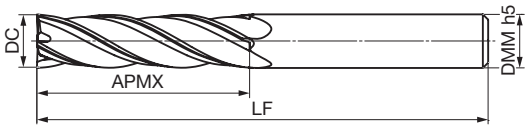


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX404C-4D		0.0625	0.2500	0.2894	1.500	0.1250	1
GSX406C-4D		0.0938	0.3750	0.4144	1.500	0.1250	1
GSX408C-4D		0.1250	0.5000	-	2.000	0.1250	2
GSX410C-4D		0.1563	0.6250	0.6841	2.000	0.1875	1
GSX412C-4D		0.1875	0.7500	-	2.500	0.1875	2
GSX414C-4D		0.2188	0.8752	0.954	2.500	0.2500	1
GSX416C-4D		0.2500	1.0000	-	2.500	0.2500	2
GSX418C-4D		0.2813	1.1252	1.204	3.000	0.3125	1
GSX420C-4D		0.3125	1.2500	-	3.000	0.3125	2
GSX424C-4D		0.3750	1.5000	-	3.500	0.3750	2
GSX428C-4D		0.4375	1.7500	-	4.000	0.4375	2
GSX432C-4D		0.5000	2.0000	-	4.000	0.5000	2
GSX436C-4D		0.5625	2.2500	-	5.000	0.5625	2
GSX440C-4D		0.6250	2.5000	-	5.000	0.6250	2
GSX444C-4D		0.6875	2.7500	-	5.000	0.6875	2
GSX448C-4D		0.7500	3.0000	-	5.500	0.7500	2
GSX456C-4D		0.8750	3.5000	-	5.500	0.8750	2
GSX464C-4D		1.0000	4.0000	-	6.000	1.0000	2

Grade: ACF20

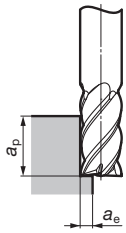
Endmill Identification (GSXMILL Series Only)

GSX 4 04 C - 4D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (C: Gash Land) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	7,950	120	7,950	120	7,950	120	6,250	70	5,750	50	4,000	35	4,850	35	4,000	35
< 0.078	4,050	120	4,050	120	4,050	120	3,100	90	2,850	70	2,050	50	2,400	50	2,050	35
< 0.156	1,950	170	1,950	170	1,950	170	1,650	100	1,400	90	710	35	1,200	45	1,050	30
< 0.236	1,350	130	1,350	130	1,350	130	1,000	140	930	120	700	55	800	40	700	30
< 0.315	970	190	970	190	970	190	740	140	720	120	520	55	560	40	490	30
< 0.393	770	180	770	180	770	180	630	120	570	100	360	50	490	40	410	30
< 0.472	640	170	640	170	640	170	500	120	460	100	350	55	400	40	350	30
< 0.630	460	140	460	140	460	140	370	100	360	90	260	50	280	40	270	30
< 0.787	390	130	390	130	390	130	310	90	280	70	210	45	240	40	210	30
< 1.000	310	100	310	100	310	100	250	70	220	55	170	35	190	30	170	25
Standard Depth of Cut a_p	2.5DC								2.0DC							
Standard Depth of Cut a_e	Below ø3: 0.02DC , Above ø3 to Below ø8: 0.05DC, Above ø8: 0.07DC								0.01DC							

GSX 400S-2D INCH Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

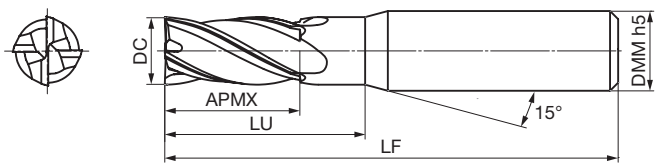
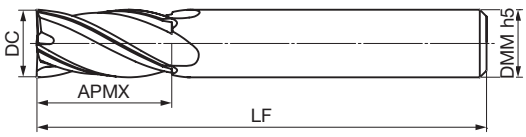


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX404S-2D		0.0625	0.1250	0.1644	1.500	0.1250	1
GSX406S-2D		0.0938	0.1875	0.2269	1.500	0.1250	1
GSX408S-2D		0.1250	0.2500	-	2.000	0.1250	2
GSX410S-2D		0.1563	0.3125	0.3716	2.000	0.1875	1
GSX412S-2D		0.1875	0.3750	-	2.000	0.1875	2
GSX414S-2D		0.2188	0.4376	0.516	2.000	0.2500	1
GSX416S-2D		0.2500	0.5000	-	2.000	0.2500	2
GSX418S-2D		0.2813	0.5626	0.641	2.500	0.3125	1
GSX420S-2D		0.3125	0.6250	-	2.500	0.3125	2
GSX424S-2D		0.3750	0.7500	-	3.000	0.3750	2
GSX428S-2D		0.4375	0.8750	-	3.000	0.4375	2
GSX432S-2D		0.5000	1.0000	-	3.000	0.5000	2
GSX436S-2D		0.5625	1.1250	-	3.500	0.5625	2
GSX440S-2D		0.6250	1.2500	-	3.500	0.6250	2
GSX444S-2D		0.6875	1.3750	-	4.000	0.6875	2
GSX448S-2D		0.7500	1.5000	-	4.000	0.7500	2
GSX456S-2D		0.8750	1.7500	-	4.000	0.8750	2
GSX464S-2D		1.0000	2.0000	-	4.000	1.0000	2

Grade: ACF20

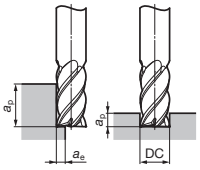
Endmill Identification (GSXMILL Series Only)

GSX 4 04 S - 2D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (S: Sharp Edge) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	22,000	360	22,000	360	22,000	360	19,000	220	13,000	140	9,500	90	11,300	90	9,500	65
< 0.078	11,500	440	11,500	440	11,500	440	11,000	290	7,500	180	5,400	110	6,500	120	5,400	85
< 0.156	6,000	560	6,000	560	6,000	560	5,800	370	4,000	230	2,900	150	3,400	160	2,900	100
< 0.236	4,200	600	4,200	600	4,200	600	4,000	400	2,700	240	2,000	160	2,400	170	2,000	120
< 0.315	3,000	600	3,000	600	3,000	600	2,800	400	2,000	240	1,450	160	1,800	170	1,450	120
< 0.393	2,500	600	2,500	600	2,500	600	2,350	400	1,600	240	1,200	160	1,450	170	1,200	120
< 0.472	2,100	600	2,100	600	2,100	600	2,000	400	1,350	240	1,000	160	1,200	170	1,000	120
< 0.630	1,500	500	1,500	500	1,500	500	1,450	320	1,000	210	750	130	900	140	750	90
< 0.787	1,200	460	1,200	460	1,200	460	1,150	290	800	200	600	110	700	120	600	75
< 1.000	960	370	960	370	960	370	920	230	640	160	480	85	560	95	480	60
Standard Depth of Cut a_p	2.0DC															
Standard Depth of Cut a_e	0.03DC										0.01DC					

Groove Finishing

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	22,000	360	22,000	360	22,000	360	19,000	220	13,000	140	9,500	90	11,300	90	9,500	65
< 0.078	11,500	440	11,500	440	11,500	440	11,000	290	7,500	180	5,400	110	6,500	120	5,400	85
< 0.156	6,000	560	6,000	560	6,000	560	5,800	370	4,000	230	2,900	150	3,400	160	2,900	100
< 0.236	4,200	600	4,200	600	4,200	600	4,000	400	2,700	240	2,000	160	2,400	170	2,000	120
< 0.315	3,000	600	3,000	600	3,000	600	2,800	400	2,000	240	1,450	160	1,800	170	1,450	120
< 0.393	2,500	600	2,500	600	2,500	600	2,350	400	1,600	240	1,200	160	1,450	170	1,200	120
< 0.472	2,100	600	2,100	600	2,100	600	2,000	400	1,350	240	1,000	160	1,200	170	1,000	120
< 0.630	1,500	500	1,500	500	1,500	500	1,450	320	1,000	210	750	130	900	140	750	90
< 0.787	1,200	460	1,200	460	1,200	460	1,150	290	800	200	600	110	700	120	600	75
< 1.000	960	370	960	370	960	370	920	230	640	160	480	85	560	95	480	60
Standard Depth of Cut a_p	1.5DC															
Standard Depth of Cut a_e	Below 0.02DC															

GSX 400S-3D INCH Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

GSX INCH PRODUCTS ARE MADE TO ORDER

Fig 1

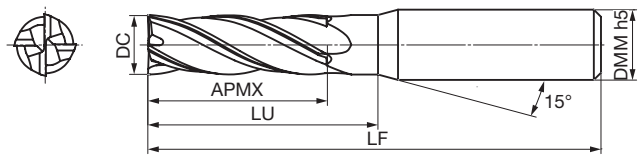
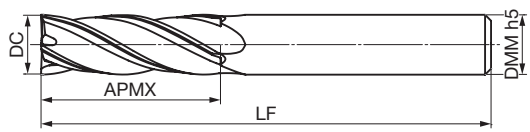


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

GSX Inch - Made to Order

Dimensions (inch)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX404S-3D		0.0625	0.1875	0.2269	1.500	0.1250	1
GSX406S-3D		0.0938	0.2813	0.3206	1.500	0.1250	1
GSX408S-3D		0.1250	0.3750	-	2.000	0.1250	2
GSX410S-3D		0.1563	0.4688	0.5278	2.000	0.1875	1
GSX412S-3D		0.1875	0.5625	-	2.000	0.1875	2
GSX414S-3D		0.2188	0.6564	0.735	2.000	0.2500	1
GSX416S-3D		0.2500	0.7500	-	2.000	0.2500	2
GSX418S-3D		0.2813	0.8439	0.923	3.000	0.3125	1
GSX420S-3D		0.3125	0.9375	-	3.000	0.3125	2
GSX424S-3D		0.3750	1.1250	-	3.500	0.3750	2
GSX428S-3D		0.4375	1.3125	-	3.500	0.4375	2
GSX432S-3D		0.5000	1.5000	-	3.500	0.5000	2
GSX436S-3D		0.5625	1.6875	-	4.500	0.5625	2
GSX440S-3D		0.6250	1.8750	-	4.500	0.6250	2
GSX444S-3D		0.6875	2.0625	-	4.500	0.6875	2
GSX448S-3D		0.7500	2.2500	-	5.000	0.7500	2
GSX456S-3D		0.8750	2.6250	-	5.000	0.8750	2
GSX464S-3D		1.0000	3.0000	-	5.500	1.0000	2

Grade: ACF20

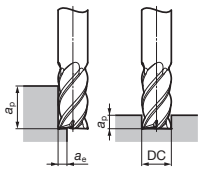
Endmill Identification (GSXMILL Series Only)

GSX 4 04 S - 3D

Series Code | Number of Flutes | Diameter in 64ths (4/64 = 0.0625") | Cutting Edge (S: Sharp Edge) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	18,500	250	18,500	250	18,500	250	17,000	150	11,500	100	8,000	65	9,400	65	8,000	45
< 0.078	9,400	250	9,400	250	9,400	250	8,500	200	6,700	130	4,000	65	4,600	90	4,000	60
< 0.156	4,500	350	4,500	350	4,500	350	4,300	250	3,500	210	2,000	110	2,300	110	2,000	70
< 0.236	3,100	400	3,100	400	3,100	400	2,800	300	2,400	220	1,300	120	1,500	120	1,300	90
< 0.315	2,300	380	2,300	380	2,300	380	2,100	300	1,800	220	950	120	1,100	120	900	90
< 0.393	1,800	350	1,800	350	1,800	350	1,700	300	1,400	220	700	120	900	120	800	90
< 0.472	1,500	350	1,500	350	1,500	350	1,400	300	1,200	220	650	110	750	120	650	90
< 0.630	1,100	300	1,100	300	1,100	300	1,000	240	900	190	480	90	550	100	490	70
< 0.787	900	280	900	280	900	280	850	210	700	170	400	80	440	90	400	60
< 1.000	720	220	720	220	720	220	680	170	560	130	320	60	352	70	320	50
Standard Depth of Cut a_p	2.5DC								2.0DC							
Standard Depth of Cut a_e	Below ø3: 0.02DC , Above ø3 to Below ø8: 0.05DC, Above ø8: 0.07DC								0.01DC							

Groove Finishing

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (inch)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
< 0.039	18,500	250	18,500	250	18,500	250	17,000	150	11,500	100	8,000	65	9,400	65	8,000	45
< 0.078	9,400	250	9,400	250	9,400	250	8,500	200	6,700	130	4,000	65	4,600	90	4,000	60
< 0.156	4,500	350	4,500	350	4,500	350	4,300	250	3,500	210	2,000	110	2,300	110	2,000	70
< 0.236	3,100	400	3,100	400	3,100	400	2,800	300	2,400	220	1,300	120	1,500	120	1,300	90
< 0.315	2,300	380	2,300	380	2,300	380	2,100	300	1,800	220	950	120	1,100	120	900	90
< 0.393	1,800	350	1,800	350	1,800	350	1,700	300	1,400	220	700	120	900	120	800	90
< 0.472	1,500	350	1,500	350	1,500	350	1,400	300	1,200	220	650	110	750	120	650	90
< 0.630	1,100	300	1,100	300	1,100	300	1,000	240	900	190	480	90	550	100	490	70
< 0.787	900	280	900	280	900	280	850	210	700	170	400	80	440	90	400	60
< 1.000	720	220	720	220	720	220	680	170	560	130	320	60	352	70	320	50
Standard Depth of Cut a_p	1.5DC															
Standard Depth of Cut a_e	Below 0.02DC															

GSX 20000C-1.5D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

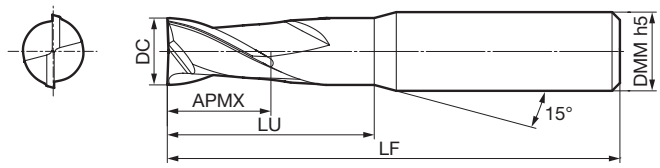
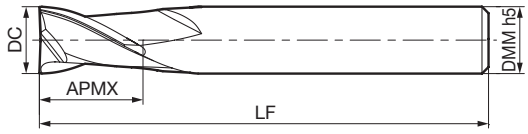


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX20050C-1.5D	★	0.5	1.0	1.4	40	4	1
GSX20100C-1.5D	★	1.0	1.5	2.5	40	4	1
GSX20150C-1.5D	★	1.5	2.3	3.3	40	4	1
GSX20200C-1.5D	★	2.0	3.0	4.0	40	4	1
GSX20250C-1.5D	★	2.5	3.8	4.8	40	4	1
GSX20300C-1.5D	★	3.0	4.5	6.0	45	6	1
GSX20350C-1.5D	★	3.5	5.3	6.8	45	6	1
GSX20400C-1.5D	★	4.0	6.0	7.5	45	6	1
GSX20450C-1.5D	★	4.5	6.8	8.3	50	6	1
GSX20500C-1.5D	★	5.0	7.5	9.5	50	6	1
GSX20550C-1.5D	★	5.5	8.3	10.3	50	6	1
GSX20600C-1.5D	★	6.0	9.0	-	50	6	2
GSX20650C-1.5D	★	6.5	10.0	12.0	60	8	1
GSX20700C-1.5D	★	7.0	11.0	13.0	60	8	1
GSX20750C-1.5D	★	7.5	12.0	14.0	60	8	1
GSX20800C-1.5D	★	8.0	12.0	-	60	8	2
GSX20850C-1.5D	★	8.5	13.0	15.0	70	10	1
GSX20900C-1.5D	★	9.0	14.0	16.0	70	10	1
GSX20950C-1.5D	★	9.5	15.0	17.0	70	10	1
GSX21000C-1.5D	★	10.0	15.0	-	70	10	2
GSX21050C-1.5D	★	10.5	16.0	18.5	75	12	1
GSX21100C-1.5D	★	11.0	17.0	19.5	75	12	1
GSX21150C-1.5D	★	11.5	18.0	20.5	75	12	1
GSX21200C-1.5D	★	12.0	18.0	-	75	12	2
GSX21300C-1.5D	★	13.0	20.0	23.5	90	16	1
GSX21400C-1.5D	★	14.0	21.0	24.5	90	16	1
GSX21500C-1.5D	★	15.0	23.0	26.5	90	16	1
GSX21600C-1.5D	★	16.0	24.0	-	90	16	2
GSX21700C-1.5D	★	17.0	26.0	30.5	100	20	1
GSX21800C-1.5D	★	18.0	27.0	31.5	100	20	1
GSX21900C-1.5D	★	19.0	29.0	33.5	100	20	1
GSX22000C-1.5D	★	20.0	30.0	-	100	20	2
GSX22500C-1.5D	★	25.0	38.0	-	120	25	2

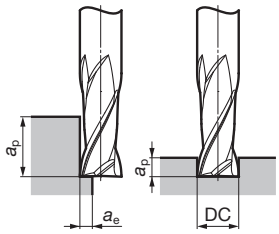
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 2 1000 C - 1.5D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 20000C-1.5D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	250	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	70	9,000	50
2.0	11,200	340	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	90	5,300	70
4.0	6,400	460	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	120	3,000	90
6.0	4,600	560	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	140	2,200	100
8.0	3,400	560	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	140	1,600	100
10.0	2,800	560	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	140	1,300	100
12.0	2,300	560	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	140	1,100	100
16.0	1,700	450	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	110	800	85
20.0	1,350	380	1,350	380	1,350	380	1,300	280	900	160	650	90	800	100	650	75
25.0	1,080	300	1,080	300	1,080	300	1,040	220	720	130	520	70	640	80	520	60
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	200	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	50	4,500	20
2.0	11,200	270	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	65	2,650	25
4.0	6,400	370	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	80	1,500	35
6.0	4,600	450	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	100	1,100	40
8.0	3,400	450	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	100	800	40
10.0	2,800	450	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	100	650	40
12.0	2,300	450	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	100	500	40
16.0	1,700	360	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	80	400	35
20.0	1,350	300	1,350	380	1,350	380	1,300	280	900	160	650	90	800	70	320	30
25.0	1,080	240	1,080	304	1,080	304	1,040	224	720	128	520	72	640	56	256	24
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 20000S-2D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

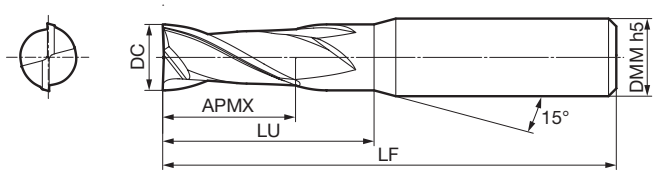
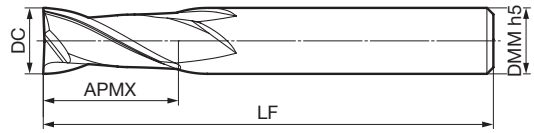


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body (Diameter ø0.3 to 4.3mm)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX20030S-2D	★	0.3	0.6	1.0	40	4	1
GSX20040S-2D	★	0.4	0.8	1.2	40	4	1
GSX20050S-2D	★	0.5	1.3	1.7	40	4	1
GSX20060S-2D	★	0.6	1.3	1.8	40	4	1
GSX20070S-2D	★	0.7	1.4	1.9	40	4	1
GSX20080S-2D	★	0.8	1.6	2.1	40	4	1
GSX20090S-2D	★	0.9	1.8	2.3	40	4	1
GSX20100S-2D	★	1.0	2.5	3.5	40	4	1
GSX20110S-2D	★	1.1	2.5	3.5	40	4	1
GSX20120S-2D	★	1.2	2.5	3.5	40	4	1
GSX20130S-2D	★	1.3	2.6	3.6	40	4	1
GSX20140S-2D	★	1.4	2.8	3.8	40	4	1
GSX20150S-2D	★	1.5	3.8	4.8	40	4	1
GSX20150S-2D-S3	★	1.5	3.8	4.8	38	3	1
GSX20160S-2D	★	1.6	3.8	4.8	40	4	1
GSX20170S-2D	★	1.7	3.8	4.8	40	4	1
GSX20180S-2D	★	1.8	3.8	4.8	40	4	1
GSX20190S-2D	★	1.9	3.8	4.8	40	4	1
GSX20200S-2D	★	2.0	5.0	6.0	40	4	1
GSX20200S-2D-S3	★	2.0	5.0	6.0	38	3	1
GSX20210S-2D	★	2.1	6.0	7.0	40	4	1
GSX20220S-2D	★	2.2	6.0	7.0	40	4	1
GSX20230S-2D	★	2.3	6.0	7.0	40	4	1
GSX20240S-2D	★	2.4	6.0	7.0	40	4	1
GSX20250S-2D	★	2.5	6.3	7.3	40	4	1
GSX20260S-2D	★	2.6	7.0	8.0	40	4	1
GSX20270S-2D	★	2.7	7.0	8.0	40	4	1
GSX20280S-2D	★	2.8	7.0	8.0	40	4	1
GSX20290S-2D	★	2.9	7.0	8.0	40	4	1
GSX20300S-2D	★	3.0	7.5	9.0	45	6	1
GSX20300S-2D-S3	★	3.0	7.5	-	38	3	2
GSX20310S-2D	★	3.1	7.5	9.0	45	6	1
GSX20320S-2D	★	3.2	7.5	9.0	45	6	1
GSX20330S-2D	★	3.3	7.5	9.0	45	6	1
GSX20340S-2D	★	3.4	7.5	9.0	45	6	1
GSX20350S-2D	★	3.5	8.8	10.3	45	6	1
GSX20360S-2D	★	3.6	8.8	10.3	45	6	1
GSX20370S-2D	★	3.7	8.8	10.3	45	6	1
GSX20380S-2D	★	3.8	8.8	10.3	45	6	1
GSX20390S-2D	★	3.9	8.8	10.3	45	6	1
GSX20400S-2D	★	4.0	11.0	14.0	45	6	1
GSX20400S-2D-S4	★	4.0	11.0	-	45	4	2
GSX20410S-2D	★	4.1	11.0	14.0	45	6	1
GSX20420S-2D	★	4.2	11.0	14.0	45	6	1
GSX20430S-2D	★	4.3	11.0	14.0	45	6	1

Grade: ACF20

GSX 20000S-2D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

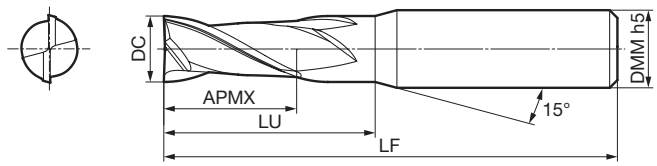
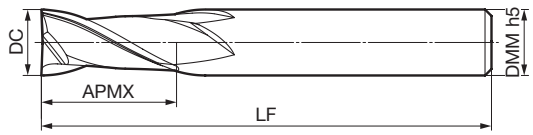


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body (Diameter ø4.4 to 8.8mm)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX20440S-2D	★	4.4	11.0	14.0	45	6	1
GSX20450S-2D	★	4.5	11.3	12.8	50	6	1
GSX20460S-2D	★	4.6	11.3	12.8	50	6	1
GSX20470S-2D	★	4.7	11.3	12.8	50	6	1
GSX20480S-2D	★	4.8	11.3	12.8	50	6	1
GSX20490S-2D	★	4.9	11.3	12.8	50	6	1
GSX20500S-2D	★	5.0	13.0	19.6	50	6	1
GSX20510S-2D	★	5.1	13.0	19.6	50	6	1
GSX20520S-2D	★	5.2	13.0	19.6	50	6	1
GSX20530S-2D	★	5.3	13.0	19.6	50	6	1
GSX20540S-2D	★	5.4	13.0	19.6	50	6	1
GSX20550S-2D	★	5.5	13.0	19.6	50	6	1
GSX20560S-2D	★	5.6	13.0	19.6	50	6	1
GSX20570S-2D	★	5.7	13.0	19.6	50	6	1
GSX20580S-2D	★	5.8	13.0	19.6	50	6	1
GSX20590S-2D	★	5.9	13.0	19.6	50	6	1
GSX20600S-2D	★	6.0	13.0	-	50	6	2
GSX20610S-2D	★	6.1	13.0	19.6	50	8	1
GSX20620S-2D	★	6.2	13.0	19.6	50	8	1
GSX20630S-2D	★	6.3	13.0	19.6	50	8	1
GSX20640S-2D	★	6.4	13.0	19.6	50	8	1
GSX20650S-2D	★	6.5	13.0	19.6	60	8	1
GSX20660S-2D	★	6.6	13.2	19.8	60	8	1
GSX20670S-2D	★	6.7	13.4	20.0	60	8	1
GSX20680S-2D	★	6.8	13.6	20.2	60	8	1
GSX20690S-2D	★	6.9	13.8	20.4	60	8	1
GSX20700S-2D	★	7.0	16.0	21.1	60	8	1
GSX20710S-2D	★	7.1	16.0	21.1	60	8	1
GSX20720S-2D	★	7.2	16.0	21.1	60	8	1
GSX20730S-2D	★	7.3	16.0	21.1	60	8	1
GSX20740S-2D	★	7.4	16.0	21.1	60	8	1
GSX20750S-2D	★	7.5	16.0	21.1	60	8	1
GSX20760S-2D	★	7.6	16.0	21.1	60	8	1
GSX20770S-2D	★	7.7	16.0	21.1	60	8	1
GSX20780S-2D	★	7.8	16.0	21.1	60	8	1
GSX20790S-2D	★	7.9	16.0	21.1	60	8	1
GSX20800S-2D	★	8.0	19.0	-	60	8	2
GSX20810S-2D	★	8.1	19.0	24.1	60	10	1
GSX20820S-2D	★	8.2	19.0	24.1	60	10	1
GSX20830S-2D	★	8.3	19.0	24.1	60	10	1
GSX20840S-2D	★	8.4	19.0	24.1	60	10	1
GSX20850S-2D	★	8.5	19.0	24.1	70	10	1
GSX20860S-2D	★	8.6	19.0	24.1	70	10	1
GSX20870S-2D	★	8.7	19.0	24.1	70	10	1
GSX20880S-2D	★	8.8	19.0	24.1	70	10	1

Grade: ACF20

GSX 20000S-2D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

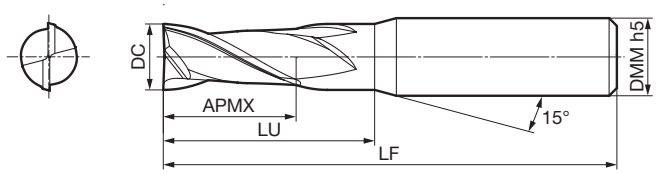
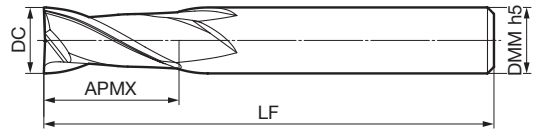


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body (Diameter ø8.9 to 25.0mm)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX20890S-2D	★	8.9	19.0	24.1	70	10	1
GSX20900S-2D	★	9.0	19.0	24.1	70	10	1
GSX20910S-2D	★	9.1	19.0	24.1	70	10	1
GSX20920S-2D	★	9.2	19.0	24.1	70	10	1
GSX20930S-2D	★	9.3	19.0	24.1	70	10	1
GSX20940S-2D	★	9.4	19.0	24.1	70	10	1
GSX20950S-2D	★	9.5	20.0	25.1	70	10	1
GSX20960S-2D	★	9.6	20.0	25.1	70	10	1
GSX20970S-2D	★	9.7	20.0	25.1	70	10	1
GSX20980S-2D	★	9.8	20.0	25.1	70	10	1
GSX20990S-2D	★	9.9	20.0	25.1	70	10	1
GSX21000S-2D	★	10.0	22.0	-	70	10	2
GSX21050S-2D	★	10.5	22.0	24.5	75	12	1
GSX21100S-2D	★	11.0	22.0	24.5	75	12	1
GSX21150S-2D	★	11.5	23.0	25.5	75	12	1
GSX21200S-2D	★	12.0	26.0	-	75	12	2
GSX21250S-2D	★	12.5	26.0	29.5	75	16	1
GSX21300S-2D	★	13.0	26.0	29.5	90	16	1
GSX21400S-2D	★	14.0	28.0	31.5	90	16	1
GSX21500S-2D	★	15.0	30.0	33.5	90	16	1
GSX21600S-2D	★	16.0	32.0	-	90	16	2
GSX21700S-2D	★	17.0	35.0	39.5	100	20	1
GSX21800S-2D	★	18.0	40.0	44.5	100	20	1
GSX21900S-2D	★	19.0	40.0	44.5	100	20	1
GSX22000S-2D	★	20.0	40.0	-	100	20	2
GSX22100S-2D	★	21.0	42.0	47.0	110	25	1
GSX22200S-2D	★	22.0	44.0	49.0	110	25	1
GSX22300S-2D	★	23.0	46.0	51.0	120	25	1
GSX22400S-2D	★	24.0	48.0	53.0	120	25	1
GSX22500S-2D	★	25.0	50.0	-	120	25	2

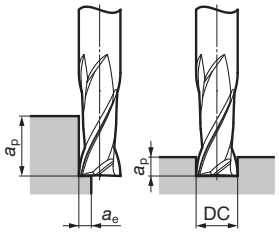
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 2 0150 S - 2D - S3

Series Code	Number of Teeth	Dia.	Cutting Edge S: Sharp Edge	Cutting Edge Length	Shank Dia.

GSX 20000S-2D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		16,600	180	16,600	180	16,600	180	15,500	130	10,500	70	7,500	45	9,400	50	7,500	35
2.0		9,500	250	9,500	250	9,500	250	9,000	200	6,200	100	4,500	60	5,400	70	4,500	50
4.0		5,400	330	5,400	330	5,400	330	5,000	250	3,400	120	2,500	75	3,000	90	2,500	65
6.0		4,000	400	4,000	400	4,000	400	3,700	300	2,550	150	1,900	100	2,300	110	1,900	80
8.0		3,000	400	3,000	400	3,000	400	2,800	300	1,900	150	1,400	100	1,700	110	1,400	80
10.0		2,400	400	2,400	400	2,400	400	2,200	300	1,500	150	1,100	100	1,300	110	1,100	80
12.0		2,000	400	2,000	400	2,000	400	1,850	300	1,300	150	950	100	1,100	110	950	80
16.0		1,500	330	1,500	330	1,500	330	1,400	250	950	120	700	75	850	85	700	60
20.0		1,200	280	1,200	280	1,200	280	1,100	220	750	110	550	65	650	75	550	55
25.0		960	220	960	220	960	220	880	170	600	85	440	50	520	60	440	45
Standard Depth of Cut	a_p	2.0DC															
	a_e	0.02DC										0.01DC					

Groove Finishing

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		16,600	180	16,600	180	16,600	180	15,500	130	10,500	70	7,500	45	9,400	50	7,500	35
2.0		9,500	250	9,500	250	9,500	250	9,000	200	6,200	100	4,500	60	5,400	70	4,500	50
4.0		5,400	330	5,400	330	5,400	330	5,000	250	3,400	120	2,500	75	3,000	90	2,500	65
6.0		4,000	400	4,000	400	4,000	400	3,700	300	2,550	150	1,900	100	2,300	110	1,900	80
8.0		3,000	400	3,000	400	3,000	400	2,800	300	1,900	150	1,400	100	1,700	110	1,400	80
10.0		2,400	400	2,400	400	2,400	400	2,200	300	1,500	150	1,100	100	1,300	110	1,100	80
12.0		2,000	400	2,000	400	2,000	400	1,850	300	1,300	150	950	100	1,100	110	950	80
16.0		1,500	330	1,500	330	1,500	330	1,400	250	950	120	700	75	850	85	700	60
20.0		1,200	280	1,200	280	1,200	280	1,100	220	750	110	550	65	650	75	550	55
25.0		960	220	960	220	960	220	880	170	600	85	440	50	520	60	440	45
Standard Depth of Cut	a_p	1.5DC															
	a_e	Below 0.02DC															

GSX 20000C-2D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

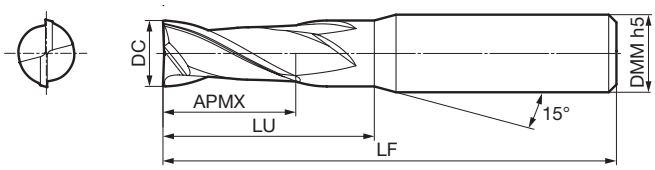
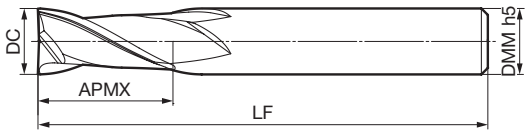


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX20050C-2D	★	0.5	1.0	1.4	40	4	1
GSX20100C-2D	★	1.0	2.0	3.0	40	4	1
GSX20150C-2D	★	1.5	3.0	4.0	40	4	1
GSX20200C-2D	★	2.0	4.0	5.0	40	4	1
GSX20250C-2D	★	2.5	5.0	6.0	40	4	1
GSX20300C-2D	★	3.0	6.0	7.5	45	6	1
GSX20350C-2D	★	3.5	7.0	8.5	45	6	1
GSX20400C-2D	★	4.0	8.0	9.5	45	6	1
GSX20450C-2D	★	4.5	9.0	10.5	50	6	1
GSX20500C-2D	★	5.0	10.0	12.0	50	6	1
GSX20550C-2D	★	5.5	11.0	13.0	50	6	1
GSX20600C-2D	★	6.0	12.0	-	50	6	2
GSX20650C-2D	★	6.5	13.0	15.0	60	8	1
GSX20700C-2D	★	7.0	14.0	16.0	60	8	1
GSX20750C-2D	★	7.5	15.0	17.0	60	8	1
GSX20800C-2D	★	8.0	16.0	-	60	8	2
GSX20850C-2D	★	8.5	17.0	19.0	70	10	1
GSX20900C-2D	★	9.0	18.0	20.0	70	10	1
GSX20950C-2D	★	9.5	19.0	21.0	70	10	1
GSX21000C-2D	★	10.0	20.0	-	70	10	2
GSX21050C-2D	★	10.5	21.0	23.5	75	12	1
GSX21100C-2D	★	11.0	22.0	24.5	75	12	1
GSX21150C-2D	★	11.5	23.0	25.5	75	12	1
GSX21200C-2D	★	12.0	24.0	-	75	12	2
GSX21300C-2D	★	13.0	26.0	29.5	90	16	1
GSX21400C-2D	★	14.0	28.0	31.5	90	16	1
GSX21500C-2D	★	15.0	30.0	33.5	90	16	1
GSX21600C-2D	★	16.0	32.0	-	90	16	2
GSX21700C-2D	★	17.0	34.0	38.5	100	20	1
GSX21800C-2D	★	18.0	36.0	40.5	100	20	1
GSX21900C-2D	★	19.0	38.0	42.5	100	20	1
GSX22000C-2D	★	20.0	40.0	-	100	20	2
GSX22500C-2D	★	25.0	50.0	-	120	25	2

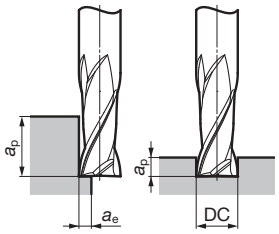
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 2 0050 C - 2D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 20000C-2D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
5. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	250	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	70	9,000	50
2.0	11,200	340	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	90	5,300	70
4.0	6,400	460	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	120	3,000	90
6.0	4,600	560	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	140	2,200	100
8.0	3,400	560	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	140	1,600	100
10.0	2,800	560	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	140	1,300	100
12.0	2,300	560	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	140	1,100	100
16.0	1,700	450	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	110	800	85
20.0	1,350	380	1,350	380	1,350	380	1,300	280	900	160	650	90	800	100	650	75
25.0	1,000	300	1,000	300	1,000	300	1,000	220	700	120	500	70	640	80	500	60
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	200	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	50	4,500	20
2.0	11,200	270	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	65	2,650	25
4.0	6,400	370	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	80	1,500	35
6.0	4,600	450	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	100	1,100	40
8.0	3,400	450	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	100	800	40
10.0	2,800	450	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	100	650	40
12.0	2,300	450	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	100	500	40
16.0	1,700	360	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	80	400	35
20.0	1,350	300	1,350	380	1,350	380	1,300	280	900	160	650	90	800	70	320	30
25.0	1,000	240	1,000	300	1,000	300	1,000	220	700	120	500	70	640	55	250	25
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 20000S-3D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

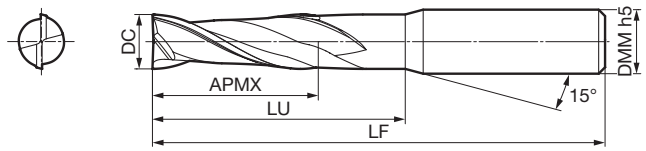
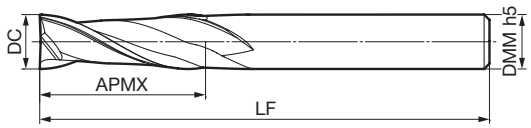


Fig 2



DC	Tolerance	
D≤3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX20050S-3D	★	0.5	1.5	1.9	40	4	1
GSX20100S-3D	★	1.0	3.0	4.0	40	4	1
GSX20150S-3D	★	1.5	4.5	5.5	40	4	1
GSX20200S-3D	★	2.0	6.0	7.0	40	4	1
GSX20250S-3D	★	2.5	7.5	8.5	40	4	1
GSX20260S-3D	★	2.6	8.0	9.5	50	4	1
GSX20270S-3D	★	2.7	8.5	10.0	50	4	1
GSX20280S-3D	★	2.8	9.0	10.5	50	4	1
GSX20290S-3D	★	2.9	9.0	10.5	50	4	1
GSX20300S-3D	★	3.0	9.0	10.5	50	6	1
GSX20350S-3D	★	3.5	12.0	13.5	50	6	1
GSX20400S-3D	★	4.0	12.0	13.5	50	6	1
GSX20450S-3D	★	4.5	15.0	16.5	50	6	1
GSX20500S-3D	★	5.0	15.0	17.0	50	6	1
GSX20550S-3D	★	5.5	18.0	20.0	50	6	1
GSX20600S-3D	★	6.0	18.0	-	50	6	2
GSX20650S-3D	★	6.5	20.0	22.0	70	8	1
GSX20700S-3D	★	7.0	21.0	23.0	70	8	1
GSX20750S-3D	★	7.5	23.0	25.0	70	8	1
GSX20800S-3D	★	8.0	24.0	-	70	8	2
GSX20850S-3D	★	8.5	26.0	28.0	75	10	1
GSX20900S-3D	★	9.0	27.0	29.0	75	10	1
GSX20950S-3D	★	9.5	29.0	31.0	75	10	1
GSX21000S-3D	★	10.0	30.0	-	90	10	2
GSX21050S-3D	★	10.5	32.0	34.5	90	12	1
GSX21100S-3D	★	11.0	33.0	35.5	90	12	1
GSX21150S-3D	★	11.5	35.0	37.5	90	12	1
GSX21200S-3D	★	12.0	36.0	-	90	12	2
GSX21300S-3D	★	13.0	39.0	42.5	100	16	1
GSX21400S-3D	★	14.0	42.0	45.5	110	16	1
GSX21500S-3D	★	15.0	45.0	48.5	110	16	1
GSX21600S-3D	★	16.0	48.0	-	110	16	2
GSX21700S-3D	★	17.0	51.0	55.5	110	20	1
GSX21800S-3D	★	18.0	54.0	58.5	120	20	1
GSX21900S-3D	★	19.0	57.0	61.5	120	20	1
GSX22000S-3D	★	20.0	60.0	-	120	20	2
GSX22400S-3D	★	24.0	72.0	77.0	130	25	1
GSX22500S-3D	★	25.0	75.0	-	130	25	2

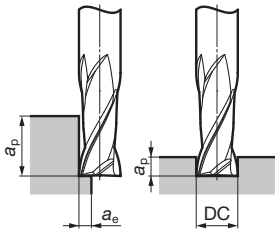
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 2 0050 S - 3D

Series Code | Number of Teeth | Dia. | Cutting Edge (S: Sharp Edge) | Cutting Edge Length

GSX 20000S-3D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		14,000	140	14,000	140	14,000	140	13,200	100	8,900	50	6,300	30	8,000	35	6,300	25
2.0		8,100	180	8,100	180	8,100	180	7,600	150	5,300	90	3,700	45	4,400	50	3,800	40
4.0		4,400	240	4,400	240	4,400	240	4,000	150	2,900	110	1,900	55	2,200	65	1,900	50
6.0		2,900	260	2,900	260	2,900	260	2,700	180	2,100	130	1,200	65	1,400	75	1,200	60
8.0		2,200	230	2,200	230	2,200	230	2,000	180	1,600	130	900	65	1,100	75	900	60
10.0		1,800	220	1,800	220	1,800	220	1,600	170	1,300	130	750	65	850	75	750	60
12.0		1,500	200	1,500	200	1,500	200	1,300	170	1,000	130	630	65	700	75	600	60
16.0		1,100	170	1,100	170	1,100	170	1,000	150	800	110	450	55	550	65	450	50
20.0		850	160	850	160	850	160	800	130	600	100	350	50	400	55	350	45
25.0		680	130	680	130	680	130	640	100	480	80	280	40	320	45	280	35
Standard Depth of Cut	a_p	2.5DC								2.0DC							
	a_e	Below ø3: 0.02DC, Above ø3: 0.05DC								0.01DC							

Groove Finishing

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		14,000	140	14,000	140	14,000	140	13,200	100	8,900	50	6,300	30	8,000	35	6,300	25
2.0		8,100	180	8,100	180	8,100	180	7,600	150	5,300	90	3,700	45	4,400	50	3,800	40
4.0		4,400	240	4,400	240	4,400	240	4,000	150	2,900	110	1,900	55	2,200	65	1,900	50
6.0		2,900	260	2,900	260	2,900	260	2,700	180	2,100	130	1,200	65	1,400	75	1,200	60
8.0		2,200	230	2,200	230	2,200	230	2,000	180	1,600	130	900	65	1,100	75	900	60
10.0		1,800	220	1,800	220	1,800	220	1,600	170	1,300	130	750	65	850	75	750	60
12.0		1,500	200	1,500	200	1,500	200	1,300	170	1,000	130	630	65	700	75	600	60
16.0		1,100	170	1,100	170	1,100	170	1,000	150	800	110	450	55	550	65	450	50
20.0		850	160	850	160	850	160	800	130	600	100	350	50	400	55	350	45
25.0		680	130	680	130	680	130	640	100	480	80	280	40	320	45	280	35
Standard Depth of Cut	a_p	1.5DC															
	a_e	*Below* 0.02DC															

GSX 20000C-3D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Spot Facing

Fig 1

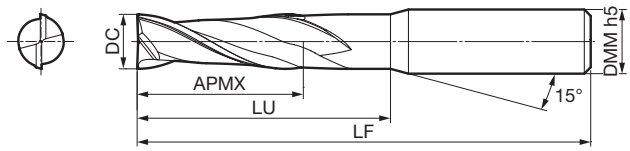
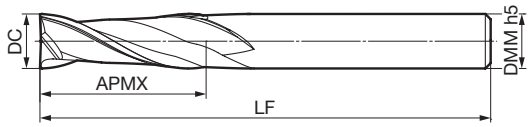


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX20050C-3D	★	0.5	1.5	1.9	40	4	1
GSX20100C-3D	★	1.0	3.0	4.0	40	4	1
GSX20150C-3D	★	1.5	4.5	5.5	40	4	1
GSX20200C-3D	★	2.0	6.0	7.0	40	4	1
GSX20250C-3D	★	2.5	7.5	8.5	40	4	1
GSX20300C-3D	★	3.0	9.0	10.5	50	6	1
GSX20350C-3D	★	3.5	11.0	12.5	50	6	1
GSX20400C-3D	★	4.0	12.0	13.5	50	6	1
GSX20450C-3D	★	4.5	14.0	15.5	50	6	1
GSX20500C-3D	★	5.0	15.0	17.0	50	6	1
GSX20550C-3D	★	5.5	17.0	19.0	50	6	1
GSX20600C-3D	★	6.0	18.0	-	50	6	2
GSX20650C-3D	★	6.5	20.0	22.0	70	8	1
GSX20700C-3D	★	7.0	21.0	23.0	70	8	1
GSX20750C-3D	★	7.5	23.0	25.0	70	8	1
GSX20800C-3D	★	8.0	24.0	-	70	8	2
GSX20850C-3D	★	8.5	26.0	28.0	75	10	1
GSX20900C-3D	★	9.0	27.0	29.0	75	10	1
GSX20950C-3D	★	9.5	29.0	31.0	75	10	1
GSX21000C-3D	★	10.0	30.0	-	90	10	2
GSX21050C-3D	★	10.5	32.0	34.5	90	12	1
GSX21100C-3D	★	11.0	33.0	35.5	90	12	1
GSX21150C-3D	★	11.5	35.0	37.5	90	12	1
GSX21200C-3D	★	12.0	36.0	-	90	12	2
GSX21300C-3D	★	13.0	39.0	42.5	100	16	1
GSX21400C-3D	★	14.0	42.0	45.5	110	16	1
GSX21500C-3D	★	15.0	45.0	48.5	110	16	1
GSX21600C-3D	★	16.0	48.0	-	110	16	2
GSX21700C-3D	★	17.0	51.0	55.5	110	20	1
GSX21800C-3D	★	18.0	54.0	58.5	120	20	1
GSX21900C-3D	★	19.0	57.0	61.5	120	20	1
GSX22000C-3D	★	20.0	60.0	-	120	20	2
GSX22500C-3D	★	25.0	75.0	-	130	25	2

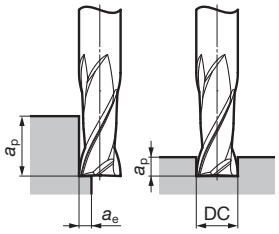
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 2 0100 C - 3D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 20000C-3D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		16,600	190	16,600	190	16,600	190	15,500	140	10,500	70	7,500	45	9,400	50	7,500	35
2.0		9,500	250	9,500	250	9,500	250	9,000	200	6,200	120	4,500	60	5,200	70	4,500	50
4.0		5,200	330	5,200	330	5,200	330	4,800	200	3,400	150	2,250	75	2,600	90	2,250	65
6.0		3,500	360	3,500	360	3,500	360	3,200	250	2,550	170	1,500	90	1,700	100	1,500	80
8.0		2,600	320	2,600	320	2,600	320	2,400	240	1,900	170	1,100	90	1,300	100	1,100	80
10.0		2,100	300	2,100	300	2,100	300	1,900	230	1,500	170	900	90	1,000	100	900	80
12.0		1,750	280	1,750	280	1,750	280	1,600	230	1,250	170	750	90	850	100	750	80
16.0		1,300	240	1,300	240	1,300	240	1,200	200	950	150	550	75	650	85	550	65
20.0		1,050	220	1,050	220	1,050	220	950	180	750	140	450	70	500	75	450	60
25.0		840	180	840	180	840	180	760	140	600	110	360	55	400	60	360	45
Standard Depth of Cut	a_p	2.5DC								2.0DC							
	a_e	Below ø3: 0.05DC, Above ø3: 0.1DC								0.02DC							

Groove Milling

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		16,600	70	16,600	80	16,600	80	15,500	50	10,500	50	7,500	35	9,400	30	3,750	10
2.0		9,500	80	9,500	100	9,500	100	9,000	90	6,200	60	4,500	45	5,200	40	2,250	15
4.0		5,200	120	5,200	150	5,200	150	4,800	120	3,400	80	2,200	50	2,600	50	1,250	20
6.0		3,500	140	3,500	170	3,500	170	3,200	130	2,550	100	1,500	50	1,700	60	950	25
8.0		2,600	140	2,600	160	2,600	160	2,400	130	1,900	100	1,100	50	1,300	60	700	25
10.0		2,100	130	2,100	150	2,100	150	1,900	120	1,500	90	900	50	1,000	60	550	25
12.0		1,750	130	1,750	150	1,750	150	1,600	120	1,250	90	750	50	850	60	450	25
16.0		1,300	110	1,300	130	1,300	130	1,200	110	950	80	550	45	650	50	350	20
20.0		1,050	100	1,050	120	1,050	120	950	100	750	70	450	40	500	40	280	15
25.0		840	80	840	96	840	96	760	80	600	56	360	32	400	32	224	12
Standard Depth of Cut	a_p	0.1DC		0.2DC								0.05DC		0.1DC			

GSX 20000S-4D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

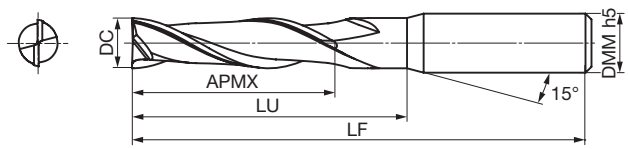
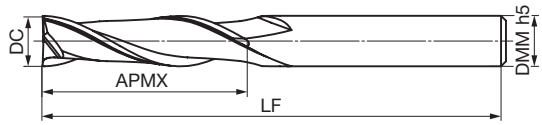


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX20050S-4D	★	0.5	2.0	2.4	40	4	1
GSX20100S-4D	★	1.0	5.0	6.0	40	4	1
GSX20150S-4D	★	1.5	7.0	8.0	40	4	1
GSX20200S-4D	★	2.0	9.0	10.0	40	4	1
GSX20250S-4D	★	2.5	12.0	13.0	50	4	1
GSX20300S-4D	★	3.0	12.0	13.5	50	6	1
GSX20350S-4D	★	3.5	14.0	15.5	50	6	1
GSX20400S-4D	★	4.0	16.0	17.5	50	6	1
GSX20450S-4D	★	4.5	18.0	19.5	60	6	1
GSX20500S-4D	★	5.0	20.0	22.0	60	6	1
GSX20550S-4D	★	5.5	22.0	24.0	60	6	1
GSX20600S-4D	★	6.0	24.0	-	60	6	2
GSX20650S-4D	★	6.5	26.0	28.0	70	8	1
GSX20700S-4D	★	7.0	28.0	30.0	80	8	1
GSX20750S-4D	★	7.5	30.0	32.0	80	8	1
GSX20800S-4D	★	8.0	32.0	-	80	8	2
GSX20850S-4D	★	8.5	34.0	36.0	90	10	1
GSX20900S-4D	★	9.0	36.0	38.0	90	10	1
GSX20950S-4D	★	9.5	38.0	40.0	90	10	1
GSX21000S-4D	★	10.0	40.0	-	90	10	2
GSX21050S-4D	★	10.5	42.0	44.5	100	12	1
GSX21100S-4D	★	11.0	44.0	46.5	100	12	1
GSX21150S-4D	★	11.5	46.0	48.5	100	12	1
GSX21200S-4D	★	12.0	48.0	-	100	12	2
GSX21300S-4D	★	13.0	52.0	55.5	110	16	1
GSX21400S-4D	★	14.0	56.0	59.5	120	16	1
GSX21500S-4D	★	15.0	60.0	63.5	120	16	1
GSX21600S-4D	★	16.0	64.0	-	120	16	2
GSX21700S-4D	★	17.0	68.0	72.5	130	20	1
GSX21800S-4D	★	18.0	72.0	76.5	130	20	1
GSX21900S-4D	★	19.0	76.0	80.5	140	20	1
GSX22000S-4D	★	20.0	80.0	-	140	20	2
GSX22500S-4D	★	25.0	100.0	-	160	25	2

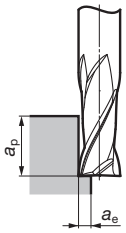
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 2 0100 S - 4D

Series Code	Number of Teeth	Dia.	Cutting Edge S: Sharp Edge	Cutting Edge Length

GSX 20000S-4D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		7,600	110	7,600	110	7,600	110	6,000	80	5,500	40	3,800	25	4,600	35	3,800	20
2.0		3,850	150	3,850	150	3,850	150	2,950	100	2,750	60	1,900	30	2,300	40	1,950	30
4.0		1,900	200	1,900	200	1,900	200	1,450	130	1,350	80	1,000	50	1,150	55	1,000	35
6.0		1,250	250	1,250	250	1,250	250	970	140	860	90	640	60	740	60	640	40
8.0		930	220	930	220	930	220	700	140	670	90	500	60	560	60	490	40
10.0		770	210	770	210	770	210	190	130	560	95	380	60	460	60	380	40
12.0		650	200	650	200	650	200	470	130	420	85	330	60	370	60	320	40
16.0		450	170	450	170	450	170	370	120	340	80	250	45	280	50	250	35
20.0		360	140	360	140	360	140	300	100	260	70	190	35	220	40	190	30
25.0		190	120	190	120	190	120	230	80	200	55	150	30	170	30	150	25
Standard Depth of Cut	a_p	2.5DC								2.0DC							
	a_e	Below ø3: 0.02DC, Above ø3: 0.05DC								0.01DC							

GSX 20000C-4D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing | Face Milling | Spot Facing

Fig 1

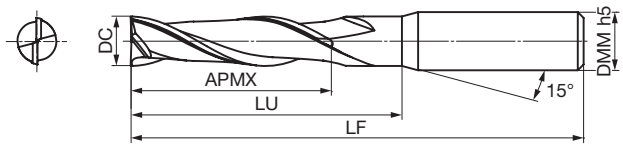
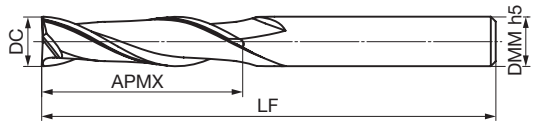


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX20050C-4D	★	0.5	2.0	2.4	40	4	1
GSX20100C-4D	★	1.0	4.0	5.0	40	4	1
GSX20150C-4D	★	1.5	6.0	7.0	40	4	1
GSX20200C-4D	★	2.0	8.0	9.0	40	4	1
GSX20250C-4D	★	2.5	10.0	11.0	50	4	1
GSX20300C-4D	★	3.0	12.0	13.5	50	6	1
GSX20350C-4D	★	3.5	14.0	15.5	50	6	1
GSX20400C-4D	★	4.0	16.0	17.5	50	6	1
GSX20450C-4D	★	4.5	18.0	19.5	60	6	1
GSX20500C-4D	★	5.0	20.0	22.0	60	6	1
GSX20550C-4D	★	5.5	22.0	24.0	60	6	1
GSX20600C-4D	★	6.0	24.0	-	60	6	2
GSX20650C-4D	★	6.5	26.0	28.0	70	8	1
GSX20700C-4D	★	7.0	28.0	30.0	80	8	1
GSX20750C-4D	★	7.5	30.0	32.0	80	8	1
GSX20800C-4D	★	8.0	32.0	-	80	8	2
GSX20850C-4D	★	8.5	34.0	36.0	90	10	1
GSX20900C-4D	★	9.0	36.0	38.0	90	10	1
GSX20950C-4D	★	9.5	38.0	40.0	90	10	1
GSX21000C-4D	★	10.0	40.0	-	90	10	2
GSX21050C-4D	★	10.5	42.0	44.5	100	12	1
GSX21100C-4D	★	11.0	44.0	46.5	100	12	1
GSX21150C-4D	★	11.5	46.0	48.5	100	12	1
GSX21200C-4D	★	12.0	48.0	-	100	12	2
GSX21300C-4D	★	13.0	52.0	55.5	110	16	1
GSX21400C-4D	★	14.0	56.0	59.5	120	16	1
GSX21500C-4D	★	15.0	60.0	63.5	120	16	1
GSX21600C-4D	★	16.0	64.0	-	120	16	2
GSX21700C-4D	★	17.0	68.0	72.5	130	20	1
GSX21800C-4D	★	18.0	72.0	76.5	130	20	1
GSX21900C-4D	★	19.0	76.0	80.5	140	20	1
GSX22000C-4D	★	20.0	80.0	-	140	20	2
GSX22500C-4D	★	25.0	100.0	-	160	25	2

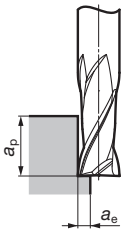
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 2 0100 C - 4D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 20000C-4D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. This series is not recommended for groove milling.
7. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	9,000	130	9,000	130	9,000	130	7,000	95	6,500	50	4,500	30	5,400	40	4,500	25
2.0	4,500	180	4,500	180	4,500	180	3,500	120	3,200	70	2,300	40	2,700	50	2,300	35
4.0	2,250	240	2,250	240	2,250	240	1,750	160	1,600	95	1,200	60	1,350	65	1,200	40
6.0	1,500	300	1,500	300	1,500	300	1,150	170	1,050	110	800	70	900	70	800	50
8.0	1,100	260	1,100	260	1,100	260	850	170	800	110	600	70	660	70	600	50
10.0	900	250	900	250	900	250	700	160	650	110	460	70	540	70	460	50
12.0	750	240	750	240	750	240	580	160	520	110	400	70	450	70	400	50
16.0	550	200	550	200	550	200	440	140	400	95	300	55	330	60	300	45
20.0	450	180	450	180	450	180	350	120	320	85	240	45	270	50	240	40
25.0	360	140	360	140	360	140	280	95	250	65	190	35	210	40	192	30
Standard Depth of Cut a_p	3.5DC										3.0DC					
Standard Depth of Cut a_e	0.08DC						0.04DC									

GSX 30000C-1.5D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

3 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

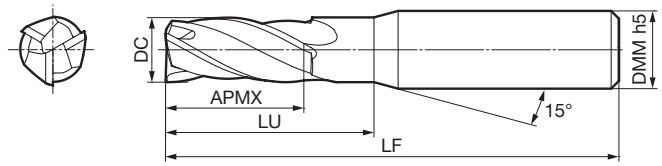
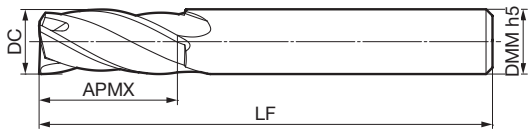


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX30100C-1.5D	★	1.0	1.5	2.5	40	4	1
GSX30150C-1.5D	★	1.5	2.3	3.3	40	4	1
GSX30200C-1.5D	★	2.0	3.0	4.0	40	4	1
GSX30250C-1.5D	★	2.5	3.8	4.8	40	4	1
GSX30300C-1.5D	★	3.0	4.5	6.0	45	6	1
GSX30400C-1.5D	★	4.0	6.0	7.5	45	6	1
GSX30500C-1.5D	★	5.0	7.5	9.5	50	6	1
GSX30600C-1.5D	★	6.0	9.0	-	50	6	2
GSX30700C-1.5D	★	7.0	11.0	13.0	60	8	1
GSX30800C-1.5D	★	8.0	12.0	-	60	8	2
GSX30900C-1.5D	★	9.0	14.0	16.0	70	10	1
GSX31000C-1.5D	★	10.0	15.0	-	70	10	2
GSX31200C-1.5D	★	12.0	18.0	-	75	12	2

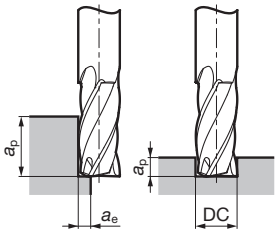
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 3 0100 C - 1.5D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 30000C-1.5D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	300	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	90	9,000	65
2.0	11,200	410	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	120	5,300	90
4.0	6,400	550	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	150	3,000	120
6.0	4,600	670	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,700	180	2,200	130
8.0	3,400	670	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	180	1,600	130
10.0	2,800	670	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	180	1,300	130
12.0	2,300	670	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	180	1,100	130
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	240	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	65	4,500	25
2.0	11,200	320	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	85	2,650	35
4.0	6,400	450	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	100	1,500	50
6.0	4,600	540	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,650	130	1,150	55
8.0	3,400	540	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	130	800	55
10.0	2,800	540	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	130	650	55
12.0	2,300	540	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	130	500	55
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 30000C-2D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

3 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

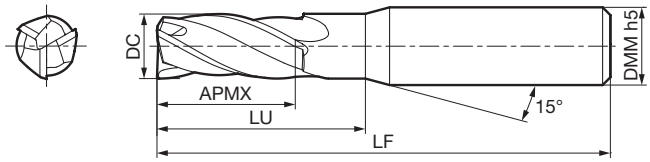
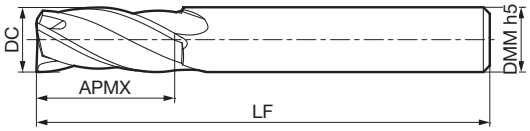


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX30100C-2D	★	1.0	2.5	3.5	40	4	1
GSX30150C-2D	★	1.5	3.8	4.8	40	4	1
GSX30200C-2D	★	2.0	5.0	6.0	40	4	1
GSX30250C-2D	★	2.5	6.3	7.3	40	4	1
GSX30300C-2D	★	3.0	7.5	9.0	45	6	1
GSX30400C-2D	★	4.0	11.0	12.5	45	6	1
GSX30500C-2D	★	5.0	13.0	15.0	50	6	1
GSX30600C-2D	★	6.0	13.0	-	50	6	2
GSX30700C-2D	★	7.0	16.0	18.0	60	8	1
GSX30800C-2D	★	8.0	19.0	-	60	8	2
GSX30900C-2D	★	9.0	19.0	21.0	70	10	1
GSX31000C-2D	★	10.0	22.0	-	70	10	2
GSX31200C-2D	★	12.0	26.0	-	75	12	2

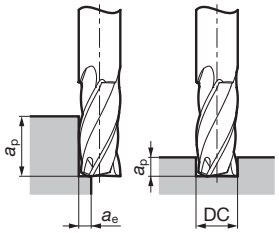
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 3 0100 C - 2D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 30000C-2D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		19,600	300	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	90	9,000	65
2.0		11,200	410	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	120	5,300	90
4.0		6,400	550	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	150	3,000	120
6.0		4,600	670	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,700	180	2,200	130
8.0		3,400	670	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	180	1,600	130
10.0		2,800	670	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	180	1,300	130
12.0		2,300	670	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	180	1,100	130
Standard Depth of Cut	a_p	1.5DC										1.0DC					
	a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		19,600	240	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	65	4,500	25
2.0		11,200	320	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	85	2,650	35
4.0		6,400	450	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	100	1,500	50
6.0		4,600	540	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,650	130	1,150	55
8.0		3,400	540	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	130	800	55
10.0		2,800	540	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	130	650	55
12.0		2,300	540	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	130	500	55
Standard Depth of Cut	a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 40000C-1.5D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Helical Milling | Ramping

Fig 1

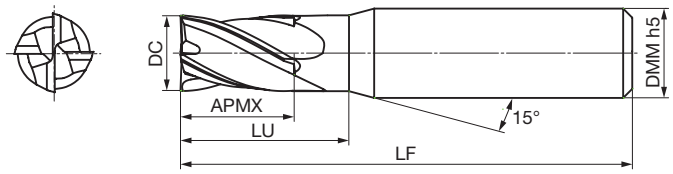
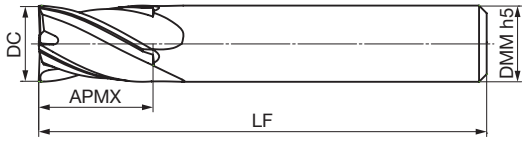


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX40100C-1.5D	★	1.0	1.5	2.5	40	4	1
GSX40150C-1.5D	★	1.5	2.3	3.3	40	4	1
GSX40200C-1.5D	★	2.0	3.0	4.0	40	4	1
GSX40250C-1.5D	★	2.5	3.8	4.8	40	4	1
GSX40300C-1.5D	★	3.0	4.5	6.0	45	6	1
GSX40350C-1.5D	★	3.5	5.3	6.8	45	6	1
GSX40400C-1.5D	★	4.0	6.0	7.5	45	6	1
GSX40450C-1.5D	★	4.5	6.8	8.3	50	6	1
GSX40500C-1.5D	★	5.0	7.5	9.5	50	6	1
GSX40550C-1.5D	★	5.5	8.3	10.3	50	6	1
GSX40600C-1.5D	★	6.0	9.0	-	50	6	2
GSX40650C-1.5D	★	6.5	10.0	12.0	60	8	1
GSX40700C-1.5D	★	7.0	11.0	13.0	60	8	1
GSX40750C-1.5D	★	7.5	12.0	14.0	60	8	1
GSX40800C-1.5D	★	8.0	12.0	-	60	8	2
GSX40850C-1.5D	★	8.5	13.0	15.0	70	10	1
GSX40900C-1.5D	★	9.0	14.0	16.0	70	10	1
GSX40950C-1.5D	★	9.5	15.0	17.0	70	10	1
GSX41000C-1.5D	★	10.0	15.0	-	70	10	2
GSX41050C-1.5D	★	10.5	16.0	18.5	75	12	1
GSX41100C-1.5D	★	11.0	17.0	19.5	75	12	1
GSX41150C-1.5D	★	11.5	18.0	20.5	75	12	1
GSX41200C-1.5D	★	12.0	18.0	-	75	12	2
GSX41300C-1.5D	★	13.0	20.0	23.5	90	16	1
GSX41400C-1.5D	★	14.0	21.0	24.5	90	16	1
GSX41500C-1.5D	★	15.0	23.0	26.5	90	16	1
GSX41600C-1.5D	★	16.0	24.0	-	90	16	2
GSX41700C-1.5D	★	17.0	26.0	30.5	100	20	1
GSX41800C-1.5D	★	18.0	27.0	31.5	100	20	1
GSX41900C-1.5D	★	19.0	29.0	33.5	100	20	1
GSX42000C-1.5D	★	20.0	30.0	-	100	20	2
GSX42500C-1.5D	★	25.0	38.0	-	120	25	2

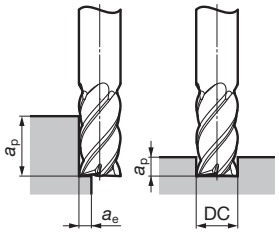
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 4 0100 C - 1.5D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 40000C-1.5D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
1.0	24,000	470	24,000	470	24,000	470	21,000	290	14,500	180	10,500	120	12,600	120	10,500	85
2.0	12,800	570	12,800	570	12,800	570	12,000	380	8,300	230	6,000	150	7,200	160	6,000	110
4.0	6,800	730	6,800	730	6,800	730	6,400	490	4,400	300	3,200	200	3,800	210	3,200	130
6.0	4,600	780	4,600	780	4,600	780	4,300	520	3,000	320	2,200	210	2,650	220	2,200	150
8.0	3,400	780	3,400	780	3,400	780	3,200	520	2,200	320	1,600	210	2,000	220	1,600	150
10.0	2,800	780	2,800	780	2,800	780	2,600	520	1,800	320	1,300	210	1,500	220	1,300	150
12.0	2,300	780	2,300	780	2,300	780	2,200	520	1,500	320	1,100	210	1,300	220	1,100	150
16.0	1,700	650	1,700	650	1,700	650	1,600	420	1,100	280	800	170	1,000	180	800	120
20.0	1,350	600	1,350	600	1,350	600	1,300	380	900	260	650	150	800	160	650	100
25.0	1,050	470	1,050	470	1,050	470	1,050	300	720	210	520	120	640	130	520	80
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Side Milling (High Speed Machining Centre)

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
1.0	60,000	1,200	60,000	1,200	60,000	1,200	60,000	850	60,000	720	48,000	500	32,000	300	—	—
2.0	47,800	2,200	47,800	2,200	47,800	2,200	47,800	1,600	39,800	1,200	31,800	900	15,900	400	—	—
4.0	23,900	2,600	23,900	2,600	23,900	2,600	23,900	1,900	19,900	1,400	15,900	1,100	8,000	490	—	—
6.0	16,000	2,700	16,000	2,700	16,000	2,700	16,000	2,000	13,300	1,500	10,600	1,200	5,300	520	—	—
8.0	12,000	2,700	12,000	2,700	12,000	2,700	12,000	2,000	10,000	1,500	8,000	1,200	4,000	520	—	—
10.0	9,600	2,700	9,600	2,700	9,600	2,700	9,600	2,000	8,000	1,500	6,400	1,200	3,200	520	—	—
12.0	8,000	2,700	8,000	2,700	8,000	2,700	8,000	2,000	6,700	1,500	5,300	1,200	2,700	520	—	—
16.0	6,000	2,200	6,000	2,200	6,000	2,200	6,000	1,600	5,000	1,200	4,000	900	2,000	450	—	—
20.0	4,800	2,000	4,800	2,000	4,800	2,000	4,800	1,400	4,000	1,100	3,200	750	1,600	380	—	—
25.0	3,800	1,500	3,800	1,500	3,800	1,500	3,800	1,150	3,200	850	2,600	600	1,300	300	—	—
Standard Depth of Cut a_p	1.5DC										1.0DC				—	
Standard Depth of Cut a_e	0.05DC										0.02DC				—	

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
1.0	24,000	380	24,000	470	24,000	470	21,000	290	14,500	180	10,500	120	12,600	85	5,200	30
2.0	12,800	460	12,800	570	12,800	570	12,000	380	8,300	230	6,000	150	7,200	110	3,000	40
4.0	6,800	580	6,800	730	6,800	730	5,400	490	4,400	300	3,200	200	3,800	130	1,600	55
6.0	4,600	620	4,600	780	4,600	780	4,300	520	3,000	320	2,200	210	2,650	160	1,100	65
8.0	3,400	620	3,400	780	3,400	780	3,200	520	2,200	320	1,600	210	2,000	160	800	65
10.0	2,800	620	2,800	780	2,800	780	2,600	520	1,800	320	1,300	210	1,600	160	650	65
12.0	2,300	620	2,300	780	2,300	780	2,200	520	1,500	320	1,100	210	1,300	160	550	65
16.0	1,700	520	1,700	560	1,700	560	1,600	420	1,100	280	800	170	1,000	130	400	55
20.0	1,350	480	1,350	600	1,350	600	1,300	380	900	260	650	150	800	110	320	50
25.0	1,080	384	1,080	480	1,080	480	1,040	304	720	208	520	120	640	88	256	40
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 40000S-2D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

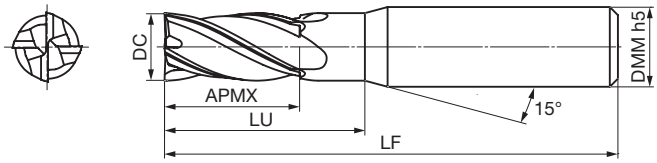
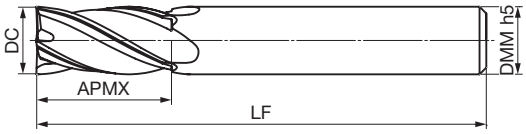


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX40100S-2D	★	1.0	2.5	3.5	40	4	1
GSX40100S-2D-S3	★	1.0	2.5	3.5	38	3	1
GSX40150S-2D	★	1.5	3.8	4.8	40	4	1
GSX40200S-2D	★	2.0	5.0	6.0	40	4	1
GSX40200S-2D-S3	★	2.0	5.0	6.0	38	3	1
GSX40250S-2D	★	2.5	6.3	7.3	40	4	1
GSX40300S-2D	★	3.0	7.5	9.0	45	6	1
GSX40300S-2D-S3	★	3.0	7.5	-	38	3	2
GSX40350S-2D	★	3.5	8.8	10.0	45	6	1
GSX40400S-2D	★	4.0	11.0	14.0	45	6	1
GSX40400S-2D-S4	★	4.0	11.0	-	45	4	2
GSX40450S-2D	★	4.5	11.3	12.8	50	6	1
GSX40500S-2D	★	5.0	13.0	19.6	50	6	1
GSX40550S-2D	★	5.5	13.0	19.6	50	6	1
GSX40600S-2D	★	6.0	13.0	-	50	6	2
GSX40650S-2D	★	6.5	13.0	19.6	60	8	1
GSX40700S-2D	★	7.0	16.0	21.1	60	8	1
GSX40750S-2D	★	7.5	16.0	21.1	60	8	1
GSX40800S-2D	★	8.0	19.0	-	60	8	2
GSX40850S-2D	★	8.5	19.0	24.1	70	10	1
GSX40900S-2D	★	9.0	19.0	24.1	70	10	1
GSX40950S-2D	★	9.5	19.0	24.1	70	10	1
GSX41000S-2D	★	10.0	22.0	-	70	10	2
GSX41050S-2D	★	10.5	22.0	24.5	75	12	1
GSX41100S-2D	★	11.0	22.0	24.5	75	12	1
GSX41150S-2D	★	11.5	23.0	25.5	75	12	1
GSX41200S-2D	★	12.0	26.0	-	75	12	2
GSX41300S-2D	★	13.0	26.0	29.5	90	16	1
GSX41350S-2D	★	13.5	27.0	30.5	90	16	1
GSX41400S-2D	★	14.0	28.0	31.5	90	16	1
GSX41500S-2D	★	15.0	30.0	33.5	90	16	1
GSX41600S-2D	★	16.0	32.0	-	90	16	2
GSX41700S-2D	★	17.0	35.0	39.5	100	20	1
GSX41800S-2D	★	18.0	40.0	44.5	100	20	1
GSX41900S-2D	★	19.0	40.0	44.5	100	20	1
GSX42000S-2D	★	20.0	40.0	-	100	20	2
GSX42200S-2D	★	22.0	44.0	49.0	110	25	1
GSX42400S-2D	★	24.0	48.0	53.0	120	25	1
GSX42500S-2D	★	25.0	50.0	-	120	25	2

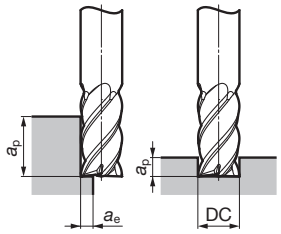
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 4 0100 S - 2D - S3

Series Code | Number of Teeth | Dia. | Cutting Edge S: Sharp Edge | Cutting Edge Length | Shank Dia.

GSX 40000S-2D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		22,000	360	22,000	360	22,000	360	19,000	220	13,000	140	9,500	90	11,300	90	9,500	65
2.0		11,500	440	11,500	440	11,500	440	11,000	290	7,500	180	5,400	110	6,500	120	5,400	85
4.0		6,000	560	6,000	560	6,000	560	5,800	370	4,000	230	2,900	150	3,400	160	2,900	100
6.0		4,200	600	4,200	600	4,200	600	4,000	400	2,700	240	2,000	160	2,400	170	2,000	120
8.0		3,000	600	3,000	600	3,000	600	2,800	400	2,000	240	1,450	160	1,800	170	1,450	120
10.0		2,500	600	2,500	600	2,500	600	2,350	400	1,600	240	1,200	160	1,450	170	1,200	120
12.0		2,100	600	2,100	600	2,100	600	2,000	400	1,350	240	1,000	160	1,200	170	1,000	120
16.0		1,500	500	1,500	500	1,500	500	1,450	320	1,000	210	750	130	900	140	750	90
20.0		1,200	460	1,200	460	1,200	460	1,150	290	800	200	600	110	700	120	600	75
25.0		960	370	960	370	960	370	920	230	640	160	480	85	560	95	480	60
Standard Depth of Cut	a_p	2.0DC															
	a_e	0.03DC										0.01DC					

Groove Finishing

Work Material / Cutting Conditions		Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		22,000	360	22,000	360	22,000	360	19,000	220	13,000	140	9,500	90	11,300	90	9,500	65
2.0		11,500	440	11,500	440	11,500	440	11,000	290	7,500	180	5,400	110	6,500	120	5,400	85
4.0		6,000	560	6,000	560	6,000	560	5,800	370	4,000	230	2,900	150	3,400	160	2,900	100
6.0		4,200	600	4,200	600	4,200	600	4,000	400	2,700	240	2,000	160	2,400	170	2,000	120
8.0		3,000	600	3,000	600	3,000	600	2,800	400	2,000	240	1,450	160	1,800	170	1,450	120
10.0		2,500	600	2,500	600	2,500	600	2,350	400	1,600	240	1,200	160	1,450	170	1,200	120
12.0		2,100	600	2,100	600	2,100	600	2,000	400	1,350	240	1,000	160	1,200	170	1,000	120
16.0		1,500	500	1,500	500	1,500	500	1,450	320	1,000	210	750	130	900	140	750	90
20.0		1,200	460	1,200	460	1,200	460	1,150	290	800	200	600	110	700	120	600	75
25.0		960	370	960	370	960	370	920	230	640	160	480	85	560	95	480	60
Standard Depth of Cut	a_p	1.5DC															
	a_e	Below 0.02DC															

GSX 40000C-2D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Helical Milling | Ramping

Fig 1

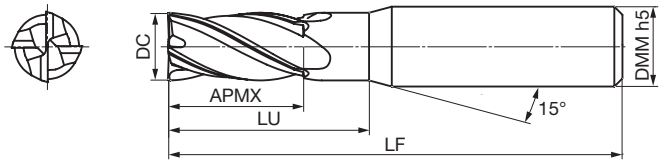
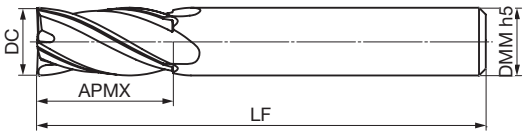


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX40100C-2D	★	1.0	2.0	3.0	40	4	1
GSX40150C-2D	★	1.5	3.0	4.0	40	4	1
GSX40200C-2D	★	2.0	4.0	5.0	40	4	1
GSX40250C-2D	★	2.5	5.0	6.0	40	4	1
GSX40300C-2D	★	3.0	6.0	7.5	45	6	1
GSX40350C-2D	★	3.5	7.0	8.5	45	6	1
GSX40400C-2D	★	4.0	8.0	9.5	45	6	1
GSX40450C-2D	★	4.5	9.0	10.5	50	6	1
GSX40500C-2D	★	5.0	10.0	12.0	50	6	1
GSX40550C-2D	★	5.5	11.0	13.0	50	6	1
GSX40600C-2D	★	6.0	12.0	-	50	6	2
GSX40650C-2D	★	6.5	13.0	15.0	60	8	1
GSX40700C-2D	★	7.0	14.0	16.0	60	8	1
GSX40750C-2D	★	7.5	15.0	17.0	60	8	1
GSX40800C-2D	★	8.0	16.0	-	60	8	2
GSX40850C-2D	★	8.5	17.0	19.0	70	10	1
GSX40900C-2D	★	9.0	18.0	20.0	70	10	1
GSX40950C-2D	★	9.5	19.0	21.0	70	10	1
GSX41000C-2D	★	10.0	20.0	-	70	10	2
GSX41050C-2D	★	10.5	21.0	23.5	75	12	1
GSX41100C-2D	★	11.0	22.0	24.5	75	12	1
GSX41150C-2D	★	11.5	23.0	25.5	75	12	1
GSX41200C-2D	★	12.0	24.0	-	75	12	2
GSX41300C-2D	★	13.0	26.0	29.5	90	16	1
GSX41400C-2D	★	14.0	28.0	31.5	90	16	1
GSX41500C-2D	★	15.0	30.0	33.5	90	16	1
GSX41600C-2D	★	16.0	32.0	-	90	16	2
GSX41700C-2D	★	17.0	34.0	39.5	100	20	1
GSX41800C-2D	★	18.0	36.0	40.5	100	20	1
GSX41900C-2D	★	19.0	38.0	42.5	100	20	1
GSX42000C-2D	★	20.0	40.0	-	100	20	2
GSX42500C-2D	★	25.0	50.0	-	120	25	2

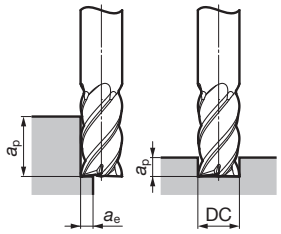
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 4 0100 C - 2D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 40000C-2D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
5. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
1.0	24,000	470	24,000	470	24,000	470	21,000	290	14,500	180	10,500	120	12,600	120	10,500	85
2.0	12,800	570	12,800	570	12,800	570	12,000	380	8,300	230	6,000	150	7,200	160	6,000	110
4.0	6,800	730	6,800	730	6,800	730	6,400	490	4,400	300	3,200	200	3,800	210	3,200	130
6.0	4,600	780	4,600	780	4,600	780	4,300	520	3,000	320	2,200	210	2,650	220	2,200	150
8.0	3,400	780	3,400	780	3,400	780	3,200	520	2,200	320	1,600	210	2,000	220	1,600	150
10.0	2,800	780	2,800	780	2,800	780	2,600	520	1,800	320	1,300	210	1,500	220	1,300	150
12.0	2,300	780	2,300	780	2,300	780	2,200	520	1,500	320	1,100	210	1,300	220	1,100	150
16.0	1,700	650	1,700	650	1,700	650	1,600	420	1,100	280	800	170	1,000	180	800	120
20.0	1,350	600	1,350	600	1,350	600	1,300	380	900	260	650	150	800	160	650	100
25.0	1,000	480	1,000	480	1,000	480	1,000	300	700	200	500	120	640	120	500	80
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Side Milling (High Speed Machining Centre)

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
1.0	60,000	1,200	60,000	1,200	60,000	1,200	60,000	850	60,000	720	48,000	500	32,000	300	—	—
2.0	47,800	2,200	47,800	2,200	47,800	2,200	47,800	1,600	39,800	1,200	31,800	900	15,900	400	—	—
4.0	23,900	2,600	23,900	2,600	23,900	2,600	23,900	1,900	19,900	1,400	15,900	1,100	8,000	490	—	—
6.0	16,000	2,700	16,000	2,700	16,000	2,700	16,000	2,000	13,300	1,500	10,600	1,200	5,300	520	—	—
8.0	12,000	2,700	12,000	2,700	12,000	2,700	12,000	2,000	10,000	1,500	8,000	1,200	4,000	520	—	—
10.0	9,600	2,700	9,600	2,700	9,600	2,700	9,600	2,000	8,000	1,500	6,400	1,200	3,200	520	—	—
12.0	8,000	2,700	8,000	2,700	8,000	2,700	8,000	2,000	6,700	1,500	5,300	1,200	2,700	520	—	—
16.0	6,000	2,200	6,000	2,200	6,000	2,200	6,000	1,600	5,000	1,200	4,000	900	2,000	450	—	—
20.0	4,800	2,000	4,800	2,000	4,800	2,000	4,800	1,400	4,000	1,100	3,200	750	1,600	380	—	—
25.0	3,800	1,500	3,800	1,500	3,800	1,500	3,800	1,100	3,200	900	2,500	600	1,300	300	—	—
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
1.0	24,000	380	24,000	470	24,000	470	21,000	290	14,500	180	10,500	120	12,600	85	5,200	30
2.0	12,800	460	12,800	570	12,800	570	12,000	380	8,300	230	6,000	150	7,200	110	3,000	40
4.0	6,800	580	6,800	730	6,800	730	5,400	490	4,400	300	3,200	200	3,800	130	1,600	55
6.0	4,600	620	4,600	780	4,600	780	4,300	520	3,000	320	2,200	210	2,650	160	1,100	65
8.0	3,400	620	3,400	780	3,400	780	3,200	520	2,200	320	1,600	210	2,000	160	800	65
10.0	2,800	620	2,800	780	2,800	780	2,600	520	1,800	320	1,300	210	1,600	160	650	65
12.0	2,300	620	2,300	780	2,300	780	2,200	520	1,500	320	1,100	210	1,300	160	550	65
16.0	1,700	520	1,700	560	1,700	560	1,600	420	1,100	280	800	170	1,000	130	400	55
20.0	1,350	480	1,350	600	1,350	600	1,300	380	900	260	650	150	800	110	320	50
25.0	1,000	380	1,000	450	1,000	450	1,000	300	700	200	500	120	640	80	250	40
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX MILL 4 Flute Endmills Sharp Edge

GSX 40000S-3D Type

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

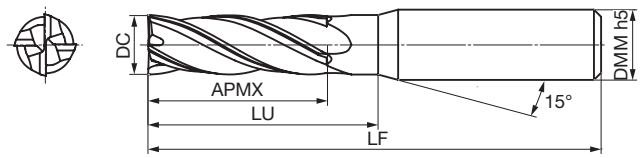
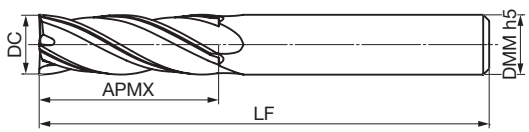


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX40100S-3D	★	1.0	3.0	4.0	40	4	1
GSX40150S-3D	★	1.5	4.5	5.5	40	4	1
GSX40200S-3D	★	2.0	6.0	7.0	40	4	1
GSX40250S-3D	★	2.5	8.0	9.0	40	4	1
GSX40300S-3D	★	3.0	9.0	10.5	50	6	1
GSX40350S-3D	★	3.5	11.0	12.5	50	6	1
GSX40400S-3D	★	4.0	12.0	13.5	50	6	1
GSX40450S-3D	★	4.5	15.0	16.5	50	6	1
GSX40500S-3D	★	5.0	15.0	17.0	50	6	1
GSX40550S-3D	★	5.5	18.0	20.0	50	6	1
GSX40600S-3D	★	6.0	18.0	-	50	6	2
GSX40650S-3D	★	6.5	20.0	22.0	70	8	1
GSX40700S-3D	★	7.0	21.0	23.0	70	8	1
GSX40750S-3D	★	7.5	23.0	25.0	70	8	1
GSX40800S-3D	★	8.0	24.0	-	70	8	2
GSX40850S-3D	★	8.5	26.0	28.0	75	10	1
GSX40900S-3D	★	9.0	27.0	29.0	75	10	1
GSX40950S-3D	★	9.5	29.0	31.0	75	10	1
GSX41000S-3D	★	10.0	30.0	-	90	10	2
GSX41050S-3D	★	10.5	32.0	34.5	90	12	1
GSX41100S-3D	★	11.0	33.0	35.5	90	12	1
GSX41150S-3D	★	11.5	35.0	37.5	90	12	1
GSX41200S-3D	★	12.0	36.0	-	90	12	2
GSX41300S-3D	★	13.0	39.0	42.5	100	16	1
GSX41400S-3D	★	14.0	42.0	45.5	110	16	1
GSX41500S-3D	★	15.0	45.0	48.5	110	16	1
GSX41600S-3D	★	16.0	48.0	-	110	16	2
GSX41700S-3D	★	17.0	51.0	55.5	110	20	1
GSX41800S-3D	★	18.0	54.0	58.5	120	20	1
GSX41900S-3D	★	19.0	57.0	61.5	120	20	1
GSX42000S-3D	★	20.0	60.0	-	120	20	2
GSX42200S-3D	★	22.0	66.0	71.0	130	25	1
GSX42500S-3D	★	25.0	75.0	-	130	25	2

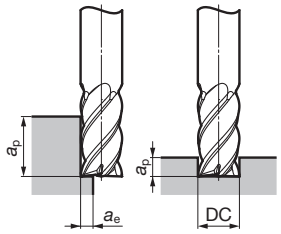
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 4 0100 S - 3D

Series Code	Number of Teeth	Dia.	Cutting Edge S: Sharp Edge	Cutting Edge Length

GSX 40000S-3D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	18,500	250	18,500	250	18,500	250	17,000	150	11,500	100	8,000	65	9,400	65	8,000	45
2.0	9,400	250	9,400	250	9,400	250	8,500	200	6,700	130	4,000	65	4,600	90	4,000	60
4.0	4,500	350	4,500	350	4,500	350	4,300	250	3,500	210	2,000	110	2,300	110	2,000	70
6.0	3,100	400	3,100	400	3,100	400	2,800	300	2,400	220	1,300	120	1,500	120	1,300	90
8.0	2,300	380	2,300	380	2,300	380	2,100	300	1,800	220	950	120	1,100	120	900	90
10.0	1,800	350	1,800	350	1,800	350	1,700	300	1,400	220	700	120	900	120	800	90
12.0	1,500	350	1,500	350	1,500	350	1,400	300	1,200	220	650	110	750	120	650	90
16.0	1,100	300	1,100	300	1,100	300	1,000	240	900	190	480	90	550	100	490	70
20.0	900	280	900	280	900	280	850	210	700	170	400	80	440	90	400	60
25.0	720	220	720	220	720	220	680	170	560	130	320	60	352	70	320	50
Standard Depth of Cut a_p	2.5DC								2.0DC							
Standard Depth of Cut a_e	Below ø3: 0.02DC , Above ø3 to Below ø8: 0.05DC, Above ø8: 0.07DC								0.01DC							

Groove Finishing

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	18,500	250	18,500	250	18,500	250	17,000	150	11,500	100	8,000	65	9,400	65	8,000	45
2.0	9,400	250	9,400	250	9,400	250	8,500	200	6,700	130	4,000	65	4,600	90	4,000	60
4.0	4,500	350	4,500	350	4,500	350	4,300	250	3,500	210	2,000	110	2,300	110	2,000	70
6.0	3,100	400	3,100	400	3,100	400	2,800	300	2,400	220	1,300	120	1,500	120	1,300	90
8.0	2,300	380	2,300	380	2,300	380	2,100	300	1,800	220	950	120	1,100	120	900	90
10.0	1,800	350	1,800	350	1,800	350	1,700	300	1,400	220	700	120	900	120	800	90
12.0	1,500	350	1,500	350	1,500	350	1,400	300	1,200	220	650	110	750	120	650	90
16.0	1,100	300	1,100	300	1,100	300	1,000	240	900	190	480	90	550	100	490	70
20.0	900	280	900	280	900	280	850	210	700	170	400	80	440	90	400	60
25.0	720	220	720	220	720	220	680	170	560	130	320	60	352	70	320	50
Standard Depth of Cut a_p	1.5DC															
Standard Depth of Cut a_e	Below 0.02DC															

GSX 40000C-3D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling

Fig 1

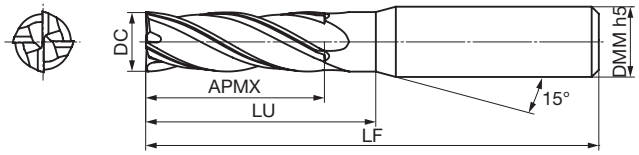
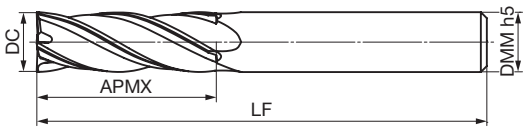


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX40100C-3D	★	1.0	3.0	4.0	40	4	1
GSX40150C-3D	★	1.5	4.5	5.5	40	4	1
GSX40200C-3D	★	2.0	6.0	7.0	40	4	1
GSX40250C-3D	★	2.5	7.5	8.5	40	4	1
GSX40300C-3D	★	3.0	9.0	10.5	50	6	1
GSX40350C-3D	★	3.5	11.0	12.5	50	6	1
GSX40400C-3D	★	4.0	12.0	13.5	50	6	1
GSX40450C-3D	★	4.5	14.0	15.5	50	6	1
GSX40500C-3D	★	5.0	15.0	17.0	50	6	1
GSX40550C-3D	★	5.5	17.0	19.0	50	6	1
GSX40600C-3D	★	6.0	18.0	-	50	6	2
GSX40650C-3D	★	6.5	20.0	22.0	70	8	1
GSX40700C-3D	★	7.0	21.0	23.0	70	8	1
GSX40750C-3D	★	7.5	23.0	25.0	70	8	1
GSX40800C-3D	★	8.0	24.0	-	70	8	2
GSX40850C-3D	★	8.5	26.0	28.0	75	10	1
GSX40900C-3D	★	9.0	27.0	29.0	75	10	1
GSX40950C-3D	★	9.5	29.0	31.0	75	10	1
GSX41000C-3D	★	10.0	30.0	-	90	10	2
GSX41050C-3D	★	10.5	32.0	34.5	90	12	1
GSX41100C-3D	★	11.0	33.0	35.5	90	12	1
GSX41150C-3D	★	11.5	35.0	37.5	90	12	1
GSX41200C-3D	★	12.0	36.0	-	90	12	2
GSX41300C-3D	★	13.0	39.0	42.5	100	16	1
GSX41400C-3D	★	14.0	42.0	45.5	110	16	1
GSX41500C-3D	★	15.0	45.0	48.5	110	16	1
GSX41600C-3D	★	16.0	48.0	-	110	16	2
GSX41700C-3D	★	17.0	51.0	55.5	110	20	1
GSX41800C-3D	★	18.0	54.0	58.5	120	20	1
GSX41900C-3D	★	19.0	57.0	61.5	120	20	1
GSX42000C-3D	★	20.0	60.0	-	120	20	2
GSX42500C-3D	★	25.0	75.0	-	130	25	2

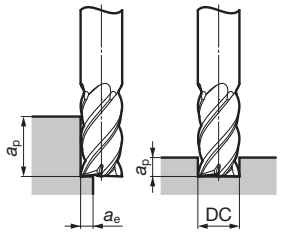
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 4 0100 C - 3D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 40000C-3D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	21,000	360	21,000	360	21,000	360	19,000	220	13,000	140	9,000	90	10,500	90	9,000	65
2.0	10,500	360	10,500	360	10,500	360	9,600	290	7,500	180	4,500	110	5,200	120	4,500	85
4.0	5,200	500	5,200	500	5,200	500	4,800	370	4,000	280	2,250	150	2,600	160	2,250	100
6.0	3,500	560	3,500	560	3,500	560	3,200	400	2,700	300	1,500	160	1,700	170	1,500	120
8.0	2,600	520	2,600	520	2,600	520	2,400	400	2,000	300	1,100	160	1,300	170	1,100	120
10.0	2,100	500	2,100	500	2,100	500	1,900	400	1,600	300	900	160	1,000	160	900	120
12.0	1,750	500	1,750	500	1,750	500	1,600	400	1,350	300	750	150	850	160	750	120
16.0	1,300	420	1,300	420	1,300	420	1,200	330	1,000	260	550	120	650	140	550	100
20.0	1,050	380	1,050	380	1,050	380	950	290	800	230	450	110	500	120	450	90
25.0	840	300	840	300	840	300	760	230	640	180	360	85	400	95	360	70
Standard Depth of Cut a_p	2.5DC										2.0DC					
Standard Depth of Cut a_e	Below ø3: 0.05DC , Above ø3 to Below ø8: 0.1DC, Above ø8: 0.15DC								0.02DC							

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	16,600	140	16,600	140	16,600	140	15,500	100	10,500	100	7,500	70	9,400	60	3,750	20
2.0	9,500	160	9,500	160	9,500	160	9,000	180	6,200	120	4,500	90	5,200	80	2,250	30
4.0	5,200	160	5,200	180	5,200	180	4,800	160	3,400	110	2,200	65	2,600	70	1,250	25
6.0	3,500	160	3,500	200	3,500	200	3,200	160	2,550	120	1,500	65	1,700	70	950	25
8.0	2,600	160	2,600	200	2,600	200	2,400	160	1,900	120	1,100	65	1,300	70	700	25
10.0	2,100	160	2,100	200	2,100	200	1,900	160	1,500	120	900	65	1,000	70	550	25
12.0	1,750	160	1,750	200	1,750	200	1,600	160	1,250	120	750	65	850	70	450	25
16.0	1,300	160	1,300	200	1,300	200	1,200	160	950	120	550	65	650	70	350	25
20.0	1,050	160	1,050	200	1,050	200	950	160	750	120	450	65	500	70	280	55
25.0	840	128	840	160	840	160	760	128	600	96	360	52	400	56	224	44
Standard Depth of Cut a_p	0.1DC		0.2DC								0.05DC		0.1DC			

GSX 40000S-4D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

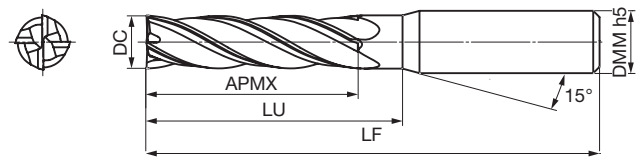
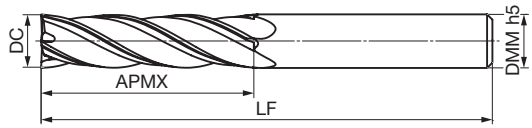


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX40100S-4D	★	1.0	4.0	5.0	40	4	1
GSX40150S-4D	★	1.5	6.0	7.0	40	4	1
GSX40200S-4D	★	2.0	8.0	9.0	40	4	1
GSX40250S-4D	★	2.5	10.0	11.0	50	4	1
GSX40300S-4D	★	3.0	12.0	13.5	50	6	1
GSX40350S-4D	★	3.5	14.0	15.5	50	6	1
GSX40400S-4D	★	4.0	16.0	17.5	50	6	1
GSX40450S-4D	★	4.5	18.0	19.5	60	6	1
GSX40500S-4D	★	5.0	20.0	22.0	60	6	1
GSX40550S-4D	★	5.5	22.0	24.0	60	6	1
GSX40600S-4D	★	6.0	24.0	-	60	6	2
GSX40650S-4D	★	6.5	26.0	28.0	70	8	1
GSX40700S-4D	★	7.0	28.0	30.0	80	8	1
GSX40750S-4D	★	7.5	30.0	32.0	80	8	1
GSX40800S-4D	★	8.0	32.0	-	80	8	2
GSX40850S-4D	★	8.5	34.0	36.0	90	10	1
GSX40900S-4D	★	9.0	36.0	38.0	90	10	1
GSX40950S-4D	★	9.5	39.0	41.0	90	10	1
GSX41000S-4D	★	10.0	40.0	-	90	10	2
GSX41050S-4D	★	10.5	42.0	44.5	100	12	1
GSX41100S-4D	★	11.0	44.0	46.5	100	12	1
GSX41150S-4D	★	11.5	46.0	48.5	100	12	1
GSX41200S-4D	★	12.0	48.0	-	100	12	2
GSX41300S-4D	★	13.0	52.0	55.5	110	16	1
GSX41400S-4D	★	14.0	56.0	59.5	120	16	1
GSX41500S-4D	★	15.0	60.0	63.5	120	16	1
GSX41600S-4D	★	16.0	64.0	-	120	16	2
GSX41700S-4D	★	17.0	68.0	72.5	130	20	1
GSX41800S-4D	★	18.0	72.0	76.5	130	20	1
GSX41900S-4D	★	19.0	76.0	80.5	140	20	1
GSX42000S-4D	★	20.0	80.0	-	140	20	2
GSX42500S-4D	★	25.0	100.0	-	160	25	2

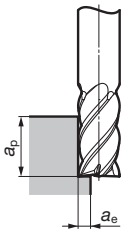
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 4 0100 S - 4D

Series Code	Number of Teeth	Dia.	Cutting Edge S: Sharp Edge	Cutting Edge Length

GSX 40000S-4D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	7,950	120	7,950	120	7,950	120	6,250	70	5,750	50	4,000	35	4,850	35	4,000	35
2.0	4,050	120	4,050	120	4,050	120	3,100	90	2,850	70	2,050	50	2,400	50	2,050	35
4.0	1,950	170	1,950	170	1,950	170	1,650	100	1,400	90	710	35	1,200	45	1,050	30
6.0	1,350	130	1,350	130	1,350	130	1,000	140	930	120	700	55	800	40	700	30
8.0	970	190	970	190	970	190	740	140	720	120	520	55	560	40	490	30
10.0	770	180	770	180	770	180	630	120	570	100	360	50	490	40	410	30
12.0	640	170	640	170	640	170	500	120	460	100	350	55	400	40	350	30
16.0	460	140	460	140	460	140	370	100	360	90	260	50	280	40	270	30
20.0	390	130	390	130	390	130	310	90	280	70	210	45	240	40	210	30
25.0	310	100	310	100	310	100	250	70	220	55	170	35	190	30	170	25
Standard Depth of Cut a_p	2.5DC								2.0DC							
Standard Depth of Cut a_e	Below ø3: 0.02DC , Above ø3 to Below ø8: 0.05DC, Above ø8: 0.07DC								0.01DC							

GSX 40000C-4D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing | Face Milling

Fig 1

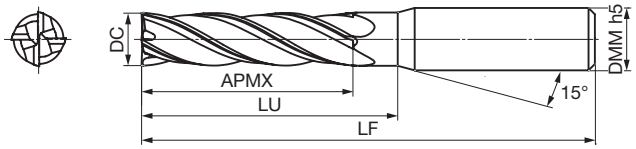
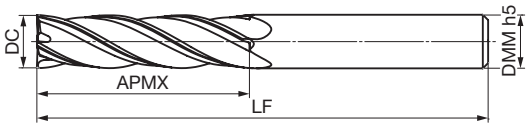


Fig 2



DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX40100C-4D	★	1.0	4.0	5.0	40	4	1
GSX40150C-4D	★	1.5	6.0	7.0	40	4	1
GSX40200C-4D	★	2.0	8.0	9.0	40	4	1
GSX40250C-4D	★	2.5	10.0	11.0	50	4	1
GSX40300C-4D	★	3.0	12.0	13.5	50	6	1
GSX40350C-4D	★	3.5	14.0	15.5	50	6	1
GSX40400C-4D	★	4.0	16.0	17.5	50	6	1
GSX40450C-4D	★	4.5	18.0	19.5	60	6	1
GSX40500C-4D	★	5.0	20.0	22.0	60	6	1
GSX40550C-4D	★	5.5	22.0	24.0	60	6	1
GSX40600C-4D	★	6.0	24.0	-	60	6	2
GSX40650C-4D	★	6.5	26.0	28.0	70	8	1
GSX40700C-4D	★	7.0	28.0	30.0	80	8	1
GSX40750C-4D	★	7.5	30.0	32.0	80	8	1
GSX40800C-4D	★	8.0	32.0	-	80	8	2
GSX40850C-4D	★	8.5	34.0	36.0	90	10	1
GSX40900C-4D	★	9.0	36.0	28.0	90	10	1
GSX40950C-4D	★	9.5	39.0	41.0	90	10	1
GSX41000C-4D	★	10.0	40.0	-	90	10	2
GSX41050C-4D	★	10.5	42.0	44.5	100	12	1
GSX41100C-4D	★	11.0	44.0	46.5	100	12	1
GSX41150C-4D	★	11.5	46.0	48.5	100	12	1
GSX41200C-4D	★	12.0	48.0	-	100	12	2
GSX41300C-4D	★	13.0	52.0	55.5	110	16	1
GSX41400C-4D	★	14.0	56.0	59.5	120	16	1
GSX41500C-4D	★	15.0	60.0	63.5	120	16	1
GSX41600C-4D	★	16.0	64.0	-	120	16	2
GSX41700C-4D	★	17.0	68.0	72.5	130	20	1
GSX41800C-4D	★	18.0	72.0	76.5	130	20	1
GSX41900C-4D	★	19.0	76.0	80.5	140	20	1
GSX42000C-4D	★	20.0	80.0	-	140	20	2
GSX42500C-4D	★	25.0	100.0	-	160	25	2

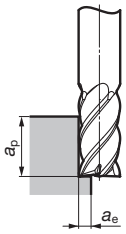
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSX 4 0100 C - 4D

Series Code	Number of Teeth	Dia.	Cutting Edge C: Gash Land	Cutting Edge Length

GSX 40000C-4D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
6. This series is not recommended for groove milling.
7. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	9,000	140	9,000	140	9,000	140	7,000	80	6,500	60	4,500	40	5,400	40	4,500	40
2.0	4,500	140	4,500	140	4,500	140	3,500	100	3,200	80	2,300	55	2,700	55	2,300	40
4.0	2,250	200	2,250	200	2,250	200	1,750	120	1,600	100	1,200	60	1,350	50	1,200	35
6.0	1,500	250	1,500	250	1,500	250	1,150	160	1,050	140	800	65	900	45	800	35
8.0	1,100	220	1,100	220	1,100	220	850	160	800	130	600	65	660	45	600	35
10.0	900	210	900	210	900	210	700	140	650	120	460	65	540	45	460	35
12.0	750	200	750	200	750	200	580	140	520	110	400	65	450	45	400	35
16.0	550	170	550	170	550	170	440	120	400	95	300	55	330	45	300	35
20.0	450	150	450	150	450	150	350	100	320	80	240	50	270	45	240	35
25.0	360	120	360	120	360	120	280	80	250	60	190	40	210	35	190	30
Standard Depth of Cut a_p	3.5DC										3.0DC					
Standard Depth of Cut a_e	Below ø3: 0.04DC, ø3 ≤ D < ø8: 0.08DC, ø8 and above: 0.1DC										0.02DC					

GSV 4000-2.5D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | Helix Angle 40° | Side Milling | Slot Milling | Groove Finishing | Face Milling | Helical Milling | Ramping

Fig 1

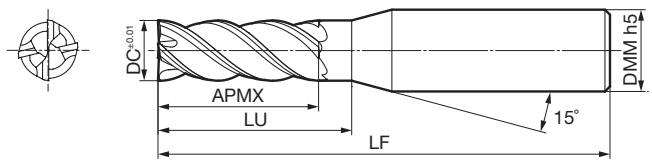
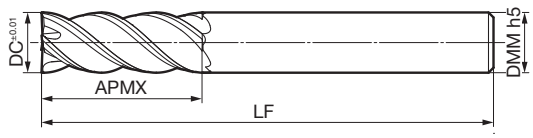


Fig 2



Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSV4020-2.5D	★	2.0	5	6.5	50	4	1
GSV4030-2.5D	★	3.0	8	9.5	50	6	1
GSV4040-2.5D	★	4.0	10	11.5	50	6	1
GSV4050-2.5D	★	5.0	13	14.5	60	6	1
GSV4060-2.5D	★	6.0	15	-	60	6	2
GSV4070-2.5D	★	7.0	18	20.0	70	8	1
GSV4080-2.5D	★	8.0	20	-	80	8	2
GSV4090-2.5D	★	9.0	23	25.0	90	10	1
GSV4100-2.5D	★	10.0	25	-	90	10	2
GSV4110-2.5D	★	11.0	28	30.5	90	12	1
GSV4120-2.5D	★	12.0	30	-	90	12	2
GSV4140-2.5D	★	14.0	35	37.5	110	16	1
GSV4150-2.5D	★	15.0	38	41.0	110	16	1
GSV4160-2.5D	★	16.0	40	-	115	16	2
GSV4180-2.5D	★	18.0	45	48.0	120	20	1
GSV4200-2.5D	★	20.0	50	-	125	20	2
GSV4250-2.5D	★	25.0	63	-	140	25	2

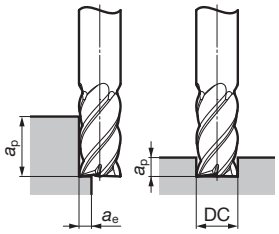
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSV 4 120 - 2.5D

Series Code | Number of Teeth | Dia. | Cutting Edge Length

GSV 4000-2.5D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	13,000	1,000	10,000	800	8,000	700	10,000	580	5,000	200
4.0	9,600	1,200	8,000	1,000	6,000	800	5,500	650	3,000	230
6.0	6,800	1,500	5,600	1,200	4,200	900	3,800	680	2,100	240
8.0	5,200	1,600	4,400	1,300	3,200	950	2,800	650	1,600	250
10.0	4,200	1,500	3,500	1,200	2,600	800	2,300	600	1,300	210
12.0	3,500	1,400	3,000	1,200	2,200	700	1,900	550	1,100	180
14.0	3,000	1,200	2,600	1,100	1,800	600	1,600	500	900	150
16.0	2,700	1,100	2,200	1,000	1,600	600	1,400	480	760	130
18.0	2,400	1,000	2,000	900	1,400	570	1,300	450	680	120
20.0	2,200	900	1,700	800	1,200	550	1,100	400	600	100
25.0	1,700	680	1,400	630	1,000	450	890	310	480	82
Standard Depth of Cut a_p	1.5DC									
Standard Depth of Cut a_e	0.2DC				0.05DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions	Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	13,000	750	10,000	550	8,400	500	6,500	300	4,000	140
4.0	8,200	800	6,000	600	5,200	500	4,000	330	2,000	130
6.0	6,100	1,100	4,000	600	3,500	580	2,700	350	1,350	150
8.0	4,600	1,000	3,000	580	2,600	570	2,000	330	1,000	140
10.0	3,600	1,000	2,400	550	2,100	510	1,600	200	800	130
12.0	3,100	920	2,000	500	1,700	450	1,300	280	660	110
14.0	2,600	750	1,700	450	1,500	400	1,100	250	570	100
16.0	2,300	670	1,500	420	1,300	350	1,000	230	500	90
18.0	2,000	620	1,300	380	1,100	330	900	200	430	80
20.0	1,900	600	1,200	360	1,000	320	800	180	380	70
25.0	1,500	470	1,000	300	790	250	640	140	300	55
Standard Depth of Cut a_p	0.8DC				0.16DC		0.4DC		0.16DC	

GSXVL 4000-2.5D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | Helix Angle 40° 43° | Side Milling | Slot Milling | Groove Finishing | Face Milling | Helical Milling | Ramping

Fig 1

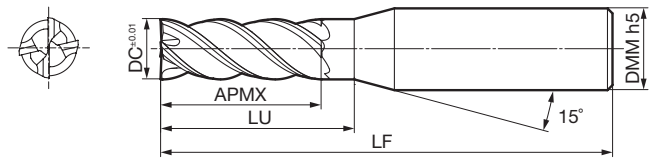
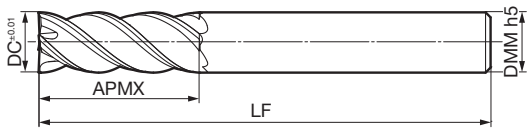


Fig 2



Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSXVL4020-2.5D	★	2.0	5	6.5	50	4	1
GSXVL4030-2.5D	★	3.0	8	9.5	50	6	1
GSXVL4040-2.5D	★	4.0	10	11.5	50	6	1
GSXVL4050-2.5D	★	5.0	13	14.5	60	6	1
GSXVL4060-2.5D	★	6.0	15	-	60	6	2
GSXVL4070-2.5D	★	7.0	18	20.0	70	8	1
GSXVL4080-2.5D	★	8.0	20	-	80	8	2
GSXVL4090-2.5D	★	9.0	23	25.0	90	10	1
GSXVL4100-2.5D	★	10.0	25	-	90	10	2
GSXVL4110-2.5D	★	11.0	28	30.5	90	12	1
GSXVL4120-2.5D	★	12.0	30	-	90	12	2
GSXVL4140-2.5D	★	14.0	35	37.5	110	16	1
GSXVL4150-2.5D	★	15.0	38	41.0	110	16	1
GSXVL4160-2.5D	★	16.0	40	-	115	16	2
GSXVL4180-2.5D	★	18.0	45	48.0	120	20	1
GSXVL4200-2.5D	★	20.0	50	-	125	20	2
GSXVL4250-2.5D	★	25.0	63	-	140	25	2

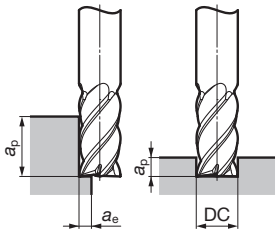
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSXVL 4 020 - 2.5D

Series Code | Number of Teeth | Dia. | Cutting Edge Length

GSXVL 4000-2.5D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	13,000	1,000	10,000	800	8,000	700	10,000	580	5,000	200
4.0	9,600	1,200	8,000	1,000	6,000	800	5,500	650	3,000	230
6.0	6,800	1,500	5,600	1,200	4,200	900	3,800	680	2,100	240
8.0	5,200	1,600	4,400	1,300	3,200	950	2,800	650	1,600	250
10.0	4,200	1,500	3,500	1,200	2,600	800	2,300	600	1,300	210
12.0	3,500	1,400	3,000	1,200	2,200	700	1,900	550	1,100	180
14.0	3,000	1,200	2,600	1,100	1,800	600	1,600	500	900	150
16.0	2,700	1,100	2,200	1,000	1,600	600	1,400	480	760	130
18.0	2,400	1,000	2,000	900	1,400	570	1,300	450	680	120
20.0	2,200	900	1,700	800	1,200	550	1,100	400	600	100
25.0	1,700	680	1,400	630	1,000	450	890	310	480	82
Standard Depth of Cut a_p	1.5DC									
Standard Depth of Cut a_e	0.2DC				0.05DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions	Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	13,000	750	10,000	550	8,400	500	6,500	300	4,000	140
4.0	8,200	800	6,000	600	5,200	500	4,000	330	2,000	130
6.0	6,100	1,100	4,000	600	3,500	580	2,700	350	1,350	150
8.0	4,600	1,000	3,000	580	2,600	570	2,000	330	1,000	140
10.0	3,600	1,000	2,400	550	2,100	510	1,600	200	800	130
12.0	3,100	920	2,000	500	1,700	450	1,300	280	660	110
14.0	2,600	750	1,700	450	1,500	400	1,100	250	570	100
16.0	2,300	670	1,500	420	1,300	350	1,000	230	500	90
18.0	2,000	620	1,300	380	1,100	330	900	200	430	80
20.0	1,900	600	1,200	360	1,000	320	800	180	380	70
25.0	1,500	470	1,000	300	790	250	640	140	300	55
Standard Depth of Cut a_p	1.0DC				0.2DC		0.5DC		0.2DC	

GSXVL 4000S-2.5D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel (45 to 55HRC) | Hardened Steel (55 to 60HRC) | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | Helix Angle 40° 43° | SAFE-LOCK Applicable Products | Side Milling | Slot Milling | Groove Finishing | Face Milling | Helical Milling | Ramping

Fig 1

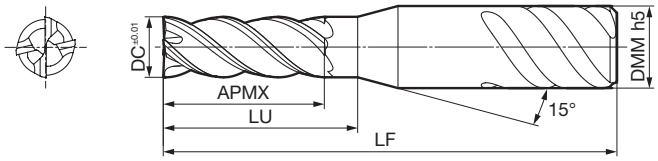
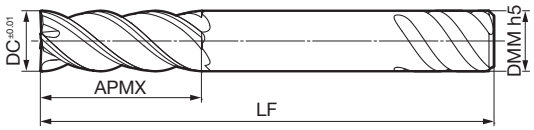


Fig 2



Body (SAFE-LOCK® Product)

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSXVL4120S-2.5D	★	*12.0*	*30*	-	*90*	*12*	2
GSXVL4140S-2.5D	★	*14.0*	*35*	*37.5*	*110*	*16*	1
GSXVL4150S-2.5D	★	*15.0*	*38*	*41.0*	*110*	*16*	1
GSXVL4160S-2.5D	★	*16.0*	*40*	-	*115*	*16*	2
GSXVL4180S-2.5D	★	*18.0*	*45*	*48.0*	*120*	*20*	1
GSXVL4200S-2.5D	★	*20.0*	*50*	-	*125*	*20*	2
GSXVL4250S-2.5D	★	*25.0*	*63*	-	*140*	*25*	2

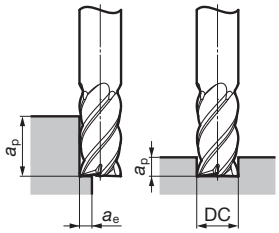
Grade: ACF20

Endmill Identification (GSXMILL Series Only)

GSXVL 4 120 S - 2.5D

Series Code	Number of Teeth	Dia.	Safelock	Cutting Edge Length

GSXVL 4000S-2.5D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
12.0		3,500	1,400	3,000	1,200	2,200	700	1,900	550	1,100	180
14.0		3,000	1,200	2,600	1,100	1,800	600	1,600	500	900	150
16.0		2,700	1,100	2,200	1,000	1,600	600	1,400	480	760	130
18.0		2,400	1,000	2,000	900	1,400	570	1,300	450	680	120
20.0		2,200	900	1,700	800	1,200	550	1,100	400	600	100
25.0		1,700	680	1,400	630	1,000	450	890	310	480	82
Standard Depth of Cut	a_p	1.5DC									
	a_e	0.2DC				0.05DC		0.1DC		0.05DC	

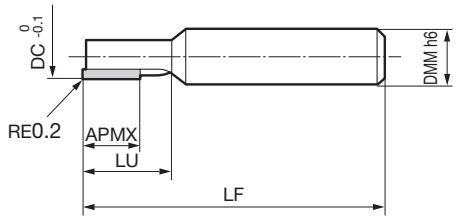
Groove Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
12.0		3,100	920	2,000	500	1,700	450	1,300	280	660	110
14.0		2,600	750	1,700	450	1,500	400	1,100	250	570	100
16.0		2,300	670	1,500	420	1,300	350	1,000	230	500	90
18.0		2,000	620	1,300	380	1,100	330	900	200	430	80
20.0		1,900	600	1,200	360	1,000	320	800	180	380	70
25.0		1,500	470	1,000	300	790	250	640	140	300	55
Standard Depth of Cut	a_p	1.0DC				0.2DC		0.5DC		0.2DC	

BNES Type

1 Flute | CBN | 15° Helix Angle | Side Milling

Fig 1



Body

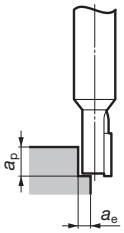
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
BNES1060	★	*6.0*	*7.0*	*11.0*	*60*	*10*	1
BNES1080	★	*8.0*	*10.0*	*14.0*	*70*	*10*	1
BNES1100	★	*10.0*	*12.0*	*17.0*	*75*	*12*	1
BNES1120	★	*12.0*	*14.0*	*20.0*	*80*	*12*	1
BNES1140	★	*14.0*	*16.0*	*21.5*	*80*	*16*	1
BNES1160	★	*16.0*	*18.0*	*24.0*	*80*	*16*	1

Grade: BN350

Recommended Cutting Conditions

1. Use dry cutting (air blow) conditions.
2. Down cut is recommended.
3. Make overhang as short as possible and use a rigid machine.



Side Milling

Work Material (Hardness)	High-Hardness Hardened Steel (50 to 57HRC)		
Cutting Conditions	Cutting Speed V_C 100 to 170m/min		
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Depth of Cut a_e (mm)
ø6 to 8	4,000 to 9,000	240 to 540	up to 0.1
ø10 to 12	2,700 to 5,400	180 to 360	up to 0.15
ø14 to 16	2,000 to 3,800	140 to 260	up to 0.2

Work Material (Hardness)	High-Hardness Hardened Steel (58 to 65HRC)		
Cutting Conditions	Cutting Speed V_C 80 to 150m/min		
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Depth of Cut a_e (mm)
ø6 to 8	3,200 to 8,000	150 to 370	up to 0.08
ø10 to 12	2,100 to 4,800	120 to 370	up to 0.12
ø14 to 16	1,600 to 3,400	110 to 230	up to 0.15

MEMO

ASM 2000DL Type

Aluminum Alloy | Copper Alloy

2 Flutes | Aurora DLC Coat | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

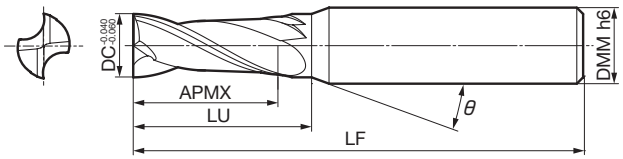


Fig 2

DC	θ
< ø3	10°
≥ ø3	15°

Body

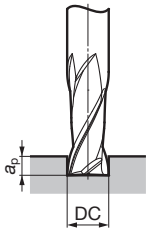
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
ASM2020DL	★	2.0	6.0	6.8	40	4	1
ASM2030DL	★	3.0	10.0	12.9	45	6	1
ASM2040DL	★	4.0	12.0	14.7	45	6	1
ASM2050DL	★	5.0	15.0	18.6	50	6	1
ASM2060DL	★	6.0	15.0	-	50	6	2
ASM2080DL	★	8.0	18.0	-	60	8	2
ASM2100DL	★	10.0	22.0	-	71	10	2
ASM2120DL	★	12.0	25.0	-	75	12	2
ASM2160DL	★	16.0	32.0	-	90	16	2

Grade: DL1000

Recommended Cutting Conditions

1. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.



Groove Milling

Work Material / Cutting Conditions	Aluminum Alloy			
	Wet		Dry	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	28,000	280	28,000	200
3.0	22,000	400	22,000	280
4.0	18,000	520	18,000	360
5.0	14,000	520	14,000	360
6.0	12,000	540	12,000	370
8.0	9,000	540	9,000	370
10.0	7,200	560	7,200	390
12.0	6,000	560	6,000	390
16.0	4,500	560	4,500	390
Standard Depth of Cut a_p	1.0DC		0.5DC	
Standard Depth of Cut a_e	1.0DC		1.0DC	

ASM 4000DL Type

Aluminum Alloy | Copper Alloy

4 Flutes | Aurora DLC Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing | Face Milling | Helical Milling | Ramping

Fig 1

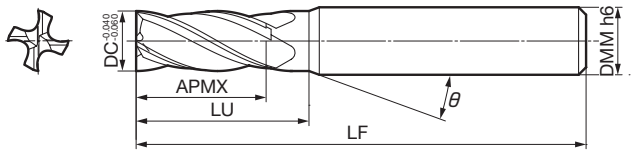
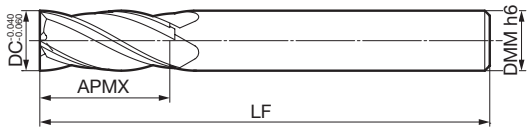


Fig 2



DC	θ
< ø3	10°
≥ ø3	15°

Body

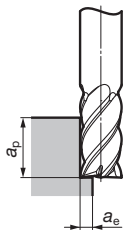
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
ASM4020DL	★	2.0	6.0	6.8	40	4	1
ASM4030DL	★	3.0	10.0	12.9	45	6	1
ASM4040DL	★	4.0	12.0	14.7	45	6	1
ASM4050DL	★	5.0	15.0	18.6	50	6	1
ASM4060DL	★	6.0	15.0	-	50	6	2
ASM4080DL	★	8.0	18.0	-	60	8	2
ASM4100DL	★	10.0	22.0	-	71	10	2
ASM4120DL	★	12.0	25.0	-	75	12	2
ASM4160DL	★	16.0	32.0	-	90	16	2

Grade: DL1000

Recommended Cutting Conditions

1. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.



Side Milling

Work Material / Cutting Conditions	Aluminum Alloy			
	Wet		Dry	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
2.0	40,000	1,400	40,000	980
3.0	32,000	2,000	32,000	1,400
4.0	26,000	2,600	26,000	1,800
5.0	20,000	2,600	20,000	1,800
6.0	17,000	2,700	17,000	1,900
8.0	13,000	2,700	13,000	1,900
10.0	11,000	2,800	11,000	2,000
12.0	8,500	2,800	8,500	2,000
16.0	6,400	2,800	6,400	2,000
Standard Depth of Cut a_p	1.5DC		1.5DC	
Standard Depth of Cut a_e	0.2DC		0.2DC	

ASM 2000 Type

Aluminum Alloy | Copper Alloy

2 Flutes | Uncoated Carbide | Corner | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

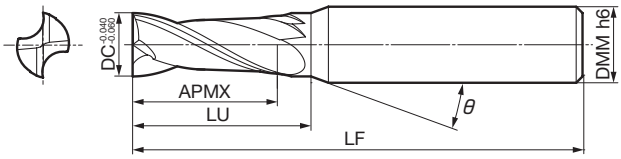
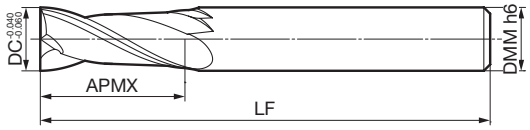


Fig 2



DC	θ
< ø3	10°
≥ ø3 < ø6	15°
> ø6	20°

Body

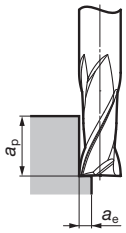
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
ASM2020	★	2.0	6	6.8	40	4	1
ASM2030	★	3.0	10	12.9	45	6	1
ASM2040	★	4.0	12	14.7	45	6	1
ASM2050	★	5.0	15	18.6	50	6	1
ASM2060	★	6.0	15	-	50	6	2
ASM2080	★	8.0	18	-	60	8	2
ASM2100	★	10.0	22	-	71	10	2
ASM2120	★	12.0	25	-	75	12	2
ASM2140	★	14.0	32	44.2	90	16	1
ASM2150	★	15.0	32	44.1	90	16	1
ASM2160	★	16.0	32	-	90	16	2

Grade: H1

Recommended Cutting Conditions

1. If the machine cannot achieve the standard spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.



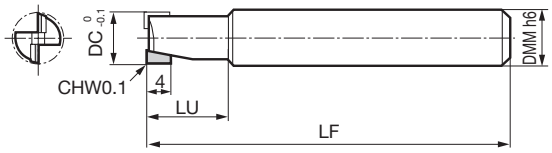
Side Milling

Work Material / Cutting Conditions		Aluminum Alloy		Cast Iron Special Cast Iron	
DC (mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		35,000	460	13,000	240
3.0		23,400	770	8,750	275
4.0		17,500	800	6,550	310
6.0		11,700	910	4,370	340
8.0		8,750	980	3,280	390
10.0		7,000	1,100	2,620	400
12.0		5,850	1,150	2,185	430
16.0		4,380	1,150	1,640	430
Standard Depth of Cut	a_p	1.5DC		1.5DC	
	a_e	0.1DC		0.1DC	

DFE Type

2 Flutes | PCD | Side Milling | Face Milling

Fig 1

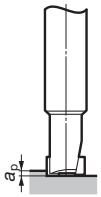


Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
DFE2040S	★	*4.0*	*15*	*50*	*6*	1
DFE2050S	★	*5.0*	*15*	*50*	*6*	1
DFE2080S	★	*8.0*	*15*	*60*	*10*	1
DFE2090S	★	*9.0*	*15*	*70*	*10*	1
DFE2100S	★	*10.0*	*15*	*70*	*10*	1

Grade: DA2200



Recommended Cutting Conditions

1. If the machine cannot achieve the standard spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.

Face Milling (2 Flutes)

Work Material / Cutting Conditions	Aluminum Alloy Copper Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
4.0	40,000	4,000
5.0	32,000	3,200
8.0	20,000	2,000
9.0	17,800	1,780
10.0	16,000	1,600
Standard Depth of Cut a_p	0.4DC	

DFE Type

Aluminum Alloy | Copper Alloy | Graphite

4 Flutes | PCD | Side Milling | Face Milling

Fig 1

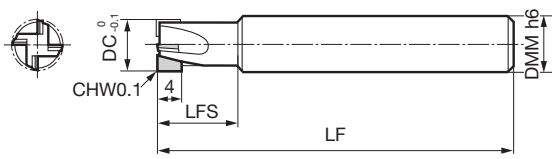
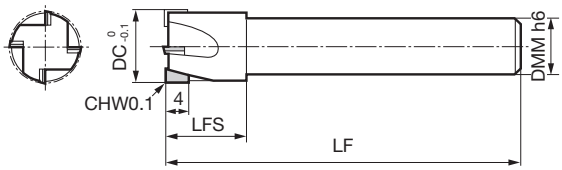


Fig 2



Body

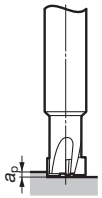
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Neck Length LFS	Overall Length LF	Shank Dia. DMM	Fig
DFE4090S	★	*9.0*	*15*	*70*	*10*	1
DFE4100S	★	*10.0*	*15*	*70*	*10*	1
DFE4130GS	★	*13.0*	*15*	*70*	*10*	2

Grade: DA2200

Recommended Cutting Conditions

1. If the machine cannot achieve the standard spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.



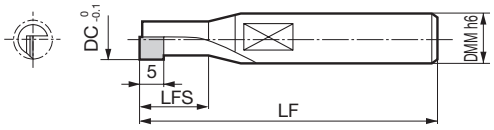
Face Milling (4 Flutes)

Work Material / Cutting Conditions	Aluminum Alloy Copper Alloy	
DC (mm)	Spindle Speed (RPM)	Feed Rate (IPM)
9.0	17,800	5.512
10.0	16,000	4.961
13.0	12,300	3.819
Standard Depth of Cut a_p	0.4DC	

DAE Type

1 Flute | PCD | Side Milling | Face Milling

Fig 1

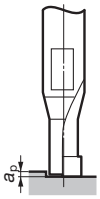


Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Neck Length LFS	Overall Length LF	Shank Dia. DMM	Fig
DAE1040	★	*4.0*	*10*	*45*	*6*	1
DAE1050	★	*5.0*	*12*	*50*	*6*	1

Grade: DA200



Recommended Cutting Conditions

1. If the machine cannot achieve the standard spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.

Face Milling (1 Flute)

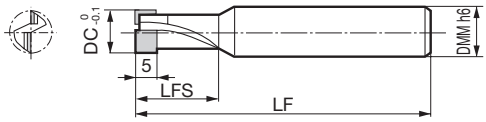
Work Material / Cutting Conditions		Aluminum Alloy Copper Alloy	
DC (mm)		Spindle Speed (RPM)	Feed Rate (IPM)
4.0		6,000	8.268
5.0		5,000	6.890
Standard Depth of Cut	a_p	0.4DC	

DAE Type

Aluminum Alloy | Copper Alloy | Graphite

2 Flutes | PCD | Side Milling | Face Milling

Fig 1



Body (2 Flutes)

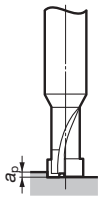
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Neck Length LFS	Overall Length LF	Shank Dia. DMM	Fig
DAE2060	★	*6.0*	*20*	*50*	*6*	1
DAE2070	★	*7.0*	*20*	*60*	*8*	1
DAE2080	★	*8.0*	*20*	*60*	*8*	1
DAE2090	★	*9.0*	*25*	*71*	*10*	1
DAE2100	★	*10.0*	*25*	*71*	*10*	1
DAE2110	★	*11.0*	*25*	*75*	*12*	1
DAE2120	★	*12.0*	*25*	*75*	*12*	1

Grade: DA200

Recommended Cutting Conditions

1. If the machine cannot achieve the standard spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.



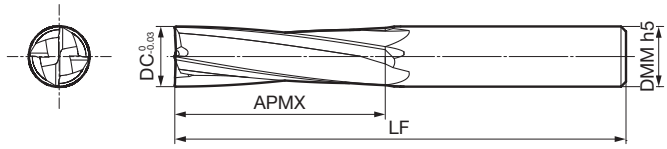
Face Milling (2 Flutes)

Work Material / Cutting Conditions / DC (mm)	Aluminum Alloy Copper Alloy	
	Spindle Speed (RPM)	Feed Rate (IPM)
6.0	6,400	22.83
7.0	5,500	19.69
8.0	5,400	19.69
9.0	5,300	18.90
10.0	4,800	17.32
11.0	4,400	15.75
12.0	4,000	14.17
Standard Depth of Cut a_p	0.4DC	

SSDC 4000(RL) Type

4 Flutes | SUMIDIA Coat | Corner | 10° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Cut-off

Fig 1



Body Right-hand Helix Type

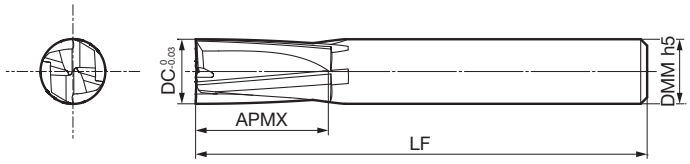
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Overall Length LF	Shank Dia. DMM	Fig
SSDC4060	★	*6.0*	*20*	*70*	*6*	1
SSDC4080	★	*8.0*	*30*	*80*	*8*	1
SSDC4100	★	*10.0*	*30*	*90*	*10*	1
SSDC4120	★	*12.0*	*30*	*100*	*12*	1

Grade: DCX20

4 Flutes | SUMIDIA Coat | Corner | 5° 5° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Cut-off

Fig 2



Body Right/Left-hand Helix Type

Dimensions (*mm*)

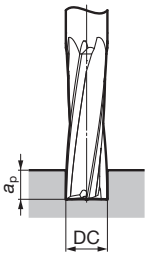
Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Overall Length LF	Shank Dia. DMM	Fig
SSDC4060RL	★	*6.0*	*20*	*70*	*6*	2
SSDC4080RL	★	*8.0*	*30*	*80*	*8*	2
SSDC4100RL	★	*10.0*	*30*	*90*	*10*	2
SSDC4120RL	★	*12.0*	*30*	*100*	*12*	2

Grade: DCX20

Identification Code

SSDC 4 060 RL

Series Code	Number of Teeth	Dia.	Helix Shape (RL: Right/Left-hand Helix)



Recommended Cutting Conditions

1. The cutting conditions are guidelines.
   Cutting conditions are greatly influenced by clamping, work material grade, work material thickness and machine rigidity. Adjust the conditions accordingly.
2. Take sufficient dust control measures.
3. When radial depth of cut is 0.7D or more in groove milling and trimming, reduce feed rate accordingly.

Groove Milling (Common)

Work Material / Cutting Conditions	CFRP			
	Dry			
DC (mm)	Spindle Speed (SFM)	Spindle Speed (RPM)	Feed Rate (IPM)	Feed Rate (IPR)
6.0	649.0	10,500	37.01	0.0035
8.0	659.5	8,000	31.50	0.0039
10.0	669.7	6,500	28.34	0.0044
12.0	679.8	5,500	26.38	0.0048

GSX 40000-R-2D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Radius r | 30° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Helical Milling | Ramping | Profiling

Fig 1

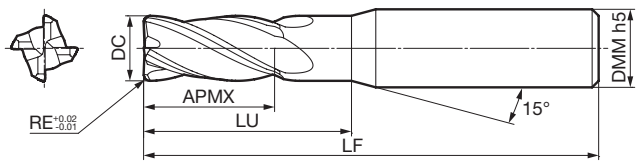
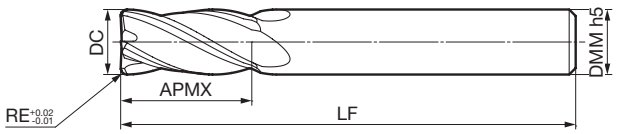


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D	0 -0.03

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSX40300-R02-2D	★	3.0	0.2	8.0	9.5	45	6	1
GSX40300-R05-2D	★	3.0	0.5	8.0	9.5	45	6	1
GSX40400-R02-2D	★	4.0	0.2	11.0	14.0	45	6	1
GSX40400-R05-2D	★	4.0	0.5	11.0	14.0	45	6	1
GSX40400-R10-2D	★	4.0	1.0	11.0	14.0	45	6	1
GSX40500-R02-2D	★	5.0	0.2	13.0	19.6	50	6	1
GSX40500-R05-2D	★	5.0	0.5	13.0	19.6	50	6	1
GSX40500-R10-2D	★	5.0	1.0	13.0	19.6	50	6	1
GSX40600-R02-2D	★	6.0	0.2	13.0	-	50	6	2
GSX40600-R05-2D	★	6.0	0.5	13.0	-	50	6	2
GSX40600-R10-2D	★	6.0	1.0	13.0	-	50	6	2
GSX40600-R15-2D	★	6.0	1.5	13.0	-	50	6	2
GSX40800-R02-2D	★	8.0	0.2	19.0	-	60	8	2
GSX40800-R05-2D	★	8.0	0.5	19.0	-	60	8	2
GSX40800-R10-2D	★	8.0	1.0	19.0	-	60	8	2
GSX40800-R15-2D	★	8.0	1.5	19.0	-	60	8	2
GSX41000-R02-2D	★	10.0	0.2	22.0	-	70	10	2
GSX41000-R05-2D	★	10.0	0.5	22.0	-	70	10	2
GSX41000-R10-2D	★	10.0	1.0	22.0	-	70	10	2
GSX41000-R15-2D	★	10.0	1.5	22.0	-	70	10	2
GSX41000-R20-2D	★	10.0	2.0	22.0	-	70	10	2
GSX41200-R02-2D	★	12.0	0.2	26.0	-	70	12	2
GSX41200-R05-2D	★	12.0	0.5	26.0	-	70	12	2
GSX41200-R10-2D	★	12.0	1.0	26.0	-	70	12	2
GSX41200-R15-2D	★	12.0	1.5	26.0	-	70	12	2
GSX41200-R20-2D	★	12.0	2.0	26.0	-	70	12	2

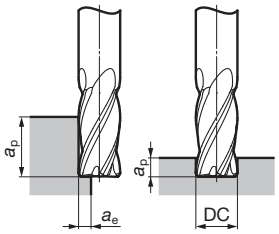
Grade: ACF20

Identification Code

GSX 4 0300 - R 02 - 2D

Series Code | Number of Teeth | Dia. | Cutting Edge R: Radius | Corner Radius | Cutting Edge Length

GSX 40000-R-2D Type



Recommended Cutting Conditions

1. If the machine cannot achieve the standard spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.
3. For groove milling of stainless steel, use 60% of the recommended spindle speed and 40% of the recommended feed rate. (*)

Side Milling

Work Material / Cutting Conditions	Steel for Structure, Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK, HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel (*) SUS304, SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	12,800	570	12,000	380	8,300	230	6,000	150	6,000	130	3,700	70
4.0	6,800	730	6,400	490	4,400	300	3,200	200	3,200	170	2,000	90
6.0	4,600	770	4,300	520	3,000	320	2,200	210	2,200	180	1,400	100
8.0	3,400	770	3,200	520	2,200	320	1,600	210	1,600	180	1,000	100
10.0	2,800	780	2,600	520	1,800	320	1,300	210	1,300	180	800	100
12.0	2,300	780	2,200	530	1,500	320	1,100	210	1,100	180	700	100
Standard Depth of Cut a_p	1.5DC		1.5DC		1.5DC		1.0DC		1.5DC		1.0DC	
Standard Depth of Cut a_e	0.1DC		0.1DC		0.05DC		0.02DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions	Steel for Structure, Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK, HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel (*) SUS304, SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	12,800	570	12,000	380	8,300	230	6,000	150	6,000	130	3,700	70
4.0	6,800	730	6,400	490	4,400	300	3,200	200	3,200	170	2,000	90
6.0	4,600	770	4,300	520	3,000	320	2,200	210	2,200	180	1,400	100
8.0	3,400	770	3,200	520	2,200	320	1,600	210	1,600	180	1,000	100
10.0	2,800	780	2,600	520	1,800	320	1,300	210	1,300	180	800	100
12.0	2,300	780	2,200	530	1,500	320	1,100	210	1,100	180	700	100
Groove Milling a_p	0.5DC		0.5DC		0.2DC		0.05DC		0.3DC		0.1DC	

Side Milling (High Speed Machining Centre)

Work Material / Cutting Conditions	Steel for Structure, Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK, HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel (*) SUS304, SUS316	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	47,800	2,200	47,800	1,600	39,800	1,200	31,800	900	15,900	400
4.0	23,900	2,600	23,900	1,900	19,900	1,400	15,900	1,100	8,000	490
6.0	16,000	2,700	16,000	2,000	13,300	1,500	10,600	1,200	5,300	510
8.0	12,000	2,700	12,000	2,000	10,000	1,500	8,000	1,200	4,000	520
10.0	9,600	2,700	9,600	2,000	8,000	1,500	6,400	1,200	3,200	520
12.0	8,000	2,700	8,000	2,000	6,700	1,500	5,300	1,200	2,700	520
Standard Depth of Cut a_p	1.5DC		1.5DC		1.5DC		1.0DC		1.5DC	
Standard Depth of Cut a_e	0.05DC		0.05DC		0.05DC		0.02DC		0.05DC	

GSV 4000-R-2.5D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Radius r | 40° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Helical Milling | Ramping | Profiling

Fig 1

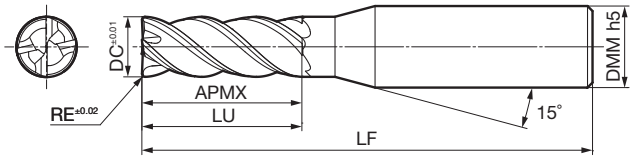
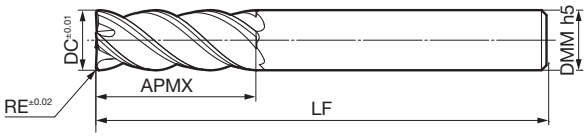


Fig 2



Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSV4030-R02-2.5D	★	3.0	0.2	8.0	9.5	50	6	1
GSV4030-R05-2.5D	★	3.0	0.5	8.0	9.5	50	6	1
GSV4040-R02-2.5D	★	4.0	0.2	10.0	11.5	50	6	1
GSV4040-R05-2.5D	★	4.0	0.5	10.0	11.5	50	6	1
GSV4040-R10-2.5D	★	4.0	1.0	10.0	11.5	50	6	1
GSV4050-R02-2.5D	★	5.0	0.2	13.0	14.5	60	6	1
GSV4050-R05-2.5D	★	5.0	0.5	13.0	14.5	60	6	1
GSV4050-R10-2.5D	★	5.0	1.0	13.0	14.5	60	6	1
GSV4060-R03-2.5D	★	6.0	0.3	15.0	-	60	6	2
GSV4060-R05-2.5D	★	6.0	0.5	15.0	-	60	6	2
GSV4060-R10-2.5D	★	6.0	1.0	15.0	-	60	6	2
GSV4060-R15-2.5D	★	6.0	1.5	15.0	-	60	6	2
GSV4080-R03-2.5D	★	8.0	0.3	20.0	-	80	8	2
GSV4080-R05-2.5D	★	8.0	0.5	20.0	-	80	8	2
GSV4080-R10-2.5D	★	8.0	1.0	20.0	-	80	8	2
GSV4080-R15-2.5D	★	8.0	1.5	20.0	-	80	8	2
GSV4080-R20-2.5D	★	8.0	2.0	20.0	-	80	8	2
GSV4100-R03-2.5D	★	10.0	0.3	25.0	-	90	10	2
GSV4100-R05-2.5D	★	10.0	0.5	25.0	-	90	10	2
GSV4100-R10-2.5D	★	10.0	1.0	25.0	-	90	10	2
GSV4100-R15-2.5D	★	10.0	1.5	25.0	-	90	10	2
GSV4100-R20-2.5D	★	10.0	2.0	25.0	-	90	10	2
GSV4120-R05-2.5D	★	12.0	0.5	30.0	-	90	12	2
GSV4120-R10-2.5D	★	12.0	1.0	30.0	-	90	12	2
GSV4120-R15-2.5D	★	12.0	1.5	30.0	-	90	12	2
GSV4120-R20-2.5D	★	12.0	2.0	30.0	-	90	12	2
GSV4120-R30-2.5D	★	12.0	3.0	30.0	-	90	12	2
GSV4160-R10-2.5D	★	16.0	1.0	40.0	-	115	16	2
GSV4160-R15-2.5D	★	16.0	1.5	40.0	-	115	16	2
GSV4160-R20-2.5D	★	16.0	2.0	40.0	-	115	16	2
GSV4160-R30-2.5D	★	16.0	3.0	40.0	-	115	16	2
GSV4200-R10-2.5D	★	20.0	1.0	50.0	-	125	20	2
GSV4200-R15-2.5D	★	20.0	1.5	50.0	-	125	20	2
GSV4200-R20-2.5D	★	20.0	2.0	50.0	-	125	20	2
GSV4200-R30-2.5D	★	20.0	3.0	50.0	-	125	20	2
GSV4250-R10-2.5D	★	25.0	1.0	63.0	-	140	25	2
GSV4250-R15-2.5D	★	25.0	1.5	63.0	-	140	25	2
GSV4250-R20-2.5D	★	25.0	2.0	63.0	-	140	25	2
GSV4250-R30-2.5D	★	25.0	3.0	63.0	-	140	25	2

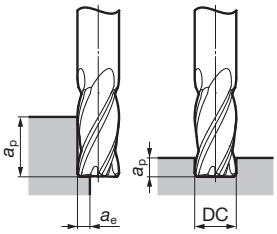
Grade: ACF20

Identification Code

GSV 4 030 - R 02 - 2.5D

Series Code | Number of Teeth | Dia. | Cutting Edge R: Radius | Nose Radius | Cutting Edge Length

GSV 4000-R-2.5D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)
2.0	13,000	1,000	10,000	800	8,000	700	10,000	580	5,000	200
4.0	9,600	1,200	8,000	1,000	6,000	800	5,500	650	3,000	230
6.0	6,800	1,500	5,600	1,200	4,200	900	3,800	680	2,100	240
8.0	5,200	1,600	4,400	1,300	3,200	950	2,800	650	1,600	250
10.0	4,200	1,500	3,500	1,200	2,600	800	2,300	600	1,300	210
12.0	3,500	1,400	3,000	1,200	2,200	700	1,900	550	1,100	180
14.0	3,000	1,200	2,600	1,100	1,800	600	1,600	500	900	150
16.0	2,700	1,100	2,200	1,000	1,600	600	1,400	480	760	130
18.0	2,400	1,000	2,000	900	1,400	570	1,300	450	680	120
20.0	2,200	900	1,700	800	1,200	550	1,100	400	600	100
25.0	1,700	680	1,400	630	1,000	450	890	310	480	82
Standard Depth of Cut a_p	1.5DC									
Standard Depth of Cut a_e	0.2DC				0.05DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions	Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)
2.0	13,000	750	10,000	550	8,400	500	6,500	300	4,000	140
4.0	8,200	800	6,000	600	5,200	500	4,000	330	2,000	130
6.0	6,100	1,100	4,000	600	3,500	580	2,700	350	1,350	150
8.0	4,600	1,000	3,000	580	2,600	570	2,000	330	1,000	140
10.0	3,600	1,000	2,400	550	2,100	510	1,600	200	800	130
12.0	3,100	920	2,000	500	1,700	450	1,300	280	660	110
14.0	2,600	750	1,700	450	1,500	400	1,100	250	570	100
16.0	2,300	670	1,500	420	1,300	350	1,000	230	500	90
18.0	2,000	620	1,300	380	1,100	330	900	200	430	80
20.0	1,900	600	1,200	360	1,000	320	800	180	380	70
25.0	1,500	470	1,000	300	790	250	640	140	300	55
Standard Depth of Cut a_p	0.8DC				0.16DC		0.4DC		0.16DC	

GSXVL 4000-R-2.5D Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Radius r | Helix Angle 40° 43° | Side Milling | Slot Milling | Groove Finishing | Face Milling | Helical Milling | Ramping | Profiling

Fig 1

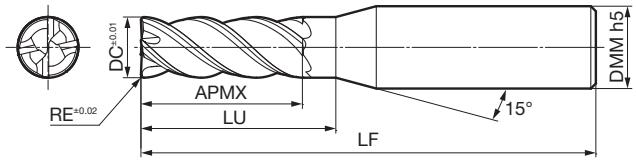
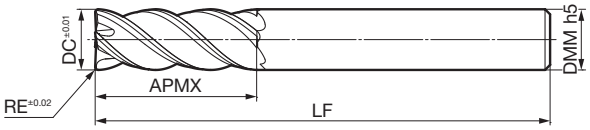


Fig 2



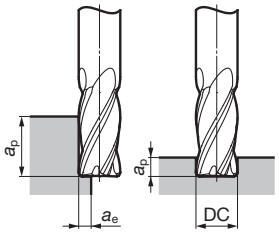
Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSXVL4030-R02-2.5D	★	3.0	0.2	8.0	9.5	50	6	1
GSXVL4030-R05-2.5D	★	3.0	0.5	8.0	9.5	50	6	1
GSXVL4040-R02-2.5D	★	4.0	0.2	10.0	11.5	50	6	1
GSXVL4040-R05-2.5D	★	4.0	0.5	10.0	11.5	50	6	1
GSXVL4040-R10-2.5D	★	4.0	1.0	10.0	11.5	50	6	1
GSXVL4050-R02-2.5D	★	5.0	0.2	13.0	14.5	60	6	1
GSXVL4050-R05-2.5D	★	5.0	0.5	13.0	14.5	60	6	1
GSXVL4050-R10-2.5D	★	5.0	1.0	13.0	14.5	60	6	1
GSXVL4060-R03-2.5D	★	6.0	0.3	15.0	-	60	6	2
GSXVL4060-R05-2.5D	★	6.0	0.5	15.0	-	60	6	2
GSXVL4060-R10-2.5D	★	6.0	1.0	15.0	-	60	6	2
GSXVL4060-R15-2.5D	★	6.0	1.5	15.0	-	60	6	2
GSXVL4080-R03-2.5D	★	8.0	0.3	20.0	-	80	8	2
GSXVL4080-R05-2.5D	★	8.0	0.5	20.0	-	80	8	2
GSXVL4080-R10-2.5D	★	8.0	1.0	20.0	-	80	8	2
GSXVL4080-R15-2.5D	★	8.0	1.5	20.0	-	80	8	2
GSXVL4080-R20-2.5D	★	8.0	2.0	20.0	-	80	8	2
GSXVL4100-R03-2.5D	★	10.0	0.3	25.0	-	90	10	2
GSXVL4100-R05-2.5D	★	10.0	0.5	25.0	-	90	10	2
GSXVL4100-R10-2.5D	★	10.0	1.0	25.0	-	90	10	2
GSXVL4100-R15-2.5D	★	10.0	1.5	25.0	-	90	10	2
GSXVL4100-R20-2.5D	★	10.0	2.0	25.0	-	90	10	2
GSXVL4120-R05-2.5D	★	12.0	0.5	30.0	-	90	12	2
GSXVL4120-R10-2.5D	★	12.0	1.0	30.0	-	90	12	2
GSXVL4120-R15-2.5D	★	12.0	1.5	30.0	-	90	12	2
GSXVL4120-R20-2.5D	★	12.0	2.0	30.0	-	90	12	2
GSXVL4120-R30-2.5D	★	12.0	3.0	30.0	-	90	12	2
GSXVL4160-R10-2.5D	★	16.0	1.0	40.0	-	115	16	2
GSXVL4160-R15-2.5D	★	16.0	1.5	40.0	-	115	16	2
GSXVL4160-R20-2.5D	★	16.0	2.0	40.0	-	115	16	2
GSXVL4160-R30-2.5D	★	16.0	3.0	40.0	-	115	16	2
GSXVL4200-R10-2.5D	★	20.0	1.0	50.0	-	125	20	2
GSXVL4200-R15-2.5D	★	20.0	1.5	50.0	-	125	20	2
GSXVL4200-R20-2.5D	★	20.0	2.0	50.0	-	125	20	2
GSXVL4200-R30-2.5D	★	20.0	3.0	50.0	-	125	20	2
GSXVL4250-R10-2.5D	★	25.0	1.0	63.0	-	140	25	2
GSXVL4250-R15-2.5D	★	25.0	1.5	63.0	-	140	25	2
GSXVL4250-R20-2.5D	★	25.0	2.0	63.0	-	140	25	2
GSXVL4250-R30-2.5D	★	25.0	3.0	63.0	-	140	25	2

Grade: ACF20

GSXVL 4000-R-2.5D Type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	13,000	1,000	10,000	800	8,000	700	10,000	580	5,000	200
4.0	9,600	1,200	8,000	1,000	6,000	800	5,500	650	3,000	230
6.0	6,800	1,500	5,600	1,200	4,200	900	3,800	680	2,100	240
8.0	5,200	1,600	4,400	1,300	3,200	950	2,800	650	1,600	250
10.0	4,200	1,500	3,500	1,200	2,600	800	2,300	600	1,300	210
12.0	3,500	1,400	3,000	1,200	2,200	700	1,900	550	1,100	180
14.0	3,000	1,200	2,600	1,100	1,800	600	1,600	500	900	150
16.0	2,700	1,100	2,200	1,000	1,600	600	1,400	480	760	130
18.0	2,400	1,000	2,000	900	1,400	570	1,300	450	680	120
20.0	2,200	900	1,700	800	1,200	550	1,100	400	600	100
25.0	1,700	680	1,400	630	1,000	450	890	310	480	82
Standard Depth of Cut a_p	1.5DC									
Standard Depth of Cut a_e	0.2DC				0.05DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions	Carbon Steel, Cast Iron SS, SC, FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK, HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0	13,000	750	10,000	550	8,400	500	6,500	300	4,000	140
4.0	8,200	800	6,000	600	5,200	500	4,000	330	2,000	130
6.0	6,100	1,100	4,000	600	3,500	580	2,700	350	1,350	150
8.0	4,600	1,000	3,000	580	2,600	570	2,000	330	1,000	140
10.0	3,600	1,000	2,400	550	2,100	510	1,600	200	800	130
12.0	3,100	920	2,000	500	1,700	450	1,300	280	660	110
14.0	2,600	750	1,700	450	1,500	400	1,100	250	570	100
16.0	2,300	670	1,500	420	1,300	350	1,000	230	500	90
18.0	2,000	620	1,300	380	1,100	330	900	200	430	80
20.0	1,900	600	1,200	360	1,000	320	800	180	380	70
25.0	1,500	470	1,000	300	790	250	640	140	300	55
Standard Depth of Cut a_p	1.0DC				0.2DC		0.5DC		0.2DC	

SSEHVL 4000W-R Type

Stainless Steel | Ti Alloy / Heat Resistant Alloy

4 Flutes | GS HARD Coat | Radius | Helix Angle 42° 45° | Side Milling | Slot Milling | Groove Finishing | Face Milling | Profiling

Fig 1

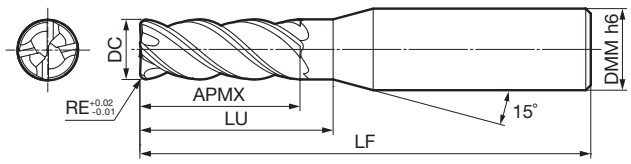
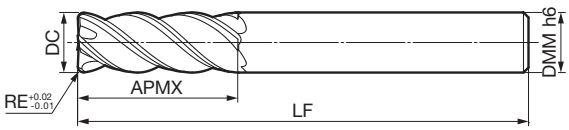


Fig 2



DC	Tolerance
4.0 < D ≤ 6.0	-0.020 to -0.038
6.0 < D	-0.025 to -0.047

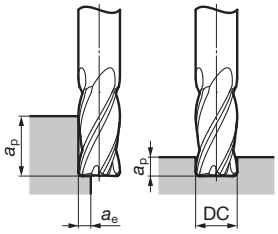
Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
SSEHVL4045W-R05	★	4.5	0.5	12.0	14.5	50	6	1
SSEHVL4045W-R10	★	4.5	1.0	12.0	14.5	50	6	1
SSEHVL4050W-R05	★	5.0	0.5	13.0	15.5	60	6	1
SSEHVL4050W-R10	★	5.0	1.0	13.0	15.5	60	6	1
SSEHVL4060W-R10	★	6.0	1.0	13.0	-	60	6	2
SSEHVL4080W-R10	★	8.0	1.0	19.0	-	80	8	2
SSEHVL4100W-R10	★	10.0	1.0	22.0	-	90	10	2
SSEHVL4100W-R30	★	10.0	3.0	22.0	-	90	10	2
SSEHVL4120W-R10	★	12.0	1.0	26.0	-	90	12	2
SSEHVL4120W-R30	★	12.0	3.0	26.0	-	90	12	2
SSEHVL4160W-R10	★	16.0	1.0	32.0	-	115	16	2
SSEHVL4160W-R30	★	16.0	3.0	32.0	-	115	16	2
SSEHVL4200W-R10	★	20.0	1.0	40.0	-	125	20	2
SSEHVL4200W-R30	★	20.0	3.0	40.0	-	125	20	2
SSEHVL4250W-R10	★	25.0	1.0	50.0	-	140	25	2
SSEHVL4250W-R30	★	25.0	3.0	50.0	-	140	25	2

Grade: ACW52

SSEHVL 4000W-R Type



Recommended Cutting Conditions

1. For stable machining, a high-rigidity machine is recommended.
2. Wet machining is recommended for stainless steel and heat-resistant alloy applications.
3. If cutting noise and vibration are present, please change the cutting conditions accordingly.

Side Milling

Work Material / Cutting Conditions / DC (mm)	Stainless Steel SUS304,SUS316		Titanium Alloy		Heat-Resistant Alloy	
	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
4.5	5,100	480	5,300	600	2,500	200
5.0	4,600	520	4,800	700	2,200	220
6.0	3,800	560	4,000	800	1,800	210
8.0	2,900	520	3,000	780	1,400	200
10.0	2,300	500	2,400	640	1,100	180
12.0	1,900	470	2,000	600	930	160
16.0	1,400	430	1,500	500	700	140
20.0	1,100	330	1,200	260	560	110
25.0	890	270	950	290	450	90
Standard Depth of Cut a_p	1.5DC		1.5DC		1.5DC	
Standard Depth of Cut a_e	0.1DC		0.05DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions / DC (mm)	Stainless Steel SUS304,SUS316		Titanium Alloy		Heat-Resistant Alloy	
	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
4.5	4,200	200	3,900	270	1,400	100
5.0	3,800	240	3,500	300	1,300	120
6.0	3,200	260	2,900	300	1,100	140
8.0	2,400	240	2,200	270	800	120
10.0	1,900	220	1,700	250	650	110
12.0	1,600	200	1,400	230	550	100
16.0	1,200	130	1,100	200	400	80
20.0	950	95	890	90	320	60
25.0	760	75	700	70	250	50
Standard Depth of Cut a_p	0.3DC		0.2DC		0.15DC	

SSEH 4000W-R Type

Stainless Steel | Ti Alloy / Heat Resistant Alloy

4 Flutes | GS HARD Coat | Radius | 45° Helix Angle | Side Milling | Groove Finishing | Face Milling | Profiling

Fig 1

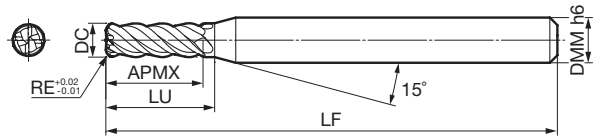


Fig 2

DC	Tolerance
4.0 < D ≤ 6.0	-0.020 to -0.038
6.0 < D	-0.025 to -0.047

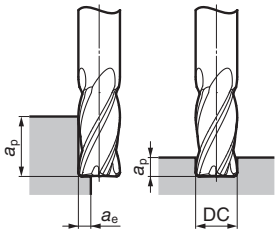
Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
SSEH4045W-R05	★	4.5	0.5	12.0	14.5	50	6	1
SSEH4050W-R05	★	5.0	0.5	13.0	15.5	60	6	1
SSEH4060W-R10	★	6.0	1.0	13.0	-	60	6	2
SSEH4080W-R10	★	8.0	1.0	19.0	-	80	8	2
SSEH4100W-R10	★	10.0	1.0	22.0	-	90	10	2
SSEH4100W-R30	★	10.0	3.0	22.0	-	90	10	2
SSEH4120W-R10	★	12.0	1.0	26.0	-	90	12	2
SSEH4120W-R30	★	12.0	3.0	26.0	-	90	12	2
SSEH4160W-R10	★	16.0	1.0	32.0	-	115	16	2
SSEH4160W-R30	★	16.0	3.0	32.0	-	115	16	2
SSEH4200W-R10	★	20.0	1.0	40.0	-	125	20	2
SSEH4200W-R30	★	20.0	3.0	40.0	-	125	20	2
SSEH4250W-R10	★	25.0	1.0	50.0	-	140	25	2
SSEH4250W-R30	★	25.0	3.0	50.0	-	140	25	2

Grade: ACW52

SSEH 4000W-R Type



Recommended Cutting Conditions

1. For stable machining, a high-rigidity machine is recommended.
2. Wet machining is recommended for stainless steel and heat-resistant alloy applications.
3. If cutting noise and vibration are present, please change the cutting conditions accordingly.

Side Milling

Work Material / Cutting Conditions / DC (mm)	Stainless Steel SUS304,SUS316		Titanium Alloy		Heat-Resistant Alloy	
	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
4.5	3,500	350	3,500	280	2,100	170
5.0	3,200	380	3,200	320	1,900	190
6.0	2,700	430	2,700	320	1,600	190
8.0	2,000	400	2,000	280	1,200	170
10.0	1,600	380	1,600	260	1,000	160
12.0	1,300	360	1,300	230	800	140
16.0	1,000	320	1,000	200	600	120
20.0	800	260	800	160	480	100
25.0	640	200	640	130	380	80
Standard Depth of Cut a_p	1.5DC		1.5DC		1.5DC	
Standard Depth of Cut a_e	0.1DC		0.05DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions / DC (mm)	Stainless Steel SUS304,SUS316		Titanium Alloy		Heat-Resistant Alloy	
	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
4.5	2,800	140	2,500	200	1,300	100
5.0	2,500	150	2,200	220	1,100	110
6.0	2,100	170	1,900	230	1,000	120
8.0	1,600	160	1,400	200	700	100
10.0	1,300	160	1,100	180	600	100
12.0	1,100	150	900	160	500	90
16.0	800	130	700	140	400	80
20.0	640	100	560	110	320	65
25.0	510	85	450	90	250	50
Standard Depth of Cut a_p	0.3DC		0.2DC		0.15DC	

SSEHVL 4000-R Type

Stainless Steel | Ti Alloy / Heat Resistant Alloy

4 Flutes | Uncoated Carbide | Radius r | Helix Angle 42° 45° | Side Milling | Groove Finishing | Face Milling | Profiling

Fig 1

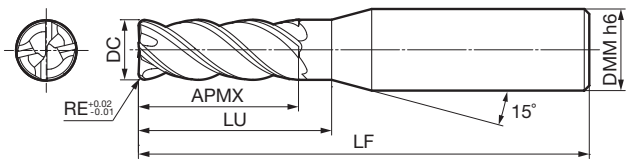
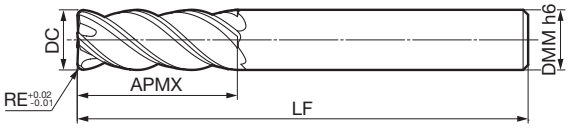


Fig 2



DC	Tolerance
D ≤ 6.0	-0.028 to -0.043
6.0 < D	-0.033 to -0.052

Body

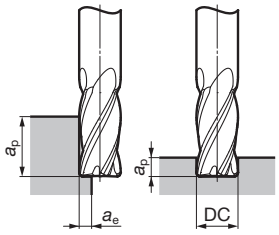
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
SSEHVL4045-R05	★	4.5	0.5	12.0	14.5	50	6	1
SSEHVL4045-R10	★	4.5	1.0	12.0	14.5	50	6	1
SSEHVL4050-R05	★	5.0	0.5	13.0	15.5	60	6	1
SSEHVL4050-R10	★	5.0	1.0	13.0	15.5	60	6	1
SSEHVL4060-R10	★	6.0	1.0	13.0	-	60	6	2
SSEHVL4080-R10	★	8.0	1.0	19.0	-	80	8	2
SSEHVL4100-R10	★	10.0	1.0	22.0	-	90	10	2
SSEHVL4100-R30	★	10.0	3.0	22.0	-	90	10	2
SSEHVL4120-R10	★	12.0	1.0	26.0	-	90	12	2
SSEHVL4120-R30	★	12.0	3.0	26.0	-	90	12	2
SSEHVL4160-R10	★	16.0	1.0	32.0	-	115	16	2
SSEHVL4160-R30	★	16.0	3.0	32.0	-	115	16	2

Grade: EH520

Recommended Cutting Conditions

1. For stable machining, a high-rigidity machine is recommended.
2. Wet machining is recommended for stainless steel and heat-resistant alloy applications.
3. If cutting noise and vibration are present, please change the cutting conditions accordingly.



Side Milling

Work Material / Cutting Conditions / DC (mm)	Stainless Steel SUS304,SUS316		Titanium Alloy		Heat-Resistant Alloy	
	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
4.5	2,300	120	4,600	370	1,600	130
5.0	2,000	130	4,100	410	1,500	150
6.0	1,700	130	3,400	400	1,200	140
8.0	1,300	130	2,600	360	900	130
10.0	1,000	130	2,100	340	700	110
12.0	800	110	1,700	300	600	100
16.0	600	90	1,300	260	500	100
Standard Depth of Cut a_p	1.5DC		1.5DC		1.5DC	
Standard Depth of Cut p_f	0.1DC		0.05DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions / DC (mm)	Stainless Steel SUS304,SUS316		Titanium Alloy		Heat-Resistant Alloy	
	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
4.5	1,800	50	3,200	250	1,300	110
5.0	1,600	50	2,900	290	1,200	120
6.0	1,400	50	2,400	290	1,000	120
8.0	1,000	50	1,800	250	700	90
10.0	800	50	1,400	230	600	100
12.0	600	50	1,200	210	500	90
16.0	500	40	900	180	400	80
Standard Depth of Cut a_p	0.3DC		0.2DC		0.15DC	

SSEH 4000-R Type

Stainless Steel | Ti Alloy / Heat Resistant Alloy

4 Flutes | Uncoated Carbide | Radius | 45° Helix Angle | Side Milling | Groove Finishing | Face Milling | Profiling

Fig 1

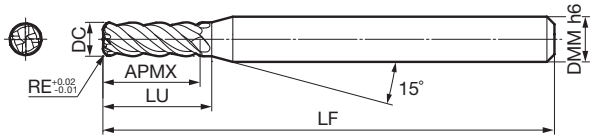
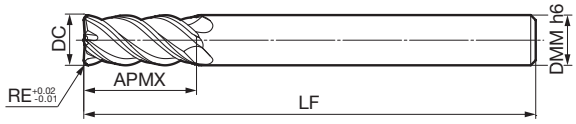


Fig 2



DC	Tolerance
D ≤ 6.0	-0.028 to -0.043
6.0 < D	-0.033 to -0.052

Body

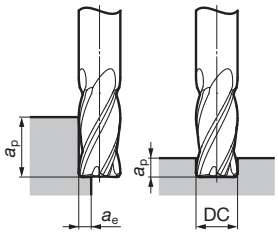
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
SSEH4045-R05	★	4.5	0.5	12.0	14.5	50	6	1
SSEH4050-R05	★	5.0	0.5	13.0	15.5	60	6	1
SSEH4060-R10	★	6.0	1.0	13.0	-	60	6	2
SSEH4080-R10	★	8.0	1.0	19.0	-	80	8	2
SSEH4100-R10	★	10.0	1.0	22.0	-	90	10	2
SSEH4100-R30	★	10.0	3.0	22.0	-	90	10	2
SSEH4120-R10	★	12.0	1.0	26.0	-	90	12	2
SSEH4120-R30	★	12.0	3.0	26.0	-	90	12	2
SSEH4160-R10	★	16.0	1.0	32.0	-	115	16	2
SSEH4160-R30	★	16.0	3.0	32.0	-	115	16	2

Grade: EH520

Recommended Cutting Conditions

1. For stable machining, a high-rigidity machine is recommended.
2. Wet machining is recommended for stainless steel and heat-resistant alloy applications.
3. If cutting noise and vibration are present, please change the cutting conditions accordingly.



Side Milling

Work Material / Cutting Conditions / DC (mm)	Stainless Steel SUS304,SUS316		Titanium Alloy		Heat-Resistant Alloy	
	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
4.5	1,800	90	3,500	280	1,400	110
5.0	1,600	100	3,200	320	1,300	130
6.0	1,300	100	2,700	320	1,100	130
8.0	1,000	100	2,000	280	800	110
10.0	800	100	1,600	260	600	100
12.0	700	100	1,300	230	500	90
16.0	500	80	1,000	200	400	80
Standard Depth of Cut a_p	1.5DC		1.5DC		1.5DC	
Standard Depth of Cut a_e	0.1DC		0.05DC		0.05DC	

Groove Milling

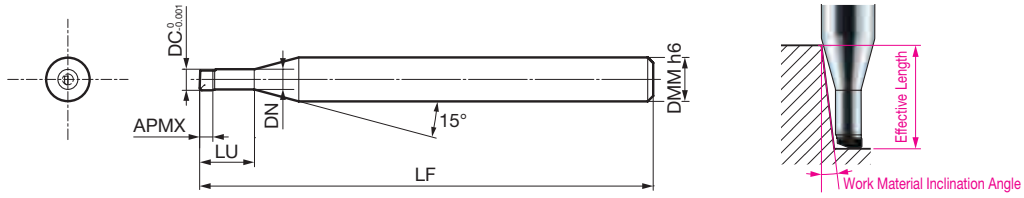
Work Material / Cutting Conditions / DC (mm)	Stainless Steel SUS304,SUS316		Titanium Alloy		Heat-Resistant Alloy	
	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
4.5	1,400	40	2,500	200	1,100	90
5.0	1,300	40	2,200	220	1,000	100
6.0	1,100	40	1,900	230	800	100
8.0	800	40	1,400	200	600	80
10.0	600	40	1,100	180	500	80
12.0	500	40	900	160	400	70
16.0	400	30	700	140	300	60
Standard Depth of Cut a_p	0.3DC		0.2DC		0.15DC	

NPDRS Type

Cemented Carbide | Hard Brittle Material

1 Flute | Binderless PCD | Radius r | Side Milling | Face Milling | Profiling

Fig 1



Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Effective Length for Work Material Inclination Angle 0.5°	1°	1.5°	2°	3°	Wiper Edge	Fig
NPDRS1020R002-006	★	0.2	0.02	0.1	0.6	40	0.175	4	0.63	0.65	0.67	0.70	0.75	No	1
NPDRS1020R005-006	★	0.2	0.05	0.1	0.6	40	0.175	4	0.63	0.65	0.67	0.69	0.74	No	1
NPDRS1030R002-010	★	0.3	0.02	0.15	1.0	40	0.27	4	1.04	1.08	1.11	1.15	1.24	No	1
NPDRS1030R005-010	★	0.3	0.05	0.15	1.0	40	0.27	4	1.04	1.08	1.11	1.15	1.23	No	1
NPDRS1050R005-015	★	0.5	0.05	0.25	1.5	40	0.47	4	1.56	1.61	1.66	1.72	1.84	No	1
NPDRS1050R010-015	★	0.5	0.10	0.25	1.5	40	0.47	4	1.56	1.60	1.65	1.71	1.83	No	1
NPDRS1100R005-030	★	1.0	0.05	0.55	3.0	40	0.95	4	3.14	3.24	3.35	3.46	3.72	No	1
NPDRS1100R010-030	★	1.0	0.10	0.55	3.0	40	0.95	4	3.14	3.24	3.34	3.46	3.71	No	1
NPDRS1100R020-030	★	1.0	0.20	0.55	3.0	40	0.95	4	3.14	3.23	3.33	3.44	3.69	No	1
NPDRS1200R005-040	★	2.0	0.05	0.55	4.0	40	1.95	4	4.17	4.31	4.45	4.60	4.94	No	1
NPDRS1200R010-040	★	2.0	0.10	0.55	4.0	40	1.95	4	4.17	4.30	4.44	4.60	4.93	No	1
NPDRS1200R020-040	★	2.0	0.20	0.55	4.0	40	1.95	4	4.17	4.30	4.43	4.58	4.91	No	1

Grade: NPD10

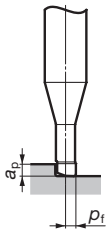
Identification Code

NPDR S 1 020 R002 - 006

Type | For Standard Finishing | Number of Teeth | Dia. | Nose Radius | Neck Length

Recommended Cutting Conditions

1. Use a precision machine for stable cutting.
2. Non-water soluble cutting oil is recommended. Supply as a mist or external coolant. Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions as necessary as equipment performance and other conditions may vary.
5. Values shown in the table of conditions are guidelines. Adjust the actual cutting conditions to the desired machined surface quality.



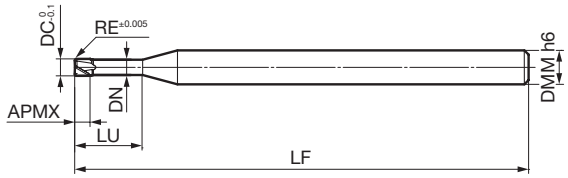
Work Material		Cemented Carbide			
DC (mm)	LU (mm)	Spindle Speed (RPM)	Feed Rate (IPM)	a_p(inch)	p_f(inch)
0.2	0.6	40,000	3.937	0.00004	0.00004
0.3	1.0	40,000	5.906	0.00008	0.00004
0.5	1.5	40,000	7.874	0.00012	0.00004
1.0	3.0	40,000	15.748	0.00020	0.00012
2.0	4.0	40,000	23.622	0.00039	0.00020

MEMO

BNBR Type

2 Flutes | CBN | Radius | Side Milling | Face Milling | Profiling

Fig 1



Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Wiper Edge	Fig
BNBR2D020R005-0054	★	0.2	0.05	0.1	0.5	50	0.17	4	No	1
BNBR2D030R005-0054	★	0.3	0.05	0.15	0.5	50	0.27	4	No	1
BNBR2D040R005-0054	★	0.4	0.05	0.2	0.5	50	0.37	4	No	1
BNBR2D050R005-0054	★	0.5	0.05	0.3	0.5	50	0.47	4	No	1
BNBR2D050R005-0154	★	0.5	0.05	0.3	1.5	50	0.47	4	No	1
BNBR2D050R005-0254	★	0.5	0.05	0.3	2.5	50	0.47	4	No	1
BNBR2D050R010-0154	★	0.5	0.10	0.3	1.5	50	0.47	4	No	1
BNBR2D050R010-0254	★	0.5	0.10	0.3	2.5	50	0.47	4	No	1
BNBR2D100R005-0304	★	1.0	0.05	0.7	3.0	50	0.97	4	Yes	1
BNBR2D100R005-0504	★	1.0	0.05	0.7	5.0	50	0.97	4	Yes	1
BNBR2D100R010-0304	★	1.0	0.10	0.7	3.0	50	0.97	4	Yes	1
BNBR2D100R010-0504	★	1.0	0.10	0.7	5.0	50	0.97	4	Yes	1
BNBR2D100R020-0304	★	1.0	0.20	0.7	3.0	50	0.97	4	Yes	1
BNBR2D100R020-0504	★	1.0	0.20	0.7	5.0	50	0.97	4	Yes	1
BNBR2D100R030-0304	★	1.0	0.30	0.7	3.0	50	0.97	4	Yes	1
BNBR2D100R030-0504	★	1.0	0.30	0.7	5.0	50	0.97	4	Yes	1
BNBR2D150R010-0454	★	1.5	0.10	1.2	4.5	50	1.47	4	Yes	1
BNBR2D150R010-0754	★	1.5	0.10	1.2	7.5	50	1.47	4	Yes	1
BNBR2D150R020-0454	★	1.5	0.20	1.2	4.5	50	1.47	4	Yes	1
BNBR2D150R020-0754	★	1.5	0.20	1.2	7.5	50	1.47	4	Yes	1
BNBR2D150R030-0454	★	1.5	0.30	1.2	4.5	50	1.47	4	Yes	1
BNBR2D150R030-0754	★	1.5	0.30	1.2	7.5	50	1.47	4	Yes	1
BNBR2D200R010-0604	★	2.0	0.10	1.5	6.0	50	1.97	4	Yes	1
BNBR2D200R020-0604	★	2.0	0.20	1.5	6.0	50	1.97	4	Yes	1
BNBR2D200R030-0604	★	2.0	0.30	1.5	6.0	50	1.97	4	Yes	1
BNBR2D200R050-0604	★	2.0	0.50	1.5	6.0	50	1.97	4	Yes	1

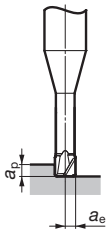
Grade: BNX20

Identification Code

BNBR 2 D050 R010 - 015 4

Series Code | Number of Teeth | Dia. | Nose Radius | Neck Length | Shank Dia.

BNBR Type



Recommended Cutting Conditions

1. Use a machine with high rigidity for stable cutting.
2. Non-water soluble cutting oil is recommended. Supply as a mist or external coolant.
   Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions as necessary as machine rigidity and other conditions may vary.
5. Depths of cut shown in the table of conditions are maximum depths. Adjust the actual depth of cut to the desired machined surface roughness.

Work Material			STAVAX, NAK80, SKD61 (Up to 52HRC)				ELMAX, DC53, SKD11 Modified (Up to 62HRC)				YXR3, SKH (Up to 70HRC)			
DC (mm)	RE (mm)	LU (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (mm)	a_e (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (mm)	a_e (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (mm)	a_e (mm)
0.2	0.05	0.5	40,000	400	0.005	0.03	40,000	400	0.005	0.03	40,000	250	0.005	0.02
0.3	0.05	0.5	40,000	500	0.010	0.05	40,000	500	0.010	0.05	40,000	300	0.005	0.03
0.4	0.05	0.5	40,000	600	0.015	0.1	40,000	600	0.015	0.1	40,000	400	0.01	0.05
0.5	0.05	0.5	40,000	600	0.02	0.15	40,000	600	0.02	0.15	40,000	400	0.01	0.1
	0.05	1.5	40,000		0.02	0.1	40,000		0.02	0.1	35,000			0.05
	0.1		40,000				40,000				35,000			
	0.05	2.5	40,000		0.01	0.05	40,000		0.01	0.05	35,000			
	0.1		40,000				40,000				35,000			
1.0	0.05	3.0	35,000	800	0.03	0.3	35,000	800	0.03	0.2	30,000	600	0.01	0.1
	0.1		35,000				35,000				30,000			
	0.2		35,000				35,000				30,000			
	0.3		35,000				35,000				30,000			
	0.05	5.0	35,000		0.02	0.2	35,000	800	0.02	0.1	30,000	600	0.01	0.1
	0.1		35,000				35,000				30,000			
	0.2		35,000				35,000				30,000			
	0.3		35,000				35,000				30,000			
1.5	0.1	4.5	26,000	800	0.03	0.5	26,000	800	0.03	0.3	20,000	600	0.02	0.3
	0.2		26,000				26,000				20,000			
	0.3		26,000				26,000				20,000			
	0.1	7.5	26,000		0.03	0.5	26,000	800	0.03	0.3	20,000	600	0.02	0.3
	0.2		26,000				26,000				20,000			
	0.3		26,000				26,000				20,000			
2.0	0.1	6.0	20,000	800	0.03	0.7	20,000	800	0.03	0.7	15,000	600	0.03	0.7
	0.2		20,000				20,000				15,000			
	0.3		20,000				20,000				15,000			
	0.5		20,000				20,000				15,000			

GSXB 20000 Type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel/Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Ballnose R | 30° Helix Angle | Side Milling | Face Milling | R-Grooving | Profiling

Fig 1

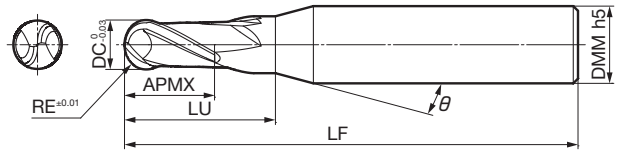
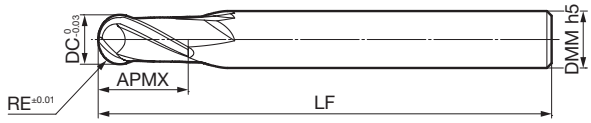


Fig 2



DC	θ
< ø2	10°
ø2 or more	15°

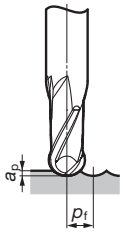
Body

Dimensions (*mm*)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSXB20020	★	0.20	0.4	0.6	0.8	50	4	1
GSXB20030	★	0.30	0.6	0.9	1.2	50	4	1
GSXB20050	★	0.50	1.0	1.5	2.0	50	4	1
GSXB20075	★	0.75	1.5	2.5	3.0	50	4	1
GSXB20100	★	1.00	2.0	3.0	4.0	60	6	1
GSXB20125	★	1.25	2.5	4.0	5.0	60	6	1
GSXB20150	★	1.50	3.0	4.5	6.0	60	6	1
GSXB20200	★	2.00	4.0	6.0	8.0	70	6	1
GSXB20250	★	2.50	5.0	7.5	10.0	80	6	1
GSXB20300	★	3.00	6.0	9.0	-	80	6	2
GSXB20350	★	3.50	7.0	11.0	20.0	90	8	1
GSXB20400	★	4.00	8.0	12.0	-	90	8	2
GSXB20500	★	5.00	10.0	15.0	-	100	10	2
GSXB20600	★	6.00	12.0	18.0	-	110	12	2
GSXB20700	★	7.00	14.0	21.0	38.0	110	16	1
GSXB20800	★	8.00	16.0	24.0	-	140	16	2
GSXB20900	★	9.00	18.0	27.0	50.0	140	20	1
GSXB21000	★	10.00	20.0	30.0	-	160	20	2

Grade: ACB20

GSXB 20000 Type



Recommended Cutting Conditions

1. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.
2. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Radius Milling

Work Material / Cutting Conditions		Carbon Steel / Alloy Steel (Below 25HRC)		Carbon Steel / Alloy Steel (Below 50HRC)		Cast Iron Special Cast Iron		Stainless Steel Titanium Alloy	
RE (mm)		Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)
0.20		50,000	2,100	35,000	1,150	50,000	2,100	50,000	1,750
0.30		50,000	2,500	35,000	1,350	50,000	2,500	50,000	2,100
0.50		50,000	3,000	35,000	1,600	50,000	3,000	50,000	2,500
0.75		35,000	3,000	24,000	1,650	35,000	3,200	34,000	2,500
1.00		27,500	3,000	19,000	1,700	35,000	3,900	26,000	2,500
1.25		22,500	3,000	15,500	1,700	28,000	3,900	21,000	2,500
1.50		19,000	3,000	13,000	1,700	24,000	3,900	17,500	2,500
2.00		17,000	3,800	12,000	2,100	20,000	4,100	15,000	2,700
2.50		15,500	4,300	11,000	2,200	18,000	4,600	12,000	2,500
3.00		14,000	4,700	10,500	2,500	16,500	5,300	10,500	2,500
3.50		12,500	4,200	9,000	2,100	14,000	4,500	9,000	2,200
4.00		11,000	3,500	7,900	1,900	12,500	4,000	7,800	1,900
5.00		9,000	2,800	6,300	1,500	10,500	3,300	6,300	1,500
6.00		7,500	2,400	5,200	1,250	8,700	2,800	5,200	1,250
7.00		6,400	2,100	4,500	1,100	7,400	2,400	4,500	1,100
8.00		5,600	1,800	3,900	950	6,500	2,100	3,900	950
9.00		5,000	1,600	3,500	850	5,800	1,900	3,500	850
10.00		4,500	1,450	3,100	750	5,200	1,700	3,150	750
Standard Depth of Cut	a_p	0.02DC		0.02DC		0.02DC		0.02DC	
	p_f	0.05DC		0.05DC		0.05DC		0.05DC	

MEMO

SNB 2000DL Type

2 Flutes | Aurora DLC Coat | Ballnose R | Helix Angle 30° | Side Milling | Slot Milling | Groove Finishing | R-Grooving | Profiling

Fig 1

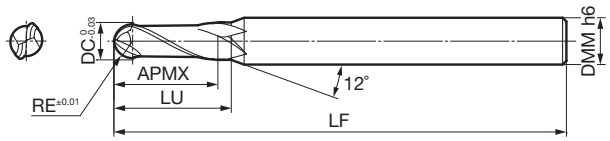


Fig 2

Body

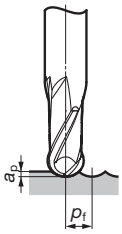
Dimensions (*mm*)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
SNB2020DL	★	1.0	2.0	3.0	5	60	6	1
SNB2030DL	★	1.5	3.0	4.5	8	80	6	1
SNB2040DL	★	2.0	4.0	6.0	12	80	6	1
SNB2050DL	★	2.5	5.0	7.5	14	90	6	1
SNB2060DL	★	3.0	6.0	9.0	-	100	6	2
SNB2080DL	★	4.0	8.0	12.0	-	100	8	2
SNB2100DL	★	5.0	10.0	15.0	-	120	10	2
SNB2120DL	★	6.0	12.0	18.0	-	120	12	2
SNB2160DL	★	8.0	16.0	24.0	-	160	16	2

Grade: DL1200

Recommended Cutting Conditions

1. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.



Radius Milling

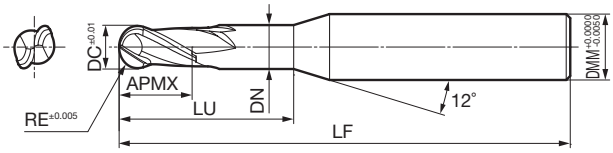
Work Material	Aluminum Alloy			
Cutting Conditions	Wet		Dry	
RE (mm)	Spindle Speed (RPM)	Feed Rate (mm/min)	Spindle Speed (RPM)	Feed Rate (mm/min)
1.0	48,000	1,500	48,000	1,000
1.5	38,000	2,100	38,000	1,500
2.0	31,000	2,800	31,000	2,000
2.5	24,000	2,800	24,000	2,000
3.0	20,000	2,800	20,000	2,000
4.0	15,000	2,800	15,000	2,000
5.0	13,000	3,000	13,000	2,100
6.0	10,000	3,000	10,000	2,100
8.0	7,700	3,000	7,700	2,100
Standard Depth of Cut a_p	0.1DC		0.1DC	
Standard Depth of Cut p_f	0.2DC		0.2DC	

SNB2 Type

Aluminum Alloy | Copper Alloy

2 Flutes | Aurora DLC Coat | Ballnose R | 30° Helix Angle | Side Milling | Groove Finishing | R-Grooving | Profiling | For Copper Electrodes

Fig 1



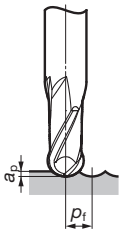
Body

Dimensions (*mm*)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Fig
SNB200050034DL	★	0.05	0.1	0.1	0.3	45	0.09	4	1
SNB200050064DL	★	0.05	0.1	0.1	0.6	45	0.09	4	1
SNB200100054DL	★	0.10	0.2	0.2	0.5	45	0.18	4	1
SNB200100104DL	★	0.10	0.2	0.2	1.0	45	0.18	4	1
SNB200100204DL	★	0.10	0.2	0.2	2.0	45	0.18	4	1
SNB200150054DL	★	0.15	0.3	0.3	0.5	45	0.27	4	1
SNB200150104DL	★	0.15	0.3	0.3	1.0	45	0.27	4	1
SNB200150204DL	★	0.15	0.3	0.3	2.0	45	0.27	4	1
SNB200150304DL	★	0.15	0.3	0.3	3.0	45	0.27	4	1
SNB200200104DL	★	0.20	0.4	0.4	1.0	45	0.36	4	1
SNB200200204DL	★	0.20	0.4	0.4	2.0	45	0.36	4	1
SNB200200304DL	★	0.20	0.4	0.4	3.0	45	0.36	4	1
SNB200200404DL	★	0.20	0.4	0.4	4.0	45	0.36	4	1
SNB200250104DL	★	0.25	0.5	0.45	1.0	45	0.45	4	1
SNB200250204DL	★	0.25	0.5	0.45	2.0	45	0.45	4	1
SNB200250304DL	★	0.25	0.5	0.45	3.0	45	0.45	4	1
SNB200250404DL	★	0.25	0.5	0.45	4.0	45	0.45	4	1
SNB200300204DL	★	0.30	0.6	0.6	2.0	45	0.54	4	1
SNB200300304DL	★	0.30	0.6	0.6	3.0	45	0.54	4	1
SNB200300404DL	★	0.30	0.6	0.6	4.0	45	0.54	4	1
SNB200300504DL	★	0.30	0.6	0.6	5.0	45	0.54	4	1
SNB200300604DL	★	0.30	0.6	0.6	6.0	45	0.54	4	1
SNB200500304DL	★	0.50	1.0	1.5	3.0	45	0.90	4	1
SNB200500404DL	★	0.50	1.0	1.5	4.0	45	0.90	4	1
SNB200500604DL	★	0.50	1.0	1.5	6.0	45	0.90	4	1
SNB200500804DL	★	0.50	1.0	1.5	8.0	50	0.90	4	1
SNB200501004DL	★	0.50	1.0	1.5	10.0	50	0.90	4	1
SNB200750304DL	★	0.75	1.5	2.3	3.0	45	1.35	4	1
SNB200750604DL	★	0.75	1.5	2.3	6.0	45	1.35	4	1
SNB200751004DL	★	0.75	1.5	2.3	10.0	50	1.35	4	1
SNB201000304DL	★	1.00	2.0	3.0	3.0	50	1.80	4	1
SNB201000604DL	★	1.00	2.0	3.0	6.0	50	1.80	4	1
SNB201001004DL	★	1.00	2.0	3.0	10.0	50	1.80	4	1
SNB201001504DL	★	1.00	2.0	3.0	15.0	60	1.80	4	1
SNB201002004DL	★	1.00	2.0	3.0	20.0	60	1.80	4	1
SNB202001606DL	★	2.00	4.0	6.0	16.0	80	3.60	6	1
SNB202002006DL	★	2.00	4.0	6.0	20.0	80	3.60	6	1
SNB202003006DL	★	2.00	4.0	6.0	30.0	80	3.60	6	1

Grade: DL1200

SNB2 Type



Recommended Cutting Conditions

1. For radius processing, reduce the feed to half the recommended feed.
2. Non-water soluble cutting oil is recommended.
3. Because of the high spindle speeds, runout of the endmill when mounted should be less than 10 µm.

Side Milling

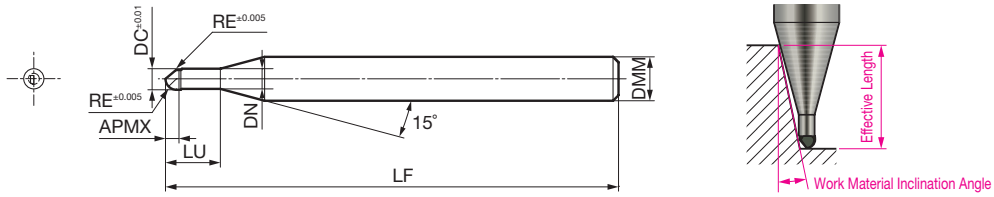
Work Material / Cutting Conditions / Cat. No.	Copper Alloy			
	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Standard depth of cut (mm) a_p	Standard depth of cut (mm) a_e
SNB200050034DL	20,000 -50,000	90	0.005	0.005
SNB200050064DL		80	0.005	0.005
SNB200100054DL	20,000 -50,000	350	0.01	0.02
SNB200100104DL		350	0.007	0.015
SNB200100204DL		200	0.005	0.005
SNB200150054DL	20,000 -50,000	400	0.015	0.025
SNB200150104DL		400	0.01	0.02
SNB300150204DL		300	0.007	0.01
SNB200150304DL		250	0.005	0.008
SNB200200104DL	20,000 -30,000	800	0.025	0.05
SNB200200204DL		700	0.02	0.03
SNB200200304DL		600	0.015	0.02
SNB200200404DL		400	0.007	0.015
SNB200250104DL	20,000 -30,000	1,000	0.04	0.07
SNB200250204DL		800	0.03	0.06
SNB200250304DL		700	0.02	0.05
SNB200250404DL		600	0.015	0.04
SNB200300204DL	20,000 -30,000	1,400	0.05	0.15
SNB200300304DL		1,200	0.04	0.1
SNB200300404DL		1,000	0.03	0.07
SNB200300504DL		700	0.03	0.06
SNB200300604DL		600	0.015	0.03
SNB200500304DL	20,000 -30,000	3,500	0.2	0.4
SNB200500404DL		3,000	0.15	0.4
SNB200500604DL		2,500	0.13	0.3
SNB200500804DL		2,000	0.07	0.15
SNB200501004DL		1,200	0.04	0.07
SNB200750304DL	20,000	4,000	0.25	0.4
SNB200750604DL	20,000	3,200	0.15	0.4
SNB200751004DL	20,000	2,000	0.1	0.3
SNB201000304DL	16,000	4,500	0.4	0.6
SNB201000604DL	16,000	3,500	0.35	0.6
SNB201001004DL	16,000	3,000	0.25	0.4
SNB201001504DL	12,000	2,000	0.15	0.3
SNB201002004DL	10,000	1,500	0.1	0.2
SNB202001606DL	16,000	4,000	0.4	0.8
SNB202002006DL	16,000	3,500	0.4	0.8
SNB202003006DL	12,000	3,000	0.2	0.4

NPDBS Type

Cemented Carbide | Hard Brittle Material

1 Flute | Binderless PCD | Ballnose R | Side Milling | Face Milling | Profiling

Fig 1



Body (for Standard Finishing)

Dimensions (*mm*)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Effective Length for Work Material Inclination Angle 0.5°	1°	1.5°	2°	3°	Fig
NPDBS1010-004	★	*0.1*	*0.2*	*0.1*	*0.4*	*40*	*0.18*	*4*	*0.42*	*0.43*	*0.44*	*0.46*	*0.48*	1
NPDBS1020-008	★	*0.2*	*0.4*	*0.2*	*0.8*	*40*	*0.38*	*4*	*0.83*	*0.85*	*0.87*	*0.90*	*0.95*	1
NPDBS1030-010	★	*0.3*	*0.6*	*0.3*	*1.0*	*40*	*0.58*	*4*	*1.03*	*1.06*	*1.08*	*1.11*	*1.17*	1
NPDBS1050-020	★	*0.5*	*1.0*	*0.5*	*2.0*	*40*	*0.95*	*4*	*2.10*	*2.15*	*2.20*	*2.26*	*2.39*	1
NPDBS1100-030	★	*1.0*	*2.0*	*1.0*	*3.0*	*40*	*1.95*	*4*	*3.18*	*3.18*	*3.25*	*3.33*	*3.51*	1

Grade: NPD10

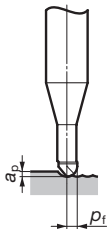
Identification Code

NPDB (S) 1 030 - 010

Type	For Standard Finishing	Number of Teeth	Ballnose Radius	Neck Length

Recommended Cutting Conditions

1. Use a precision machine for stable cutting.
2. Non-water soluble cutting oil is recommended. Supply as a mist or external coolant. Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions as necessary as equipment performance and other conditions may vary.
5. Values shown in the table of conditions are guidelines. Adjust the actual cutting conditions to the desired machined surface quality.



Flat Surface Finishing

Work Material		Cemented Carbide			
RE (mm)	LU (mm)	Spindle Speed (RPM)	Feed Rate (IPM)	a_p (in)	p_f (in)
0.1	0.4	40,000	3.937	0.00004	0.00004
0.2	0.8	40,000	5.906	0.00008	0.00004
0.3	1.0	40,000	7.874	0.00012	0.00004
0.5	2.0	40,000	15.748	0.00020	0.00012
1.0	3.0	40,000	23.622	0.00040	0.00020

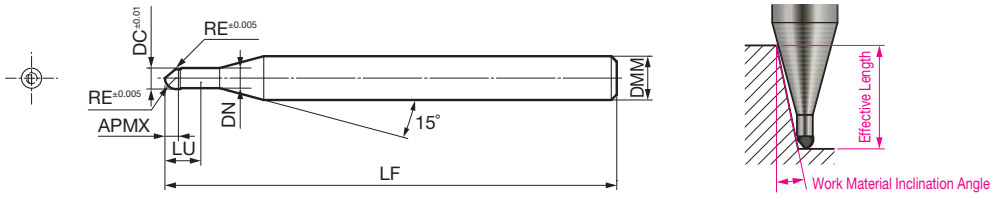
*Radius accuracy inspection test results are included in the case. *Also applicable for long neck types, depending on the size. For details, please contact us.

NPDB Type

Cemented Carbide | Hard Brittle Material

1 Flute | Binderless PCD | Ballnose R | Side Milling | Face Milling | R-Grooving | Profiling

Fig 1



Body (for Precision Finishing)

Dimensions (*mm*)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Effective Length for Work Material Inclination Angle 0.5°	1°	1.5°	2°	3°	Fig
NPDB1010-004	★	0.1	0.2	0.1	0.4	40	0.18	4	0.42	0.43	0.44	0.46	0.48	1
NPDB1020-008	★	0.2	0.4	0.2	0.8	40	0.38	4	0.83	0.85	0.87	0.90	0.95	1
NPDB1030-010	★	0.3	0.6	0.3	1.0	40	0.58	4	1.03	1.06	1.08	1.11	1.17	1
NPDB1050-020	★	0.5	1.0	0.5	2.0	40	0.95	4	2.10	2.15	2.20	2.26	2.39	1
NPDB1100-030	★	1.0	2.0	1.0	3.0	40	1.95	4	3.11	3.18	3.25	3.33	3.51	1

Grade: NPDB10

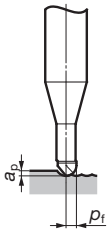
Identification Code

NPDB 1 030 - 010

Type | Number of Teeth | Ballnose Radius | Neck Length

Recommended Cutting Conditions

1. Use a precision machine for stable cutting.
2. Non-water soluble cutting oil is recommended. Supply as a mist or external coolant. Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions as necessary as equipment performance and other conditions may vary.
5. Values shown in the table of conditions are guidelines. Adjust the actual cutting conditions to the desired machined surface quality.



Flat Surface Finishing

Work Material		Cemented Carbide			
RE (mm)	LU (mm)	Spindle Speed (RPM)	Feed Rate (IPM)	a_p (in)	p_f (in)
0.1	0.4	40,000	3.937	0.00004	0.00004
0.2	0.8	40,000	5.906	0.00008	0.00004
0.3	1.0	40,000	7.874	0.00012	0.00004
0.5	2.0	40,000	15.748	0.00020	0.00012
1.0	3.0	40,000	23.622	0.00040	0.00020

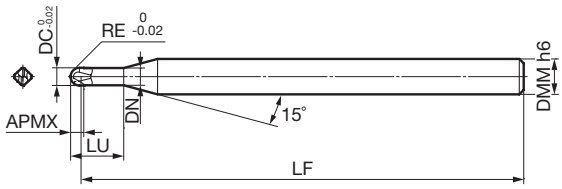
*Radius accuracy inspection test results are included in the case. *Also applicable for long neck types, depending on the size. For details, please contact us.

SDCB Type

Cemented Carbide | Hard Brittle Material

2 Flutes | SUMIDIA Coat | Ballnose R | Side Milling | Face Milling | R-Grooving | Profiling

Fig 1



Body

Dimensions (*mm*)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Fig
SDCB2R050-015	★	0.5	1.0	0.6	1.5	50	0.94	4	1
SDCB2R050-020	★	0.5	1.0	0.6	2.0	50	0.94	4	1
SDCB2R050-030	★	0.5	1.0	0.6	3.0	50	0.94	4	1
SDCB2R050-050	★	0.5	1.0	0.6	5.0	50	0.94	4	1
SDCB2R100-025	★	1.0	2.0	1.4	2.5	50	1.92	4	1
SDCB2R100-040	★	1.0	2.0	1.4	4.0	50	1.92	4	1
SDCB2R100-060	★	1.0	2.0	1.4	6.0	50	1.92	4	1
SDCB2R100-100	★	1.0	2.0	1.4	10.0	50	1.92	4	1

Grade: DCM20

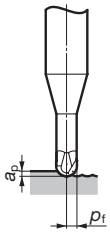
Identification Code

SDCB 2 R050 - 015

Type | Number of Teeth | Ballnose Radius | Neck Length

Recommended Cutting Conditions

1. Use a precision machine for stable cutting.
2. Air blow is recommended, but oil mist or external coolant supply can also be used. Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions as necessary as equipment performance and other conditions may vary.
5. Values shown in the table of conditions are guidelines. Adjust the actual cutting conditions to the desired machined surface quality.



Work Material		Cemented Carbide			
RE (mm)	LU (mm)	Spindle Speed (RPM)	Feed Rate (IPM)	a_p (inch)	a_e (inch)
0.5	1.5	30,000	11.811	0.00197	0.00984
1.0	2.5	30,000	11.811	0.00394	0.01181

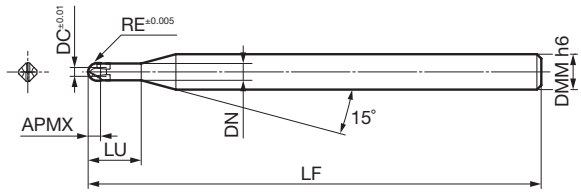
MEMO

BNBP Type

Pre-hardened Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Hardened Steel 60 to 65HRC

2 Flutes | CBN | Ballnose R | Side Milling | Face Milling | R-Grooving | Profiling

Fig 1



Body

Dimensions (*mm*)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Fig
BNBP2R020-0124	★	0.20	0.4	0.3	1.2	50	0.37	4	1
BNBP2R020-0126	★	0.20	0.4	0.3	1.2	50	0.37	6	1
BNBP2R020-0204	★	0.20	0.4	0.3	2.0	50	0.37	4	1
BNBP2R020-0304	★	0.20	0.4	0.3	3.0	50	0.37	4	1
BNBP2R020-0404	★	0.20	0.4	0.3	4.0	50	0.37	4	1
BNBP2R030-0154	★	0.30	0.6	0.4	1.5	50	0.57	4	1
BNBP2R030-0156	★	0.30	0.6	0.4	1.5	50	0.57	6	1
BNBP2R030-0304	★	0.30	0.6	0.4	3.0	50	0.57	4	1
BNBP2R030-0404	★	0.30	0.6	0.4	4.0	50	0.57	4	1
BNBP2R030-0504	★	0.30	0.6	0.4	5.0	50	0.57	4	1
BNBP2R030-0604	★	0.30	0.6	0.4	6.0	50	0.57	4	1
BNBP2R050-0254	★	0.50	1.0	0.6	2.5	50	0.97	4	1
BNBP2R050-0256	★	0.50	1.0	0.6	2.5	50	0.97	6	1
BNBP2R050-0304	★	0.50	1.0	0.6	3.0	50	0.97	4	1
BNBP2R050-0404	★	0.50	1.0	0.6	4.0	50	0.97	4	1
BNBP2R050-0604	★	0.50	1.0	0.6	6.0	50	0.97	4	1
BNBP2R050-0804	★	0.50	1.0	0.6	8.0	50	0.97	4	1
BNBP2R075-0404	★	0.75	1.5	0.9	4.0	50	1.47	4	1
BNBP2R075-0406	★	0.75	1.5	0.9	4.0	50	1.47	6	1
BNBP2R100-0554	★	1.00	2.0	1.4	5.5	50	1.97	4	1
BNBP2R100-0556	★	1.00	2.0	1.4	5.5	50	1.97	6	1
BNBP2R100-0804	★	1.00	2.0	1.4	8.0	50	1.97	4	1

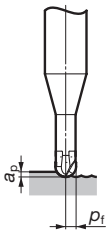
Grade: BN350

Identification Code

BNBP 2 R030 - 015 4

Series Code | Number of Teeth | Ballnose Radius | Neck Length | Shank Dia.

BNBP Type



Recommended Cutting Conditions

1. Use a machine with high rigidity for stable cutting.
2. Non-water soluble cutting oil is recommended. Supply as a mist or external coolant.
   Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions according to actual conditions as machine rigidity and other conditions may vary.
5. Depths of cut shown in the table of conditions are maximum depths. Adjust the actual depth of cut to the desired machined surface roughness.

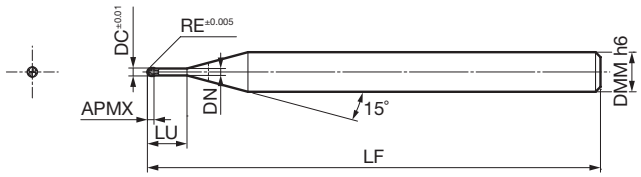
Work Material		STAVAX, NAK80, SKD61 (Up to 52HRC)				ELMAX, DC53, SKD11 Modified (Up to 62HRC)				YXR3, SKH (Up to 70HRC)			
RE (mm)	LU (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (mm)	p_f (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (mm)	p_f (mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (mm)	p_f (mm)
0.2	1.2	40,000	1,000	0.005	0.010	40,000	800	0.005	0.010	40,000	600	0.005	0.005
	2.0	40,000	800	0.005	0.010	40,000	600	0.005	0.010	40,000	400	0.005	0.005
	3.0	40,000	600	0.005	0.010	40,000	500	0.005	0.010	40,000	300	0.005	0.005
	4.0	40,000	500	0.005	0.010	40,000	400	0.005	0.005	40,000	200	0.005	0.005
0.3	1.5	40,000	1,600	0.020	0.020	40,000	1,400	0.010	0.020	40,000	1,200	0.010	0.020
	2.0	40,000	1,500	0.010	0.020	40,000	1,300	0.010	0.020	40,000	1,100	0.010	0.010
	3.0	40,000	1,400	0.010	0.020	40,000	1,200	0.010	0.020	40,000	1,000	0.010	0.010
	4.0	30,000	1,200	0.010	0.010	30,000	1,000	0.010	0.010	30,000	700	0.005	0.010
	5.0	30,000	800	0.010	0.010	30,000	700	0.005	0.010	30,000	600	0.005	0.005
	6.0	30,000	600	0.005	0.010	30,000	500	0.005	0.005	30,000	400	0.005	0.005
0.5	2.5	40,000	2,800	0.040	0.050	40,000	2,800	0.030	0.040	40,000	2,200	0.020	0.030
	3.0	40,000	2,600	0.040	0.050	40,000	2,600	0.030	0.040	40,000	2,100	0.020	0.030
	4.0	40,000	2,400	0.030	0.050	40,000	2,400	0.020	0.030	40,000	2,000	0.020	0.020
	6.0	25,000	1,500	0.020	0.030	25,000	1,500	0.010	0.020	25,000	1,300	0.010	0.010
	8.0	16,000	1,200	0.020	0.020	16,000	1,100	0.010	0.020	16,000	850	0.010	0.010
0.75	4.0	32,000	2,400	0.030	0.030	32,000	2,200	0.020	0.030	32,000	2,000	0.020	0.020
1.0	5.5	40,000	4,000	0.050	0.050	40,000	4,000	0.030	0.030	40,000	3,000	0.020	0.030
	8.0	32,000	3,000	0.030	0.050	32,000	2,600	0.020	0.030	32,000	2,200	0.010	0.020

BNBC

Copper Alloy

2 Flutes | CBN | Ballnose R | Side Milling | Face Milling | R-Grooving | Profiling

Fig 1



Body

Dimensions (*mm*)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Fig
BNBC2R010-0034	★	*0.1*	*0.2*	*0.2*	*0.3*	*50*	*0.17*	*4*	1
BNBC2R010-0104	★	*0.1*	*0.2*	*0.2*	*1.0*	*50*	*0.17*	*4*	1
BNBC2R020-0054	★	*0.2*	*0.4*	*0.3*	*0.5*	*50*	*0.37*	*4*	1
BNBC2R020-0204	★	*0.2*	*0.4*	*0.3*	*2.0*	*50*	*0.37*	*4*	1
BNBC2R030-0104	★	*0.3*	*0.6*	*0.4*	*1.0*	*50*	*0.57*	*4*	1
BNBC2R030-0304	★	*0.3*	*0.6*	*0.4*	*3.0*	*50*	*0.57*	*4*	1
BNBC2R050-0304	★	*0.5*	*1.0*	*0.6*	*3.0*	*50*	*0.97*	*4*	1

Grade: BN700

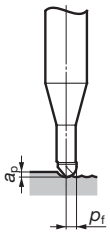
Identification Code

BNBC 2 R030 - 010 4

Series Code | Number of Teeth | Ballnose Radius | Neck Length | Shank Dia.

Recommended Cutting Conditions

1. Use a machine with high rigidity for stable cutting.
2. Non-water soluble cutting oil is recommended. Supply as a mist or external coolant.
   Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions according to actual conditions as machine rigidity and other conditions may vary.
5. Depths of cut shown in the table of conditions are maximum depths. Adjust the actual depth of cut to the desired machined surface roughness.



Side Milling

Work Material / Cutting Conditions / Cat. No.	Copper Alloy			
	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Standard depth of cut (mm) a_p	Standard depth of cut (mm) p_f
BNBC2R010-0034	20,000 -50,000	350	0.01	0.02
BNBC2R010-0104		350	0.007	0.015
BNBC2R020-0054	20,000 -50,000	800	0.025	0.05
BNBC2R020-0204		700	0.02	0.03
BNBC2R030-0104	20,000 -50,000	1,400	0.05	0.15
BNBC2R030-0304		1,200	0.04	0.1
BNBC2R050-0304	20,000 -50,000	2,200	0.15	0.35

GSX MILL Slot Endmills (3 Flutes)

GSXSLT 30000C-1.5D

3 Flutes | GSX Coat | Corner | 40° Helix Angle | Side Milling | Slot Milling | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

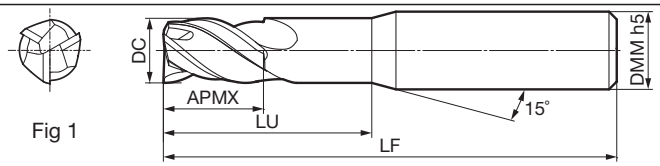


Fig 1

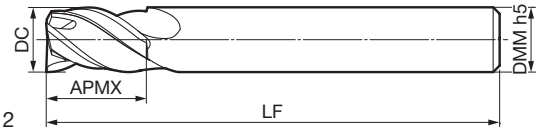


Fig 2

DC	Tolerance	
D ≤ 3.0	0	-0.015
3.0 < D ≤ 12	0	-0.020
12.0 < D	0	-0.030

Body

Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
GSXSLT30100C-1.5D	★	1.0	1.5	2.5	40	4	1
GSXSLT30150C-1.5D	★	1.5	2.3	3.3	40	4	1
GSXSLT30200C-1.5D	★	2.0	3.0	4.0	40	4	1
GSXSLT30250C-1.5D	★	2.5	3.8	4.8	40	4	1
GSXSLT30300C-1.5D	★	3.0	4.5	6.0	45	6	1
GSXSLT30400C-1.5D	★	4.0	6.0	7.5	45	6	1
GSXSLT30500C-1.5D	★	5.0	7.5	9.5	50	6	1
GSXSLT30600C-1.5D	★	6.0	9.0	-	50	6	2
GSXSLT30700C-1.5D	★	7.0	11.0	13.0	60	8	1
GSXSLT30800C-1.5D	★	8.0	12.0	-	60	8	2
GSXSLT30900C-1.5D	★	9.0	14.0	16.0	70	10	1
GSXSLT31000C-1.5D	★	10.0	15.0	-	70	10	2
GSXSLT31200C-1.5D	★	12.0	18.0	-	75	12	2

Grade: ACF20

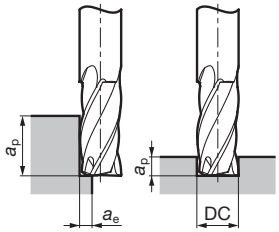
Endmill Identification (GSXMILL Series Only)

GSXSLT 3 0100 C - 1.5D

Series Code | Number of Teeth | Dia. | Cutting Edge (C: Gash Land) | Cutting Edge Length

Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. Use step machining of 0.1 DC when drilling stainless steel, heat-resistant alloy, and titanium alloy.
5. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.



Side Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 50HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
1.0	19,600	300	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	90	9,000	65
2.0	11,200	410	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	120	5,300	90
4.0	6,400	550	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	150	3,000	120
6.0	4,600	670	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,700	180	2,200	130
8.0	3,400	670	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	180	1,600	130
10.0	2,800	670	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	180	1,300	130
12.0	2,300	670	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	180	1,100	130
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 50HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
1.0	19,600	240	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	65	4,500	25
2.0	11,200	320	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	85	2,650	35
4.0	6,400	450	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	100	1,500	50
6.0	4,600	540	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,650	130	1,150	55
8.0	3,400	540	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	130	800	55
10.0	2,800	540	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	130	650	55
12.0	2,300	540	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	130	500	55
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

Slot Milling

Work Material / Cutting Conditions	Steel for Structure SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 50HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC (mm)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Spindle Speed (min⁻¹)	Feed Rate (mm/min)
1.0	19,600	70	19,600	90	19,600	90	18,300	60	12,700	40	9,000	25	11,000	20	4,500	10
2.0	11,200	90	11,200	120	11,200	120	10,500	80	7,300	50	5,300	30	6,400	25	2,650	15
4.0	6,400	130	6,400	160	6,400	160	6,000	110	4,200	70	3,000	40	3,600	30	1,500	20
6.0	4,600	160	4,600	200	4,600	200	4,300	130	3,000	80	2,200	50	2,650	40	1,150	20
8.0	3,400	160	3,400	200	3,400	200	3,200	130	2,200	80	1,600	50	2,000	40	800	20
10.0	2,800	160	2,800	200	2,800	200	2,600	130	1,800	80	1,300	50	1,600	40	650	20
12.0	2,300	160	2,300	200	2,300	200	2,200	130	1,500	80	1,100	50	1,300	40	500	20

MEMO

Drills J

J1 to J164

Drill Selection Guide **J2**
Application Range of Main Drills **J6**
Drill Coating **J7**

Solid Carbide Drills	For High Efficiency	**MDW-GS / MDW-HGS**	**J8**
	For Stainless Steel	**MDM**	**J32**
	For Spot Facing	**MDF Flat Bottom Drills**	**J46**
	For Thin Sheets	**WGS**	**J58**
	For Cast Iron	**HX**	**J60**
	For High-efficiency Steel and Cast Iron	**HY**	**J67**
	For Heat-Resistant Alloy	**SGS**	**J69**
	Deep Hole Drilling	**XHGS / PHT**	**J71**
	For Non-Ferrous Metals	**XHV / PHV**	**J78**
	For CFRP	**NHGS**	**J79**
	For Aluminum Alloy	**SDC Diamond (SUMIDIA) Coated Drills**	**J89**
	For Small Diameter Deep Holes	**DAL / DDL (SUMIDIA)**	**J90**
	For Very Small Holes	**MLDH-L Type / MLDH-P Micro Long Drills**	**J91**
		MDUS Micro Drills / MDSS (MDUP Type) Mini Drills	**J94**
Indexable Tip Drills	Indexable Drill Head	**SMD Replaceable Tip Drills**	**J96**
		SMD: MTL / MEL / MTL-C / NAL	**J98**
		SMDH: SMD Drill Bodies	**J105**
		SMD: MFS	**J113**
Indexable Insert Drills	General-Purpose	**WDX Indexable Insert Drills**	**J122**
	For Deep Drilling/Pocketing	**Plunge Drill: PDL / Plunge Mill: PCT**	**J141**
Indexable Insert Reamers	High Efficiency Reamers	**SumiReamer SR**	**J148**

Stock Markings and Symbols

●: USA Standard stocked item
★: Worldwide Warehouse Item
▲: To be replaced by a new product, made to order, or discontinued (please confirm stock availability).

Blank: Made-to-order item
— mark: Not available

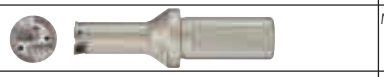
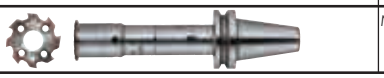
Drill Selection Guide

Applications	Part Material	Series	Cat. No.	Dia. (inch / *mm*)	Image	Stock	Ref. Page
High Efficiency	P M K S N H	Solid Carbide Drills **GS**	MDW○○○○GS2	ø.039 - .787", *ø1.0 - 20.0mm*		●	J8
			MDW○○○○GS4	ø.039 - .787", *ø1.0 - 20.0mm*			
	P M K S N H	Solid Carbide Drills **HGS**	MDW○○○○HGS3	ø.059 - .787", *ø1.5 - 20.0mm*		●	J8
			MDW○○○○HGS5	ø.059 - .787", *ø1.5 - 20.0mm*			
			MDW○○○○HGS8	ø.059 - .787", *ø1.5 - 20.0mm*			
	P K	Solid Carbide Drills **HY**	MDW○○○○HY3	ø.197 - .629", *ø5.0 - 16.0mm*		★	J67
			MDW○○○○HY5	ø.197 - .629", *ø5.0 - 16.0mm*			
			MDW○○○○HY8	ø.197 - .629", *ø5.0 - 16.0mm*			
Spot Facing	P M K N H	Flat Bottom Drills **MDF**	MDF○○○○S2D	ø.012 - .787", *ø0.3 - 20.0mm*		★	J46
			MDF○○○○L2D	ø.118 - .787", *ø3.0 - 20.0mm*			
			MDF○○○○H3D	ø.118 - .629", *ø3.0 - 16.0mm*			
			MDF○○○○H5D	ø.118 - .629", *ø3.0 - 16.0mm*			
Deep Hole	P M K	Deep Hole Drills **XHGS**	MDW○○○○XHGS10	ø.083 - .630", *ø2.1 - 16.0mm*		★	J71
			MDW○○○○XHGS12	ø.098 - .630", ø2.5 - 16.0mm			
			MDW○○○○XHGS15	ø.083 - .630", *ø2.1 - 16.0mm*			
			MDW○○○○XHGS20	ø.083 - .551", *ø2.1 - 14.0mm*			
			MDW○○○○XHGS25	ø.083 - .472", *ø2.1 - 12.0mm*			
			MDW○○○○XHGS30	ø.083 - .393", *ø2.1 - 10.0mm*			
	P M K	Guide Drill for Long Drills **PHT**	MDW○○○○PHT	ø.083 - .630", *ø2.1 - 16.0mm*		★	J71
	P M K	Deep Hole Drills **XHV**	MDW○○○○XHV12	ø.125 - .750", *ø3.2 - 19.05mm*		●	J78
			MDW○○○○XHV20	ø.125 - .531", *ø3.2 - 13.49mm*			
	P M K	Guide Drill for Long Drills **PHV**	MDW○○○○PHV	ø.118 - .750", *ø3.0 - 19.05mm*		●	J78
Thin Sheet	P M K	Solid Carbide Drills **WGS**	MDW○○○○WGS2	ø.268 - .630", *ø6.8 - 16.0mm*			J58
Stainless Steel	M S K	Solid Carbide Drills for Stainless **MDM**	MDM○○○○S○○H03	ø.118 - .629", *ø3.0 - 16.0mm*		★	J32
			MDM○○○○S○○H05	ø.118 - .629", *ø3.0 - 16.0mm*			
Cast Iron	K	Solid Carbide Drills fo Cast Iron **HX**	MDW○○○○HX3	ø.118 - .787", *ø3.0 - 20.0mm*		★	J60
			MDW○○○○HX5	ø.118 - .787", *ø3.0 - 20.0mm*			
			MDW○○○○HX8	ø.118 - .709", *ø3.0 - 18.0mm*			
Non-ferrous Metal	N	Solid Carbide Drills for Aluminum **NHGS**	MDW○○○○NHGS3	ø.118 - .629", *ø3.0 - 16.0mm*		★	J79
			MDW○○○○NHGS5	ø.118 - .629", *ø3.0 - 16.0mm*			
			MDW○○○○NHGS10	ø.118 - .629", *ø3.0 - 16.0mm*			
	N	Diamond (SUMIDIA) Drills **DAL**	DAL○○○○H	ø.197 - .472", *ø5.0 - 12.0mm*			J90
	N	Diamond (SUMIDIA) Drills **DDL**	DDL○○○○H	ø.197 - .472", *ø5.0 - 12.0mm*			J90
Heat-Resistant Alloy	S	Drills for Heat-Resistant Alloys **SGS**	MDW○○○○SGS3	ø.118 - .472", *ø3.0 - 12.0mm*		★	J69
CFRP	CFRP	Diamond Coated (SUMIDIA) Drills **SDC**	MDS○○○○○SDC3	ø.079 - .393", *ø2.1 - 10.0mm*		★	J89

Drill Selection Guide

Series	Drilling Depth (L/D)	Coating	Coolant Supply	P			H		M	S		K		N			Ref. Page
				Carbon Steel Alloy Steel up to 35HRC		Tempered Steel	Hardened Steel		Stainless Steel	Titanium Alloy	Heat-resistant Steel	Cast Iron	Ductile Cast Iron	Aluminum Alloy	Copper Alloy	Composite	
				C 0.28% or less	C 0.29%	SKD SKS	45HRC or less	46HRC or more	SUS	Ti	Inconel	FC	FCD	Al	Cu	CFRP	
GS	2D 4D	DEX Coating	External	○	⊙	⊙	○	○	○	○	○	○	⊙	○	○		J8
HGS	3D 5D 8D	DEX Coating	Internal	⊙	⊙	⊙	○	○	⊙	⊙	○	○	⊙	○	○		J8
HY	3D 5D 8D	DEX Coating	Internal	⊙	⊙							⊙	⊙				J67
MDF	2D 3D 5D	PVD Coat	External S2D	⊙	⊙	⊙	○		○	○	○	○	○	○			J46
			External L2D	⊙	⊙	⊙	○		○			○	○	○			
			Internal	⊙	⊙	⊙	○		○			○	○	○			
XHGS	10D 12D 15D 20D 25D 30D	DEX Coating	Internal	○	⊙	⊙	○		○			○	⊙				J71
PHT	Pilot 3D	DEX Coating	Internal	○	⊙	⊙	○		○			○	⊙				J71
XHV	12D 20D	DEX Coating	Internal	○	⊙	⊙	○		○			○	⊙				J78
PHV	Pilot 3D	DEX Coating	Internal	○	⊙	⊙	○		○			○	⊙				J78
WGS	2D	DEX Coating	External	○	⊙	⊙	○		○			○	○				J58
MDM	3D 5D	NX Coat	Internal	○	○				⊙	⊙	○	○	○				J32
HX	3D 5D 8D	DEX Coating	Internal									⊙	⊙				J60
NHGS	3D 5D 10D	Aurora DLC Coat	Internal											⊙	⊙		J79
DAL	3D	–	External											⊙		○	J90
DDL	3D	–	External											⊙		○	J90
SGS	3D	PVD Coat	External						○	○	⊙						J69
SDC	3D	SUMIDIA Coat	Dry											○		⊙	J89

Drill Selection Guide

Applications/ Specifications	Work Material	Series	Cat. No.	Dia. (inch / *mm*)	Image	Stock	Ref. Page
Small Diameter Deep Hole	P K M N S H	Micro Long Drills **MLDH**	MLDH○○○○L5	ø.031 - .079" , *ø0.8 - 2.0mm*		metric ★	J91
			MLDH○○○○L12	ø.031 - .079" , *ø0.8 - 2.0mm*			
			MLDH○○○○L20	ø.031 - .079" , *ø0.8 - 2.0mm*			
			MLDH○○○○L30	ø.031 - .079" , *ø0.8 - 2.0mm*			
		Guide Drill for MLDH **MLDH-P**	MLDH○○○○P	ø.031 - .079" , *ø0.8 - 2.0mm*		metric ★	J91
Very Small Diameter	P K M N S H	MINI-Drills **MDSS**	MDSS○○○○	ø.0079 - .039" , *ø0.2 - 1.0mm*		metric ★	J94
	P M N	Micro Drills **MDUS**	MDUS○○○○-30C	ø.0012 - .0075" ,*ø0.03 - 0.19mm*		metric ★	J94
		Micro Multi Pointing Drill **MDUP**	MDUP○○○○-30C	ø.0012 - .0071" ,*ø0.03 - 0.18mm*		metric ★	J94
Replacable Tip High Efficiency	P K M H	Replaceable Tip Drills **SMD-MTL** Tip **SMD-MTL-C** Tip	SMDH○○○S	ø.469 - 1.213" ,*ø12.0 - 30.8mm*		inch ● metric ★	J97
			SMDH○○○M	ø.469 - 1.673" ,*ø12.0 - 42.5mm*			
			SMDH○○○L	ø.469 - 1.673" ,*ø12.0 - 42.5mm*			
			SMDH○○○D	ø.469 - 1.673" ,*ø12.0 - 42.5mm*			
			SMDH○○○-12D	ø.531 - 1.016" ,*ø13.5 - 25.8mm*			
Replacable Tip Low Resistance	P K M N S H	Replaceable Tip Drills **SMD-MEL** Tip	SMDH○○○S	ø.469 - 1.213" ,*ø12.0 - 30.8mm*		inch ● metric ★	J97
			SMDH○○○M	ø.469 - 1.213" ,*ø12.0 - 30.8mm*			
			SMDH○○○L	ø.469 - 1.213" ,*ø12.0 - 30.8mm*			
			SMDH○○○D	ø.469 - 1.213" ,*ø13.5 - 30.8mm*			
			SMDH○○○-12D	ø.531 - 1.016" ,*ø13.5 - 25.8mm*			
Replacable Tip DLC Coated	N	Replaceable Tip Drills **SMD-NAL** Tip	SMDH○○○M	ø.469 - 1.250" ,*ø12.0 - 31.8mm*		inch ● metric ★	J97
			SMDH○○○L	ø.469 - 1.250" ,*ø12.0 - 31.8mm*			
			SMDH○○○D	ø.469 - 1.250" ,*ø12.0 - 31.8mm*			
Replacable Tip For Spot Facing	P M H N K	Replaceable Tip Drills **SMD-MFS** Tip	SMDH○○○S	ø.472 - 1.213" ,*ø12.0 - 30.8mm*		inch ● metric ★	J113
Indexable Insert	P K M N S H	Indexable Insert Drills **WDX**	WDX○○○D2S○○	ø.512 - 2.68" ,*ø13.0 - 68.0mm*		inch ● metric ★	J112
			WDX○○○D3S○○	ø.512 - 2.68" ,*ø13.0 - 68.0mm*			
			WDX○○○D4S○○	ø.512 - 2.48" ,*ø13.0 - 63.0mm*			
			WDX○○○D5S○○	ø.512 - 2.17" ,*ø13.0 to 55.0mm*			
	P K M N S H	Plunge Drills **PDL**	PDL○○○D2S○○	ø.629 - 1.57" ,*ø16.0 - 40.0mm*		metric ★	J141
			PDL○○○D3S○○	ø.629 - 1.57" ,*ø16.0 - 40.0mm*			
	P K M N S H	Plunge Mills **PCT**	PCT○○○D3S○○	ø.629 - 1.57" ,*ø16.0 - 40.0mm*		metric ★	J141
			PCT○○○D5S○○	ø.629 - 1.57" ,*ø16.0 - 40.0mm*			
Indexable Insert Reamer	P K M N S H	SumiReamer **SR**	SRG○○.○H7-○○○-○○○12R1	ø.469 - 5.51" ,*ø11.9 - 140.6mm*		metric ★	J148
			SRL○○.○H7-○○○-○○○12R1	ø.469 - 5.51" ,*ø11.9 - 140.6mm*			

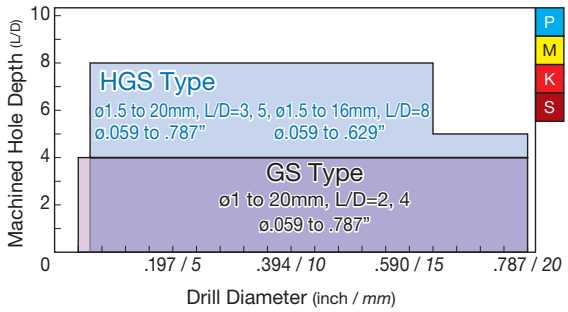
Drill Selection Guide

Series	Drilling Depth (L/D)	Coating	Coolant Supply	P			H		M	S		K		N			Ref. Page
				Carbon Steel Alloy Steel up to 35HRC		Tempered Steel	Hardened Steel		Stainless Steel	Titanium Alloy	Heat-resistant Steel	Cast Iron	Ductile Cast Iron	Aluminum Alloy	Copper Alloy	Composite	
				C 0.28% or less	C 0.29%	SKD SKS	45HRC or less	46HRC or more	SUS	Ti	Inconel	FC	FCD	Al	Cu	CFRP	
MLDH	5D 12D 20D 30D	PVD Coat	Internal	⊙	⊙	○	○		⊙	○	○	⊙	⊙	○			J91
MLDH-P	Pilot 2D	PVD Coat	Internal	⊙	⊙	○	○		⊙	○	○	⊙	⊙	○			J91
MDSS	10D	FB Coat	External	⊙	⊙	⊙	⊙	○	⊙		○	⊙	⊙	○			J94
MDUS	10D	PVD Coat	External	⊙	⊙				⊙					○	⊙		J94
MDUP	Pilot 1D	PVD Coat	External	⊙	⊙				⊙					○	⊙		J94
SMD -MTL Tip **SMD -MTL-C** Tip	1.5D 3D 5D 8D 12D	DEX Coating	Internal	⊙	⊙	○	○		○			⊙	⊙				J97
SMD -MEL Tip	1.5D 3D 5D 8D 12D	DEX Coating	Internal	⊙	○		○		⊙	○	○	⊙	⊙	○			J97
SMD -NAL Tip	3D 5D 8D	Aurora DLC Coat	Internal											⊙	⊙	⊙	J97
SMD -MFS Tip	1.5D 3D 5D 8D 12D	DEX Coating	Internal	⊙	⊙		○		○			○	○	○			J113
WDX	2D 3D 4D 5D	PVD Coat / Aurora DLC Coat / CVD Coat	Internal	⊙	⊙		○		⊙	⊙	⊙	⊙	⊙	⊙			J112
PDL	2D 3D	PVD Coat / Aurora DLC Coat / CVD Coat	Internal	⊙	⊙		○		○	⊙	⊙	⊙	⊙	⊙	○		J141
PCT	3D 5D	PVD Coat / Aurora DLC Coat / CVD Coat	Internal	⊙	⊙		○		○	⊙	⊙	⊙	⊙	⊙	○		J141
SR		PVD Coat / Aurora DLC Coat	Internal	⊙	⊙	⊙	○		⊙	⊙	⊙	⊙	⊙	○	○		J148

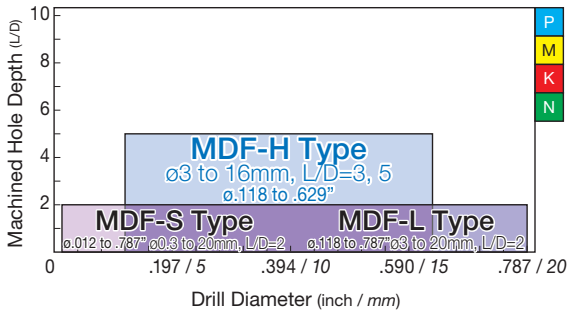
Application Range of Sumitomo Drills

Coolant: External supply / Internal supply

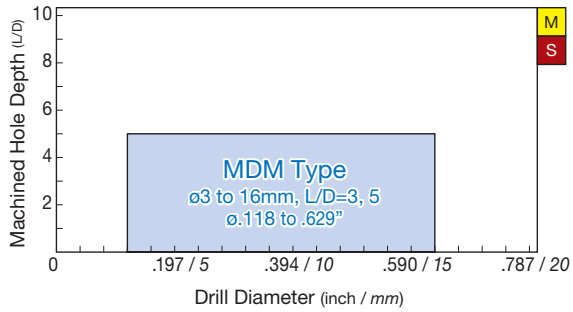
GS/HGS for General-Purpose High Efficiency Drilling



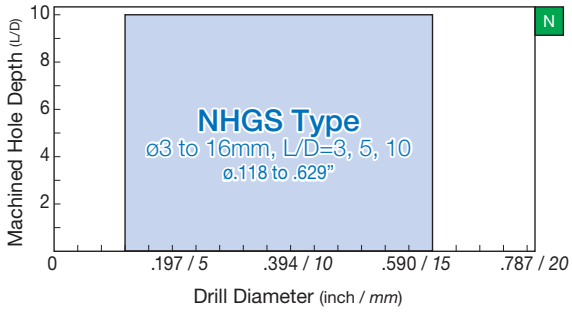
MDF Flat Bottom Drilling



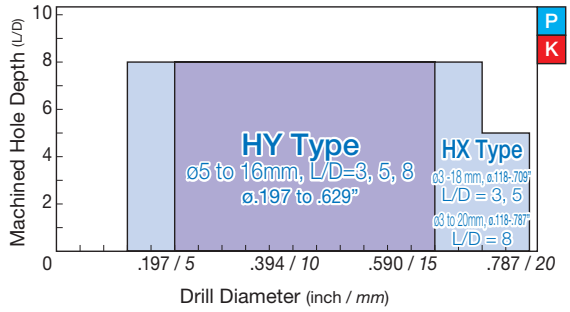
MDM for Stainless Steel & Exotic Alloy Cutting



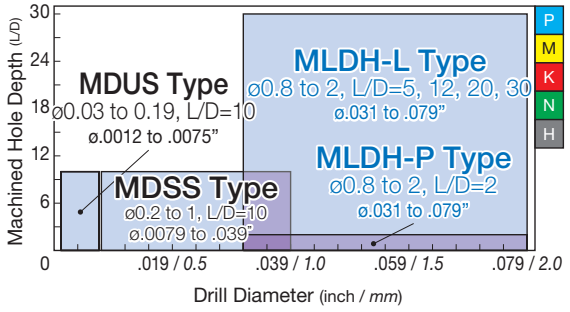
NHGS for High-efficiency Drilling of Aluminum Alloy



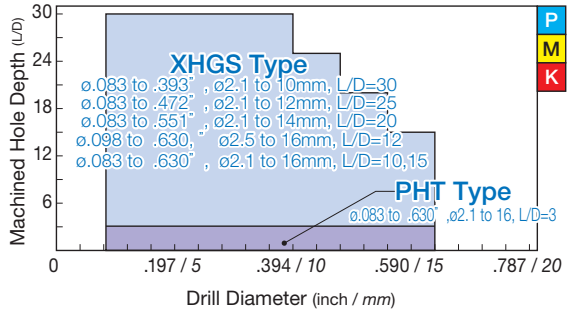
HX: for Cast Iron
HY: for High-efficiency Steel and Cast Iron



MDUS Type/MDSS Very Small Diameter Drills
MLDH-L Type/MLDH-P Small Diameter Long Drill

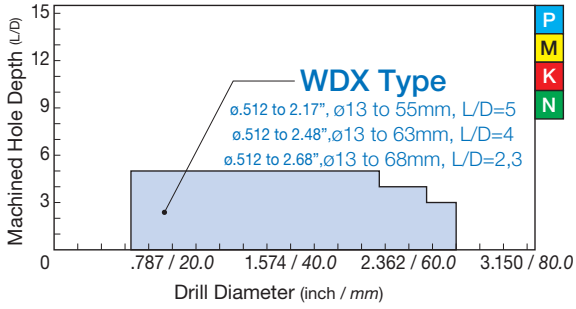


XHGS/PHT for High-efficiency Deep Hole Drilling



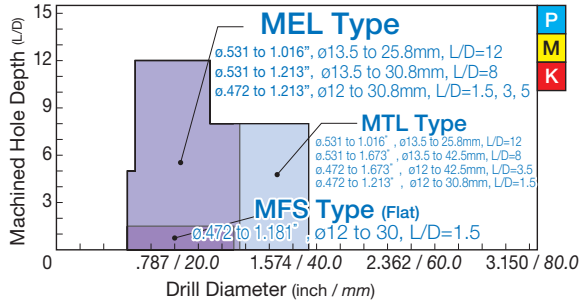
■ Indexable Insert Type Drill

WDX Indexable Drills



■ Indexable Tip Drills

SMD Replaceable Tip Drills
MTL Type Head / MEL Type Head / MFS Type Head



Drill Coating

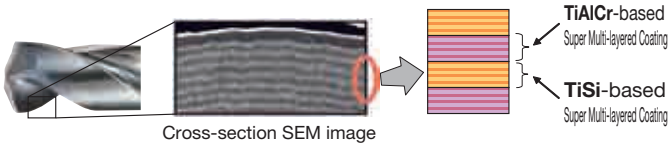
DEX Coating

■ General Features

Sumitomo's next-generation drill coating utilizes nano-coating technology to provide more than **double the tool life** of conventional coatings.

■ Features

- Coating Design
  World's first combined super multi-layered coating made from alternating layers of two super multi-layered substrates.



Cross-section SEM image

- Silicon and chrome improve wear, thermal and adhesion resistance.
- Super multi-layered structure offers improved chipping resistance.

■ DEX Coating Application Examples

GS Type MultiDrill with DEX Coating (after machining 100 holes)	
Competitor's product A (after machining 70 holes)	

Tool: MDW0800GS4
Part Material: Carbon Steel (200HB)
Cutting Conditions: v_c=230 SFM, f=0.0098 IPR, H=1.260", external coolant supply (water soluble)

DLC Coating (AURORA)

DL1300 DL1500

■ General Features

DLC Coating - AURORA is a high-hardness, low-friction coefficient layer of DLC (Diamond-like Carbon) which dramatically improves adhesion resistance in drilling of aluminum alloy and non-ferrous metals, and works in combination with various drill designs to achieve stable long tool life.

■ Features

- Thin, ultra-smooth DLC coating with a low coefficient of friction
  Helps prevent adhesion to the cutting edge and requires significantly less cutting force during drilling of aluminum alloy and non-ferrous metals.
- High adhesion strength withstands stringent cutting conditions
  The world's first coating for cutting non-ferrous materials, with a special coating technique that significantly improves adhesion strength.
- A spectrum of colors
  Glossy colors are achieved by the special coating technique.

■ DLC Coating - AURORA Application Examples

AURORA Coating Super MultiDrill NHGS Type (after drilling 100 holes)	Clean cutting edge with no adhesion
Competitor's Product B (after drilling 20 holes)	Severe adhesion

Tool: MDW0800NHGS5
Part Material: Aluminum Alloy
Cutting Conditions: v_c= 650 SFM, f= .0394 IPR, H=1.260", internal coolant supply

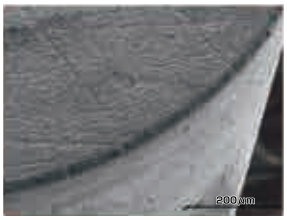
Diamond Coating - SUMIDIA®

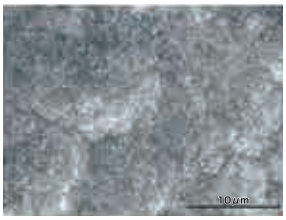
■ General Features

Our original polycrystalline diamond coating technology achieves over 10 times the wear resistance of uncoated carbide.
Excellent diamond film adhesion is achieved with a combination of a dedicated diamond coating alloy and a proprietary coating pre-treatment technique.

■ Features

- Micro-grain diamond coating that provides the combination of high strength and high wear resistance on smooth surfaces that is required for CFRP drilling





■ Diamond Coating - SUMIDIA® Application Examples

SUMIDIA Coat	Competitor's Diamond Coating
No. of Workpieces: 600 holes Able to continue	No. of Workpieces: 50 holes Coating peels and burrs are formed

Tool: Diamond Coating SUMIDIA® Drill ø6.35mm
Part Material: CFRP
Cutting Conditions: v_c=430 SFM, f=0.003 IPR, H=.590", through hole, dry

GS / HGS

■ Features & Benefits

- Long tool life
  New cutting edge design and special DEX Coating provide long tool life for a wide variety of materials.
- Steady chip evacuation
  J Flute® shape significantly improves chip control and evacuation.
- Stable drilling performance
  Unique thinning design promotes stabilized drilling.
- Environmentally friendly
  Also compatible with the MQL (Minimum Quantity Lubrication) system. MQL systems are designed to apply a very fine amount of high quality lubricating oil to metal cutting/machining operations.

■ Product Range

MDW	Cat. No.	Diameter Range (inch / *mm*)	Hole Depth (L/D)
GS: Global Standard	**MDW□□□□GS2**	ø.0394" to ø.7874" *1.00mm to 20.00mm*	up to 2
	MDW□□□□GS4		up to 4
HGS: Global Standard with Coolant through Holes	**MDW□□□□HGS3**	ø.0591" to ø.7874" *1.50mm to 20.00mm*	up to 3
	MDW□□□□HGS5		up to 5
	MDW□□□□HGS8	ø.0591" to ø.6299" *1.50mm to 16.00mm*	up to 8

■ Diverse shank options for standard collet holders, and high end Shrink-fit/Hydraulic holders

HGS Metric Size Example

Product Code	Series	Diameter Four digits (5mm)	Style	Depth	DIN shank option Add "S"	Shank Size
MDW0500HGS3	MDW	0 5 0 0	HGS	3	—	*5mm* (.1968")
MDW0500HGS3S	MDW	0 5 0 0	HGS	3	S	*6mm (.2362")*

*Metric Sizes have four digit diameter callouts.

Two metric shank diameters available depending on your application, and tool holding. "S" = DIN shank

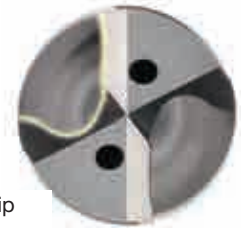
HGS Inch Size Example

Product Code	Series	Diameter five digits (0.5000")	Style	Depth	DIN shank option Add "S"	Shank Size
MDW05000HGS3	MDW	0 5 0 0 0	HGS	3	—	*33/64ths (.5156")*
MDW05000HGS3S	MDW	0 5 0 0 0	HGS	3	S	*14mm (.5516")*

*Inch Sizes have five digit diameter callouts.

Fractional shank, and DIN shank available depending on your application, and tool holding. "S" = DIN shank

J flute®
**"J Flute®" is a registered trademark.



Wide chip pocket for smooth chip evacuation.

HGS

GS

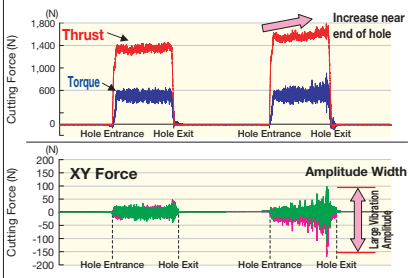
■ Performance

Chip Control

GS | Conventional Tool

Comparison of Cutting Force

GS | Conventional Tool



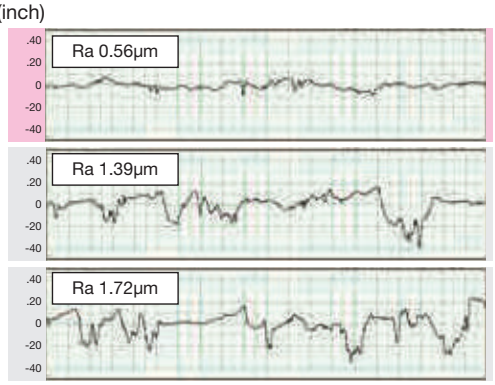
GS provides stable drill performance throughout the drilling process

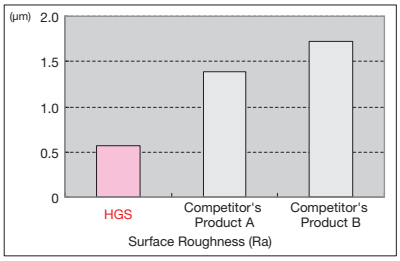
Tool: MDW0800GS4
Part Material: 1049 Steel (200HB)
Cutting Conditions: v_C=262 SFM, f= .0098 IPR, H=.9449",
external coolant supply (water soluble)

■ Double margin (HGS) (excluding ø.0591" to ø.0945" sizes)

The HGS uses a double margin for greater stability and hole precision in deep drilling

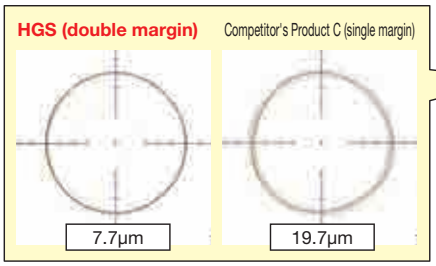
● **Surface Roughness Comparison**

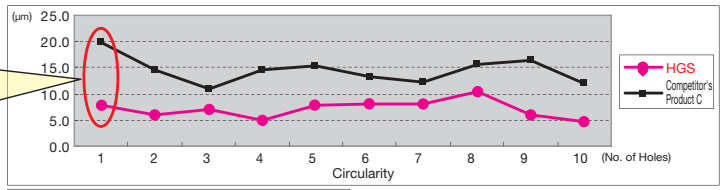




Part Material: Alloy Structural Steel (120HB)
Tool: MDW0800HGS5
Cutting Conditions: v_c=262sfm, f=.0098inch/rev, H=1.4961inch
Internal coolant supply: Water soluble

● **Circularity Comparison**



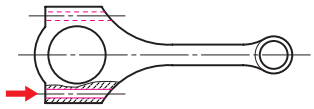


Part Material: 1049 Steel (200HB)
Tool: MDW0800HGS8
Cutting Conditions: v_c=262sfm, f=.0098inch/rev
H=2.51971inch, internal coolant supply (water soluble)

4-point guide design thanks to double margin reduces runout for improved stability.
Good surface roughness and circularity.

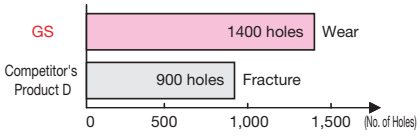
■ Application Examples for GS Drills

● Medium Carbon Steel (250HB) for Automotive

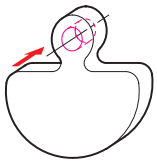


·Tool: MDW0970GS4
·Cutting Conditions: v_c=262sfm, f=.0098inch/rev
H=.9843inch, external coolant supply (water soluble)

Achieved 1.5 times the tool life!
Reduced wear on peripheral cutting edge

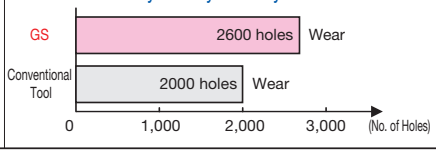


● Prehardened Mold Steel Machine Components

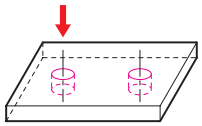


·Tool: MDW0980GS2
·Cutting Conditions: v_c=230sfm, f=.0059inch/rev
H=.2756inch, external coolant supply (water soluble)

1.3 times longer tool life than conventional tools.
Good circularity and cylindricity.

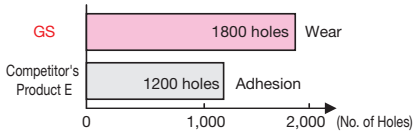


● Structural Steel Machine Components



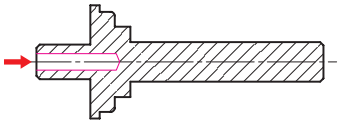
·Tool: MDW 050GS4
·Cutting Conditions: v_c=492sfm, f=.0118inch/rev
H=.4724inch, external coolant supply (water soluble)

Achieved 1.5 times the tool life!
Good chip control



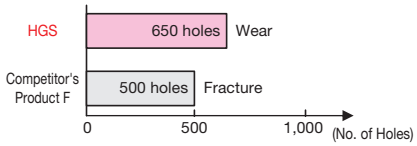
■ Application Examples for HGS Drills

● Structural Alloy Steel for Automotive

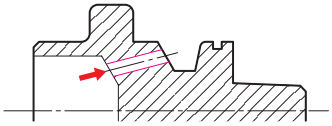


·Tool: MDW 0600HGS8
·Cutting Conditions: v_c=262sfm, f=.0098inch/rev
H=1.8898inch, internal coolant supply (oil-based)

Achieved 1.3 times the tool life!

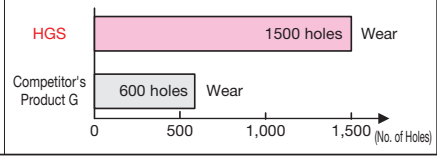


● Alloy Bearing Steel Automotive Components

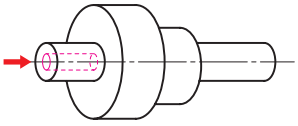


·Tool: MDW0570HGS5
·Cutting Conditions: v_c=262sfm, f=.0039inch/rev
H=1.378inch, internal coolant supply (water soluble)

Achieved 2.5 times the tool life!

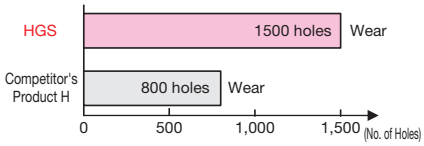


● Low Carbon Steel Machine Components



·Tool: MDW0860HGS3
·Cutting Conditions: v_c=171sfm, f=.0079inch/rev
H=.9843inch, internal coolant supply (water soluble)

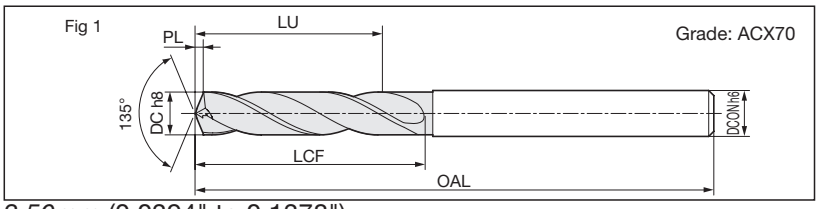
Achieved 1.8 times the tool life!



Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating 2D 4D

Fig 1



Grade: ACX70

Cut tap reccomendations based on 60-75% full thread. Form tap reccomendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

Diameter *ø1.00 to 3.50mm* (0.0394" to 0.1378") Dimensions (*mm*/inch)

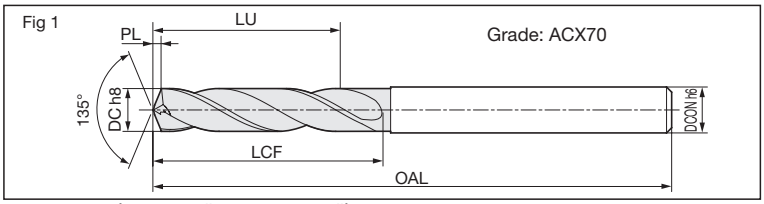
● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
1.00	0.0394				2	★	**MDW0100GS2**	4.70	0.1850	6.20	0.2441	45.20	1.7795	0.20	0.0079	3.00	0.1181	1
					4	★	**MDW0100GS4**	10.70	0.4213	12.20	0.4803	49.20	1.9370					1
1.10	0.0433				2	★	**MDW0110GS2**	4.60	0.1811	6.20	0.2441	45.20	1.7795	0.20	0.0079	3.00	0.1181	1
					4	★	**MDW0110GS4**	10.60	0.4173	12.20	0.4803	49.20	1.9370					1
1.20	0.0472				2	★	**MDW0120GS2**	4.40	0.1732	6.20	0.2441	45.20	1.7795	0.20	0.0079	3.00	0.1181	1
					4	★	**MDW0120GS4**	10.40	0.4094	12.20	0.4803	49.20	1.9370					1
1.30	0.0512				2	★	**MDW0130GS2**	4.40	0.1732	6.30	0.2480	45.30	1.7835	0.30	0.0118	3.00	0.1181	1
					4	★	**MDW0130GS4**	10.40	0.4094	12.30	0.4843	49.30	1.9409					1
1.40	0.0551				2	★	**MDW0140GS2**	4.20	0.1654	6.30	0.2480	45.30	1.7835	0.30	0.0118	3.00	0.1181	1
					4	★	**MDW0140GS4**	10.20	0.4016	12.30	0.4843	49.30	1.9409					1
1.50	0.0591				2	★	**MDW0150GS2**	4.10	0.1614	6.30	0.2480	45.30	1.7835	0.30	0.0118	3.00	0.1181	1
					4	★	**MDW0150GS4**	10.10	0.3976	12.30	0.4843	49.30	1.9409					1
1.60	0.0630				2	★	**MDW0160GS2**	5.90	0.2323	8.30	0.3268	45.30	1.7835	0.30	0.0118	3.00	0.1181	1
					4	★	**MDW0160GS4**	12.90	0.5079	15.30	0.6024	49.30	1.9409					1
1.70	0.0669				2	★	**MDW0170GS2**	5.90	0.2323	8.40	0.3307	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
					4	★	**MDW0170GS4**	12.90	0.5079	15.40	0.6063	49.40	1.9449					1
1.80	0.0709				2	★	**MDW0180GS2**	5.70	0.2244	8.40	0.3307	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
					4	★	**MDW0180GS4**	12.70	0.5000	15.40	0.6063	49.40	1.9449					1
1.90	0.0748				2	★	**MDW0190GS2**	5.60	0.2205	8.40	0.3307	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
					4	★	**MDW0190GS4**	12.60	0.4961	15.40	0.6063	49.40	1.9449					1
2.00	0.0787			2-56	2	●	**MDW0200GS2**	5.40	0.2126	8.40	0.3307	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
				2-64	4	●	**MDW0200GS4**	12.40	0.4882	15.40	0.6063	49.40	1.9449					1
2.10	0.0827		3-56		2	●	**MDW0210GS2**	7.30	0.2874	10.40	0.4094	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
					4	●	**MDW0210GS4**	14.30	0.5630	17.40	0.6850	49.40	1.9449					1
2.20	0.0866				2	●	**MDW0220GS2**	7.20	0.2835	10.50	0.4134	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	●	**MDW0220GS4**	14.20	0.5591	17.50	0.6890	49.50	1.9488					1
2.30	0.0906		4-40	3-48	2	●	**MDW0230GS2**	7.10	0.2795	10.50	0.4134	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	●	**MDW0230GS4**	14.10	0.5551	17.50	0.6890	49.50	1.9488					1
2.38	0.0937	3/32	4-48		2	●	**MDW00937GS2**	6.93	0.2729	10.50	0.4134	45.49	1.7910	0.49	0.0194	3.18	0.1250	1
					4	●	**MDW00937GS4**	13.92	0.5479	17.49	0.6884	49.50	1.9490					1
2.40	0.0945				2	●	**MDW0240GS2**	6.90	0.2717	10.50	0.4134	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	●	**MDW0240GS4**	13.90	0.5472	17.50	0.6890	49.50	1.9488					1
2.50	0.0984		M3x.5		2	●	**MDW0250GS2**	6.80	0.2677	10.50	0.4134	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	●	**MDW0250GS4**	13.80	0.5433	17.50	0.6890	49.50	1.9488					1
2.60	0.1024			4-48	2	●	**MDW0260GS2**	9.60	0.3780	13.50	0.5315	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	●	**MDW0260GS4**	15.60	0.6142	19.50	0.7677	49.50	1.9488					1
2.70	0.1063		5-44		2	●	**MDW0270GS2**	9.60	0.3780	13.60	0.5354	45.60	1.7953	0.60	0.0236	3.00	0.1181	1
			M3x.35		4	●	**MDW0270GS4**	15.60	0.6142	19.60	0.7717	49.60	1.9528					1
2.80	0.1102				2	●	**MDW0280GS2**	9.40	0.3701	13.60	0.5354	45.60	1.7953	0.60	0.0236	3.00	0.1181	1
					4	●	**MDW0280GS4**	15.40	0.6063	19.60	0.7717	49.60	1.9528					1
2.82	0.1110	#34	6-32		2	●	**MDW01110GS2**	9.36	0.3685	13.59	0.5350	45.59	1.7950	0.58	0.0230	3.18	0.1250	1
2.87	0.1130	#33			2	●	**MDW01130GS2**	9.29	0.3659	13.60	0.5354	45.59	1.7950	0.59	0.0234	3.18	0.1250	1
2.90	0.1142			5-40	2	●	**MDW0290GS2**	9.30	0.3661	13.60	0.5354	45.60	1.7953	0.60	0.0236	3.00	0.1181	1
					4	●	**MDW0290GS4**	15.30	0.6024	19.60	0.7717	49.60	1.9528					1
2.95	0.1160	#32	6-40,M3.5x6	5-44	2	●	**MDW01160GS2**	9.19	0.3620	13.61	0.5360	45.62	1.7960	0.61	0.0240	3.18	0.1250	1
3.00	0.1181				2	●	**MDW0300GS2**	9.10	0.3583	13.60	0.5354	45.60	1.7953	0.60	0.0236	3.00	0.1181	1
					4	●	**MDW0300GS4**	15.10	0.5945	19.60	0.7717	49.60	1.9528					1
3.05	0.1200	#31			2	●	**MDW01200GS2**	9.07	0.3569	13.64	0.5369	45.64	1.7970	0.63	0.0249	3.18	0.1250	1
3.10	0.1220				2	●	**MDW0310GS2**	15.00	0.5906	19.60	0.7717	54.60	2.1496	0.60	0.0236	4.00	0.1575	1
					4	●	**MDW0310GS4**	20.00	0.7874	24.60	0.9685	60.60	2.3858					1
3.18	0.1250	1/8		6-32	2	●	**MDW01250GS2**	8.90	0.3504	13.66	0.5379	45.67	1.7980	0.66	0.0259	3.18	0.1250	1
3.20	0.1260				2	●	**MDW0320GS2**	14.90	0.5866	19.70	0.7756	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	●	**MDW0320GS4**	19.90	0.7835	24.70	0.9724	60.70	2.3898					1
3.26	0.1285	#30		M3.5x6,6-40	2	●	**MDW01285GS2**	14.78	0.5819	19.67	0.7746	54.69	2.1530	0.68	0.0266	3.97	0.1562	1
3.30	0.1299				2	●	**MDW0330GS2**	14.80	0.5827	19.70	0.7756	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	●	**MDW0330GS4**	19.80	0.7795	24.70	0.9724	60.70	2.3898					1
3.40	0.1339		M4x.7		2	●	**MDW0340GS2**	14.60	0.5748	19.70	0.7756	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	●	**MDW0340GS4**	19.60	0.7717	24.70	0.9724	60.70	2.3898					1
3.45	0.1360	#29			2	●	**MDW01360GS2**	14.53	0.5722	19.72	0.7762	54.71	2.1540	0.72	0.0282	3.97	0.1562	1
3.50	0.1378		8-32		2	●	**MDW0350GS2**	14.50	0.5709	19.70	0.7756	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	●	**MDW0350GS4**	19.50	0.7677	24.70	0.9724	60.70	2.3898					1

GS (External Coolant Supply)

DEX Coating 2D 4D

Fig 1



Cut tap reccomendations based on 60-75% full thread. Form tap reccomendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

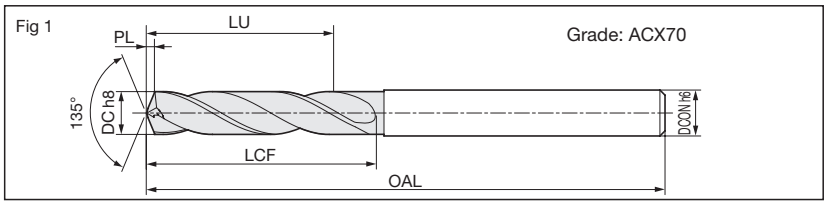
Diameter *ø3.57 to 5.16mm* (0.1405" to 0.2031") Dimensions (*mm*/inch)

● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
3.57	0.1405	#28	8-36		2	●	**MDW01405GS2**	16.39	0.6454	21.74	0.8561	54.74	2.1550	0.74	0.0291	3.97	0.1562	1
3.57	0.1406	#28	8-36		2	●	**MDW01406GS2**	16.39	0.6452	21.74	0.8561	54.74	2.1550	0.74	0.0291	3.97	0.1562	1
		9/64			4	●	**MDW01406GS4**	22.38	0.8812	27.74	1.0921	60.73	2.3910					1
3.60	0.1417				2	●	**MDW0360GS2**	16.30	0.6417	21.70	0.8543	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	●	**MDW0360GS4**	22.30	0.8780	27.70	1.0906	60.70	2.3898					1
3.66	0.1440	#27		M4x.7	2	●	**MDW01440GS2**	16.28	0.6408	21.76	0.8568	54.76	2.1560	0.76	0.0298	3.97	0.1562	1
3.70	0.1457		M4.5x.7		2	●	**MDW0370GS2**	16.30	0.6417	21.80	0.8583	54.80	2.1575	0.80	0.0315	4.00	0.1575	1
					4	●	**MDW0370GS4**	22.30	0.8780	27.80	1.0945	60.80	2.3937					1
3.73	0.1470				2	●	**MDW01470GS2**	16.18	0.6369	21.78	0.8574	54.76	2.1560	0.77	0.0304	3.97	0.1562	1
3.80	0.1495				2	●	**MDW01495GS2**	16.10	0.6338	21.79	0.8580	54.79	2.1570	0.79	0.0310	3.97	0.1562	1
3.80	0.1496			8-32	2	●	**MDW0380GS2**	16.10	0.6339	21.80	0.8583	54.80	2.1575	0.80	0.0315	4.00	0.1575	1
					4	●	**MDW0380GS4**	22.10	0.8701	27.80	1.0945	60.80	2.3937					1
3.86	0.1520	#24	M4.5x.75	8-36	2	●	**MDW01520GS2**	16.01	0.6305	21.81	0.8585	54.79	2.1570	0.80	0.0315	3.97	0.1562	1
3.90	0.1535				2	●	**MDW0390GS2**	16.00	0.6299	21.80	0.8583	54.80	2.1575	0.80	0.0315	4.00	0.1575	1
					4	●	**MDW0390GS4**	22.00	0.8661	27.80	1.0945	60.80	2.3937					1
3.91	0.1540	#23	10-24		2	●	**MDW01540GS2**	15.95	0.6279	21.82	0.8589	54.81	2.1580	0.81	0.0319	3.97	0.1562	1
3.97	0.1562	5/32			2	●	**MDW01562GS2**	15.88	0.6251	21.83	0.8594	54.81	2.1580	0.82	0.0324	3.97	0.1562	1
3.99	0.1570	#22			2	●	**MDW01570GS2**	17.86	0.7030	23.84	0.9385	61.82	2.4340	0.83	0.0325	4.76	0.1875	1
4.00	0.1575				2	●	**MDW0400GS2**	15.80	0.6220	21.80	0.8583	54.80	2.1575	0.80	0.0315	4.00	0.1575	1
					4	●	**MDW0400GS4**	21.80	0.8583	27.80	1.0945	60.80	2.3937					1
4.04	0.1590	#21			2	●	**MDW01590GS2**	17.79	0.7004	23.85	0.9389	61.85	2.4350	0.84	0.0329	4.76	0.1875	1
4.09	0.1610	#20			2	●	**MDW01610GS2**	17.72	0.6978	23.86	0.9393	61.85	2.4350	0.85	0.0333	4.76	0.1875	1
4.10	0.1614		10-32		2	●	**MDW0410GS2**	17.70	0.6969	23.80	0.9370	61.80	2.4331	0.80	0.0315	5.00	0.1969	1
					4	●	**MDW0410GS4**	25.70	1.0118	31.80	1.2520	66.80	2.6299					1
4.20	0.1654				2	●	**MDW0420GS2**	17.60	0.6929	23.90	0.9409	61.90	2.4370	0.90	0.0354	5.00	0.1969	1
					4	●	**MDW0420GS4**	25.60	1.0079	31.90	1.2559	66.90	2.6339					1
4.22	0.1660	#19		M4.5x.75	2	●	**MDW01660GS2**	17.56	0.6914	23.89	0.9404	61.87	2.4360	0.87	0.0344	4.76	0.1875	1
4.30	0.1693		M5x.8		2	●	**MDW0430GS2**	17.50	0.6890	23.90	0.9409	61.90	2.4370	0.90	0.0354	5.00	0.1969	1
					4	●	**MDW0430GS4**	25.50	1.0039	31.90	1.2559	66.90	2.6339					1
4.31	0.1695	#18			2	●	**MDW01695GS2**	17.45	0.6869	23.90	0.9411	61.90	2.4370	0.89	0.0351	4.76	0.1875	1
4.37	0.1719	11/64		10-24	2	●	**MDW01719GS2**	17.37	0.6838	23.92	0.9416	61.90	2.4370	0.90	0.0356	4.76	0.1875	1
4.39	0.1730	#17			2	●	**MDW01730GS2**	17.33	0.6823	23.92	0.9418	61.90	2.4370	0.91	0.0358	4.76	0.1875	1
4.40	0.1732				2	●	**MDW0440GS2**	17.30	0.6811	23.90	0.9409	61.90	2.4370	0.90	0.0354	5.00	0.1969	1
					4	●	**MDW0440GS4**	25.30	0.9961	31.90	1.2559	66.90	2.6339					1
4.50	0.1770	#16			2	●	**MDW01770GS2**	17.20	0.6772	23.94	0.9427	61.93	2.4380	0.93	0.0367	4.76	0.1875	1
4.50	0.1772			10-32	2	●	**MDW0450GS2**	17.20	0.6772	23.90	0.9409	61.90	2.4370	0.90	0.0354	5.00	0.1969	1
					4	●	**MDW0450GS4**	25.20	0.9921	31.90	1.2559	66.90	2.6339					1
4.57	0.1800	#15	12-24,M5x.5		2	●	**MDW01800GS2**	19.08	0.7513	25.94	1.0213	61.95	2.4390	0.95	0.0373	4.76	0.1875	1
4.60	0.1811				2	●	**MDW0460GS2**	19.10	0.7520	26.00	1.0236	62.00	2.4409	1.00	0.0394	5.00	0.1969	1
					4	●	**MDW0460GS4**	32.10	1.2638	39.00	1.5354	77.00	3.0315					1
4.62	0.1820	#14		M5x.8	2	●	**MDW01820GS2**	19.02	0.7487	25.95	1.0217	61.95	2.4390	0.96	0.0377	4.76	0.1875	1
4.70	0.1850		12-28		2	●	**MDW01850GS2**	18.92	0.7448	25.97	1.0223	61.98	2.4400	0.97	0.0383	4.76	0.1875	1
					2	●	**MDW0470GS2**	19.00	0.7480	26.00	1.0236	62.00	2.4409	1.00	0.0394	5.00	0.1969	1
					4	●	**MDW0470GS4**	32.00	1.2598	39.00	1.5354	77.00	3.0315					1
4.76	0.1875	3/16		M5x.5	2	●	**MDW01875GS2**	18.84	0.7416	25.98	1.0228	61.98	2.4400	0.99	0.0388	4.76	0.1875	1
4.80	0.1890				2	●	**MDW01890GS2**	18.79	0.7396	25.99	1.0231	65.99	2.5980	0.99	0.0391	5.95	0.2344	1
					2	●	**MDW0480GS2**	18.80	0.7402	26.00	1.0236	62.00	2.4409	1.00	0.0394	5.00	0.1969	1
					4	●	**MDW0480GS4**	31.80	1.2520	39.00	1.5354	77.00	3.0315					1
4.85	0.1910	#11			2	●	**MDW01910GS2**	18.72	0.7371	26.00	1.0236	66.01	2.5990	1.01	0.0396	5.95	0.2344	1
4.90	0.1929				2	●	**MDW0490GS2**	18.70	0.7362	26.00	1.0236	62.00	2.4409	1.00	0.0394	5.00	0.1969	1
					4	●	**MDW0490GS4**	31.70	1.2480	39.00	1.5354	77.00	3.0315					1
4.91	0.1935	#10			2	●	**MDW01935GS2**	18.64	0.7339	26.01	1.0241	66.01	2.5990	1.02	0.0401	5.95	0.2344	1
4.98	0.1960	#9			2	●	**MDW01960GS2**	18.56	0.7306	26.02	1.0246	66.04	2.6000	1.03	0.0406	5.95	0.2344	1
5.00	0.1969			12-24	2	●	**MDW0500GS2**	18.50	0.7283	26.00	1.0236	62.00	2.4409	1.00	0.0394	5.00	0.1969	1
					4	●	**MDW0500GS4**	31.50	1.2402	39.00	1.5354	77.00	3.0315					1
5.10	0.2008			12-28	2	●	**MDW0510GS2**	18.50	0.7283	26.10	1.0276	66.10	2.6024	1.10	0.0433	6.00	0.2362	1
					4	●	**MDW0510GS4**	32.50	1.2795	40.10	1.5787	82.10	3.2323					1
5.11	0.2010	#7			2	●	**MDW02010GS2**	18.39	0.7241	26.05	1.0256	66.07	2.6010	1.06	0.0416	5.95	0.2344	1
					4	●	**MDW02010GS4**	32.39	1.2751	40.05	1.5766	82.07	3.2310					1
5.16	0.2031	13/64	M6x1		2	●	**MDW02031GS2**	18.33	0.7215	26.06	1.0261	66.07	2.6010	1.07	0.0421	5.95	0.2344	1
					4	●	**MDW02031GS4**	32.32	1.2725	40.06	1.5771	82.07	3.2310					1

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating 2D 4D



Cut tap reccomendations based on 60-75% full thread. Form tap reccomendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

Diameter *ø5.18 to 6.80mm* (0.2040" to 0.2677") Dimensions (*mm*/inch)

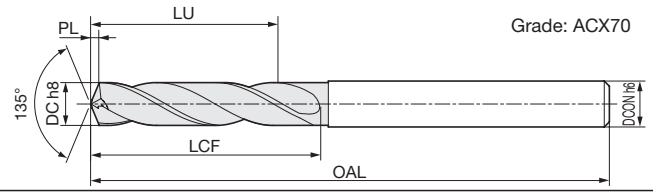
● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
5.18	0.2040	#6			2	●	**MDW02040GS2**	18.29	0.7202	26.07	1.0262	66.07	2.6010	1.07	0.0422	5.95	0.2344	1
5.20	0.2047				2	●	**MDW0520GS2**	18.30	0.7205	26.10	1.0276	66.10	2.6024	1.10	0.0433	6.00	0.2362	1
					4	●	**MDW0520GS4**	32.30	1.2717	40.10	1.5787	82.10	3.2323					1
5.22	0.2055	#5			2	●	**MDW02055GS2**	18.25	0.7184	26.08	1.0266	66.09	2.6020	1.08	0.0426	5.95	0.2344	1
5.30	0.2087				2	●	**MDW0530GS2**	18.20	0.7165	26.10	1.0276	66.10	2.6024	1.10	0.0433	6.00	0.2362	1
					4	●	**MDW0530GS4**	32.20	1.2677	40.10	1.5787	82.10	3.2323					1
5.31	0.2090	#4	1/4-20,M6x.75	M5.5x.5	2	●	**MDW02090GS2**	18.13	0.7138	26.09	1.0273	66.09	2.6020	1.10	0.0433	5.95	0.2344	1
5.40	0.2126				2	●	**MDW0540GS2**	18.00	0.7087	26.10	1.0276	66.10	2.6024	1.10	0.0433	6.00	0.2362	1
					4	●	**MDW0540GS4**	32.00	1.2598	40.10	1.5787	82.10	3.2323					1
5.41	0.2130	#3			2	●	**MDW02130GS2**	18.00	0.7086	26.11	1.0281	66.12	2.6030	1.12	0.0441	5.95	0.2344	1
5.50	0.2165				2	●	**MDW0550GS2**	17.90	0.7047	26.10	1.0276	66.10	2.6024	1.10	0.0433	6.00	0.2362	1
					4	●	**MDW0550GS4**	31.90	1.2559	40.10	1.5787	82.10	3.2323					1
5.56	0.2188	7/32	1/4-28 M6x.5	M6x1	2	●	**MDW02188GS2**	19.81	0.7801	28.15	1.1083	66.14	2.6040	1.15	0.0453	5.95	0.2344	1
					4	●	**MDW02188GS4**	33.81	1.3311	42.15	1.6593	82.14	3.2340					1
5.60	0.2205				2	●	**MDW0560GS2**	19.80	0.7795	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	**MDW0560GS4**	33.80	1.3307	42.20	1.6614	82.20	3.2362					1
5.61	0.2210	#2		M6x.75	2	●	**MDW02210GS2**	19.74	0.7773	28.16	1.1088	66.17	2.6050	1.16	0.0458	5.95	0.2344	1
5.70	0.2244				2	●	**MDW0570GS2**	19.70	0.7756	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	**MDW0570GS4**	33.70	1.3268	42.20	1.6614	82.20	3.2362					1
5.79	0.2280	#1			2	●	**MDW02280GS2**	19.51	0.7682	28.20	1.1102	66.19	2.6060	1.20	0.0472	5.95	0.2344	1
5.80	0.2283			1/4-20	2	●	**MDW0580GS2**	19.50	0.7677	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	**MDW0580GS4**	33.50	1.3189	42.20	1.6614	82.20	3.2362					1
5.90	0.2323				2	●	**MDW0590GS2**	19.40	0.7638	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	**MDW0590GS4**	33.40	1.3150	42.20	1.6614	82.20	3.2362					1
5.94	0.2340	A			2	●	**MDW02340GS2**	19.32	0.7605	28.23	1.1115	66.24	2.6080	1.23	0.0485	5.95	0.2344	1
5.95	0.2344	15/64			2	●	**MDW02344GS2**	19.30	0.7599	28.23	1.1115	66.24	2.6080	1.23	0.0485	5.95	0.2344	1
6.00	0.2362	15/64		1/4-28	2	●	**MDW0600GS2**	19.20	0.7559	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	**MDW0600GS4**	33.20	1.3071	42.20	1.6614	82.20	3.2362					1
6.05	0.2380	B			2	●	**MDW02380GS2**	23.17	0.9123	32.24	1.2693	74.24	2.9230	1.25	0.0493	7.14	0.2812	1
6.10	0.2402				2	●	**MDW0610GS2**	23.20	0.9134	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	**MDW0610GS4**	34.20	1.3465	43.30	1.7047	84.30	3.3189					1
6.15	0.2420	C	M7x1		2	●	**MDW02420GS2**	23.04	0.9071	32.26	1.2701	74.27	2.9240	1.27	0.0501	7.14	0.2812	1
6.20	0.2441				2	●	**MDW0620GS2**	23.00	0.9055	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	**MDW0620GS4**	34.00	1.3386	43.30	1.7047	84.30	3.3189					1
6.25	0.2460	D			2	●	**MDW02460GS2**	22.91	0.9019	32.28	1.2709	65.91	2.5950	1.29	0.0509	7.14	0.2812	1
					4	●	**MDW02460GS4**	33.93	1.3359	43.30	1.7049	84.30	3.3190					1
6.30	0.2480				2	●	**MDW0630GS2**	22.90	0.9016	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	**MDW0630GS4**	33.90	1.3346	43.30	1.7047	84.30	3.3189					1
6.35	0.2500	1/4	M7x.75		2	●	**MDW02500GS2**	22.78	0.8968	32.30	1.2718	74.32	2.9260	1.32	0.0518	7.00	0.2812	1
					4	●	**MDW02500GS4**	33.80	1.3308	43.33	1.7058	84.30	3.3190					1
6.40	0.2520				2	●	**MDW0640GS2**	22.70	0.8937	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	**MDW0640GS4**	33.70	1.3268	43.30	1.7047	84.30	3.3189					1
6.50	0.2559				2	●	**MDW0650GS2**	22.60	0.8898	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	**MDW0650GS4**	33.60	1.3228	43.30	1.7047	84.30	3.3189					1
6.53	0.2570	F	5/16-18	M7x1	2	●	**MDW02570GS2**	24.55	0.9667	34.35	1.3522	74.35	2.9270	1.35	0.0532	7.14	0.2812	1
					4	●	**MDW02570GS4**	34.56	1.3607	44.35	1.7462	84.35	3.3210					1
6.60	0.2598				2	●	**MDW0660GS2**	24.50	0.9646	34.40	1.3543	74.40	2.9291	1.40	0.0551	7.00	0.2756	1
					4	●	**MDW0660GS4**	34.50	1.3583	44.40	1.7480	84.40	3.3228					1
6.60	0.2600				2	●	**MDW02600GS2**	24.46	0.9628	34.36	1.3528	74.37	2.9280	1.37	0.0538	7.14	0.2812	1
6.63	0.2610	G			2	●	**MDW02610GS2**	24.42	0.9616	34.37	1.3531	74.37	2.9280	1.37	0.0541	7.14	0.2812	1
					4	●	**MDW02610GS4**	34.43	1.3556	44.38	1.7471	84.38	3.3220					1
6.70	0.2638				2	●	**MDW0670GS2**	24.40	0.9606	34.40	1.3543	74.40	2.9291	1.40	0.0551	7.00	0.2756	1
					4	●	**MDW0670GS4**	34.40	1.3543	44.40	1.7480	84.40	3.3228					1
6.75	0.2656	17/64	5/6-18		2	●	**MDW02656GS2**	24.27	0.9556	34.39	1.3540	74.40	2.9290	1.40	0.0550	7.14	0.2812	1
					4	●	**MDW02656GS4**	34.28	1.3496	44.40	1.7480	84.40	3.3230					1
6.76	0.2660	H	5/6-18		2	●	**MDW02660GS2**	24.26	0.9551	34.39	1.3541	74.40	2.9290	1.40	0.0551	7.14	0.2812	1
					4	●	**MDW02660GS4**	34.27	1.3491	44.40	1.7481	84.40	3.3230					1
6.80	0.2677				2	●	**MDW02677GS2**	24.20	0.9529	34.40	1.3544	74.40	2.9290	1.41	0.0554	7.14	0.2812	1
					2	●	**MDW0680GS2**	24.20	0.9528	34.40	1.3543	74.40	2.9291	1.40	0.0551	7.00	0.2756	1
					4	●	**MDW0680GS4**	34.20	1.3465	44.40	1.7480	84.40	3.3228					1

GS (External Coolant Supply)

DEX Coating 2D 4D

Fig 1



Grade: ACX70

Cut tap reccomendations based on 60-75% full thread. Form tap reccomendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

Diameter *ø6.90 to 8.43mm* (0.2717" to 0.3320") Dimensions (*mm*/inch)

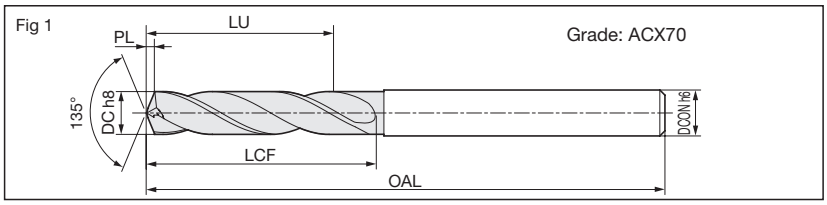
● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
6.90	0.2717		M8x1.25		2	●	**MDW0690GS2**	24.10	0.9488	34.40	1.3543	74.40	2.9291	1.40	0.0551	7.00	0.2756	1
					4	●	**MDW0690GS4**	34.10	1.3425	44.40	1.7480	84.40	3.3228					1
6.91	0.2720	I	5/16-24		2	●	**MDW02720GS2**	24.06	0.9473	34.42	1.3553	74.42	2.9300	1.43	0.0563	7.14	0.2812	1
					4	●	**MDW02720GS4**	34.07	1.3413	44.43	1.7493	84.43	3.3240					1
7.00	0.2756				2	●	**MDW02756GS2**	23.94	0.9427	34.44	1.3561	74.45	2.9310	1.45	0.0571	7.14	0.2812	1
					2	●	**MDW0700GS2**	23.90	0.9409	34.40	1.3543	74.40	2.9291	1.40	0.0551	7.00	0.2756	1
					4	●	**MDW0700GS4**	33.90	1.3346	44.40	1.7480	84.40	3.3228					1
7.04	0.2770	J			2	●	**MDW02770GS2**	23.90	0.9409	34.45	1.3564	74.45	2.9310	1.46	0.0574	7.14	0.2812	1
					4	●	**MDW02770GS4**	33.91	1.3349	44.46	1.7504	84.46	3.3250					1
7.10	0.2795				2	●	**MDW0710GS2**	23.90	0.9409	34.50	1.3583	79.50	3.1299	1.50	0.0591	8.00	0.3150	1
					4	●	**MDW0710GS4**	35.90	1.4134	46.50	1.8307	91.50	3.6024					1
7.14	0.2810	K	M8x1		2	●	**MDW02810GS2**	23.77	0.9357	34.47	1.3572	74.47	2.9320	1.48	0.0582	7.14	0.2812	1
					4	●	**MDW02810GS4**	33.77	1.3297	44.48	1.7512	84.48	3.3260					1
7.14	0.2812	9/32			2	●	**MDW02812GS2**	23.76	0.9354	34.47	1.3572	74.47	2.9320	1.48	0.0582	7.14	0.2812	1
					4	●	**MDW02812GS4**	33.77	1.3294	44.48	1.7512	84.48	3.3260					1
7.20	0.2835				2	●	**MDW0720GS2**	23.70	0.9331	34.50	1.3583	79.50	3.1299	1.50	0.0591	8.00	0.3150	1
					4	●	**MDW0720GS4**	35.70	1.4055	46.50	1.8307	91.50	3.6024					1
7.30	0.2874		M8x.75	5/16-18	2	●	**MDW0730GS2**	23.60	0.9291	34.50	1.3583	79.50	3.1299	1.50	0.0591	8.00	0.3150	1
					4	●	**MDW0730GS4**	35.60	1.4016	46.50	1.8307	91.50	3.6024					1
7.37	0.2900	L			2	●	**MDW02900GS2**	23.47	0.9241	34.52	1.3591	79.53	3.1310	1.53	0.0601	7.94	0.3125	1
					4	●	**MDW02900GS4**	35.49	1.3971	46.54	1.8321	91.52	3.6030					1
7.40	0.2913			M8x1.25	2	●	**MDW0740GS2**	23.40	0.9213	34.50	1.3583	79.50	3.1299	1.50	0.0591	8.00	0.3150	1
					4	●	**MDW0740GS4**	35.40	1.3937	46.50	1.8307	91.50	3.6024					1
7.49	0.2950	M		5/16-24	2	●	**MDW02950GS2**	23.31	0.9176	34.55	1.3601	79.55	3.1320	1.55	0.0611	7.94	0.3125	1
					4	●	**MDW02950GS4**	35.32	1.3906	46.56	1.8331	91.54	3.6040					1
7.50	0.2953		M8x.5		2	●	**MDW0750GS2**	23.40	0.9213	34.60	1.3622	79.60	3.1339	1.60	0.0630	8.00	0.3150	1
					4	●	**MDW0750GS4**	35.40	1.3937	46.60	1.8346	91.60	3.6063					1
7.54	0.2969			M8x1	2	●	**MDW02969GS2**	26.24	1.0332	37.55	1.4785	79.55	3.1320	1.56	0.0615	7.94	0.3125	1
					4	●	**MDW02969GS4**	38.26	1.5062	49.57	1.9515	91.57	3.6050					1
7.60	0.2992				2	●	**MDW0760GS2**	26.20	1.0315	37.60	1.4803	79.60	3.1339	1.60	0.0630	8.00	0.3150	1
					4	●	**MDW0760GS4**	38.20	1.5039	49.60	1.9528	91.60	3.6063					1
7.67	0.3020	N		M8x.75	2	●	**MDW03020GS2**	26.07	1.0265	37.58	1.4795	79.58	3.1330	1.59	0.0625	7.94	0.3125	1
					4	●	**MDW03020GS4**	38.09	1.4995	49.59	1.9525	91.59	3.6060					1
7.70	0.3031				2	●	**MDW0770GS2**	26.10	1.0276	37.60	1.4803	79.60	3.1339	1.60	0.0630	8.00	0.3150	1
					4	●	**MDW0770GS4**	38.10	1.5000	49.60	1.9528	91.60	3.6063					1
7.80	0.3071		M9x1.25		2	●	**MDW0780GS2**	25.90	1.0197	37.60	1.4803	79.60	3.1339	1.60	0.0630	8.00	0.3150	1
					4	●	**MDW0780GS4**	37.90	1.4921	49.60	1.9528	91.60	3.6063					1
7.90	0.3110				2	●	**MDW0790GS2**	25.80	1.0157	37.60	1.4803	79.60	3.1339	1.60	0.0630	8.00	0.3150	1
					4	●	**MDW0790GS4**	37.80	1.4882	49.60	1.9528	91.60	3.6063					1
7.94	0.3125	5/16			2	●	**MDW03125GS2**	25.73	1.0130	37.64	1.4817	79.71	3.1380	1.64	0.0647	7.94	0.3125	1
					4	●	**MDW03125GS4**	37.74	1.4860	49.65	1.9547	91.64	3.6080					1
8.00	0.3150				2	●	**MDW0800GS2**	25.70	1.0118	37.70	1.4843	79.70	3.1378	1.70	0.0669	8.00	0.3150	1
					4	●	**MDW0800GS4**	37.70	1.4843	49.70	1.9567	91.70	3.6102					1
8.03	0.3160	O			2	●	**MDW03160GS2**	25.61	1.0084	37.65	1.4824	83.67	3.2940	1.66	0.0654	9.13	0.3594	1
					4	●	**MDW03160GS4**	42.63	1.6784	54.67	2.1524	99.67	3.9240					1
8.10	0.3189		M9x1		2	●	**MDW0810GS2**	25.60	1.0079	37.70	1.4843	83.70	3.2953	1.70	0.0669	9.00	0.3543	1
					4	●	**MDW0810GS4**	42.60	1.6772	54.70	2.1535	99.70	3.9252					1
8.20	0.3228				2	●	**MDW0820GS2**	25.40	1.0000	37.70	1.4843	83.70	3.2953	1.70	0.0669	9.00	0.3543	1
					4	●	**MDW0820GS4**	42.40	1.6693	54.70	2.1535	99.70	3.9252					1
8.20	0.3230	P			2	●	**MDW03230GS2**	25.38	0.9994	37.69	1.4839	83.69	3.2950	1.70	0.0669	9.13	0.3594	1
					4	●	**MDW03230GS4**	42.40	1.6694	54.71	2.1539	99.70	3.9250					1
8.30	0.3268				2	●	**MDW0830GS2**	25.30	0.9961	37.70	1.4843	83.70	3.2953	1.70	0.0669	9.00	0.3543	1
					4	●	**MDW0830GS4**	42.30	1.6654	54.70	2.1535	99.70	3.9252					1
8.33	0.3281	21/64	M7x1		2	●	**MDW03281GS2**	25.22	0.9929	37.72	1.4850	83.72	3.2960	1.73	0.0680	9.13	0.3594	1
					4	●	**MDW03281GS4**	42.24	1.6629	54.74	2.1550	99.72	3.9260					1
8.40	0.3307				2	●	**MDW03307GS2**	25.13	0.9895	37.73	1.4855	83.74	3.2970	1.74	0.0685	9.13	0.3594	1
					2	●	**MDW0840GS2**	25.10	0.9882	37.70	1.4843	83.70	3.2953	1.70	0.0669	9.00	0.3543	1
					4	●	**MDW0840GS4**	42.10	1.6575	54.70	2.1535	99.70	3.9252					1
8.43	0.3320	Q		M9x1.25	2	●	**MDW03320GS2**	25.09	0.9878	37.74	1.4858	83.74	3.2970	1.75	0.0688	9.13	0.3594	1
					4	●	**MDW03320GS4**	42.11	1.6578	54.76	2.1558	99.75	3.9270					1

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating 2D 4D

Fig 1



Cut tap reccomendations based on 60-75% full thread. Form tap reccomendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

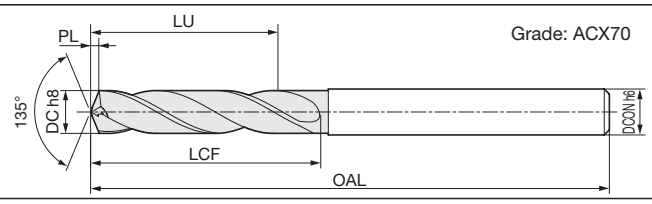
Diameter *ø8.50 to 10.20mm* (0.3346" to 0.4016") Dimensions (*mm*/inch) ● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
8.50	0.3346				2	●	**MDW0850GS2**	25.10	0.9882	37.80	1.4882	83.80	3.2992	1.80	0.0709	9.00	0.3543	1
					4	●	**MDW0850GS4**	42.10	1.6575	54.80	2.1575	99.80	3.9291					1
8.60	0.3386		M10x1.5	M9x.75	2	●	**MDW03386GS2**	26.88	1.0582	39.78	1.5661	83.77	3.2980	1.78	0.0701	9.13	0.3594	1
					2	●	**MDW0860GS2**	26.90	1.0591	39.80	1.5669	83.80	3.2992	1.80	0.0709	9.00	0.3543	1
					4	●	**MDW0860GS4**	43.90	1.7283	56.80	2.2362	99.80	3.9291					1
8.61	0.3390	R			2	●	**MDW03390GS2**	26.87	1.0577	39.78	1.5662	83.79	3.2990	1.78	0.0702	9.13	0.3594	1
					4	●	**MDW03390GS4**	43.86	1.7267	56.77	2.2352	99.77	3.9280					1
8.70	0.3425			3/8-16	2	●	**MDW0870GS2**	26.80	1.0551	39.80	1.5669	83.80	3.2992	1.80	0.0709	9.00	0.3543	1
					4	●	**MDW0870GS4**	43.80	1.7244	56.80	2.2362	99.80	3.9291					1
8.73	0.3438	11/32			2	●	**MDW03438GS2**	26.71	1.0515	39.81	1.5672	83.82	3.3000	1.81	0.0712	9.13	0.3594	1
					4	●	**MDW03438GS4**	43.70	1.7205	56.80	2.2362	99.80	3.9290					1
8.80	0.3465				2	●	**MDW0880GS2**	26.60	1.0472	39.80	1.5669	83.80	3.2992	1.80	0.0709	9.00	0.3543	1
					4	●	**MDW0880GS4**	43.60	1.7165	56.80	2.2362	99.80	3.9291					1
8.83	0.3475				2	●	**MDW03475GS2**	26.59	1.0468	39.83	1.5680	83.82	3.3000	1.83	0.0720	9.13	0.3594	1
8.84	0.3480	S			2	●	**MDW03480GS2**	26.57	1.0461	39.83	1.5681	83.82	3.3000	1.83	0.0721	9.13	0.3594	1
					4	●	**MDW03480GS4**	43.56	1.7151	56.82	2.2371	99.82	3.9300					1
8.90	0.3504		11/32		2	●	**MDW0890GS2**	26.50	1.0433	39.80	1.5669	83.80	3.2992	1.80	0.0709	9.00	0.3543	1
					4	●	**MDW0890GS4**	43.50	1.7126	56.80	2.2362	99.80	3.9291					1
9.00	0.3543				2	●	**MDW0900GS2**	26.40	1.0394	39.90	1.5709	83.90	3.3031	1.90	0.0748	9.00	0.3543	1
					4	●	**MDW0900GS4**	43.40	1.7087	56.90	2.2402	99.90	3.9331					1
9.09	0.3580	T			2	●	**MDW03580GS2**	26.24	1.0331	39.88	1.5701	83.87	3.3020	1.88	0.0741	9.13	0.3594	1
					4	●	**MDW03580GS4**	43.23	1.7021	56.87	2.2391	99.87	3.9320					1
9.10	0.3583				2	●	**MDW0910GS2**	26.30	1.0354	39.90	1.5709	88.90	3.5000	1.90	0.0748	10.00	0.3937	1
					4	●	**MDW0910GS4**	46.30	1.8228	59.90	2.3583	106.90	4.2087					1
9.13	0.3594	23/64	M10x1	3/8-24	2	●	**MDW03594GS2**	26.20	1.0313	39.89	1.5704	83.90	3.3030	1.89	0.0744	9.13	0.3594	1
					4	●	**MDW03594GS4**	43.19	1.7003	56.88	2.2394	99.90	3.9330					1
9.20	0.3622				2	●	**MDW0920GS2**	26.10	1.0276	39.90	1.5709	88.90	3.5000	1.90	0.0748	10.00	0.3937	1
					4	●	**MDW0920GS4**	46.10	1.8150	59.90	2.3583	106.90	4.2087					1
9.30	0.3661				2	●	**MDW0930GS2**	26.00	1.0236	39.90	1.5709	88.90	3.5000	1.90	0.0748	10.00	0.3937	1
					4	●	**MDW0930GS4**	46.00	1.8110	59.90	2.3583	106.90	4.2087					1
9.35	0.3680	U	7/16-14	M10x1.5	2	●	**MDW03680GS2**	25.91	1.0202	39.93	1.5722	88.93	3.5010	1.94	0.0762	9.92	0.3906	1
					4	●	**MDW03680GS4**	45.90	1.8072	59.92	2.3592	106.93	4.2100					1
9.40	0.3701				2	●	**MDW0940GS2**	25.80	1.0157	39.90	1.5709	88.90	3.5000	1.90	0.0748	10.00	0.3937	1
					4	●	**MDW0940GS4**	45.80	1.8031	59.90	2.3583	106.90	4.2087					1
9.50	0.3740			M10x1.25	2	●	**MDW0950GS2**	25.80	1.0157	40.00	1.5748	89.00	3.5039	2.00	0.0787	10.00	0.3937	1
					4	●	**MDW0950GS4**	45.80	1.8031	60.00	2.3622	107.00	4.2126					1
9.53	0.3750	3/8			2	●	**MDW03750GS2**	28.68	1.1292	42.97	1.6917	88.98	3.5030	1.97	0.0777	9.92	0.3906	1
					4	●	**MDW03750GS4**	47.68	1.8772	61.97	2.4397	106.98	4.2120					1
9.58	0.3770	V		M10x1	2	●	**MDW03770GS2**	28.62	1.1266	42.98	1.6921	88.98	3.5030	1.98	0.0781	9.92	0.3906	1
					4	●	**MDW03770GS4**	47.61	1.8746	61.98	2.4401	106.98	4.2120					1
9.60	0.3780				2	●	**MDW03780GS2**	28.58	1.1253	42.98	1.6923	88.98	3.5030	1.99	0.0783	9.92	0.3906	1
					2	●	**MDW0960GS2**	28.60	1.1260	43.00	1.6929	89.00	3.5039	2.00	0.0787	10.00	0.3937	1
					4	●	**MDW0960GS4**	47.60	1.8740	62.00	2.4409	107.00	4.2126					1
9.70	0.3819			M10x1.25	2	●	**MDW0970GS2**	28.50	1.1220	43.00	1.6929	89.00	3.5039	2.00	0.0787	10.00	0.3937	1
					4	●	**MDW0970GS4**	47.50	1.8701	62.00	2.4409	107.00	4.2126					1
9.80	0.3858				2	●	**MDW0980GS2**	28.30	1.1142	43.00	1.6929	89.00	3.5039	2.00	0.0787	10.00	0.3937	1
					4	●	**MDW0980GS4**	47.30	1.8622	62.00	2.4409	107.00	4.2126					1
9.80	0.3860	W			2	●	**MDW03860GS2**	28.32	1.1149	43.03	1.6939	89.03	3.5050	2.03	0.0799	9.92	0.3906	1
					4	●	**MDW03860GS4**	47.32	1.8629	62.02	2.4419	107.04	4.2140					1
9.90	0.3898				2	●	**MDW0990GS2**	28.30	1.1142	43.10	1.6969	89.10	3.5079	2.10	0.0827	10.00	0.3937	1
					4	●	**MDW0990GS4**	47.30	1.8622	62.10	2.4449	107.10	4.2165					1
9.92	0.3906	25/64	7/16-20		2	●	**MDW03906GS2**	28.17	1.1090	43.05	1.6949	89.10	3.5080	2.05	0.0809	9.92	0.3906	1
					4	●	**MDW03906GS4**	47.17	1.8570	62.05	2.4429	107.06	4.2150					1
10.00	0.3937				2	●	**MDW1000GS2**	28.10	1.1063	43.10	1.6969	89.10	3.5079	2.10	0.0827	10.00	0.3937	1
					4	●	**MDW1000GS4**	47.10	1.8543	62.10	2.4449	107.10	4.2165					1
10.08	0.3970	X			2	●	**MDW03970GS2**	27.96	1.1007	43.08	1.6962	95.10	3.7440	2.09	0.0822	11.11	0.4375	1
					4	●	**MDW03970GS4**	52.95	2.0847	68.08	2.6802	116.08	4.5700					1
10.10	0.3976		M11x1		2	●	**MDW1010GS2**	28.00	1.1024	43.10	1.6969	95.10	3.7441	2.10	0.0827	11.00	0.4331	1
					4	●	**MDW1010GS4**	53.00	2.0866	68.10	2.6811	116.10	4.5709					1
10.20	0.4016				2	●	**MDW1020GS2**	27.80	1.0945	43.10	1.6969	95.10	3.7441	2.10	0.0827	11.00	0.4331	1
					4	●	**MDW1020GS4**	52.80	2.0787	68.10	2.6811	116.10	4.5709					1

GS (External Coolant Supply)

DEX Coating 2D 4D

Fig 1



Grade: ACX70

Cut tap reccomendations based on 60-75% full thread. Form tap reccomendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

Diameter *ø10.26 to 12.40mm* (0.4040" to 0.4882") Dimensions (*mm*/inch)

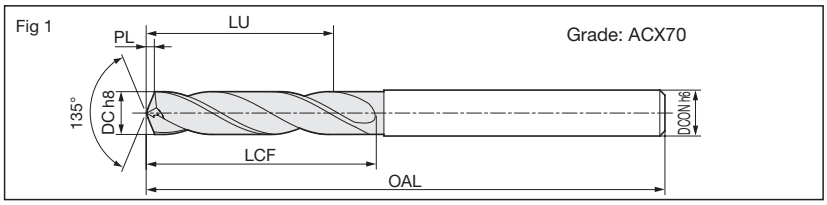
● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
10.26	0.4040	Y	7/16-14		2	●	MDW04040GS2	27.73	1.0917	43.12	1.6977	95.12	3.7450	2.13	0.0837	11.11	0.4375	1
					4	●	MDW04040GS4	52.72	2.0757	68.12	2.6817	116.13	4.5720					1
10.30	0.4055				2	●	MDW1030GS2	27.70	1.0906	43.10	1.6969	95.10	3.7441	2.10	0.0827	11.00	0.4331	1
					4	●	MDW1030GS4	52.70	2.0748	68.10	2.6811	116.10	4.5709					1
10.32	0.4062	13/32		M11x1.5	2	●	MDW04062GS2	27.66	1.0888	43.13	1.6981	95.15	3.7460	2.14	0.0841	11.11	0.4375	1
					4	●	MDW04062GS4	52.65	2.0728	68.13	2.6821	116.13	4.5720					1
10.40	0.4094				2	●	MDW1040GS2	27.60	1.0866	43.20	1.7008	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1040GS4	52.60	2.0709	68.20	2.6850	116.20	4.5748					1
10.49	0.4130	Z	M12x1.75		2	●	MDW04130GS2	27.43	1.0800	43.17	1.6995	95.17	3.7470	2.17	0.0855	11.11	0.4375	1
					4	●	MDW04130GS4	52.43	2.0640	68.16	2.6835	116.18	4.5740					1
10.50	0.4134		7/16-20		2	●	MDW1050GS2	27.50	1.0827	43.20	1.7008	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1050GS4	52.50	2.0669	68.20	2.6850	116.20	4.5748					1
10.60	0.4173			M11x1	2	●	MDW1060GS2	31.30	1.2323	47.20	1.8583	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1060GS4	54.30	2.1378	70.20	2.7638	116.20	4.5748					1
10.70	0.4213				2	●	MDW1070GS2	31.20	1.2283	47.20	1.8583	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1070GS4	54.20	2.1339	70.20	2.7638	116.20	4.5748					1
10.72	0.4219	27/64	M12x1.5	M11x1.75	2	●	MDW04219GS2	31.16	1.2266	47.23	1.8594	95.22	3.7490	2.22	0.0874	11.11	0.4375	1
					4	●	MDW04219GS4	54.14	2.1316	70.22	2.7644	116.23	4.5760					1
10.80	0.4252				2	●	MDW1080GS2	31.00	1.2205	47.20	1.8583	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1080GS4	54.00	2.1260	70.20	2.7638	116.20	4.5748					1
10.90	0.4291		M12x1.25	M12x1.25	2	●	MDW1090GS2	31.00	1.2205	47.30	1.8622	95.30	3.7520	2.30	0.0906	11.00	0.4331	1
					4	●	MDW1090GS4	54.00	2.1260	70.30	2.7677	116.30	4.5787					1
11.00	0.4331				2	●	MDW1100GS2	30.80	1.2126	47.30	1.8622	95.30	3.7520	2.30	0.0906	11.00	0.4331	1
					4	●	MDW1100GS4	53.80	2.1181	70.30	2.7677	116.30	4.5787					1
11.10	0.4370		M12x1.25		2	●	MDW1110GS2	30.70	1.2087	47.30	1.8622	102.30	4.0276	2.30	0.0906	12.00	0.4724	1
					4	●	MDW1110GS4	56.70	2.2323	73.30	2.8858	123.30	4.8543					1
11.11	0.4375	7/16	M12x1		2	●	MDW04375GS2	30.64	1.2064	47.31	1.8626	95.30	3.7520	2.30	0.0906	11.11	0.4375	1
					4	●	MDW04375GS4	53.63	2.1114	70.30	2.7676	116.31	4.5790					1
11.20	0.4409				2	●	MDW1120GS2	30.50	1.2008	47.30	1.8622	102.30	4.0276	2.30	0.0906	12.00	0.4724	1
					4	●	MDW1120GS4	56.50	2.2244	73.30	2.8858	123.30	4.8543					1
11.30	0.4449			M12x1.5 M12x1.75	2	●	MDW1130GS2	30.40	1.1969	47.30	1.8622	102.30	4.0276	2.30	0.0906	12.00	0.4724	1
					4	●	MDW1130GS4	56.40	2.2205	73.30	2.8858	123.30	4.8543					1
11.40	0.4488				2	●	MDW1140GS2	30.30	1.1929	47.40	1.8661	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1140GS4	56.30	2.2165	73.40	2.8898	123.40	4.8583					1
11.50	0.4528			M12x1.25	2	●	MDW1150GS2	30.20	1.1890	47.40	1.8661	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1150GS4	56.20	2.2126	73.40	2.8898	123.40	4.8583					1
11.51	0.4531	29/64			2	●	MDW04531GS2	32.11	1.2642	49.37	1.9438	102.39	4.0310	2.38	0.0938	11.91	0.4688	1
					4	●	MDW04531GS4	58.12	2.2882	75.38	2.9678	123.39	4.8580					1
11.60	0.4567		1/2-20	M12x1	2	●	MDW1160GS2	32.00	1.2598	49.40	1.9449	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1160GS4	58.00	2.2835	75.40	2.9685	123.40	4.8583					1
11.61	0.4570				2	●	MDW04570GS2	31.98	1.2591	49.39	1.9446	102.41	4.0320	2.40	0.0946	11.91	0.4688	1
11.70	0.4606				2	●	MDW1170GS2	31.90	1.2559	49.40	1.9449	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1170GS4	57.90	2.2795	75.40	2.9685	123.40	4.8583					1
11.80	0.4646				2	●	MDW1180GS2	31.70	1.2480	49.40	1.9449	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1180GS4	57.70	2.2717	75.40	2.9685	123.40	4.8583					1
11.90	0.4685			1/2-13	2	●	MDW1190GS2	31.70	1.2480	49.50	1.9488	102.50	4.0354	2.50	0.0984	12.00	0.4724	1
					4	●	MDW1190GS4	57.70	2.2717	75.50	2.9724	123.50	4.8622					1
11.91	0.4688	15/32			2	●	MDW04688GS2	31.60	1.2439	49.46	1.9471	102.46	4.0340	2.47	0.0971	11.91	0.4688	1
					4	●	MDW04688GS4	57.60	2.2679	75.47	2.9711	123.47	4.8610					1
12.00	0.4724				2	●	MDW1200GS2	31.50	1.2402	49.50	1.9488	102.50	4.0354	2.50	0.0984	12.00	0.4724	1
					4	●	MDW1200GS4	57.50	2.2638	75.50	2.9724	123.50	4.8622					1
12.10	0.4764				2	●	MDW1210GS2	31.40	1.2362	49.50	1.9488	102.50	4.0354	2.50	0.0984	13.00	0.5118	1
					4	●	MDW1210GS4	60.40	2.3780	78.50	3.0906	139.50	5.4921					1
12.20	0.4803				2	●	MDW1220GS2	31.20	1.2283	49.50	1.9488	102.50	4.0354	2.50	0.0984	13.00	0.5118	1
					4	●	MDW1220GS4	60.20	2.3701	78.50	3.0906	139.50	5.4921					1
12.30	0.4843				2	●	MDW1230GS2	31.10	1.2244	49.50	1.9488	102.50	4.0354	2.50	0.0984	13.00	0.5118	1
					4	●	MDW1230GS4	60.10	2.3661	78.50	3.0906	139.50	5.4921					1
12.30	0.4844	31/64			2	●	MDW04844GS2	31.08	1.2237	49.54	1.9503	102.54	4.0370	2.55	0.1003	13.10	0.5156	1
					4	●	MDW04844GS4	60.09	2.3657	78.54	3.0923	139.55	5.4940					1
12.40	0.4882				2	●	MDW1240GS2	31.00	1.2205	49.60	1.9528	102.60	4.0394	2.60	0.1024	13.00	0.5118	1
					4	●	MDW1240GS4	60.00	2.3622	78.60	3.0945	139.60	5.4961					1

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating 2D 4D

Fig 1



Cut tap reccomendations based on 60-75% full thread. Form tap reccomendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

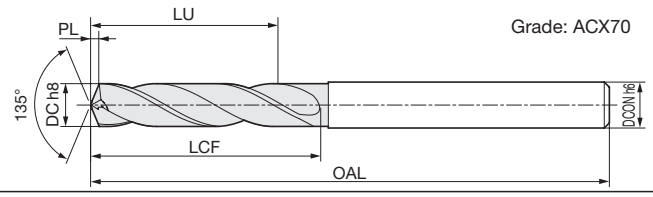
Diameter *ø12.50 to 14.80mm* (0.4921" to 0.5827") Dimensions (*mm*/inch) ● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
12.50	0.4921		9/16-12		2	●	**MDW1250GS2**	30.90	1.2165	49.60	1.9528	102.60	4.0394	2.60	0.1024	13.00	0.5118	1
					4	●	**MDW1250GS4**	59.90	2.3583	78.60	3.0945	139.60	5.4961					1
12.60	0.4961				2	●	**MDW1260GS2**	32.70	1.2874	51.60	2.0315	102.60	4.0394	2.60	0.1024	13.00	0.5118	1
					4	●	**MDW1260GS4**	61.70	2.4291	80.60	3.1732	139.60	5.4961					1
12.70	0.5000	1/2	M14x1.5		2	●	**MDW05000GS2**	32.58	1.2826	51.63	2.0326	102.64	4.0410	2.63	0.1036	13.10	0.5156	1
					4	●	**MDW05000GS4**	61.58	2.4246	80.63	3.1746	139.62	5.4970					1
					2	●	**MDW1270GS2**	32.60	1.2835	51.60	2.0315	102.60	4.0394	2.60	0.1024	13.00	0.5118	1
					4	●	**MDW1270GS4**	61.60	2.4252	80.60	3.1732	139.60	5.4961					1
12.80	0.5039				2	●	**MDW1280GS2**	32.50	1.2795	51.70	2.0354	102.70	4.0433	2.70	0.1063	13.00	0.5118	1
					4	●	**MDW1280GS4**	61.50	2.4213	80.70	3.1772	139.70	5.5000					1
12.83	0.5050				2	●	**MDW05050GS2**	32.41	1.2761	51.65	2.0336	102.67	4.0420	2.66	0.1046	13.10	0.5156	1
					4	●	**MDW05050GS4**	61.42	2.4181	80.66	3.1756	139.65	5.4980					1
12.90	0.5079		M14x1.25		2	●	**MDW1290GS2**	32.40	1.2756	51.70	2.0354	102.70	4.0433	2.70	0.1063	13.00	0.5118	1
					4	●	**MDW1290GS4**	61.40	2.4173	80.70	3.1772	139.70	5.5000					1
13.00	0.5118				2	●	**MDW1300GS2**	32.20	1.2677	51.70	2.0354	102.70	4.0433	2.70	0.1063	13.00	0.5118	1
					4	●	**MDW1300GS4**	61.20	2.4094	80.70	3.1772	139.70	5.5000					1
13.10	0.5156	33/64			2	●	**MDW05156GS2**	32.06	1.2624	51.71	2.0358	102.72	4.0440	2.71	0.1068	13.10	0.5156	1
					4	●	**MDW05156GS4**	61.07	2.4044	80.72	3.1778	139.70	5.5000					1
13.10	0.5157		9/16-18 M14x1	M14x2	2	●	**MDW1310GS2**	33.10	1.3031	52.70	2.0748	107.70	4.2402	2.70	0.1063	14.00	0.5512	1
					4	●	**MDW1310GS4**	67.10	2.6417	86.70	3.4134	149.70	5.8937					1
13.20	0.5197				2	●	**MDW1320GS2**	32.90	1.2953	52.70	2.0748	107.70	4.2402	2.70	0.1063	14.00	0.5512	1
					4	●	**MDW1320GS4**	66.90	2.6339	86.70	3.4134	149.70	5.8937					1
13.30	0.5236			M14x1.5	2	●	**MDW1330GS2**	32.90	1.2953	52.80	2.0787	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	●	**MDW1330GS4**	66.90	2.6339	86.80	3.4173	149.80	5.8976					1
13.40	0.5276			9/16-12 M14x1.25	2	●	**MDW1340GS2**	32.70	1.2874	52.80	2.0787	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	★	**MDW1340GS4**	66.70	2.6260	86.80	3.4173	149.80	5.8976					1
13.49	0.5312	17/32	5/8-11	M14x1	2	●	**MDW05312GS2**	32.57	1.2822	52.81	2.0790	107.80	4.2440	2.79	0.1100	13.89	0.5469	1
					4	●	**MDW05312GS4**	66.55	2.6202	86.79	3.4170	149.78	5.8970					1
13.50	0.5315				2	●	**MDW1350GS2**	32.60	1.2835	52.80	2.0787	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	●	**MDW1350GS4**	66.60	2.6220	86.80	3.4173	149.80	5.8976					1
13.60	0.5354				2	●	**MDW1360GS2**	34.40	1.3543	54.80	2.1575	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	●	**MDW1360GS4**	68.40	2.6929	88.80	3.4961	149.80	5.8976					1
13.70	0.5394		M15x1.5	9/16-18	2	●	**MDW1370GS2**	34.30	1.3504	54.80	2.1575	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	●	**MDW1370GS4**	68.30	2.6890	88.80	3.4961	149.80	5.8976					1
13.80	0.5433				2	●	**MDW1380GS2**	34.20	1.3465	54.90	2.1614	107.90	4.2480	2.90	0.1142	14.00	0.5512	1
					4	●	**MDW1380GS4**	68.20	2.6850	88.90	3.5000	149.90	5.9016					1
13.89	0.5469	35/64	5/8-11		2	●	**MDW05469GS2**	34.04	1.3400	54.87	2.1603	107.87	4.2470	2.88	0.1133	13.89	0.5469	1
					4	●	**MDW05469GS4**	68.05	2.6790	88.88	3.4993	149.89	5.9010					1
13.90	0.5472				2	●	**MDW1390GS2**	34.10	1.3425	54.90	2.1614	107.90	4.2480	2.90	0.1142	14.00	0.5512	1
					4	★	**MDW1390GS4**	68.10	2.6811	88.90	3.5000	149.90	5.9016					1
14.00	0.5512				2	●	**MDW1400GS2**	33.90	1.3346	54.90	2.1614	107.90	4.2480	2.90	0.1142	14.00	0.5512	1
					4	●	**MDW1400GS4**	67.90	2.6732	88.90	3.5000	149.90	5.9016					1
14.10	0.5551		M15x1		2	●	**MDW1410GS2**	33.80	1.3307	54.90	2.1614	110.90	4.3661	2.90	0.1142	15.00	0.5906	1
					4	★	**MDW1410GS4**	70.80	2.7874	91.90	3.6181	155.90	6.1378					1
14.20	0.5591				2	●	**MDW1420GS2**	33.60	1.3228	54.90	2.1614	110.90	4.3661	2.90	0.1142	15.00	0.5906	1
					4	●	**MDW1420GS4**	70.60	2.7795	91.90	3.6181	155.90	6.1378					1
14.29	0.5625	9/16	M16x2	M15x1.5	2	●	**MDW05625GS2**	33.52	1.3198	54.95	2.1635	110.95	4.3680	2.96	0.1165	15.08	0.5937	1
					4	●	**MDW05625GS4**	70.53	2.7768	91.96	3.6205	155.96	6.1400					1
14.30	0.5630				2	●	**MDW1430GS2**	33.60	1.3228	55.00	2.1654	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	**MDW1430GS4**	70.60	2.7795	92.00	3.6220	156.00	6.1417					1
14.40	0.5669				2	●	**MDW1440GS2**	33.40	1.3150	55.00	2.1654	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	**MDW1440GS4**	70.40	2.7717	92.00	3.6220	156.00	6.1417					1
14.50	0.5709			M15x1	2	●	**MDW1450GS2**	33.30	1.3110	55.00	2.1654	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	**MDW1450GS4**	70.30	2.7677	92.00	3.6220	156.00	6.1417					1
14.60	0.5748				2		**MDW1460GS2**	34.10	1.3425	56.00	2.2047	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	**MDW1460GS4**	72.10	2.8386	94.00	3.7008	156.00	6.1417					1
14.68	0.5781	37/64	5/8-18 M16x1.5		2	●	**MDW05781GS2**	34.03	1.3396	56.05	2.2067	111.05	4.3720	3.04	0.1197	15.08	0.5937	1
					4	●	**MDW05781GS4**	72.02	2.8356	94.05	3.7027	156.03	6.1430					1
14.70	0.5787				2	●	**MDW1470GS2**	34.00	1.3386	56.00	2.2047	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	**MDW1470GS4**	72.00	2.8346	94.00	3.7008	156.00	6.1417					1
14.80	0.5827				2	●	**MDW1480GS2**	33.90	1.3346	56.10	2.2087	111.10	4.3740	3.10	0.1220	15.00	0.5906	1
					4	●	**MDW1480GS4**	71.90	2.8307	94.10	3.7047	156.10	6.1457					1

GS (External Coolant Supply)

DEX Coating 2D 4D

Fig 1



Grade: ACX70

Cut tap reccomendations based on 60-75% full thread. Form tap reccomendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

Diameter ø14.90 to 20.00mm (0.5866" to 0.7874") Dimensions (mm/inch)

● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
14.90	0.5866			5/8-11	2	●	MDW1490GS2	33.80	1.3307	56.10	2.2087	111.10	4.3740	3.10	0.1220	15.00	0.5906	1
					4	●	MDW1490GS4	71.80	2.8268	94.10	3.7047	156.10	6.1457					1
15.00	0.5906				2	●	MDW1500GS2	33.60	1.3228	56.10	2.2087	111.10	4.3740	3.10	0.1220	15.00	0.5906	1
					4	●	MDW1500GS4	71.60	2.8189	94.10	3.7047	156.10	6.1457					1
15.08	0.5937	19/32	M16x1	M16x2	2	●	MDW05937GS2	33.52	1.3195	56.13	2.2100	111.13	4.3750	3.12	0.1230	15.08	0.5937	1
					4	●	MDW05937GS4	71.51	2.8155	94.13	3.7060	156.13	6.1470					1
15.10	0.5945				2	●	MDW1510GS2	33.50	1.3189	56.10	2.2087	115.10	4.5315	3.10	0.1220	16.00	0.6299	1
					4	●	MDW1510GS4	74.50	2.9331	97.10	3.8228	163.10	6.4213					1
15.20	0.5984				2	●	MDW1520GS2	33.30	1.3110	56.10	2.2087	115.10	4.5315	3.10	0.1220	16.00	0.6299	1
					4	●	MDW1520GS4	74.30	2.9252	97.10	3.8228	163.10	6.4213					1
15.30	0.6024			5/8-18 M16x1.5	2	●	MDW1530GS2	33.30	1.3110	56.20	2.2126	115.20	4.5354	3.20	0.1260	16.00	0.6299	1
					4	●	MDW1530GS4	74.30	2.9252	97.20	3.8268	163.20	6.4252					1
15.40	0.6063				2	●	MDW1540GS2	33.10	1.3031	56.20	2.2126	115.20	4.5354	3.20	0.1260	16.00	0.6299	1
					4	●	MDW1540GS4	74.10	2.9173	97.20	3.8268	163.20	6.4252					1
15.48	0.6094	39/64	11/16-12		2	●	MDW06094GS2	33.00	1.2991	56.22	2.2132	115.21	4.5360	3.21	0.1262	15.88	0.6250	1
					4	●	MDW06094GS4	73.99	2.9131	97.21	3.8272	163.20	6.4250					1
15.50	0.6102				2	●	MDW1550GS2	33.00	1.2992	56.20	2.2126	115.20	4.5354	3.20	0.1260	16.00	0.6299	1
					4	●	MDW1550GS4	74.00	2.9134	97.20	3.8268	163.20	6.4252					1
15.60	0.6142			M16x1	2	●	MDW1560GS2	34.80	1.3701	58.20	2.2913	115.20	4.5354	3.20	0.1260	16.00	0.6299	1
					4	★	MDW1560GS4	75.80	2.9843	99.20	3.9055	163.20	6.4252					1
15.70	0.6181		M18x2.5		2	●	MDW1570GS2	34.80	1.3701	58.30	2.2953	115.30	4.5394	3.30	0.1299	16.00	0.6299	1
					4	●	MDW1570GS4	75.80	2.9843	99.30	3.9094	163.30	6.4291					1
15.80	0.6220				2	●	MDW1580GS2	34.60	1.3622	58.30	2.2953	115.30	4.5394	3.30	0.1299	16.00	0.6299	1
					4	●	MDW1580GS4	75.60	2.9764	99.30	3.9094	163.30	6.4291					1
15.88	0.6250	5/8	11/16-16		2	●	MDW06250GS2	34.47	1.3569	58.28	2.2944	115.29	4.5390	3.29	0.1294	15.88	0.6250	1
					4	●	MDW06250GS4	75.49	2.9719	99.30	3.9094	163.30	6.4290					1
15.90	0.6260				2	●	MDW1590GS2	34.50	1.3583	58.30	2.2953	115.30	4.5394	3.30	0.1299	16.00	0.6299	1
					4	●	MDW1590GS4	75.50	2.9724	99.30	3.9094	163.30	6.4291					1
16.00	0.6299				2	●	MDW1600GS2	34.30	1.3504	58.30	2.2953	115.30	4.5394	3.30	0.1299	16.00	0.6299	1
					4	●	MDW1600GS4	75.30	2.9646	99.30	3.9094	163.30	6.4291					1
16.27	0.6406	41/64			2	●	MDW06406GS2	34.97	1.3768	59.38	2.3377	119.38	4.7000	3.37	0.1327	17.07	0.6719	1
					4	●	MDW06406GS4	76.96	3.0298	101.36	3.9907	170.36	6.7070					1
16.50	0.6496			M17x1	2	★	MDW1650GS2	34.70	1.3661	59.40	2.3386	119.40	4.7008	3.40	0.1339	17.00	0.6693	1
					4	●	MDW1650GS4	76.70	3.0197	101.40	3.9921	170.40	6.7087					1
16.67	0.6562	21/32			2	●	MDW06562GS2	35.45	1.3956	60.45	2.3799	119.46	4.7030	3.45	0.1359	17.07	0.6719	1
					4	●	MDW06562GS4	76.44	3.0096	101.45	3.9939	170.46	6.7110					1
17.00	0.6693				2	★	MDW1700GS2	35.00	1.3780	60.50	2.3819	119.50	4.7047	3.50	0.1378	17.00	0.6693	1
					4	★	MDW1700GS4	76.00	2.9921	101.50	3.9961	170.50	6.7126					1
17.46	0.6875	5/8			2	●	MDW06875GS2	35.41	1.3942	61.61	2.4254	123.62	4.8670	3.62	0.1424	17.86	0.7031	1
					4	●	MDW06875GS4	77.42	3.0482	103.62	4.0794	170.61	6.7170					1
17.50	0.6890			5/8	2	★	MDW1750GS2	35.40	1.3937	61.60	2.4252	123.60	4.8661	3.60	0.1417	18.00	0.7087	1
					4	★	MDW1750GS4	77.40	3.0472	103.60	4.0787	170.60	6.7165					1
17.86	0.7031	45/64			2	●	MDW07031GS2	35.92	1.4140	62.70	2.4686	123.70	4.8700	3.70	0.1456	17.86	0.7031	1
					4	●	MDW07031GS4	78.92	3.1070	105.70	4.1616	170.69	6.7200					1
18.00	0.7087			3/4-10	2	★	MDW1800GS2	35.70	1.4055	62.70	2.4685	123.70	4.8701	3.70	0.1457	18.00	0.7087	1
					4	●	MDW1800GS4	78.70	3.0984	105.70	4.1614	170.70	6.7205					1
18.25	0.7187	23/32			2	●	MDW07187GS2	35.40	1.3938	62.78	2.4718	126.77	4.9910	3.78	0.1488	19.05	0.7500	1
					4	●	MDW07187GS4	80.39	3.1648	107.77	4.2428	182.78	7.1960					1
18.50	0.7283				2	★	MDW1850GS2	35.10	1.3819	62.80	2.4724	126.80	4.9921	3.80	0.1496	19.00	0.7480	1
					4	★	MDW1850GS4	80.10	3.1535	107.80	4.2441	182.80	7.1969					1
18.65	0.7344	47/64			2	●	MDW07344GS2	35.88	1.4125	63.86	2.5141	126.87	4.9950	3.86	0.1521	19.05	0.7500	1
					4	●	MDW07344GS4	81.88	3.2235	109.86	4.3251	182.85	7.1990					1
19.00	0.7480				2	●	MDW1900GS2	35.40	1.3937	63.90	2.5157	126.90	4.9961	3.90	0.1535	19.00	0.7480	1
					4	★	MDW1900GS4	81.40	3.2047	109.90	4.3268	182.90	7.2008					1
19.05	0.7500	3/4			2	●	MDW07500GS2	35.36	1.3923	63.94	2.5173	126.95	4.9980	3.94	0.1553	19.05	0.7500	1
					4	●	MDW07500GS4	81.36	3.2033	109.94	4.3283	182.96	7.2030					1
19.50	0.7677				2	★	MDW1950GS2	35.80	1.4094	65.00	2.5591	131.00	5.1575	4.00	0.1575	20.00	0.7874	1
					4	★	MDW1950GS4	84.80	3.3386	114.00	4.4882	183.00	7.2047					1
19.84	0.7812	25/32			2	●	MDW07812GS2	36.35	1.4310	66.11	2.6028	131.11	5.1620	4.11	0.1618	19.85	0.7813	1
					4	●	MDW07812GS4	88.34	3.4780	118.10	4.6498	183.11	7.2090					1
20.00	0.7874				2	★	MDW2000GS2	36.10	1.4213	66.10	2.6024	131.10	5.1614	4.10	0.1614	20.00	0.7874	1
					4	★	MDW2000GS4	88.10	3.4685	118.10	4.6496	183.10	7.2087					1

Carbon Steel/ Alloy Steel up to 0.26% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating 2D 4D

MDW - GS Cutting Conditions

MDW		Part Material	Hardness HB	Speed = SFM Feed = IPR	Drill Diameter (inch)		
					ø < ø0.196	ø0.197 - ø0.394	ø0.395 >
GS 2D 4D	P	Low Carbon Steel	<190	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
			190 ~ 250	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
			250 ~ 300	SFM	100 - 225	140 - 250	190 - 325
				IPR	.003 - .006	.004 - .008	.006 - .010
		Medium Carbon Steel	180 ~ 275	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
			275 ~ 350	SFM	100 - 225	140 - 250	190 - 325
				IPR	.003 - .006	.004 - .008	.006 - .010
		Alloy Steel	200	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
			350	SFM	80 - 210	115 - 220	115 - 250
				IPR	.003 - .006	.004 - .008	.006 - .010
	M	300 Austenitic Stainless Steel	160 ~ 280	SFM	50 -115	60 - 160	80 - 210
				IPR	.002 - .006	.003 - .008	.004 - .010
		400 Martensitic Stainless Steel	160 ~ 240	SFM	60 - 120	75 - 180	90 - 225
				IPR	.002 - .006	.003 - .008	.006 - .010
	K	Cast Iron		SFM	115 - 300	195 - 390	250 -415
				IPR	.006 - .010	.006 - .014	.006 - .014
		Ductile Iron		SFM	115 - 185	160 - 300	210 - 375
				IPR	.006 - .010	.006 - .014	.006 - .014
	H	Hardened Steel	45-60 Rc	SFM	40 - 60	40 - 80	50 - 100
				IPR	.002 - .004	.003 - .006	.004 - .008
	S	Titanium Alloy Ti-6Al-4V		SFM	40 - 80	40 - 100	50 - 110
				IPR	.003 - .004	.003 - .005	.003 - .006
		Exotics - Inconel, Monel		SFM	30 - 60	30 - 60	40 - 80
				IPR	.002 - .003	.003 - .005	.003 - .006
	N	Aluminum alloy		SFM	300 - 700	400 - 800	400 - 800
				IPR	.003 - .006	.004 - .008	.006 - .012
		Copper Alloy		SFM	300 - 700	400 - 800	400 - 800
				IPR	.003 - .006	.004 - .008	.006 - .010

HGS (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 1 (diameter ø1.5 to 2.4mm 0.059"-0.095", single margin)

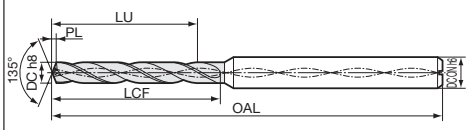
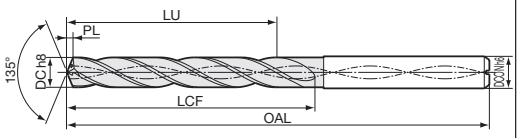


Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø1.50 to 2.82mm* (0.0591" to 0.1110")

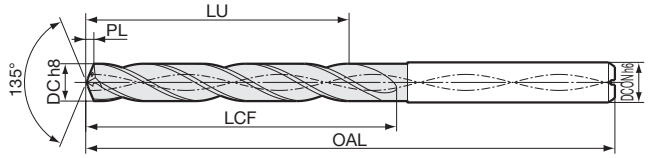
Dimensions (*mm*/inch) ● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
1.50	0.0591				3	●	MDW0150HGS3	8.10	0.3189	10.30	0.4055	63.30	2.4921	0.30	0.0118	3.00	0.1181	1
					5	●	MDW0150HGS5	12.10	0.4764	14.30	0.5630	70.30	2.7677					1
					8	●	MDW0150HGS8	16.60	0.6535	18.80	0.7402	76.30	3.0039					1
1.59	0.0625	1/16	M2x.4	M1.7x.35	3	●	MDW00625HGS3S	10.44	0.4112	12.82	0.5049	63.32	2.4930	0.33	0.0129	3.00	0.1181	1
					5	●	MDW00625HGS5S	16.95	0.6672	19.33	0.7609	70.33	2.7690					1
1.60	0.0630				3	●	MDW0160HGS3	10.40	0.4094	12.80	0.5039	63.30	2.4921	0.30	0.0118	3.00	0.1181	1
					5	●	MDW0160HGS5	16.90	0.6654	19.30	0.7598	70.30	2.7677					1
					8	★	MDW0160HGS8	21.90	0.8622	24.30	0.9567	76.30	3.0039					1
1.70	0.0669			1-64	3	●	MDW0170HGS3	10.40	0.4094	12.90	0.5079	63.40	2.4961	0.40	0.0157	3.00	0.1181	1
					5	●	MDW0170HGS5	16.90	0.6654	19.40	0.7638	70.40	2.7717					1
					8	★	MDW0170HGS8	21.90	0.8622	24.40	0.9606	76.40	3.0079					1
1.80	0.0709				3	●	MDW0180HGS3	10.20	0.4016	12.90	0.5079	63.40	2.4961	0.40	0.0157	3.00	0.1181	1
					5	●	MDW0180HGS5	16.70	0.6575	19.40	0.7638	70.40	2.7717					1
					8	★	MDW0180HGS8	21.70	0.8543	24.40	0.9606	76.40	3.0079					1
1.85	0.0730	#49	2-56	M2x.4	3	●	MDW00730HGS3S	10.10	0.3976	12.88	0.5071	63.32	2.4930	0.38	0.0151	3.00	0.1181	1
					5	●	MDW00730HGS5S	16.60	0.6536	19.38	0.7631	70.38	2.7710					1
1.90	0.0748				3	●	MDW0190HGS3	10.10	0.3976	12.90	0.5079	63.40	2.4961	0.40	0.0157	3.00	0.1181	1
					5	●	MDW0190HGS5	16.60	0.6535	19.40	0.7638	70.40	2.7717					1
					8	●	MDW0190HGS8	21.60	0.8504	24.40	0.9606	76.40	3.0079					1
2.00	0.0787			2-56 2-64	3	●	MDW0200HGS3	9.90	0.3898	12.90	0.5079	63.40	2.4961	0.40	0.0157	3.00	0.1181	1
					5	●	MDW0200HGS5	16.40	0.6457	19.40	0.7638	70.40	2.7717					1
					8	●	MDW0200HGS8	21.40	0.8425	24.40	0.9606	76.40	3.0079					1
2.06	0.0810	#46	3-48 M2.5x.45	2-64	3	●	MDW00810HGS3S	12.35	0.4863	15.44	0.6078	68.43	2.6940	0.43	0.0168	3.00	0.1181	1
					5	●	MDW00810HGS5S	21.34	0.8403	24.43	0.9618	78.44	3.0880					1
2.10	0.0827		3-56		3	●	MDW0210HGS3	12.30	0.4843	15.40	0.6063	68.40	2.6929	0.40	0.0157	3.00	0.1181	1
					5	●	MDW0210HGS5	21.30	0.8386	24.40	0.9606	78.40	3.0866					1
					8	★	MDW0210HGS8	24.80	0.9764	27.90	1.0984	81.40	3.2047					1
2.20	0.0866				3	●	MDW0220HGS3	12.20	0.4803	15.50	0.6102	68.50	2.6969	0.50	0.0197	3.00	0.1181	1
					5	●	MDW0220HGS5	21.20	0.8346	24.50	0.9646	78.50	3.0906					1
					8	★	MDW0220HGS8	24.70	0.9724	28.00	1.1024	81.50	3.2087					1
2.30	0.0906		4-40	3-48	3	●	MDW0230HGS3	12.10	0.4764	15.50	0.6102	68.50	2.6969	0.50	0.0197	3.00	0.1181	1
					5	●	MDW0230HGS5	21.10	0.8307	24.50	0.9646	78.50	3.0906					1
					8	★	MDW0230HGS8	24.60	0.9685	28.00	1.1024	81.50	3.2087					1
2.38	0.0937	3/32	4-48		3	●	MDW00937HGS3	11.94	0.4699	15.50	0.6104	68.50	2.6970	0.49	0.0194	3.18	0.1250	1
					5	●	MDW00937HGS5	20.93	0.8239	24.50	0.9644	78.49	3.0900					1
					8	●	MDW00937HGS8	24.43	0.9619	28.00	1.1024	81.48	3.2080					1
					3	●	MDW00937HGS3S	11.94	0.4699	15.50	0.6104	68.50	2.6970	0.49	0.0194	3.00	0.1181	1
					5	●	MDW00937HGS5S	20.93	0.8239	24.50	0.9644	78.49	3.0900					1
2.40	0.0945				3	●	MDW0240HGS3	11.90	0.4685	15.50	0.6102	68.50	2.6969	0.50	0.0197	3.00	0.1181	1
					5	●	MDW0240HGS5	20.90	0.8228	24.50	0.9646	78.50	3.0906					1
					8	★	MDW0240HGS8	24.40	0.9606	28.00	1.1024	81.50	3.2087					1
2.50	0.0984		M3x.5		3	●	MDW0250HGS3	11.80	0.4646	15.50	0.6102	68.50	2.6969	0.50	0.0197	3.00	0.1181	2
					5	●	MDW0250HGS5	20.80	0.8189	24.50	0.9646	78.50	3.0906					2
					8	●	MDW0250HGS8	24.30	0.9567	28.00	1.1024	81.50	3.2087					2
2.57	0.1010			4-40	3	●	MDW01010HGS3S	14.18	0.5584	18.03	0.7099	68.53	2.6980	0.53	0.0209	3.00	0.1181	2
					5	●	MDW01010HGS5S	24.67	0.9714	28.52	1.1229	78.54	3.0920					2
2.60	0.1024		5-40	4-48	3	●	MDW0260HGS3	14.10	0.5551	18.00	0.7087	68.50	2.6969	0.50	0.0197	3.00	0.1181	2
					5	●	MDW0260HGS5	24.60	0.9685	28.50	1.1220	78.50	3.0906					2
					8	★	MDW0260HGS8	29.60	1.1654	33.50	1.3189	81.50	3.2087					2
2.70	0.1063		5-44 M3x.35		3	●	MDW0270HGS3	14.10	0.5551	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	2
					5	●	MDW0270HGS5	24.60	0.9685	28.60	1.1260	78.60	3.0945					2
					8	★	MDW0270HGS8	29.60	1.1654	33.60	1.3228	81.60	3.2126					2
2.78	0.1094	7/64		M3x.5	3	●	MDW01094HGS3	13.91	0.5476	18.08	0.7117	68.58	2.7000	0.58	0.0227	3.00	0.1181	2
					3	●	MDW01094HGS3S	13.91	0.5476	18.08	0.7117	68.58	2.7000					2
					5	●	MDW01094HGS5S	24.40	0.9606	28.57	1.1247	78.59	3.0940					2
2.80	0.1102				3	●	MDW0280HGS3	13.90	0.5472	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	2
					5	●	MDW0280HGS5	24.40	0.9606	28.60	1.1260	78.60	3.0945					2
					8	★	MDW0280HGS8	29.40	1.1575	33.60	1.3228	81.60	3.2126					2
2.82	0.1110	#34	6-32	M3x.5	3	●	MDW01110HGS3S	13.86	0.5455	18.08	0.7120	68.58	2.7000	0.58	0.0230	3.00	0.1181	2
					5	●	MDW01110HGS5S	24.35	0.9585	28.58	1.1250	78.59	3.0940					2

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø2.90 to 3.97mm* (0.1142" to 0.1562") Dimensions (*mm*/inch)

● USA stocked item ★ Worldwide Warehouse Item

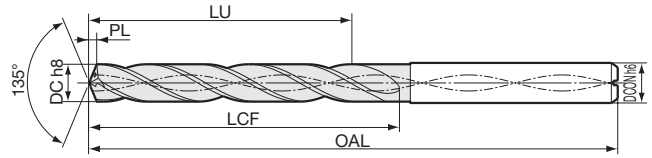
Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
2.90	0.1142			5-44	3	●	**MDW0290HGS3**	13.80	0.5433	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	2
					5	●	**MDW0290HGS5**	24.30	0.9567	28.60	1.1260	78.60	3.0945					2
					8	★	**MDW0290HGS8**	29.30	1.1535	33.60	1.3228	81.60	3.2126					2
2.95	0.1160	#32	M3.5x6		3	●	**MDW01160HGS3S**	13.69	0.5390	18.11	0.7130	68.61	2.7010	0.61	0.0240	3.00	0.1181	2
					5	●	**MDW01160HGS5S**	24.18	0.9520	28.60	1.1260	78.61	3.0950					2
3.00	0.1181				3	●	**MDW0300HGS3**	13.60	0.5354	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	2
					5	●	**MDW0300HGS5**	24.10	0.9488	28.60	1.1260	78.60	3.0945					2
					8	●	**MDW0300HGS8**	29.10	1.1457	33.60	1.3228	81.60	3.2126					2
3.10	0.1220				3	●	**MDW0310HGS3**	16.00	0.6299	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	2
					5	●	**MDW0310HGS5**	28.00	1.1024	32.60	1.2835	86.60	3.4094					2
					8	★	**MDW0310HGS8**	34.50	1.3583	39.10	1.5394	92.60	3.6457					2
3.18	0.1250	1/8		6-32	3	●	**MDW01250HGS3**	13.40	0.5274	18.16	0.7149	68.66	2.7030	0.66	0.0259	3.18	0.1250	2
					5	●	**MDW01250HGS5**	23.89	0.9404	28.65	1.1279	78.66	3.0970					2
					8	●	**MDW01250HGS8**	28.89	1.1374	33.65	1.3249	81.66	3.2150					2
					3	●	**MDW01250HGS3S**	15.89	0.6254	20.65	0.8129	72.67	2.8610	0.66	0.0259	4.00	0.1575	2
					5	●	**MDW01250HGS5S**	27.90	1.0984	32.66	1.2859	86.66	3.4120					2
3.20	0.1260			6-40	3	●	**MDW0320HGS3**	15.90	0.6260	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	2
					5	●	**MDW0320HGS5**	27.90	1.0984	32.70	1.2874	86.70	3.4134					2
					8	★	**MDW0320HGS8**	34.40	1.3543	39.20	1.5433	92.70	3.6496					2
3.26	0.1285	#30		M3.5x6	3	●	**MDW01285HGS3S**	15.77	0.6209	20.67	0.8136	72.67	2.8610	0.68	0.0266	4.00	0.1575	2
					5	●	**MDW01285HGS5S**	27.79	1.0939	32.68	1.2866	86.66	3.4120					2
3.30	0.1299				3	●	**MDW0330HGS3**	15.80	0.6220	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	2
					5	●	**MDW0330HGS5**	27.80	1.0945	32.70	1.2874	86.70	3.4134					2
					8	●	**MDW0330HGS8**	34.30	1.3504	39.20	1.5433	92.70	3.6496					2
3.40	0.1339		M4x.7		3	●	**MDW0340HGS3**	15.60	0.6142	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	2
					5	●	**MDW0340HGS5**	27.60	1.0866	32.70	1.2874	86.70	3.4134					2
					8	★	**MDW0340HGS8**	34.10	1.3425	39.20	1.5433	92.70	3.6496					2
3.45	0.1360	#29	8-32		3	●	**MDW01360HGS3S**	15.52	0.6112	20.71	0.8152	72.72	2.8630	0.72	0.0282	4.00	0.1575	2
					5	●	**MDW01360HGS5S**	27.54	1.0842	32.72	1.2882	86.72	3.4140					2
3.50	0.1378				3	●	**MDW0350HGS3**	15.50	0.6102	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	2
					5	●	**MDW0350HGS5**	27.50	1.0827	32.70	1.2874	86.70	3.4134					2
					8	●	**MDW0350HGS8**	34.00	1.3386	39.20	1.5433	92.70	3.6496					2
3.57	0.1405	#28	8-36		3	●	**MDW01405HGS3S**	17.89	0.7044	23.24	0.9151	72.75	2.8640	0.74	0.0291	4.00	0.1575	2
					5	●	**MDW01405HGS5S**	31.38	1.2354	36.73	1.4461	86.74	3.4150					2
3.57	0.1406	M4x.7	M4x .5		3	●	**MDW01406HGS3**	17.89	0.7042	23.24	0.9151	72.75	2.8640	0.74	0.0291	3.97	0.1562	2
					5	●	**MDW01406HGS5**	31.37	1.2352	36.73	1.4461	86.74	3.4150					2
					8	●	**MDW01406HGS8**	39.38	1.5502	44.73	1.7611	92.74	3.6510					2
					3	●	**MDW01406HGS3S**	17.89	0.7042	23.24	0.9151	72.75	2.8640	0.74	0.0291	4.00	0.1575	2
					5	●	**MDW01406HGS5S**	31.37	1.2352	36.73	1.4461	86.74	3.4150					2
3.60	0.1417				3	●	**MDW0360HGS3**	17.80	0.7008	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	2
					5	●	**MDW0360HGS5**	31.30	1.2323	36.70	1.4449	86.70	3.4134					2
					8	★	**MDW0360HGS8**	39.30	1.5472	44.70	1.7598	92.70	3.6496					2
3.66	0.1440	#27		M4x.7	3	●	**MDW01440HGS3S**	17.77	0.6998	23.26	0.9158	72.75	2.8640	0.76	0.0298	4.00	0.1575	2
					5	●	**MDW01440HGS5S**	31.26	1.2308	36.75	1.4468	86.77	3.4160					2
3.70	0.1457		M4.5x.7		3	●	**MDW0370HGS3**	17.80	0.7008	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	2
					5	●	**MDW0370HGS5**	31.30	1.2323	36.80	1.4488	86.80	3.4173					2
					8	★	**MDW0370HGS8**	39.30	1.5472	44.80	1.7638	92.80	3.6535					2
3.80	0.1496			8-32	3	●	**MDW0380HGS3**	17.60	0.6929	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	2
					5	●	**MDW0380HGS5**	31.10	1.2244	36.80	1.4488	86.80	3.4173					2
					8	●	**MDW0380HGS8**	39.10	1.5394	44.80	1.7638	92.80	3.6535					2
3.86	0.1520	#24	10-24	8-32	3	●	**MDW01520HGS3S**	17.51	0.6895	23.30	0.9175	72.80	2.8660	0.80	0.0315	4.00	0.1575	2
					5	●	**MDW01520HGS5S**	31.00	1.2205	36.79	1.4485	86.79	3.4170					2
3.90	0.1535				3	●	**MDW0390HGS3**	17.50	0.6890	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	2
					5	●	**MDW0390HGS5**	31.00	1.2205	36.80	1.4488	86.80	3.4173					2
					8	★	**MDW0390HGS8**	39.00	1.5354	44.80	1.7638	92.80	3.6535					2
3.91	0.1540	#23			3	●	**MDW01540HGS3S**	17.45	0.6869	23.31	0.9179	72.82	2.8670	0.81	0.0319	4.00	0.1575	2
					5	●	**MDW01540HGS5S**	30.93	1.2179	36.80	1.4489	86.82	3.4180					2
3.97	0.1562	5/32			3	●	**MDW01562HGS3**	17.38	0.6841	23.33	0.9184	72.82	2.8670	0.82	0.0324	3.97	0.1562	2
					5	●	**MDW01562HGS5**	30.86	1.2151	36.81	1.4494	86.82	3.4180					2
					8	●	**MDW01562HGS8**	38.86	1.5301	44.82	1.7644	92.81	3.6540					2
					3	●	**MDW01562HGS3S**	17.38	0.6841	23.33	0.9184	72.82	2.8670	0.82	0.0324	4.00	0.1575	2
					5	●	**MDW01562HGS5S**	30.86	1.2151	36.81	1.4494	86.82	3.4180					2

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø4.00 to 5.11mm* (0.1575" to 0.2010") Dimensions (*mm*/inch)

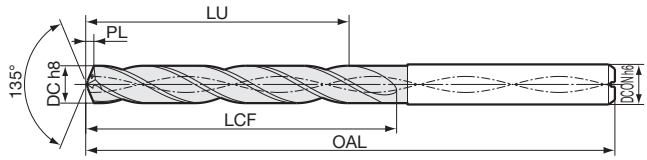
● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
4.00	0.1575				3	●	MDW0400HGS3	17.30	0.6811	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	2
					5	●	MDW0400HGS5	30.80	1.2126	36.80	1.4488	86.80	3.4173					2
					8	●	MDW0400HGS8	38.80	1.5276	44.80	1.7638	92.80	3.6535					2
4.04	0.1590	#21	10-32		3	●	MDW01590HGS3	19.77	0.7784	25.83	1.0169	80.85	3.1830	0.84	0.0329	4.76	0.1875	2
					5	●	MDW01590HGS5	34.78	1.3694	40.84	1.6079	98.83	3.8910					2
					8	●	MDW01590HGS8	44.28	1.7434	50.34	1.9819	105.84	4.1670					2
					3	●	MDW01590HGS3S	19.77	0.7784	25.83	1.0169	80.85	3.1830	0.84	0.0329	6.00	0.2362	2
					5	●	MDW01590HGS5S	34.78	1.3694	40.84	1.6079	98.83	3.8910					2
4.10	0.1614				3	●	MDW0410HGS3	19.70	0.7756	25.80	1.0157	80.80	3.1811	0.80	0.0315	5.00	0.1969	2
					5	●	MDW0410HGS5	34.70	1.3661	40.80	1.6063	98.80	3.8898					2
					8	●	MDW0410HGS8	44.20	1.7402	50.30	1.9803	105.80	4.1654					2
4.20	0.1654				3	●	MDW0420HGS3	19.60	0.7717	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	●	MDW0420HGS5	34.60	1.3622	40.90	1.6102	98.90	3.8937					2
					8	●	MDW0420HGS8	44.10	1.7362	50.40	1.9843	105.90	4.1693					2
4.22	0.1660	#19	M5x.8		3	●	MDW01660HGS3S	19.54	0.7694	25.87	1.0184	80.87	3.1840	0.87	0.0344	6.00	0.2362	2
					5	●	MDW01660HGS5S	34.55	1.3604	40.88	1.6094	98.88	3.8930					2
4.30	0.1693		M5x.8		3	●	MDW0430HGS3	19.50	0.7677	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	●	MDW0430HGS5	34.50	1.3583	40.90	1.6102	98.90	3.8937					2
					8	★	MDW0430HGS8	44.00	1.7323	50.40	1.9843	105.90	4.1693					2
4.37	0.1719	11/64		10-24	3	●	MDW01719HGS3	19.35	0.7618	25.90	1.0196	80.90	3.1850	0.90	0.0356	4.76	0.1875	2
					5	●	MDW01719HGS5	34.36	1.3528	40.91	1.6106	98.91	3.8940					2
					8	●	MDW01719HGS8	43.86	1.7268	50.41	1.9846	105.89	4.1690					2
					3	●	MDW01719HGS3S	19.35	0.7618	25.90	1.0196	80.90	3.1850	0.90	0.0356	6.00	0.2362	2
					5	●	MDW01719HGS5S	34.36	1.3528	40.91	1.6106	98.91	3.8940					2
4.40	0.1732				3	●	MDW0440HGS3	19.30	0.7598	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	●	MDW0440HGS5	34.30	1.3504	40.90	1.6102	98.90	3.8937					2
					8	★	MDW0440HGS8	43.80	1.7244	50.40	1.9843	105.90	4.1693					2
4.50	0.1772		12-24	10-32	3	●	MDW0450HGS3	19.20	0.7559	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	●	MDW0450HGS5	34.20	1.3465	40.90	1.6102	98.90	3.8937					2
					8	●	MDW0450HGS8	43.70	1.7205	50.40	1.9843	105.90	4.1693					2
4.57	0.1800	#15			3	●	MDW01800HGS3S	21.60	0.8503	28.46	1.1203	80.95	3.1870	0.95	0.0373	6.00	0.2362	2
					5	●	MDW01800HGS5S	38.08	1.4993	44.94	1.7693	98.96	3.8960					2
4.60	0.1811				3	●	MDW0460HGS3	21.60	0.8504	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					5	●	MDW0460HGS5	38.10	1.5000	45.00	1.7717	99.00	3.8976					2
					8	★	MDW0460HGS8	49.10	1.9331	56.00	2.2047	106.00	4.1732					2
4.62	0.1819		12-28	M5x.8	3	●	MDW01819HGS3	21.54	0.8479	28.47	1.1207	80.95	3.1870	0.96	0.0377	4.76	0.1875	2
					5	●	MDW01819HGS5	38.02	1.4969	44.95	1.7697	98.96	3.8960					2
4.70	0.1850	#13			3	●	MDW0470HGS3	21.50	0.8465	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					5	●	MDW0470HGS5	38.00	1.4961	45.00	1.7717	99.00	3.8976					2
					8	★	MDW0470HGS8	49.00	1.9291	56.00	2.2047	106.00	4.1732					2
4.76	0.1875	3/16		M5x.5	3	●	MDW01875HGS3	21.35	0.8406	28.49	1.1218	80.98	3.1880	0.99	0.0388	4.76	0.1875	2
					5	●	MDW01875HGS5	37.84	1.4896	44.98	1.7708	98.98	3.8970					2
					8	●	MDW01875HGS8	48.83	1.9226	55.98	2.2038	105.99	4.1730					2
					3	●	MDW01875HGS3S	21.35	0.8406	28.49	1.1218	80.98	3.1880	0.99	0.0388	6.00	0.2362	2
					5	●	MDW01875HGS5S	37.84	1.4896	44.98	1.7708	98.98	3.8970					2
4.80	0.1890	#12			3	●	MDW0480HGS3	21.30	0.8386	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					5	●	MDW0480HGS5	37.80	1.4882	45.00	1.7717	99.00	3.8976					2
					8	★	MDW0480HGS8	48.80	1.9213	56.00	2.2047	106.00	4.1732					2
4.90	0.1929				3	●	MDW0490HGS3	21.20	0.8346	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					5	●	MDW0490HGS5	37.70	1.4843	45.00	1.7717	99.00	3.8976					2
					8	★	MDW0490HGS8	48.70	1.9173	56.00	2.2047	106.00	4.1732					2
5.00	0.1969			12-24	3	●	MDW0500HGS3	21.00	0.8268	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					5	●	MDW0500HGS5	37.50	1.4764	45.00	1.7717	99.00	3.8976					2
					8	●	MDW0500HGS8	48.50	1.9094	56.00	2.2047	106.00	4.1732					2
5.10	0.2008			12-28	3	●	MDW0510HGS3	21.00	0.8268	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	MDW0510HGS5	37.50	1.4764	45.10	1.7756	101.10	3.9803					2
					8	★	MDW0510HGS8	54.00	2.1260	61.60	2.4252	119.10	4.6890					2
5.11	0.2010	#7			3	●	MDW02010HGS3	20.91	0.8231	28.56	1.1246	83.06	3.2700	1.06	0.0416	5.95	0.2344	2
					8	●	MDW02010HGS8	53.90	2.1221	61.56	2.4236	119.05	4.6870					2
					3	●	MDW02010HGS3S	20.91	0.8231	28.56	1.1246	83.06	3.2700	1.06	0.0416	6.00	0.2362	2

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø5.16 to 6.20mm* (0.2031" to 0.2441") Dimensions (*mm*/inch)

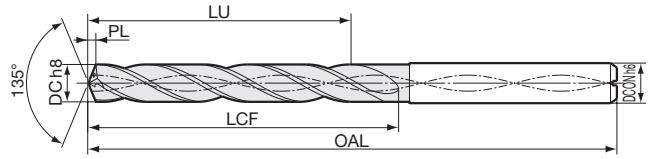
● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
5.16	0.2031	13/64	M6x1		3	●	**MDW02031HGS3**	20.84	0.8205	28.58	1.1251	83.06	3.2700	1.07	0.0421	5.95	0.2344	2
					5	●	**MDW02031HGS5**	37.33	1.4695	45.06	1.7741	101.07	3.9790					2
					8	●	**MDW02031HGS8**	53.84	2.1195	61.57	2.4241	119.08	4.6880					2
					3	●	**MDW02031HGS3S**	20.84	0.8205	28.58	1.1251	83.06	3.2700	1.07	0.0421	6.00	0.2362	2
					5	●	**MDW02031HGS5S**	37.33	1.4695	45.06	1.7741	101.07	3.9790					2
5.20	0.2047		1/4-20		3	●	**MDW0520HGS3**	20.80	0.8189	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	**MDW0520HGS5**	37.30	1.4685	45.10	1.7756	101.10	3.9803					2
					8	●	**MDW0520HGS8**	53.80	2.1181	61.60	2.4252	119.10	4.6890					2
5.30	0.2087				3	●	**MDW0530HGS3**	20.70	0.8150	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	**MDW0530HGS5**	37.20	1.4646	45.10	1.7756	101.10	3.9803					2
					8	★	**MDW0530HGS8**	53.70	2.1142	61.60	2.4252	119.10	4.6890					2
5.31	0.2090	#4	M6x.75	M5.5x.5	3	●	**MDW02090HGS3S**	20.65	0.8128	28.61	1.1263	83.11	3.2720	1.10	0.0433	6.00	0.2362	2
					5	●	**MDW02090HGS5S**	37.13	1.4618	45.09	1.7753	101.09	3.9800					2
5.40	0.2126				3	●	**MDW0540HGS3**	20.50	0.8071	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	**MDW0540HGS5**	37.00	1.4567	45.10	1.7756	101.10	3.9803					2
					8	★	**MDW0540HGS8**	53.50	2.1063	61.60	2.4252	119.10	4.6890					2
5.41	0.2130	#3			3	●	**MDW02130HGS3**	20.51	0.8076	28.63	1.1271	83.11	3.2720	1.12	0.0441	5.95	0.2344	2
					5	●	**MDW02130HGS5**	37.00	1.4566	45.11	1.7761	101.12	3.9810					2
					8	●	**MDW02130HGS8**	53.51	2.1066	61.62	2.4261	119.13	4.6900					2
					3	●	**MDW02130HGS3S**	20.51	0.8076	28.63	1.1271	83.11	3.2720	1.12	0.0441	6.00	0.2362	2
					5	●	**MDW02130HGS5S**	37.00	1.4566	45.11	1.7761	101.12	3.9810					2
5.50	0.2165		1/4-28		3	●	**MDW0550HGS3**	20.40	0.8031	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	**MDW0550HGS5**	36.90	1.4528	45.10	1.7756	101.10	3.9803					2
					8	●	**MDW0550HGS8**	53.40	2.1024	61.60	2.4252	119.10	4.6890					2
5.56	0.2188	7/32	M6x.5	M6x1	3	●	**MDW02188HGS3**	22.81	0.8981	31.15	1.2263	83.16	3.2740	1.15	0.0453	5.95	0.2344	2
					5	●	**MDW02188HGS5**	40.82	1.6071	49.16	1.9353	101.14	3.9820					2
					8	●	**MDW02188HGS8**	58.80	2.3151	67.14	2.6433	119.15	4.6910					2
					3	●	**MDW02188HGS3S**	22.81	0.8981	31.15	1.2263	83.16	3.2740	1.15	0.0453	6.00	0.2362	2
					5	●	**MDW02188HGS5S**	40.82	1.6071	49.16	1.9353	101.14	3.9820					2
5.60	0.2205				3	●	**MDW0560HGS3**	22.80	0.8976	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2
					5	●	**MDW0560HGS5**	40.80	1.6063	49.20	1.9370	101.20	3.9843					2
					8	★	**MDW0560HGS8**	58.80	2.3150	67.20	2.6457	119.20	4.6929					2
5.61	0.2210	#2		M6x.75	3	●	**MDW02210HGS3**	22.74	0.8953	31.16	1.2268	83.16	3.2740	1.16	0.0458	5.95	0.2344	2
					5	●	**MDW02210HGS5**	40.75	1.6043	49.17	1.9358	101.17	3.9830					2
					8	●	**MDW02210HGS8**	58.73	2.3123	67.15	2.6438	119.15	4.6910					2
					3	●	**MDW02210HGS3S**	22.74	0.8953	31.16	1.2268	83.16	3.2740	1.16	0.0458	6.00	0.2362	2
					5	●	**MDW02210HGS5S**	40.75	1.6043	49.17	1.9358	101.17	3.9830					2
5.70	0.2244				3	●	**MDW0570HGS3**	22.70	0.8937	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2
					5	●	**MDW0570HGS5**	40.70	1.6024	49.20	1.9370	101.20	3.9843					2
					8	★	**MDW0570HGS8**	58.70	2.3110	67.20	2.6457	119.20	4.6929					2
5.80	0.2283			1/4-20	3	●	**MDW0580HGS3**	22.50	0.8858	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2
					5	●	**MDW0580HGS5**	40.50	1.5945	49.20	1.9370	101.20	3.9843					2
					8	★	**MDW0580HGS8**	58.50	2.3031	67.20	2.6457	119.20	4.6929					2
5.90	0.2323				3	●	**MDW0590HGS3**	22.40	0.8819	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2
					5	●	**MDW0590HGS5**	40.40	1.5906	49.20	1.9370	101.20	3.9843					2
					8	★	**MDW0590HGS8**	58.40	2.2992	67.20	2.6457	119.20	4.6929					2
5.95	0.2344	15/64		1/4-28	3	●	**MDW02344HGS3**	22.30	0.8779	31.23	1.2295	83.24	3.2770	1.23	0.0485	5.95	0.2344	2
					5	●	**MDW02344HGS5**	40.31	1.5869	49.24	1.9385	101.24	3.9860					2
					8	●	**MDW02344HGS8**	58.29	2.2949	67.22	2.6465	119.23	4.6940					2
					3	●	**MDW02344HGS3S**	22.30	0.8779	31.23	1.2295	83.24	3.2770	1.23	0.0485	6.00	0.2362	2
					5	●	**MDW02344HGS5S**	40.31	1.5869	49.24	1.9385	101.24	3.9860					2
6.00	0.2362				3	●	**MDW0600HGS3**	22.20	0.8740	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2
					5	●	**MDW0600HGS5**	40.20	1.5827	49.20	1.9370	101.20	3.9843					2
					8	●	**MDW0600HGS8**	58.20	2.2913	67.20	2.6457	119.20	4.6929					2
6.10	0.2402				3	●	**MDW0610HGS3**	24.70	0.9724	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2
					5	●	**MDW0610HGS5**	44.20	1.7402	53.30	2.0984	110.30	4.3425					2
					8	★	**MDW0610HGS8**	63.70	2.5079	72.80	2.8661	131.30	5.1693					2
6.15	0.2420	C	M7x1		3	●	**MDW02420HGS3**	24.56	0.9671	33.78	1.3301	89.28	3.5150	1.27	0.0501	7.14	0.2812	2
					3	●	**MDW02420HGS3S**	24.56	0.9671	33.78	1.3301	89.28	3.5150	1.27	0.0501	8.00	0.3150	2
6.20	0.2441				3	●	**MDW0620HGS3**	24.50	0.9646	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2
					5	●	**MDW0620HGS5**	44.00	1.7323	53.30	2.0984	110.30	4.3425					2
					8	★	**MDW0620HGS8**	63.50	2.5000	72.80	2.8661	131.30	5.1693					2

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø6.30 to 7.14mm* (0.2480" to 0.2812") Dimensions (*mm*/inch)

● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
6.30	0.2480				3	●	**MDW0630HGS3**	24.40	0.9606	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2
					5	●	**MDW0630HGS5**	43.90	1.7283	53.30	2.0984	110.30	4.3425					2
					8	★	**MDW0630HGS8**	63.40	2.4961	72.80	2.8661	131.30	5.1693					2
6.35	0.2500	1/4 E	M7x.75		3	●	**MDW02500HGS3**	24.30	0.9568	33.83	1.3318	89.31	3.5160	1.32	0.0518	7.14	0.2812	2
					5	●	**MDW02500HGS5**	43.78	1.7238	53.31	2.0988	110.31	4.3430					2
					8	●	**MDW02500HGS8**	63.29	2.4918	72.82	2.8668	131.32	5.1700					2
					3	●	**MDW02500HGS3S**	24.30	0.9568	33.83	1.3318	89.31	3.5160	1.32	0.0518	8.00	0.3150	2
					5	●	**MDW02500HGS5S**	43.78	1.7238	53.31	2.0988	110.31	4.3430					2
6.40	0.2520				3	●	**MDW0640HGS3**	24.20	0.9528	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2
					5	●	**MDW0640HGS5**	43.70	1.7205	53.30	2.0984	110.30	4.3425					2
					8	★	**MDW0640HGS8**	63.20	2.4882	72.80	2.8661	131.30	5.1693					2
6.50	0.2559				3	●	**MDW0650HGS3**	24.10	0.9488	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2
					5	●	**MDW0650HGS5**	43.60	1.7165	53.30	2.0984	110.30	4.3425					2
					8	●	**MDW0650HGS8**	63.10	2.4843	72.80	2.8661	131.30	5.1693					2
6.53	0.2570	F	5/16-18	M7x1	3	●	**MDW02570HGS3**	26.56	1.0457	36.35	1.4312	89.36	3.5180	1.35	0.0532	7.14	0.2812	2
					5	●	**MDW02570HGS5**	47.57	1.8727	57.36	2.2582	110.36	4.3450					2
					8	●	**MDW02570HGS8**	68.55	2.6987	78.34	3.0842	131.39	5.1730					2
					3	●	**MDW02570HGS3S**	26.56	1.0457	36.35	1.4312	89.36	3.5180	1.35	0.0532	8.00	0.3150	2
					5	●	**MDW02570HGS5S**	47.57	1.8727	57.36	2.2582	110.36	4.3450					2
6.60	0.2598				3	●	**MDW0660HGS3**	26.50	1.0433	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2
					5	●	**MDW0660HGS5**	47.50	1.8701	57.40	2.2598	110.40	4.3465					2
					8	★	**MDW0660HGS8**	68.50	2.6969	78.40	3.0866	131.40	5.1732					2
6.70	0.2638				3	●	**MDW0670HGS3**	26.40	1.0394	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2
					5	●	**MDW0670HGS5**	47.40	1.8661	57.40	2.2598	110.40	4.3465					2
					8	★	**MDW0670HGS8**	68.40	2.6929	78.40	3.0866	131.40	5.1732					2
6.75	0.2656	17/64			3	●	**MDW02656HGS3**	26.28	1.0346	36.40	1.4330	89.41	3.5200	1.40	0.0550	7.14	0.2812	2
					5	●	**MDW02656HGS5**	47.28	1.8616	57.40	2.2600	110.39	4.3460					2
					8	●	**MDW02656HGS8**	68.27	2.6876	78.38	3.0860	131.39	5.1730					2
					3	●	**MDW02656HGS3S**	26.28	1.0346	36.40	1.4330	89.41	3.5200	1.40	0.0550	8.00	0.3150	2
					5	●	**MDW02656HGS5S**	47.28	1.8616	57.40	2.2600	110.39	4.3460					2
6.76	0.2660	H			3	●	**MDW02660HGS3**	26.27	1.0341	36.40	1.4331	89.41	3.5200	1.40	0.0551	7.14	0.2812	2
					5	●	**MDW02660HGS5**	47.27	1.8611	57.41	2.2601	110.39	4.3460					2
					8	●	**MDW02660HGS8**	68.25	2.6871	78.39	3.0861	131.42	5.1740					2
					3	●	**MDW02660HGS3S**	26.27	1.0341	36.40	1.4331	89.41	3.5200	1.40	0.0551	8.00	0.3150	2
					5	●	**MDW02660HGS5S**	47.27	1.8611	57.41	2.2601	110.39	4.3460					2
6.80	0.2677				3	●	**MDW0680HGS3**	26.20	1.0315	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2
					5	●	**MDW0680HGS5**	47.20	1.8583	57.40	2.2598	110.40	4.3465					2
					8	●	**MDW0680HGS8**	68.20	2.6850	78.40	3.0866	131.40	5.1732					2
6.90	0.2717		M8x1.25		3	●	**MDW0690HGS3**	26.10	1.0276	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2
					5	●	**MDW0690HGS5**	47.10	1.8543	57.40	2.2598	110.40	4.3465					2
					8	★	**MDW0690HGS8**	68.10	2.6811	78.40	3.0866	131.40	5.1732					2
6.91	0.2720	I	5/16-24		3	●	**MDW02720HGS3**	26.07	1.0263	36.43	1.4343	89.43	3.5210	1.43	0.0563	7.14	0.2812	2
					5	●	**MDW02720HGS5**	47.07	1.8533	57.44	2.2613	110.44	4.3480					2
					8	●	**MDW02720HGS8**	68.05	2.6793	78.42	3.0873	131.45	5.1750					2
					3	●	**MDW02720HGS3S**	26.07	1.0263	36.43	1.4343	89.43	3.5210	1.43	0.0563	8.00	0.3150	2
					5	●	**MDW02720HGS5S**	47.07	1.8533	57.44	2.2613	110.44	4.3480					2
7.00	0.2756				3	●	**MDW0700HGS3**	25.90	1.0197	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2
					5	●	**MDW0700HGS5**	46.90	1.8465	57.40	2.2598	110.40	4.3465					2
					8	●	**MDW0700HGS8**	67.90	2.6732	78.40	3.0866	131.40	5.1732					2
7.04	0.2770				3	●	**MDW02770HGS3**	25.91	1.0199	36.46	1.4354	89.46	3.5220	1.46	0.0574	7.14	0.2812	2
					5	●	**MDW02770HGS5**	46.91	1.8469	57.46	2.2624	110.46	4.3490					2
					8	●	**MDW02770HGS8**	67.89	2.6729	78.45	3.0884	131.47	5.1760					2
					3	●	**MDW02770HGS3S**	28.39	1.1179	38.95	1.5334	95.45	3.7580	1.46	0.0574	8.00	0.3150	2
					5	●	**MDW02770HGS5S**	50.90	2.0039	61.45	2.4194	119.46	4.7030					2
7.10	0.2795				3	●	**MDW0710HGS3**	28.40	1.1181	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	2
					5	●	**MDW0710HGS5**	50.90	2.0039	61.50	2.4213	119.50	4.7047					2
					8	★	**MDW0710HGS8**	73.40	2.8898	84.00	3.3071	143.50	5.6496					2
7.14	0.2812	9/32	M8x1		3	●	**MDW02812HGS3**	25.77	1.0144	36.48	1.4362	89.48	3.5230	1.48	0.0582	7.14	0.2812	2
					5	●	**MDW02812HGS5**	46.77	1.8414	57.49	2.2632	110.49	4.3500					2
					8	●	**MDW02812HGS8**	67.75	2.6674	78.47	3.0892	131.47	5.1760					2
					3	●	**MDW02812HGS3S**	28.25	1.1124	38.97	1.5342	95.48	3.7590	1.48	0.0582	8.00	0.3150	2
					5	●	**MDW02812HGS5S**	50.76	1.9984	61.47	2.4202	119.48	4.7040					2

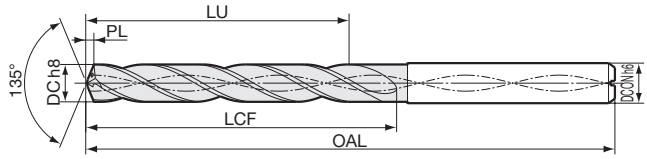
HGS (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating | Coulant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø7.20 to 8.33mm* (0.2835" to 0.3281") Dimensions (*mm*/inch)

● USA stocked item ★ Worldwide Warehouse Item

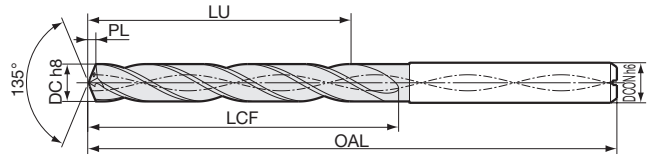
Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
7.20	0.2835				3	●	MDW0720HGS3	28.20	1.1102	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	2
					5	●	MDW0720HGS5	50.70	1.9961	61.50	2.4213	119.50	4.7047					2
					8	★	MDW0720HGS8	73.20	2.8819	84.00	3.3071	143.50	5.6496					2
7.30	0.2874		M8x.75	5/16-28	3	●	MDW0730HGS3	28.10	1.1063	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	2
					5	●	MDW0730HGS5	50.60	1.9921	61.50	2.4213	119.50	4.7047					2
					8	★	MDW0730HGS8	73.10	2.8780	84.00	3.3071	143.50	5.6496					2
7.37	0.2900	L		5/16-18 M8x1.25	3	●	MDW02900HGS3S	27.97	1.1011	39.02	1.5361	95.53	3.7610	1.53	0.0601	8.00	0.3150	2
					5	●	MDW02900HGS5S	50.47	1.9871	61.52	2.4221	119.53	4.7060					2
7.40	0.2913			M8x1.25	3	●	MDW0740HGS3	27.90	1.0984	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	2
					5	●	MDW0740HGS5	50.40	1.9843	61.50	2.4213	119.50	4.7047					2
					8	★	MDW0740HGS8	72.90	2.8701	84.00	3.3071	143.50	5.6496					2
7.49	0.2950	M		5/16-24	3	●	MDW02950HGS3S	27.80	1.0946	39.04	1.5371	95.55	3.7620	1.55	0.0611	8.00	0.3150	2
					5	●	MDW02950HGS5S	50.31	1.9806	61.55	2.4231	119.56	4.7070					2
7.50	0.2953		M8x.5		3	●	MDW0750HGS3	27.90	1.0984	39.10	1.5394	95.60	3.7638	1.60	0.0630	8.00	0.3150	2
					5	●	MDW0750HGS5	50.40	1.9843	61.60	2.4252	119.60	4.7087					2
					8	●	MDW0750HGS8	72.90	2.8701	84.10	3.3110	143.60	5.6535					2
7.54	0.2969	19/64		M8x1	3	●	MDW02969HGS3	30.26	1.1912	41.57	1.6365	95.55	3.7620	1.56	0.0615	7.94	0.3125	2
					5	●	MDW02969HGS5	54.26	2.1362	65.57	2.5815	119.56	4.7070					2
					8	●	MDW02969HGS8	78.26	3.0812	89.57	3.5265	143.56	5.6520					2
					3	●	MDW02969HGS3S	30.26	1.1912	41.57	1.6365	95.55	3.7620	1.56	0.0615	8.00	0.3150	2
					5	●	MDW02969HGS5S	54.26	2.1362	65.57	2.5815	119.56	4.7070					2
7.60	0.2992				3	●	MDW0760HGS3	30.20	1.1890	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	2
					5	●	MDW0760HGS5	54.20	2.1339	65.60	2.5827	119.60	4.7087					2
					8	★	MDW0760HGS8	78.20	3.0787	89.60	3.5276	143.60	5.6535					2
7.67	0.3020	N		M8x.75	3	●	MDW03020HGS3S	30.09	1.1845	41.59	1.6375	95.58	3.7630	1.59	0.0625	8.00	0.3150	2
					5	●	MDW03020HGS5S	54.09	2.1295	65.60	2.5825	119.58	4.7080					2
7.70	0.3031				3	●	MDW0770HGS3	30.10	1.1850	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	2
					5	●	MDW0770HGS5	54.10	2.1299	65.60	2.5827	119.60	4.7087					2
					8	★	MDW0770HGS8	78.10	3.0748	89.60	3.5276	143.60	5.6535					2
7.80	0.3071		M9x1.25		3	●	MDW0780HGS3	29.90	1.1772	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	2
					5	●	MDW0780HGS5	53.90	2.1220	65.60	2.5827	119.60	4.7087					2
					8	★	MDW0780HGS8	77.90	3.0669	89.60	3.5276	143.60	5.6535					2
7.90	0.3110				3	●	MDW0790HGS3	29.80	1.1732	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	2
					5	●	MDW0790HGS5	53.80	2.1181	65.60	2.5827	119.60	4.7087					2
					8	★	MDW0790HGS8	77.80	3.0630	89.60	3.5276	143.60	5.6535					2
7.94	0.3125	5/16			3	●	MDW03125HGS3	29.74	1.1710	41.65	1.6397	95.66	3.7660	1.64	0.0647	7.94	0.3125	2
					5	●	MDW03125HGS5	53.75	2.1160	65.65	2.5847	119.63	4.7100					2
					8	●	MDW03125HGS8	77.75	3.0610	89.65	3.5297	143.64	5.6550					2
					3	●	MDW03125HGS3S	29.74	1.1710	41.65	1.6397	95.66	3.7660	1.64	0.0647	8.00	0.3150	2
					5	●	MDW03125HGS5S	53.75	2.1160	65.65	2.5847	119.63	4.7100					2
8.00	0.3150		3/8-16		3	●	MDW0800HGS3	29.70	1.1693	41.70	1.6417	95.70	3.7677	1.70	0.0669	8.00	0.3150	2
					5	●	MDW0800HGS5	53.70	2.1142	65.70	2.5866	119.70	4.7126					2
					8	●	MDW0800HGS8	77.70	3.0591	89.70	3.5315	143.70	5.6575					2
8.10	0.3189		M9x1		3	●	MDW0810HGS3	32.10	1.2638	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	2
					5	●	MDW0810HGS5	57.60	2.2677	69.70	2.7441	128.70	5.0669					2
					8	★	MDW0810HGS8	83.10	3.2717	95.20	3.7480	155.70	6.1299					2
8.20	0.3228				3	●	MDW0820HGS3	31.90	1.2559	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	2
					5	●	MDW0820HGS5	57.40	2.2598	69.70	2.7441	128.70	5.0669					2
					8	★	MDW0820HGS8	82.90	3.2638	95.20	3.7480	155.70	6.1299					2
8.20	0.3230	P			3	●	MDW03230HGS3	31.89	1.2554	44.19	1.7399	101.70	4.0040	1.70	0.0669	9.13	0.3594	2
					5	●	MDW03230HGS5	57.39	2.2594	69.70	2.7439	128.70	5.0670					2
					8	●	MDW03230HGS8	82.89	3.2634	95.20	3.7479	155.70	6.1300					2
					3	●	MDW03230HGS3S	31.89	1.2554	44.19	1.7399	101.70	4.0040	1.70	0.0669	10.00	0.3937	2
					5	●	MDW03230HGS5S	57.39	2.2594	69.70	2.7439	128.70	5.0670					2
8.30	0.3268				3	●	MDW0830HGS3	31.80	1.2520	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	2
					5	●	MDW0830HGS5	57.30	2.2559	69.70	2.7441	128.70	5.0669					2
					8	★	MDW0830HGS8	82.80	3.2598	95.20	3.7480	155.70	6.1299					2
8.33	0.3281	21/64	M7x1		3	●	MDW03281HGS3	31.72	1.2489	44.22	1.7410	101.73	4.0050	1.73	0.0680	9.13	0.3594	2
					5	●	MDW03281HGS5	57.22	2.2529	69.72	2.7450	128.73	5.0680					2
					8	●	MDW03281HGS8	82.73	3.2569	95.22	3.7490	155.73	6.1310					2
					3	●	MDW03281HGS3S	31.72	1.2489	44.22	1.7410	101.73	4.0050	1.73	0.0680	10.00	0.3937	2
					5	●	MDW03281HGS5S	57.22	2.2529	69.72	2.7450	128.73	5.0680					2

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø8.40 to 9.53mm* (0.3307" to 0.3750")

Dimensions (*mm*/inch) ● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
8.40	0.3307				3	●	**MDW0840HGS3**	31.60	1.2441	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	2
					5	●	**MDW0840HGS5**	57.10	2.2480	69.70	2.7441	128.70	5.0669					2
					8	★	**MDW0840HGS8**	82.60	3.2520	95.20	3.7480	155.70	6.1299					2
8.43	0.3320	Q		M9x1.25	3	●	**MDW03320HGS3**	31.59	1.2438	44.24	1.7418	101.75	4.0060	1.75	0.0688	9.13	0.3594	2
					5	●	**MDW03320HGS5**	57.09	2.2478	69.74	2.7458	128.75	5.0690					2
					8	●	**MDW03320HGS8**	82.60	3.2518	95.24	3.7498	155.75	6.1320					2
					3	●	**MDW03320HGS3S**	31.59	1.2438	44.24	1.7418	101.75	4.0060	1.75	0.0688	10.00	0.3937	2
					5	●	**MDW03320HGS5S**	57.09	2.2478	69.74	2.7458	128.75	5.0690					2
8.50	0.3346		3/8-24		3	●	**MDW0850HGS3**	31.60	1.2441	44.30	1.7441	101.80	4.0079	1.80	0.0709	9.00	0.3543	2
					5	●	**MDW0850HGS5**	57.10	2.2480	69.80	2.7480	128.80	5.0709					2
					8	●	**MDW0850HGS8**	82.60	3.2520	95.30	3.7520	155.80	6.1339					2
8.60	0.3386		M10x1.5	M9x.75	3	●	**MDW0860HGS3**	33.90	1.3346	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	2
					5	●	**MDW0860HGS5**	60.90	2.3976	73.80	2.9055	128.80	5.0709					2
					8	★	**MDW0860HGS8**	87.90	3.4606	100.80	3.9685	155.80	6.1339					2
8.70	0.3425				3	●	**MDW0870HGS3**	33.80	1.3307	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	2
					5	●	**MDW0870HGS5**	60.80	2.3937	73.80	2.9055	128.80	5.0709					2
					8	★	**MDW0870HGS8**	87.80	3.4567	100.80	3.9685	155.80	6.1339					2
8.73	0.3438	11/32			3	●	**MDW03438HGS3**	33.72	1.3275	46.82	1.8432	101.80	4.0080	1.81	0.0712	9.13	0.3594	2
					5	●	**MDW03438HGS5**	60.72	2.3905	73.82	2.9062	128.80	5.0710					2
					8	●	**MDW03438HGS8**	87.72	3.4535	100.82	3.9692	155.80	6.1340					2
					3	●	**MDW03438HGS3S**	33.72	1.3275	46.82	1.8432	101.80	4.0080	1.81	0.0712	10.00	0.3937	2
					5	●	**MDW03438HGS5S**	60.72	2.3905	73.82	2.9062	128.80	5.0710					2
8.80	0.3465			3/8-16	3	●	**MDW0880HGS3**	33.60	1.3228	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	2
					5	●	**MDW0880HGS5**	60.60	2.3858	73.80	2.9055	128.80	5.0709					2
					8	★	**MDW0880HGS8**	87.60	3.4488	100.80	3.9685	155.80	6.1339					2
8.90	0.3504		M10x1.25		3	●	**MDW0890HGS3**	33.50	1.3189	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	2
					5	●	**MDW0890HGS5**	60.50	2.3819	73.80	2.9055	128.80	5.0709					2
					8	★	**MDW0890HGS8**	87.50	3.4449	100.80	3.9685	155.80	6.1339					2
9.00	0.3543			3/8-24	3	●	**MDW0900HGS3**	33.40	1.3150	46.90	1.8465	101.90	4.0118	1.90	0.0748	9.00	0.3543	2
					5	●	**MDW0900HGS5**	60.40	2.3780	73.90	2.9094	128.90	5.0748					2
					8	●	**MDW0900HGS8**	87.40	3.4409	100.90	3.9724	155.90	6.1378					2
9.10	0.3583				3	●	**MDW0910HGS3**	35.80	1.4094	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	2
					5	●	**MDW0910HGS5**	64.30	2.5315	77.90	3.0669	137.90	5.4291					2
					8	★	**MDW0910HGS8**	92.80	3.6535	106.40	4.1890	167.90	6.6102					2
9.13	0.3594	23/64	M10x1		3	●	**MDW03594HGS3**	33.21	1.3073	46.90	1.8464	101.88	4.0110	1.89	0.0744	9.13	0.3594	2
					5	●	**MDW03594HGS5**	60.21	2.3703	73.90	2.9094	128.88	5.0740					2
					8	●	**MDW03594HGS8**	87.21	3.4333	100.90	3.9724	155.88	6.1370					2
					3	●	**MDW03594HGS3S**	35.69	1.4053	49.39	1.9444	107.90	4.2480	1.89	0.0744	10.00	0.3937	2
					5	●	**MDW03594HGS5S**	64.19	2.5273	77.89	3.0664	137.90	5.4290					2
9.20	0.3622				3	●	**MDW0920HGS3**	35.60	1.4016	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	2
					5	●	**MDW0920HGS5**	64.10	2.5236	77.90	3.0669	137.90	5.4291					2
					8	★	**MDW0920HGS8**	92.60	3.6457	106.40	4.1890	167.90	6.6102					2
9.30	0.3661				3	●	**MDW0930HGS3**	35.50	1.3976	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	2
					5	●	**MDW0930HGS5**	64.00	2.5197	77.90	3.0669	137.90	5.4291					2
					8	★	**MDW0930HGS8**	92.50	3.6417	106.40	4.1890	167.90	6.6102					2
9.35	0.3680	U	7/16-14	M10x1.5	3	●	**MDW03680HGS3**	35.41	1.3942	49.43	1.9462	107.92	4.2490	1.94	0.0762	9.92	0.3906	2
					5	●	**MDW03680HGS5**	63.91	2.5162	77.93	3.0682	137.95	5.4310					2
					8	●	**MDW03680HGS8**	92.41	3.6382	106.43	4.1902	167.94	6.6120					2
					3	●	**MDW03680HGS3S**	35.41	1.3942	49.43	1.9462	107.92	4.2490	1.94	0.0762	10.00	0.3937	2
					5	●	**MDW03680HGS5S**	63.91	2.5162	77.93	3.0682	137.95	5.4310					2
9.40	0.3701				3	●	**MDW0940HGS3**	35.30	1.3898	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	2
					5	●	**MDW0940HGS5**	63.80	2.5118	77.90	3.0669	137.90	5.4291					2
					8	★	**MDW0940HGS8**	92.30	3.6339	106.40	4.1890	167.90	6.6102					2
9.50	0.3740			M10x1.25	3	●	**MDW0950HGS3**	35.30	1.3898	49.50	1.9488	108.00	4.2520	2.00	0.0787	10.00	0.3937	2
					5	●	**MDW0950HGS5**	63.80	2.5118	78.00	3.0709	138.00	5.4331					2
					8	●	**MDW0950HGS8**	92.30	3.6339	106.50	4.1929	168.00	6.6142					2
9.53	0.3750	3/8			3	●	**MDW03750HGS3**	37.70	1.4842	51.99	2.0467	107.98	4.2510	1.97	0.0777	9.92	0.3906	2
					5	●	**MDW03750HGS5**	67.70	2.6652	81.98	3.2277	137.97	5.4320					2
					8	●	**MDW03750HGS8**	97.69	3.8462	111.98	4.4087	167.97	6.6130					2
					3	●	**MDW03750HGS3S**	37.70	1.4842	51.99	2.0467	107.98	4.2510	1.97	0.0777	10.00	0.3937	2
					5	●	**MDW03750HGS5S**	67.70	2.6652	81.98	3.2277	137.97	5.4320					2

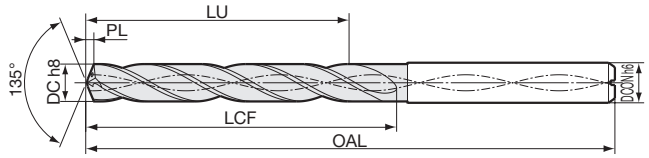
HGS (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø9.58 to 10.80mm* (0.3770" to 0.4252") Dimensions (*mm*/inch)

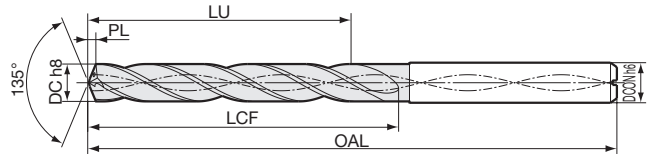
● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
9.58	0.3770	V	7/16-14		3	●	**MDW03770HGS3S**	37.63	1.4816	52.00	2.0471	107.98	4.2510	1.98	0.0781	10.00	0.3937	2
					5	●	**MDW03770HGS5S**	67.63	2.6626	81.99	3.2281	137.97	5.4320					2
9.60	0.3780				3	●	**MDW0960HGS3**	37.60	1.4803	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	2
					5	●	**MDW0960HGS5**	67.60	2.6614	82.00	3.2283	138.00	5.4331					2
					8	●	**MDW0960HGS8**	97.60	3.8425	112.00	4.4094	168.00	6.6142					2
9.70	0.3819			M10x.75	3	●	**MDW0970HGS3**	37.50	1.4764	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	2
					5	●	**MDW0970HGS5**	67.50	2.6575	82.00	3.2283	138.00	5.4331					2
					8	★	**MDW0970HGS8**	97.50	3.8386	112.00	4.4094	168.00	6.6142					2
9.80	0.3858				3	●	**MDW0980HGS3**	37.30	1.4685	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	2
					5	●	**MDW0980HGS5**	67.30	2.6496	82.00	3.2283	138.00	5.4331					2
					8	★	**MDW0980HGS8**	97.30	3.8307	112.00	4.4094	168.00	6.6142					2
9.90	0.3898				3	●	**MDW0990HGS3**	37.30	1.4685	52.10	2.0512	108.10	4.2559	2.10	0.0827	10.00	0.3937	2
					5	●	**MDW0990HGS5**	67.30	2.6496	82.10	3.2323	138.10	5.4370					2
					8	★	**MDW0990HGS8**	97.30	3.8307	112.10	4.4134	168.10	6.6181					2
9.92	0.3906	25/64	7/16-20		3	●	**MDW03906HGS3**	37.19	1.4640	52.07	2.0499	108.05	4.2540	2.05	0.0809	9.92	0.3906	2
					5	●	**MDW03906HGS5**	67.18	2.6450	82.06	3.2309	138.05	5.4350					2
					8	●	**MDW03906HGS8**	97.18	3.8260	112.06	4.4119	168.05	6.6160					2
					3	●	**MDW03906HGS3S**	37.19	1.4640	52.07	2.0499	108.05	4.2540	2.05	0.0809	10.00	0.3937	2
					5	●	**MDW03906HGS5S**	67.18	2.6450	82.06	3.2309	138.05	5.4350					2
10.00	0.3937				3	●	**MDW1000HGS3**	37.10	1.4606	52.10	2.0512	108.10	4.2559	2.10	0.0827	10.00	0.3937	2
					5	●	**MDW1000HGS5**	67.10	2.6417	82.10	3.2323	138.10	5.4370					2
					8	●	**MDW1000HGS8**	97.10	3.8228	112.10	4.4134	168.10	6.6181					2
10.10	0.3976		M11x1		3	●	**MDW1010HGS3**	39.50	1.5551	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	2
					5	●	**MDW1010HGS5**	71.00	2.7953	86.10	3.3898	151.10	5.9488					2
					8	★	**MDW1010HGS8**	102.50	4.0354	117.60	4.6299	184.10	7.2480					2
10.20	0.4016				3	●	**MDW1020HGS3**	39.30	1.5472	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	2
					5	●	**MDW1020HGS5**	70.80	2.7874	86.10	3.3898	151.10	5.9488					2
					8	★	**MDW1020HGS8**	102.30	4.0276	117.60	4.6299	184.10	7.2480					2
10.25	0.4035				3	●	**MDW04035HGS3S**	39.25	1.5454	54.63	2.1506	118.11	4.6500	2.12	0.0836	12.00	0.4724	2
					5	●	**MDW04035HGS5S**	70.75	2.7854	86.12	3.3906	151.13	5.9500					2
10.30	0.4055				3	●	**MDW1030HGS3**	39.20	1.5433	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	2
					5	●	**MDW1030HGS5**	70.70	2.7835	86.10	3.3898	151.10	5.9488					2
					8	●	**MDW1030HGS8**	102.20	4.0236	117.60	4.6299	184.10	7.2480					2
10.32	0.4062	13/32		M11x1.5	3	●	**MDW04062HGS3**	39.16	1.5418	54.64	2.1511	118.14	4.6510	2.14	0.0841	11.11	0.4375	2
					5	●	**MDW04062HGS5**	70.66	2.7818	86.13	3.3911	151.13	5.9500					2
					8	●	**MDW04062HGS8**	102.15	4.0218	117.63	4.6311	184.12	7.2490					2
					3	●	**MDW04062HGS3S**	39.16	1.5418	54.64	2.1511	118.14	4.6510	2.14	0.0841	12.00	0.4724	2
					5	●	**MDW04062HGS5S**	70.66	2.7818	86.13	3.3911	151.13	5.9500					2
10.40	0.4094				3	●	**MDW1040HGS3**	39.10	1.5394	54.70	2.1535	118.20	4.6535	2.20	0.0866	11.00	0.4331	2
					5	●	**MDW1040HGS5**	70.60	2.7795	86.20	3.3937	151.20	5.9528					2
					8	★	**MDW1040HGS8**	102.10	4.0197	117.70	4.6339	184.20	7.2520					2
10.49	0.4130	Z	M12x1.65		3	●	**MDW04130HGS3S**	38.94	1.5330	54.67	2.1525	118.16	4.6520	2.17	0.0855	12.00	0.4724	2
					5	●	**MDW04130HGS5S**	70.43	2.7730	86.17	3.3925	151.18	5.9520					2
10.50	0.4134			7/16-20	3	●	**MDW1050HGS3**	39.00	1.5354	54.70	2.1535	118.20	4.6535	2.20	0.0866	11.00	0.4331	2
					5	●	**MDW1050HGS5**	70.50	2.7756	86.20	3.3937	151.20	5.9528					2
					8	●	**MDW1050HGS8**	102.00	4.0157	117.70	4.6339	184.20	7.2520					2
10.60	0.4173			M11x1	3	●	**MDW1060HGS3**	41.30	1.6260	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	2
					5	●	**MDW1060HGS5**	74.30	2.9252	90.20	3.5512	151.20	5.9528					2
					8	★	**MDW1060HGS8**	107.30	4.2244	123.20	4.8504	184.20	7.2520					2
10.70	0.4213				3	●	**MDW1070HGS3**	41.20	1.6220	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	2
					5	●	**MDW1070HGS5**	74.20	2.9213	90.20	3.5512	151.20	5.9528					2
					8	★	**MDW1070HGS8**	107.20	4.2205	123.20	4.8504	184.20	7.2520					2
10.72	0.4219	27/64	M12x1.5 1/2-13	M11x.75	3	●	**MDW04219HGS3**	41.14	1.6196	57.21	2.2524	118.21	4.6540	2.22	0.0874	11.11	0.4375	2
					5	●	**MDW04219HGS5**	74.16	2.9196	90.23	3.5524	151.23	5.9540					2
					8	●	**MDW04219HGS8**	107.15	4.2186	123.23	4.8514	184.23	7.2530					2
					3	●	**MDW04219HGS3S**	41.14	1.6196	57.21	2.2524	118.21	4.6540	2.22	0.0874	12.00	0.4724	2
					5	●	**MDW04219HGS5S**	74.16	2.9196	90.23	3.5524	151.23	5.9540					2
10.80	0.4252				3	●	**MDW1080HGS3**	41.00	1.6142	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	2
					5	●	**MDW1080HGS5**	74.00	2.9134	90.20	3.5512	151.20	5.9528					2
					8	★	**MDW1080HGS8**	107.00	4.2126	123.20	4.8504	184.20	7.2520					2

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø10.90 to 12.30mm* (0.4291" to 0.4844") Dimensions (*mm*/inch)

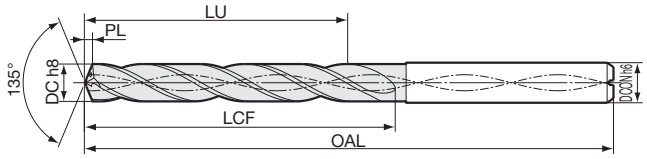
● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
10.90	0.4291		M12x1.25		3	●	MDW1090HGS3	41.00	1.6142	57.30	2.2559	118.30	4.6575	2.30	0.0906	11.00	0.4331	2
					5	●	MDW1090HGS5	74.00	2.9134	90.30	3.5551	151.30	5.9567					2
					8	★	MDW1090HGS8	107.00	4.2126	123.30	4.8543	184.30	7.2559					2
11.00	0.4331				3	●	MDW1100HGS3	40.80	1.6063	57.30	2.2559	118.30	4.6575	2.30	0.0906	11.00	0.4331	2
					5	●	MDW1100HGS5	73.80	2.9055	90.30	3.5551	151.30	5.9567					2
					8	●	MDW1100HGS8	106.80	4.2047	123.30	4.8543	184.30	7.2559					2
11.10	0.4370				3	●	MDW1110HGS3	43.20	1.7008	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	2
					5	●	MDW1110HGS5	77.70	3.0591	94.30	3.7126	160.30	6.3110					2
					8	★	MDW1110HGS8	112.20	4.4173	128.80	5.0709	196.30	7.7283					2
11.11	0.4375	7/16	M12x1		3	●	MDW04375HGS3	40.62	1.5994	57.29	2.2556	118.31	4.6580	2.30	0.0906	11.11	0.4375	2
					5	●	MDW04375HGS5	73.64	2.8994	90.31	3.5556	151.31	5.9570					2
					8	●	MDW04375HGS8	106.64	4.1984	123.31	4.8546	184.30	7.2560					2
					3	●	MDW04375HGS3S	43.14	1.6984	59.81	2.3546	124.31	4.8940	2.30	0.0906	12.00	0.4724	2
					5	●	MDW04375HGS5S	77.63	3.0564	94.30	3.7126	160.30	6.3110					2
11.20	0.4409				3	●	MDW1120HGS3	43.00	1.6929	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	2
					5	●	MDW1120HGS5	77.50	3.0512	94.30	3.7126	160.30	6.3110					2
					8	★	MDW1120HGS8	112.00	4.4094	128.80	5.0709	196.30	7.7283					2
11.30	0.4449			M12x1.5 M12x1.75	3	●	MDW1130HGS3	42.90	1.6890	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	2
					5	●	MDW1130HGS5	77.40	3.0472	94.30	3.7126	160.30	6.3110					2
					8	★	MDW1130HGS8	111.90	4.4055	128.80	5.0709	196.30	7.7283					2
11.40	0.4488				3	●	MDW1140HGS3	42.80	1.6850	59.90	2.3583	124.40	4.8976	2.40	0.0945	12.00	0.4724	2
					5	●	MDW1140HGS5	77.30	3.0433	94.40	3.7165	160.40	6.3150					2
					8	★	MDW1140HGS8	111.80	4.4016	128.90	5.0748	196.40	7.7323					2
11.50	0.4528			M12x1.25	3	●	MDW1150HGS3	42.70	1.6811	59.90	2.3583	124.40	4.8976	2.40	0.0945	12.00	0.4724	2
					5	●	MDW1150HGS5	77.20	3.0394	94.40	3.7165	160.40	6.3150					2
					8	●	MDW1150HGS8	111.70	4.3976	128.90	5.0748	196.40	7.7323					2
11.51	0.4531	29/64	1/2-20		3	●	MDW04531HGS3	45.12	1.7762	62.38	2.4558	124.38	4.8970	2.38	0.0938	11.91	0.4688	2
					5	●	MDW04531HGS5	81.13	3.1942	98.39	3.8738	160.38	6.3140					2
					8	●	MDW04531HGS8	117.12	4.6112	134.39	5.2908	196.39	7.7320					2
					3	●	MDW04531HGS3S	45.12	1.7762	62.38	2.4558	124.38	4.8970	2.38	0.0938	12.00	0.4724	2
					5	●	MDW04531HGS5S	81.13	3.1942	98.39	3.8738	160.38	6.3140					2
11.60	0.4567			M12x1	3	●	MDW1160HGS3	45.00	1.7717	62.40	2.4567	124.40	4.8976	2.40	0.0945	12.00	0.4724	2
					5	●	MDW1160HGS5	81.00	3.1890	98.40	3.8740	160.40	6.3150					2
					8	★	MDW1160HGS8	117.00	4.6063	134.40	5.2913	196.40	7.7323					2
11.70	0.4606				3	●	MDW1170HGS3	44.90	1.7677	62.40	2.4567	124.40	4.8976	2.40	0.0945	12.00	0.4724	2
					5	●	MDW1170HGS5	80.90	3.1850	98.40	3.8740	160.40	6.3150					2
					8	★	MDW1170HGS8	116.90	4.6024	134.40	5.2913	196.40	7.7323					2
11.80	0.4646			1/2-13	3	●	MDW1180HGS3	44.70	1.7598	62.40	2.4567	124.40	4.8976	2.40	0.0945	12.00	0.4724	2
					5	●	MDW1180HGS5	80.70	3.1772	98.40	3.8740	160.40	6.3150					2
					8	★	MDW1180HGS8	116.70	4.5945	134.40	5.2913	196.40	7.7323					2
11.90	0.4685				3	●	MDW1190HGS3	44.70	1.7598	62.50	2.4606	124.50	4.9016	2.50	0.0984	12.00	0.4724	2
					5	●	MDW1190HGS5	80.70	3.1772	98.50	3.8780	160.50	6.3189					2
					8	★	MDW1190HGS8	116.70	4.5945	134.50	5.2953	196.50	7.7362					2
11.91	0.4688	15/32			3	●	MDW04688HGS3	44.60	1.7559	62.46	2.4591	124.46	4.9000	2.47	0.0971	11.91	0.4688	2
					5	●	MDW04688HGS5	4.42	0.1739	22.28	0.8771	160.48	6.3180					2
					8	●	MDW04688HGS8	116.61	4.5909	134.47	5.2941	196.47	7.7350					2
					3	●	MDW04688HGS3S	44.60	1.7559	62.46	2.4591	124.46	4.9000	2.47	0.0971	12.00	0.4724	2
					5	●	MDW04688HGS5S	80.62	3.1739	98.48	3.8771	160.48	6.3180					2
12.00	0.4724				3	●	MDW1200HGS3	44.50	1.7520	62.50	2.4606	124.50	4.9016	2.50	0.0984	12.00	0.4724	2
					5	●	MDW1200HGS5	80.50	3.1693	98.50	3.8780	160.50	6.3189					2
					8	●	MDW1200HGS8	116.50	4.5866	134.50	5.2953	196.50	7.7362					2
12.10	0.4764				3	●	MDW1210HGS3	46.90	1.8465	65.00	2.5591	130.50	5.1378	2.50	0.0984	13.00	0.5118	2
					5	●	MDW1210HGS5	84.40	3.3228	102.50	4.0354	169.50	6.6732					2
12.20	0.4803				3	●	MDW1220HGS3	46.70	1.8386	65.00	2.5591	130.50	5.1378	2.50	0.0984	13.00	0.5118	2
					5	●	MDW1220HGS5	84.20	3.3150	102.50	4.0354	169.50	6.6732					2
12.30	0.4843				3	●	MDW1230HGS3	46.60	1.8346	65.00	2.5591	130.50	5.1378	2.50	0.0984	13.00	0.5118	2
					5	●	MDW1230HGS5	84.10	3.3110	102.50	4.0354	169.50	6.6732					2
12.30	0.4844	31/64	9/16-12 M14x2		3	●	MDW04844HGS3	46.60	1.8347	65.06	2.5613	130.56	5.1400	2.55	0.1003	13.10	0.5156	2
					5	●	MDW04844HGS5	84.09	3.3107	102.55	4.0373	169.55	6.6750					2
					8	●	MDW04844HGS8	121.58	4.7867	140.04	5.5133	208.56	8.2110					2
					3	●	MDW04844HGS3S	46.60	1.8347	65.06	2.5613	130.56	5.1400	2.55	0.1003	14.00	0.5512	2
					5	●	MDW04844HGS5S	84.09	3.3107	102.55	4.0373	169.55	6.6750					2

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø12.40 to 14.20mm* (0.4882" to 0.5591")

Dimensions (*mm*/inch) ● USA stocked item ★ Worldwide Warehouse Item

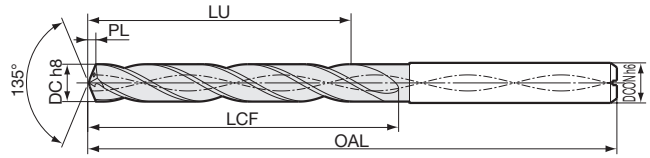
Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
12.40	0.4882				3	●	**MDW1240HGS3**	46.50	1.8307	65.10	2.5630	130.60	5.1417	2.60	0.1024	13.00	0.5118	2
					5	●	**MDW1240HGS5**	84.00	3.3071	102.60	4.0394	169.60	6.6772					2
12.50	0.4921				3	●	**MDW1250HGS3**	46.40	1.8268	65.10	2.5630	130.60	5.1417	2.60	0.1024	13.00	0.5118	2
					5	●	**MDW1250HGS5**	83.90	3.3031	102.60	4.0394	169.60	6.6772					2
					8	●	**MDW1250HGS8**	121.40	4.7795	140.10	5.5157	208.60	8.2126					2
12.60	0.4961				3	●	**MDW1260HGS3**	48.70	1.9173	67.60	2.6614	130.60	5.1417	2.60	0.1024	13.00	0.5118	2
					5	●	**MDW1260HGS5**	87.70	3.4528	106.60	4.1969	169.60	6.6772					2
12.70	0.5000	1/2	M14x1.5		3	●	**MDW1270HGS3**	48.60	1.9134	67.60	2.6614	130.60	5.1417	2.60	0.1024	13.00	0.5118	2
					5	●	**MDW1270HGS5**	87.60	3.4488	106.60	4.1969	169.60	6.6772					2
					3	●	**MDW05000HGS3**	48.58	1.9126	67.63	2.6626	130.63	5.1430	2.63	0.1036	13.10	0.5156	2
					5	●	**MDW05000HGS5**	87.57	3.4476	106.62	4.1976	169.62	6.6780					2
					8	●	**MDW05000HGS8**	126.58	4.9836	145.63	5.7336	208.64	8.2140					2
					3	●	**MDW05000HGS3S**	48.58	1.9126	67.63	2.6626	130.63	5.1430	2.63	0.1036	14.00	0.5512	2
					5	●	**MDW05000HGS5S**	87.57	3.4476	106.62	4.1976	169.62	6.6780					2
12.80	0.5039		9/16-18		3	●	**MDW1280HGS3**	48.50	1.9094	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	2
					5	●	**MDW1280HGS5**	87.50	3.4449	106.70	4.2008	169.70	6.6811					2
12.90	0.5079		M14x1.25		3	●	**MDW1290HGS3**	48.40	1.9055	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	2
					5	●	**MDW1290HGS5**	87.40	3.4409	106.70	4.2008	169.70	6.6811					2
13.00	0.5118				3	●	**MDW1300HGS3**	48.20	1.8976	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	2
					5	●	**MDW1300HGS5**	87.20	3.4331	106.70	4.2008	169.70	6.6811					2
					8	●	**MDW1300HGS8**	126.20	4.9685	145.70	5.7362	208.70	8.2165					2
13.10	0.5156	33/64	M14x1	M14x2	3	●	**MDW05156HGS3**	48.07	1.8924	67.71	2.6658	130.71	5.1460	2.71	0.1068	13.10	0.5156	2
					5	●	**MDW05156HGS5**	87.06	3.4274	106.70	4.2008	169.72	6.6820					2
					8	●	**MDW05156HGS8**	126.07	4.9634	145.71	5.7368	208.71	8.2170					2
					3	●	**MDW05156HGS3S**	50.56	1.9904	70.20	2.7638	136.70	5.3820	2.71	0.1068	14.00	0.5512	2
					5	●	**MDW05156HGS5S**	91.07	3.5854	110.71	4.3588	178.71	7.0360					2
13.10	0.5157				3	●	**MDW1310HGS3**	50.60	1.9921	70.20	2.7638	136.70	5.3819	2.70	0.1063	14.00	0.5512	2
					5	●	**MDW1310HGS5**	91.10	3.5866	110.70	4.3583	178.70	7.0354					2
13.20	0.5197				3	●	**MDW1320HGS3**	50.40	1.9843	70.20	2.7638	136.70	5.3819	2.70	0.1063	14.00	0.5512	2
					5	●	**MDW1320HGS5**	90.90	3.5787	110.70	4.3583	178.70	7.0354					2
13.30	0.5236			M14x1.5	3	●	**MDW1330HGS3**	50.40	1.9843	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	2
					5	●	**MDW1330HGS5**	90.90	3.5787	110.80	4.3622	178.80	7.0394					2
13.40	0.5276			9/16-12 M14x1.25	3	●	**MDW1340HGS3**	50.20	1.9764	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	2
					5	●	**MDW1340HGS5**	90.70	3.5709	110.80	4.3622	178.80	7.0394					2
13.49	0.5312	17/32		M14x1	3	●	**MDW05312HGS3**	50.04	1.9702	70.28	2.7670	136.80	5.3860	2.79	0.1100	13.89	0.5469	2
					5	●	**MDW05312HGS5**	90.56	3.5652	110.79	4.3620	178.79	7.0390					2
					8	●	**MDW05312HGS8**	131.04	5.1592	151.28	5.9560	220.80	8.6930					2
					3	●	**MDW05312HGS3S**	50.04	1.9702	70.28	2.7670	136.80	5.3860	2.79	0.1100	14.00	0.5512	2
					5	●	**MDW05312HGS5S**	90.56	3.5652	110.79	4.3620	178.79	7.0390					2
13.50	0.5315				3	●	**MDW1350HGS3**	50.10	1.9724	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	2
					5	●	**MDW1350HGS5**	90.60	3.5669	110.80	4.3622	178.80	7.0394					2
					8	●	**MDW1350HGS8**	131.10	5.1614	151.30	5.9567	220.80	8.6929					2
13.60	0.5354		5/8-11		3	●	**MDW1360HGS3**	52.40	2.0630	72.80	2.8661	136.80	5.3858	2.80	0.1102	14.00	0.5512	2
					5	●	**MDW1360HGS5**	94.40	3.7165	114.80	4.5197	178.80	7.0394					2
13.70	0.5394		M15x1.5	9/16-18	3	●	**MDW1370HGS3**	52.30	2.0591	72.80	2.8661	136.80	5.3858	2.80	0.1102	14.00	0.5512	2
					5	●	**MDW1370HGS5**	94.30	3.7126	114.80	4.5197	178.80	7.0394					2
13.80	0.5433				3	●	**MDW1380HGS3**	52.20	2.0551	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	2
					5	●	**MDW1380HGS5**	94.20	3.7087	114.90	4.5236	178.90	7.0433					2
13.89	0.5469	35/64			3	●	**MDW05469HGS3**	52.04	2.0490	72.88	2.8693	136.88	5.3890	2.88	0.1133	13.89	0.5469	2
					5	●	**MDW05469HGS5**	94.03	3.7020	114.87	4.5223	178.87	7.0420					2
					8	●	**MDW05469HGS8**	136.04	5.3560	156.88	6.1763	220.88	8.6960					2
					3	●	**MDW05469HGS3S**	52.04	2.0490	72.88	2.8693	136.88	5.3890	2.88	0.1133	14.00	0.5512	2
					5	●	**MDW05469HGS5S**	94.03	3.7020	114.87	4.5223	178.87	7.0420					2
13.90	0.5472				3	●	**MDW1390HGS3**	52.10	2.0512	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	2
					5	●	**MDW1390HGS5**	94.10	3.7047	114.90	4.5236	178.90	7.0433					2
14.00	0.5512				3	●	**MDW1400HGS3**	51.90	2.0433	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	2
					5	●	**MDW1400HGS5**	93.90	3.6969	114.90	4.5236	178.90	7.0433					2
					8	●	**MDW1400HGS8**	135.90	5.3504	156.90	6.1772	220.90	8.6969					2
14.10	0.5551		M15x1		3	●	**MDW1410HGS3**	54.30	2.1378	75.40	2.9685	142.90	5.6260	2.90	0.1142	15.00	0.5906	2
					5	●	**MDW1410HGS5**	97.80	3.8504	118.90	4.6811	187.90	7.3976					2
14.20	0.5591				3	●	**MDW1420HGS3**	54.10	2.1299	75.40	2.9685	142.90	5.6260	2.90	0.1142	15.00	0.5906	2
					5	●	**MDW1420HGS5**	97.60	3.8425	118.90	4.6811	187.90	7.3976					2

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø14.29 to 15.90mm* (0.5625" to 0.6260")

Dimensions (*mm*/inch) ● USA stocked item ★ Worldwide Warehouse Item

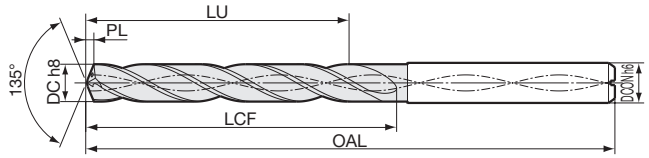
Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
14.29	0.5625	9/16	M16x2	M15x1.5	3	●	**MDW05625HGS3**	54.02	2.1268	75.45	2.9705	142.95	5.6280	2.96	0.1165	15.08	0.5937	2
					5	●	**MDW05625HGS5**	97.53	3.8398	118.96	4.6835	187.96	7.4000					2
					8	●	**MDW05625HGS8**	141.04	5.5528	162.47	6.3965	232.97	9.1720					2
					3	●	**MDW05625HGS3S**	54.02	2.1268	75.45	2.9705	142.95	5.6280	2.96	0.1165	16.00	0.6299	2
					5	●	**MDW05625HGS5S**	97.53	3.8398	118.96	4.6835	187.96	7.4000					2
14.30	0.5630				3	●	**MDW1430HGS3**	54.10	2.1299	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	2
					5	●	**MDW1430HGS5**	97.60	3.8425	119.00	4.6850	188.00	7.4016					2
14.40	0.5669				3	●	**MDW1440HGS3**	53.90	2.1220	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	2
					5	●	**MDW1440HGS5**	97.40	3.8346	119.00	4.6850	188.00	7.4016					2
14.50	0.5709		5/8-18	M15x1	3	●	**MDW1450HGS3**	53.80	2.1181	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	2
					5	●	**MDW1450HGS5**	97.30	3.8307	119.00	4.6850	188.00	7.4016					2
					8	●	**MDW1450HGS8**	140.80	5.5433	162.50	6.3976	233.00	9.1732					2
14.60	0.5748				3	●	**MDW1460HGS3**	56.10	2.2087	78.00	3.0709	143.00	5.6299	3.00	0.1181	15.00	0.5906	2
					5	●	**MDW1460HGS5**	101.10	3.9803	123.00	4.8425	188.00	7.4016					2
14.68	0.5781	37/64	M16x1.5		3	●	**MDW05781HGS3**	56.02	2.2056	78.05	3.0727	143.05	5.6320	3.04	0.1197	15.08	0.5937	2
					5	●	**MDW05781HGS5**	101.01	3.9766	123.03	4.8437	188.04	7.4030					2
					8	●	**MDW05781HGS8**	146.01	5.7486	168.04	6.6157	233.05	9.1750					2
					3	●	**MDW05781HGS3S**	56.02	2.2056	78.05	3.0727	143.05	5.6320	3.04	0.1197	16.00	0.6299	2
					5	●	**MDW05781HGS5S**	101.01	3.9766	123.03	4.8437	188.04	7.4030					2
14.70	0.5787				3	●	**MDW1470HGS3**	56.00	2.2047	78.00	3.0709	143.00	5.6299	3.00	0.1181	15.00	0.5906	2
					5	●	**MDW1470HGS5**	101.00	3.9764	123.00	4.8425	188.00	7.4016					2
14.80	0.5827				3	●	**MDW1480HGS3**	55.90	2.2008	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	2
					5	●	**MDW1480HGS5**	100.90	3.9724	123.10	4.8465	188.10	7.4055					2
14.90	0.5866			5/8-11	3	●	**MDW1490HGS3**	55.80	2.1969	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	2
					5	●	**MDW1490HGS5**	100.80	3.9685	123.10	4.8465	188.10	7.4055					2
15.00	0.5906				3	●	**MDW1500HGS3**	55.60	2.1890	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	2
					5	●	**MDW1500HGS5**	100.60	3.9606	123.10	4.8465	188.10	7.4055					2
					8	●	**MDW1500HGS8**	145.60	5.7323	168.10	6.6181	233.10	9.1772					2
15.08	0.5937	19/32	M16x1	M16x2	3	●	**MDW05937HGS3**	55.51	2.1855	78.13	3.0760	143.13	5.6350	3.12	0.1230	15.08	0.5937	2
					5	●	**MDW05937HGS5**	100.50	3.9565	123.11	4.8470	188.11	7.4060					2
					8	●	**MDW05937HGS8**	145.50	5.7285	168.12	6.6190	233.12	9.1780					2
					3	●	**MDW05937HGS3S**	58.00	2.2835	80.62	3.1740	149.12	5.8710	3.12	0.1230	16.00	0.6299	2
					5	●	**MDW05937HGS5S**	104.51	4.1145	127.13	5.0050	197.13	7.7610					2
15.10	0.5945				3	●	**MDW1510HGS3**	58.00	2.2835	80.60	3.1732	149.10	5.8701	3.10	0.1220	16.00	0.6299	2
					5	●	**MDW1510HGS5**	104.50	4.1142	127.10	5.0039	197.10	7.7598					2
15.20	0.5984				3	●	**MDW1520HGS3**	57.80	2.2756	80.60	3.1732	149.10	5.8701	3.10	0.1220	16.00	0.6299	2
					5	●	**MDW1520HGS5**	104.30	4.1063	127.10	5.0039	197.10	7.7598					2
15.30	0.6024			5/8-18 M16x1.5	3	●	**MDW1530HGS3**	57.80	2.2756	80.70	3.1772	149.20	5.8740	3.20	0.1260	16.00	0.6299	2
					5	●	**MDW1530HGS5**	104.30	4.1063	127.20	5.0079	197.20	7.7638					2
15.40	0.6063				3	●	**MDW1540HGS3**	57.60	2.2677	80.70	3.1772	149.20	5.8740	3.20	0.1260	16.00	0.6299	2
					5	●	**MDW1540HGS5**	104.10	4.0984	127.20	5.0079	197.20	7.7638					2
15.48	0.6094	39/64	11/16-12		3	●	**MDW06094HGS3**	57.48	2.2631	80.70	3.1772	149.20	5.8740	3.21	0.1262	15.88	0.6250	2
					5	●	**MDW06094HGS5**	103.99	4.0941	127.21	5.0082	197.21	7.7640					2
					8	●	**MDW06094HGS8**	150.50	5.9251	173.72	6.8392	245.21	9.6540					2
					3	●	**MDW06094HGS3S**	57.48	2.2631	80.70	3.1772	149.20	5.8740	3.21	0.1262	16.00	0.6299	2
					5	●	**MDW06094HGS5S**	103.99	4.0941	127.21	5.0082	197.21	7.7640					2
15.50	0.6102				3	●	**MDW1550HGS3**	57.50	2.2638	80.70	3.1772	149.20	5.8740	3.20	0.1260	16.00	0.6299	2
					5	●	**MDW1550HGS5**	104.00	4.0945	127.20	5.0079	197.20	7.7638					2
					8	●	**MDW1550HGS8**	150.50	5.9252	173.70	6.8386	245.20	9.6535					2
15.60	0.6142			M16x1	3	★	**MDW1560HGS3**	59.80	2.3543	83.20	3.2756	149.20	5.8740	3.20	0.1260	16.00	0.6299	2
					5	●	**MDW1560HGS5**	107.80	4.2441	131.20	5.1654	197.20	7.7638					2
15.70	0.6181		M18x2.5		3	●	**MDW1570HGS3**	59.80	2.3543	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	2
					5	★	**MDW1570HGS5**	107.80	4.2441	131.30	5.1693	197.30	7.7677					2
15.80	0.6220				3	●	**MDW1580HGS3**	59.60	2.3465	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	2
					5	●	**MDW1580HGS5**	107.60	4.2362	131.30	5.1693	197.30	7.7677					2
15.88	0.6250	5/8			3	●	**MDW06250HGS3**	59.48	2.3419	83.30	3.2794	149.28	5.8770	3.29	0.1294	15.88	0.6250	2
					5	●	**MDW06250HGS5**	107.46	4.2309	131.28	5.1684	197.28	7.7670					2
					8	●	**MDW06250HGS8**	155.47	6.1209	179.28	7.0584	245.29	9.6570					2
					3	●	**MDW06250HGS3S**	59.48	2.3419	83.30	3.2794	149.28	5.8770	3.29	0.1294	16.00	0.6299	2
					5	●	**MDW06250HGS5S**	107.46	4.2309	131.28	5.1684	197.28	7.7670					2
15.90	0.6260				3	●	**MDW1590HGS3**	59.50	2.3425	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	2
					5	●	**MDW1590HGS5**	107.50	4.2323	131.30	5.1693	197.30	7.7677					2

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating | Coolant Hole | 3D | 5D | 8D

Cut tap reccomendations based on 60-75% full thread.
Form tap reccomendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter *ø16.00 to 20.00mm* (0.6299" to 0.7874")

Dimensions (*mm*/inch) ● USA stocked item ★ Worldwide Warehouse Item

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
16.00	0.6299				3	●	**MDW1600HGS3**	59.30	2.3346	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	2
					5	●	**MDW1600HGS5**	107.30	4.2244	131.30	5.1693	197.30	7.7677					2
					8	●	**MDW1600HGS8**	155.30	6.1142	179.30	7.0591	245.30	9.6575					2
16.27	0.6406	41/64	M18x2	M17x1.5	3	●	**MDW06406HGS3**	61.46	2.4198	85.87	3.3807	155.37	6.1170	3.37	0.1327	17.07	0.6719	2
					5	●	**MDW06406HGS5**	110.97	4.3688	135.37	5.3297	206.38	8.1250					2
16.50	0.6496		3/4-10	M17x1	3	●	**MDW1650HGS3**	61.20	2.4094	85.90	3.3819	155.40	6.1181	3.40	0.1339	17.00	0.6693	2
					5	●	**MDW1650HGS5**	110.70	4.3583	135.40	5.3307	206.40	8.1260					2
16.67	0.6562	21/32	M18x1.5		3	●	**MDW06562HGS3**	63.44	2.4976	88.44	3.4819	155.45	6.1200	3.45	0.1359	17.07	0.6719	2
					5	●	**MDW06562HGS5**	114.44	4.5056	139.44	5.4899	206.45	8.1280					2
17.00	0.6693				3	●	**MDW1700HGS3**	63.00	2.4803	88.50	3.4843	155.50	6.1220	3.50	0.1378	17.00	0.6693	2
					5	●	**MDW1700HGS5**	114.00	4.4882	139.50	5.4921	206.50	8.1299					2
17.07	0.6719	43/64			3	●	**MDW06719HGS3S**	65.44	2.5764	91.04	3.5842	161.54	6.3600	3.54	0.1392	18.00	0.7087	2
					5	●	**MDW06719HGS5S**	117.94	4.6434	143.54	5.6512	217.53	8.5640					2
17.46	0.6875	11/16			3	●	**MDW06875HGS3**	64.93	2.5562	91.12	3.5874	161.62	6.3630	3.62	0.1424	17.86	0.7031	2
					5	●	**MDW06875HGS5**	117.43	4.6232	143.62	5.6544	217.63	8.5680					2
17.50	0.6890			M18x1	3	●	**MDW1750HGS3**	64.90	2.5551	91.10	3.5866	161.60	6.3622	3.60	0.1417	18.00	0.7087	2
					5	★	**MDW1750HGS5**	117.40	4.6220	143.60	5.6535	217.60	8.5669					2
17.86	0.7031	45/64		3/4-10	3	●	**MDW07031HGS3**	66.90	2.6340	93.69	3.6886	161.70	6.3660	3.70	0.1456	17.86	0.7031	2
					5	●	**MDW07031HGS5S**	120.90	4.7600	147.69	5.8146	217.70	8.5710					2
18.00	0.7087			3/4-10	3	★	**MDW1800HGS3**	66.70	2.6260	93.70	3.6890	161.70	6.3661	3.70	0.1457	18.00	0.7087	2
					5	★	**MDW1800HGS5**	120.70	4.7520	147.70	5.8150	217.70	8.5709					2
18.25	0.7187	23/32			3	●	**MDW07187HGS3**	68.91	2.7128	96.29	3.7908	167.79	6.6060	3.78	0.1488	19.05	0.7500	2
					5	●	**MDW07187HGS5S**	124.40	4.8978	151.79	5.9758	224.79	8.8500	3.78	0.1488	20.00	0.7874	2
18.50	0.7283				3	★	**MDW1850HGS3**	68.60	2.7008	96.30	3.7913	167.80	6.6063	3.80	0.1496	19.00	0.7480	2
					5	★	**MDW1850HGS5**	124.10	4.8858	151.80	5.9764	224.80	8.8504					2
18.65	0.7344	47/64	M20.1.5		3	●	**MDW07344HGS3**	70.88	2.7905	98.86	3.8921	167.87	6.6090	3.86	0.1521	20.00	0.7873	2
					5	●	**MDW07344HGS5S**	127.88	5.0345	155.86	6.1361	224.87	8.8530					2
19.00	0.7480				3	●	**MDW1900HGS3**	70.40	2.7717	98.90	3.8937	167.90	6.6102	3.90	0.1535	19.00	0.7480	2
					5	★	**MDW1900HGS5**	127.40	5.0157	155.90	6.1378	224.90	8.8543					2
19.05	0.7500	3/4			3	●	**MDW07500HGS3**	70.37	2.7703	98.94	3.8953	167.94	6.6120	3.94	0.1553	19.05	0.7500	2
19.50	0.7677		7/8-9		3	★	**MDW1950HGS3**	72.30	2.8465	101.50	3.9961	174.00	6.8504	4.00	0.1575	20.00	0.7874	2
					5	★	**MDW1950HGS5**	130.80	5.1496	160.00	6.2992	234.00	9.2126					2
19.84	0.7812	25/32	M22x2.5		3	●	**MDW07812HGS3**	74.35	2.9270	104.11	4.0988	174.12	6.8550	4.11	0.1618	19.85	0.7813	2
					5	●	**MDW07812HGS5S**	134.34	5.2890	164.10	6.4608	234.11	9.2170	4.11	0.1618	20.00	0.7874	2
20.00	0.7874				3	★	**MDW2000HGS3**	74.10	2.9173	104.10	4.0984	174.10	6.8543	4.10	0.1614	20.00	0.7874	2
					5	★	**MDW2000HGS5**	134.10	5.2795	164.10	6.4606	234.10	9.2165					2

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

DEX Coating | Coolant Hole | 3D | 5D | 8D

MDW - HGS Cutting Conditions

MDW		Part Material	Hardness HB	Speed = SFM Feed = IPR	Drill Diameter (inch)		
					ø < ø0.196	ø0.197 - ø0.394	ø0.395 >
HGS 2D 5D 8D	P	Low Carbon Steel	<190	SFM	300 - 475	400 - 550	450 - 650
				IPR	.004 - .008	.006 - .010	.008 - .014
			190 ~ 250	SFM	225 - 425	265 - 530	425 - 625
				IPR	.004 - .008	.006 - .010	.008 - .014
			250 ~ 300	SFM	175 - 375	225 - 495	250 - 525
				IPR	.003 - .006	.004 - .008	.006 - .012
		Medium Carbon Steel	180 ~ 275	SFM	225 - 425	265 - 530	350 - 575
				IPR	.004 - .008	.006 - .010	.008 - .014
			275 ~ 350	SFM	175 - 375	225 - 495	305 - 525
				IPR	.003 - .006	.004 - .008	.006 - .012
		Alloy Steel	200	SFM	190 - 380	225 - 475	275 - 525
				IPR	.003 - .008	.006 - .010	.008 - .014
			350	SFM	125 - 300	155 - 325	155 - 350
				IPR	.003 - .006	.004 - .008	.006 - .010
	M	300 Austenitic Stainless Steel	160 ~ 280	SFM	120 - 225	150 - 325	150 - 325
				IPR	.002 - .006	.004 - .010	.006 - .012
		400 Martensitic Stainless Steel	160 ~ 240	SFM	120 - 250	175 - 350	175 - 350
				IPR	.002 - .006	.004 - .010	.006 - .012
	K	Cast Iron		SFM	150 - 380	250 - 475	275 - 530
				IPR	.006 - .010	.006 - .014	.006 - .014
		Ductile Iron		SFM	150 - 350	225 - 450	250 - 500
				IPR	.006 - .010	.006 - .014	.006 - .014
	H	Hardened Steel	45-60 Rc	SFM	60 - 190	80 - 225	80 - 225
				IPR	.002 - .004	.003 - .006	.004 - .008
	S	Titanium Alloy Ti-6Al-4V		SFM	65 - 130	80 - 130	80 - 160
				IPR	.003 - .004	.003 - .005	.003 - .006
		Exotics - Inconel, Monel		SFM	40 - 85	40 - 100	50 - 120
				IPR	.002 - .003	.003 - .005	.003 - .006
	N	Aluminum alloy		SFM	500 - 800	600 - 1000	600 - 1000
				IPR	.003 - .006	.004 - .008	.006 - .012
		Copper Alloy		SFM	400 - 800	500 - 800	500 - 800
				IPR	.003 - .006	.004 - .008	.006 - .010

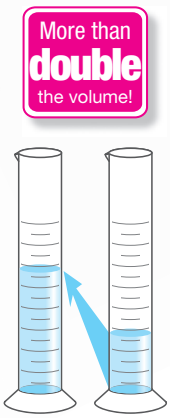
Bean Jet Cooling®

RX-Thinning & Wide Chip Pocket For Stable & Light Cutting Force

- New Bean Jet Cooling® provides longer tool life in Stainless and Exotic Alloys.
- Optimized for chip evacuation and heat removal.
- Resistant to edge chipping.

*Ideal for drill diameters of ø4.1mm and above

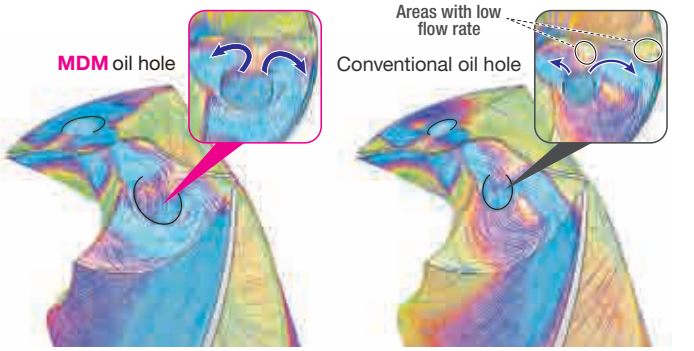
- High volume & High Pressure cooling to the cutting edge



MDM

Conventional

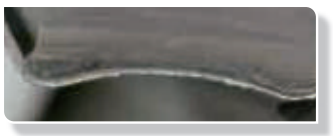
- New technology developed from fluid analysis effectively cools the cutting edge!



Analysis at spindle speed 3,200min^{-1}

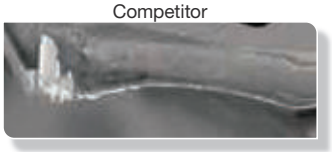
- Resistant to edge chipping
  - Removing excess heat from rake face dramatically reduces adhesion & breakage.

MDM



Less adhesion means longer tool life

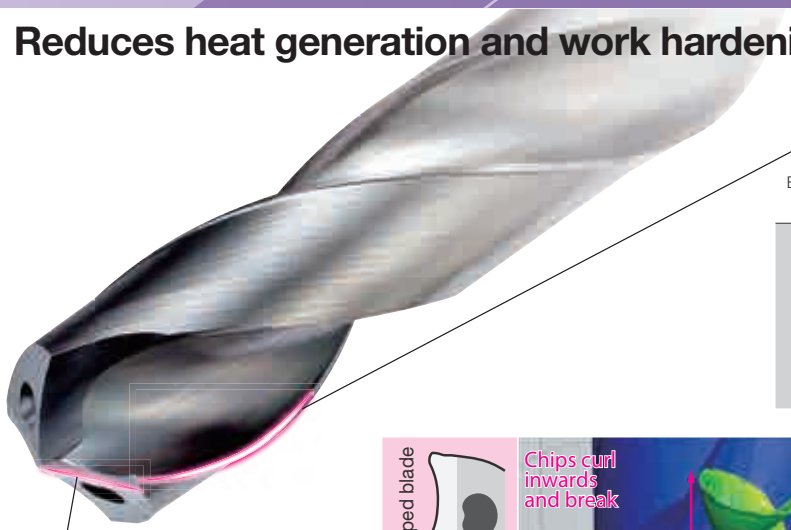
Competitor



Breakage caused by adhesion at outer edge

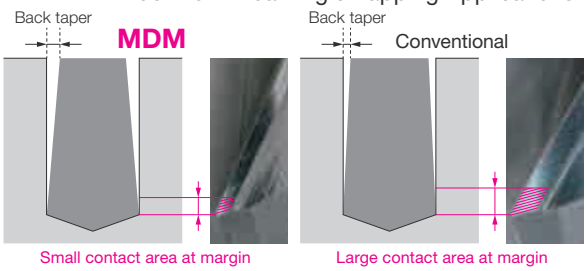
Part Material: 304 Stainless Steel, Machine: BT30 vertical M/C
Tool: MDM0800S08H05 (*ø8 mm* × 5D)
Cutting Conditions: v_C= 265 SFM, f= .0098 IPR
H= 1.57” (through hole)
Internal Coolant Supply (Water Soluble)
Cutting Distance: 1.57”

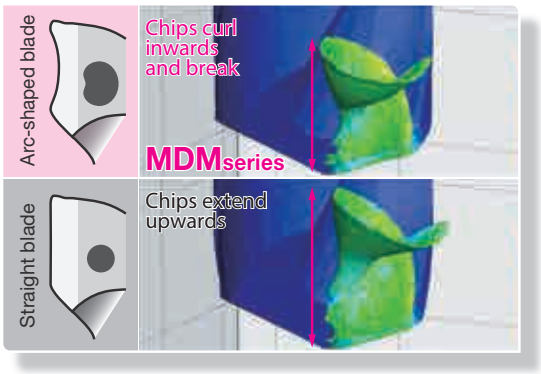
Reduces heat generation and work hardening!



● Narrow margin and large back taper

The reduced contact area on the margin reduces work hardening and leads to longer tool life in Reaming & Tapping Applications





High Quality Edge Ensures Long Tool Life: The sharp blade design allows low cutting forces with excellent chip control.

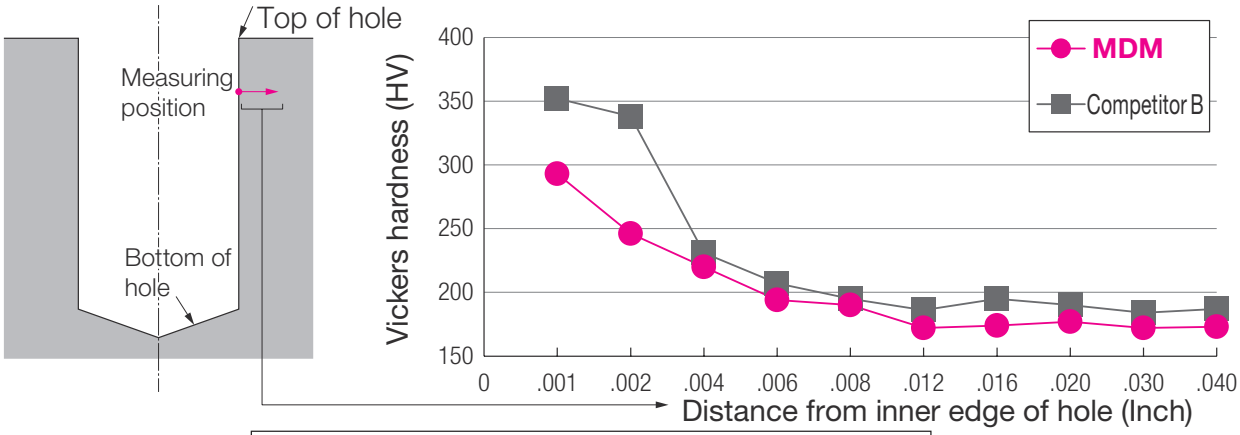
MDM

Competitor A

Part Material: 304 Stainless Steel
Machine: BT30 vertical M/C
Tool: MDM0400S04H05 (*ø4.0 mm* × 5D)
Cutting Conditions: v_C= 265 SFM, f= .0039 IPR
Internal Coolant Supply (Water Soluble)

● Suppresses work hardening on the inner edge of the hole

Reducing the cutting load not only reduces damage to the drill, but also contributes a longer life of reamers and taps used in post processing



Part Material: 304 Stainless Steel, Machine: BT30 vertical M/C
Tool: MDM0800S08H05 (*ø8.0 mm* × 5D)
Cutting Conditions: v_C= 265 SFM, f= .0079 IPR H= 1.57" (through hole)
Internal Coolant Supply (Water Soluble)

Experience exceptional stability when machining stainless steel and exotic alloys!

ACT70 NX COATING

Carbide Substrate & Coating ideal for machining stainless steel and exotic alloy.

TiAlCrSi Super Multi-Layer
Hardness HV: 46GPa
Oxidation starting temperature: 1,100°C

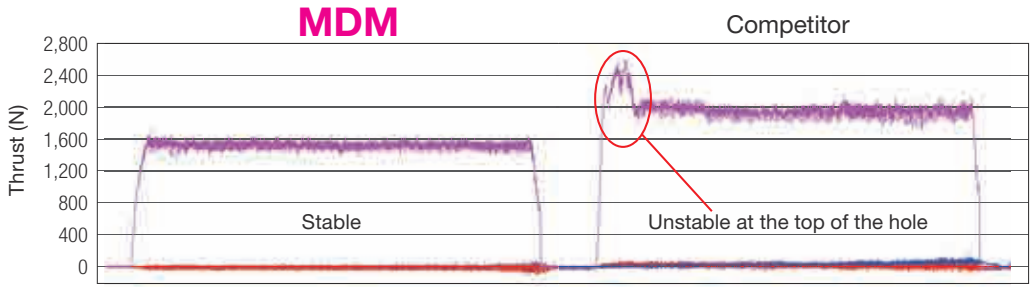
Highly Adhesive Coating Layer

- **NX coating reduces wear at the margin and resists edge chipping.**

MDM Conventional

Part Material: 304 Stainless Steel,
Machine: BT30 vertical M/C
Tool: MDM0800S08H05 (*ø8.0 mm* × 5D)
Cutting Conditions: v_C = 265 SFM,
f = .0079 IPR, H = 1.57" (through hole)
Internal Coolant supply (Water Soluble)

- **Reduced thrust enables stable machining from the top of the hole to the bottom**

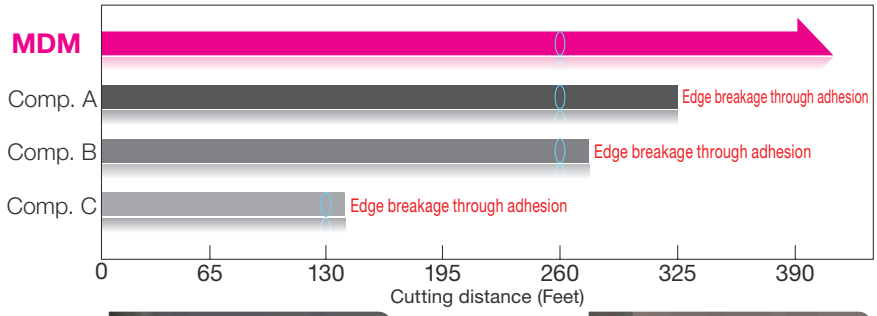


Part Material: 304 Stainless Steel,
Machine: BT30 vertical M/C
Tool: MDM0800S08H05 (*ø8.0 mm* × 5D)
Cutting Conditions: v_C = 265 SFM,
f = .0079 IPR, H = 1.57" (through hole)
Internal Coolant Supply (Water Soluble)

• Application Examples:

Excellent Wear Resistance in Austenitic Stainless Machining Center

Part Material: 304 Stainless Steel,
Machine: BT30 vertical M/C
Tool: MDM0800S08H05 (*ø8.0 mm* × 5D)
Cutting Conditions: v_C = 265 SFM,
f = .0079 IPR, H = 1.57" (through hole)
Internal Coolant Supply (Water Soluble)



MDM
After machining
260 ft.

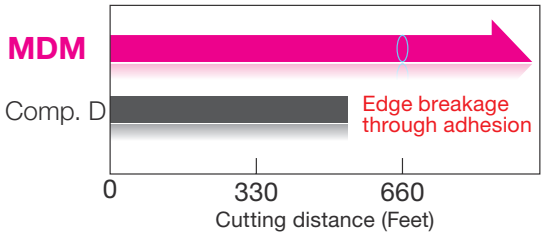
Comp. A
After machining
260 ft.

Comp. B
After machining
260 ft.

Comp. C
After machining
130 ft.

Excellent Wear Resistance in Austenitic Stainless: Small Lathe

Part Material: 304 Stainless Steel,
Machine: CNC Automatic Lathe (Workpiece rotation)
Tool: MDM0540S06H03 (*ø5.4 mm* × 3D)
Cutting Conditions: v_C = 155 SFM,
f = .0047 IPR, H = 1.00" (blind hole)
Internal Coolant Supply (Non-Water Soluble)

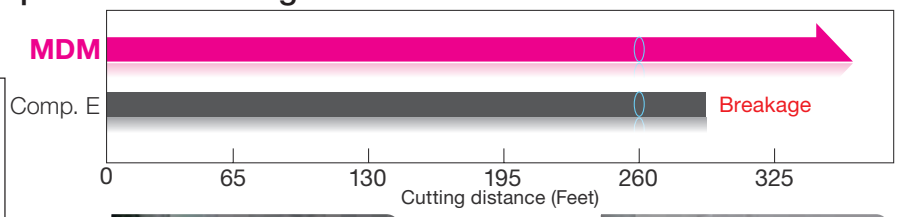


MDM

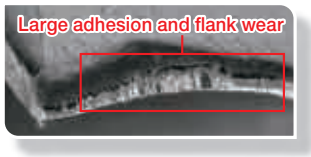
After machining 660 ft.

Excellent Wear Stability in Precipitation Hardening Stainless Steel

Part Material: 17-4PH (S17400) Stainless Steel,
Machine: BT30 vertical M/C
Tool: MDM0400S04H05 (*ø4 mm* × 5D)
Cutting Conditions: v_C = 165 SFM,
f = .0039 IPR, H = .55" (blind hole)
Internal Coolant Supply (Water Soluble)



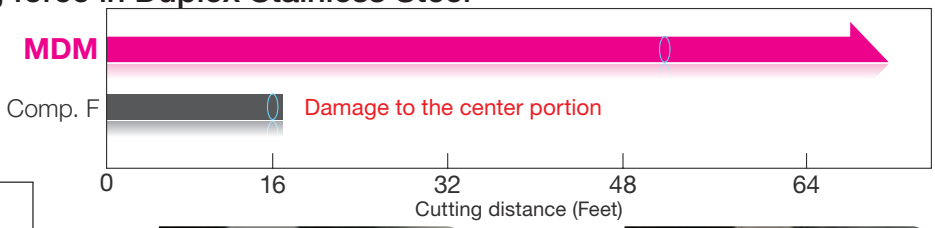
MDM
After
machining
260 ft.

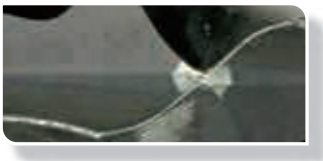


Comp. E
After
machining
260 ft.

RX thinning reduces cutting force in Duplex Stainless Steel

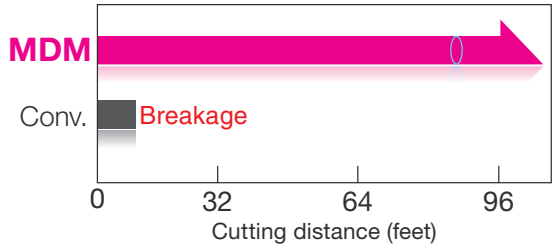
Part Material: 25% chromium duplex
ferritic-austenitic stainless steel
Machine: BT30 vertical M/C
Tool: MDM 0800S05H05 (*ø8 mm* × 5D)
Cutting Conditions: v_C = 200 SFM,
f = .0079 IPR, H = 1.18" (through hole)
Internal Coolant Supply (Water Soluble)



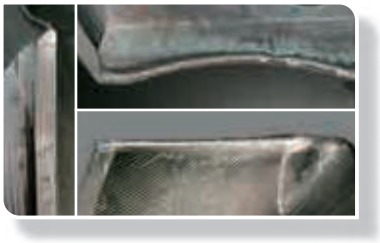

MDM
After
machining
52 feet

Comp. F
After
machining
16 feet

Effective chip formation & high tool life in Titanium Alloy



MDM



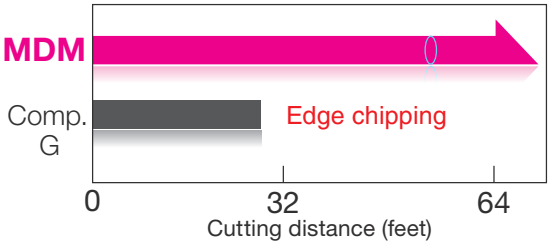
After machining 88 feet

MDM

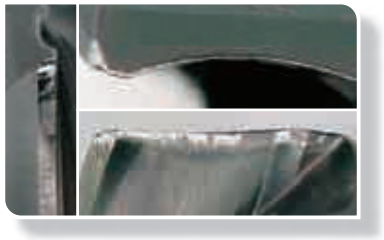
Conventional

Part Material: Ti-6Al-4V Titanium Alloy
Machine: BT30 vertical M/C
Tool: MDM0500S05H05 (*ø5 mm* × 5D)
Cutting Conditions: v_c = 130 SFM
f = .0047 IPR H = .74" (blind hole)
Internal Coolant supply (Water Soluble)

Resistant to edge chipping in Heat-Resistant Cast Steel



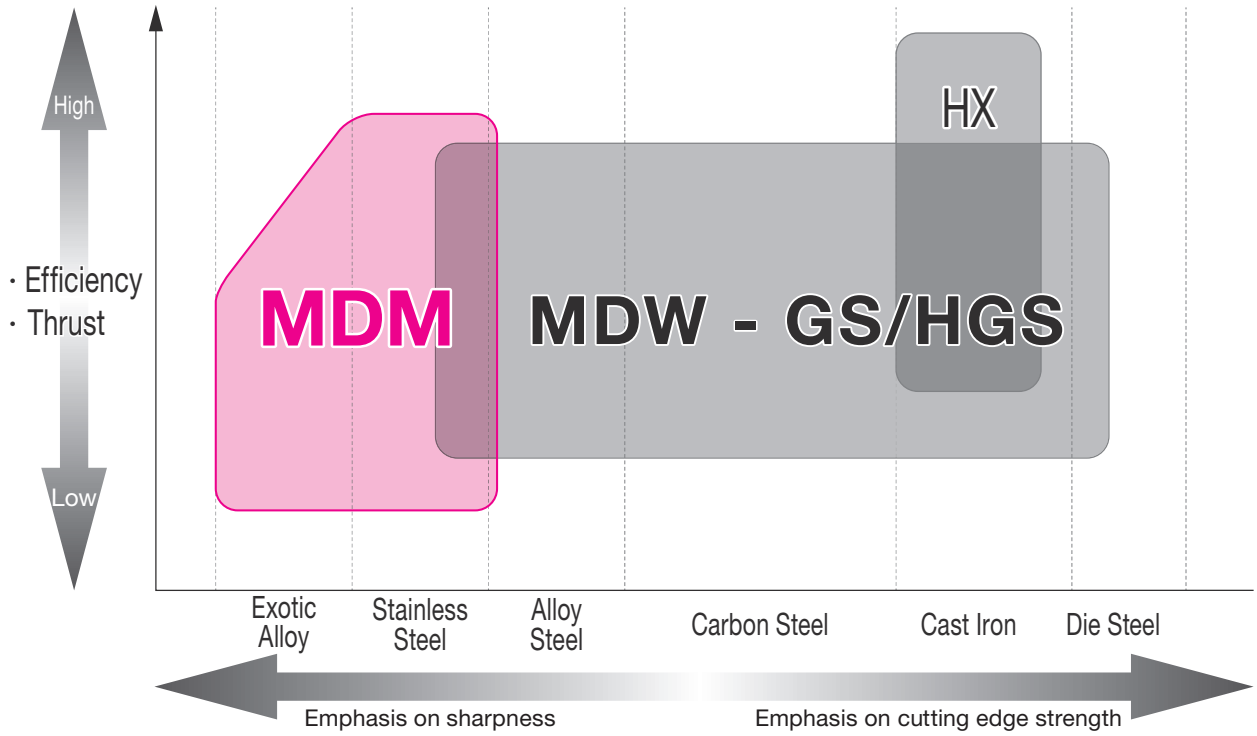
MDM



After machining 56 feet

Part Material: SCH13X - Heat-Resistant Steel
Machine: BT30 vertical M/C
Tool: MDM0880S09H03 (*ø8.8 mm* × 3D)
Cutting Conditions: v_c = 165 SFM
f = .0043 IPR H = .71" (blind hole)
Internal Coolant supply (Water Soluble)

• Sumitomo Solid Carbide Drills Comparison



MDM Series (Internal Coolant Supply)

Stainless Steel | Ti Alloy | Heat-resistant Steel

NX Coat | 3D | 5D

●: USA Stocked item
★: Worldwide Warehouse Item

Fig. 1 (diameter under ø4.1)

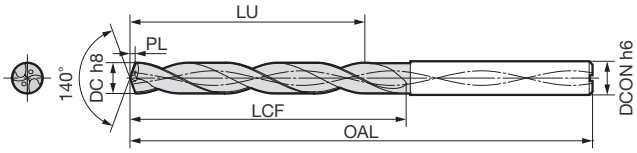
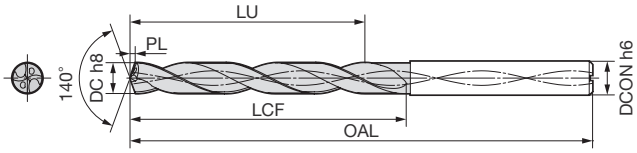


Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter *ø3.00 to 4.37mm* (0.1181" to 0.1719") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
3.00	0.1181		6-40 / M3.5x.6		3	●	**MDM0300S03H03**	13.50	0.5315	18.00	0.7087	68.50	2.6969	0.50	0.0197	3.00	0.1181	1
					5	●	**MDM0300S03H05**	24.00	0.9449	28.50	1.1220	78.50	3.0906					1
3.10	0.1220			6-32	3	●	**MDM0310S04H03**	15.90	0.6260	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	**MDM0310S04H05**	27.90	1.0984	32.60	1.2835	86.60	3.4094					1
3.18	0.1250	1/8		6-32	3	●	**MDM01250S04H03**	15.80	0.6222	20.57	0.8097	72.57	2.8570	0.58	0.0227	4.00	0.1575	1
					5	●	**MDM01250S04H05**	27.82	1.0952	32.58	1.2827	86.59	3.4090					1
3.20	0.1260			6-32	3	●	**MDM0320S04H03**	15.80	0.6220	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	**MDM0320S04H05**	27.80	1.0945	32.60	1.2835	86.60	3.4094					1
3.26	0.1285	#30		6-40 / M3.5x6	3	●	**MDM01285S04H03**	15.69	0.6177	20.58	0.8104	72.59	2.8580	0.59	0.0234	4.00	0.1575	1
					5	●	**MDM01285S04H05**	27.70	1.0907	32.60	1.2834	86.59	3.4090					1
3.30	0.1299				3	●	**MDM0330S04H03**	15.70	0.6181	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	**MDM0330S04H05**	27.70	1.0906	32.60	1.2835	86.60	3.4094					1
3.40	0.1339		8-32 / M4x.7		3	●	**MDM0340S04H03**	15.50	0.6102	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	**MDM0340S04H05**	27.50	1.0827	32.60	1.2835	86.60	3.4094					1
3.45	0.1360	#29	8-32 / M4x.7		3	●	**MDM01360S04H03**	15.44	0.6077	20.62	0.8117	72.62	2.8590	0.63	0.0247	4.00	0.1575	1
					5	●	**MDM01360S04H05**	27.45	1.0807	32.63	1.2847	86.64	3.4110					1
3.50	0.1378		8-32 / 8-36		3	●	**MDM0350S04H03**	15.40	0.6063	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	**MDM0350S04H05**	27.40	1.0787	32.60	1.2835	86.60	3.4094					1
3.57	0.1406	9/64	8-36 / M4x.5		3	●	**MDM01406S04H03**	17.79	0.7005	23.15	0.9116	72.64	2.8600	0.65	0.0256	4.00	0.1575	1
					5	●	**MDM01406S04H05**	31.29	1.2320	36.64	1.4426	86.64	3.4110					1
3.60	0.1417		8-36 / M4x.5		3	●	**MDM0360S04H03**	17.80	0.7008	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	**MDM0360S04H05**	31.30	1.2323	36.70	1.4449	86.70	3.4134					1
3.66	0.1440	#27			3	●	**MDM01440S04H03**	17.68	0.6962	23.17	0.9122	72.67	2.8610	0.67	0.0262	4.00	0.1575	1
					5	●	**MDM01440S04H05**	31.17	1.2272	36.66	1.4432	86.66	3.4120					1
3.70	0.1457			M4x.7	3	●	**MDM0370S04H03**	17.60	0.6929	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	**MDM0370S04H05**	31.10	1.2244	36.70	1.4449	86.70	3.4134					1
3.80	0.1496			8-32 / M4x.5	3	●	**MDM0380S04H03**	17.50	0.6890	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	**MDM0380S04H05**	31.00	1.2205	36.70	1.4449	86.70	3.4134					1
3.86	0.1520	#24	M4.5x.75	8-36	3	●	**MDM01520S04H03**	17.42	0.6857	23.21	0.9137	72.69	2.8620	0.70	0.0277	4.00	0.1575	1
					5	●	**MDM01520S04H05**	30.90	1.2167	36.70	1.4447	86.69	3.4130					1
3.90	0.1535		10-24 / M4.5x.75	8-36	3	●	**MDM0390S04H03**	17.40	0.6850	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	**MDM0390S04H05**	30.90	1.2165	36.70	1.4449	86.70	3.4134					1
3.91	0.1540	#23	10-24 / M4.5x.75		3	●	**MDM01540S04H03**	17.35	0.6830	23.22	0.9140	72.72	2.8630	0.71	0.0280	4.00	0.1575	1
					5	●	**MDM01540S04H05**	30.84	1.2140	36.70	1.4450	86.72	3.4140					1
3.97	0.1562	5/32			3	●	**MDM01562S04H03**	17.27	0.6801	23.23	0.9144	72.72	2.8630	0.72	0.0284	4.00	0.1575	1
					5	●	**MDM01562S04H05**	5.36	0.2111	11.31	0.4454	86.72	3.4140					1
4.00	0.1575				3	●	**MDM0400S04H03**	17.20	0.6772	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	**MDM0400S04H05**	30.70	1.2087	36.70	1.4449	86.70	3.4134					1
4.04	0.1590	#21			3	●	**MDM01590S06H03**	19.67	0.7744	25.73	1.0129	80.75	3.1790	0.73	0.0289	6.00	0.2362	1
					5	●	**MDM01590S06H05**	34.68	1.3654	40.74	1.6039	98.73	3.8870					1
4.10	0.1614		10-32		3	★	**MDM0410S05H03**	19.60	0.7717	25.70	1.0118	80.70	3.1772	0.75	0.0294	5.00	0.1969	2
					5	★	**MDM0410S05H05**	34.60	1.3622	40.70	1.6024	98.70	3.8858					2
					3	●	**MDM0410S06H03**	19.60	0.7717	25.70	1.0118	80.70	3.1772			6.00	0.2362	2
					5	●	**MDM0410S06H05**	34.60	1.3622	40.70	1.6024	98.70	3.8858					2
4.20	0.1654		10-32	M4.5x.75	3	★	**MDM0420S05H03**	19.50	0.7677	25.80	1.0157	80.80	3.1811	0.76	0.0301	5.00	0.1969	2
					5	★	**MDM0420S05H05**	34.50	1.3583	40.80	1.6063	98.80	3.8898					2
					3	●	**MDM0420S06H03**	19.50	0.7677	25.80	1.0157	80.80	3.1811			6.00	0.2362	2
					5	●	**MDM0420S06H05**	34.50	1.3583	40.80	1.6063	98.80	3.8898					2
4.22	0.1660	#19		M4.5x.75	3	●	**MDM01660S06H03**	19.44	0.7652	25.76	1.0142	80.77	3.1800	0.77	0.0302	6.00	0.2362	2
					5	●	**MDM01660S06H05**	34.45	1.3562	40.77	1.6052	98.76	3.8880					2
4.30	0.1693		M5x.8		3	★	**MDM0430S05H03**	19.30	0.7598	25.80	1.0157	80.80	3.1811	0.78	0.0308	5.00	0.1969	2
					5	★	**MDM0430S05H05**	34.30	1.3504	40.80	1.6063	98.80	3.8898					2
					3	●	**MDM0430S06H03**	19.33	0.7598	25.80	1.0157	80.80	3.1811			6.00	0.2362	2
					5	●	**MDM0430S06H05**	34.30	1.3504	40.80	1.6063	98.80	3.8898					2
4.37	0.1719	11/64	M5x.8	10-24	3	●	**MDM01719S06H03**	19.24	0.7575	25.79	1.0153	80.80	3.1810	0.80	0.0313	6.00	0.2362	2
					5	●	**MDM01719S06H05**	34.25	1.3485	40.80	1.6063	98.81	3.8900					2

Grade: ACT70

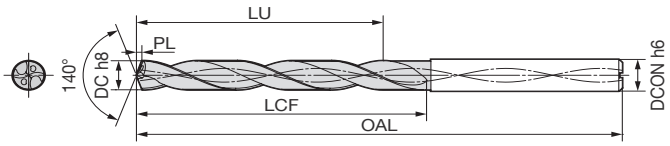
MDM Series (Internal Coolant Supply)

Stainless Steel | Ti Alloy | Heat-resistant Steel

NX Coat | 3D | 5D

●: USA Stocked item ★: Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter *ø4.40 to 5.95mm* (0.1732" to 0.2344") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
4.40	0.1732			10-24	3	★	**MDM0440S05H03**	19.20	0.7559	25.80	1.0157	80.80	3.1811	0.80	0.0315	5.00	0.1969	2
					5	★	**MDM0440S05H05**	34.20	1.3465	40.80	1.6063	98.80	3.8898					2
					3	●	**MDM0440S06H03**	19.20	0.7559	25.80	1.0157	80.80	3.1811			6.00	0.2362	2
					5	●	**MDM0440S06H05**	34.20	1.3465	40.80	1.6063	98.80	3.8898					2
4.50	0.1772		12-24	10-32	3	★	**MDM0450S05H03**	19.10	0.7520	25.80	1.0157	80.80	3.1811	0.82	0.0322	5.00	0.1969	2
					5	★	**MDM0450S05H05**	34.10	1.3425	40.80	1.6063	98.80	3.8898					2
					3	●	**MDM0450S06H03**	19.10	0.7520	25.80	1.0157	80.80	3.1811			6.00	0.2362	2
					5	●	**MDM0450S06H05**	34.10	1.3425	40.80	1.6063	98.80	3.8898					2
4.57	0.1800	#15	12-24/ M5x.5		3	●	**MDM01800S06H03**	21.48	0.8458	28.34	1.1158	80.82	3.1820	0.83	0.0328	6.00	0.2362	2
					5	●	**MDM01800S06H05**	37.97	1.4948	44.83	1.7648	98.83	3.8910					2
4.60	0.1811		12-24 / M5x.5		3	●	**MDM0460S05H03**	21.40	0.8425	28.30	1.1142	80.80	3.1811	0.80	0.0315	5.00	0.1969	2
					5	★	**MDM0460S05H05**	37.90	1.4921	44.80	1.7638	98.80	3.8898					2
					3	●	**MDM0460S06H03**	21.40	0.8425	28.30	1.1142	80.80	3.1811			6.00	0.2362	2
					5	●	**MDM0460S06H05**	37.90	1.4921	44.80	1.7638	98.80	3.8898					2
4.70	0.1850		12-28	M5x.8	3	★	**MDM0470S05H03**	21.30	0.8386	28.40	1.1181	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	★	**MDM0470S05H05**	37.80	1.4882	44.90	1.7677	98.90	3.8937					2
					3	●	**MDM0470S06H03**	21.30	0.8386	28.40	1.1181	80.90	3.1850			6.00	0.2362	2
					5	●	**MDM0470S06H05**	37.80	1.4882	44.90	1.7677	98.90	3.8937					2
4.76	0.1875	3/16			3	●	**MDM01875S06H03**	21.23	0.8359	28.37	1.1171	80.87	3.1840	0.87	0.0341	6.00	0.2362	2
					5	●	**MDM01875S06H05**	37.72	1.4849	44.86	1.7661	98.86	3.8920					2
4.80	0.1890			M5x.5	3	★	**MDM0480S05H03**	21.20	0.8346	28.40	1.1181	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	★	**MDM0480S05H05**	37.70	1.4843	44.90	1.7677	98.90	3.8937					2
					3	●	**MDM0480S06H03**	21.20	0.8346	28.40	1.1181	80.90	3.1850			6.00	0.2362	2
					5	●	**MDM0480S06H05**	37.70	1.4843	44.90	1.7677	98.90	3.8937					2
4.90	0.1929				3	★	**MDM0490S05H03**	21.00	0.8268	28.40	1.1181	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	★	**MDM0490S05H05**	37.50	1.4764	44.90	1.7677	98.90	3.8937					2
					3	●	**MDM0490S06H03**	21.00	0.8268	28.40	1.1181	80.90	3.1850			6.00	0.2362	2
					5	●	**MDM0490S06H05**	37.50	1.4764	44.90	1.7677	98.90	3.8937					2
5.00	0.1969			12-24	3	★	**MDM0500S05H03**	20.90	0.8228	28.40	1.1181	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	★	**MDM0500S05H05**	37.40	1.4724	44.90	1.7677	98.90	3.8937					2
					3	●	**MDM0500S06H03**	20.90	0.8228	28.40	1.1181	80.90	3.1850			6.00	0.2362	2
					5	●	**MDM0500S06H05**	37.40	1.4724	44.90	1.7677	98.90	3.8937					2
5.10	0.2008			12-28	3	●	**MDM0510S06H03**	20.80	0.8189	28.40	1.1181	82.90	3.2638	0.90	0.0354	6.00	0.2362	2
					5	●	**MDM0510S06H05**	37.30	1.4685	44.90	1.7677	100.90	3.9724					2
5.11	0.2010	#7	1/4-20 / M6x1		3	●	**MDM02010S06H03**	20.78	0.8181	28.44	1.1196	82.93	3.2650	0.93	0.0366	6.00	0.2362	2
					5	●	**MDM02010S06H05**	37.26	1.4671	44.92	1.7686	100.94	3.9740					2
5.16	0.2031	13/64	1/4-20 / M6x1		3	●	**MDM02031S06H03**	20.71	0.8154	28.45	1.1200	82.93	3.2650	0.94	0.0370	6.00	0.2362	2
					5	●	**MDM02031S06H05**	37.20	1.4644	44.93	1.7690	100.94	3.9740					2
5.20	0.2047		1/4-20		3	●	**MDM0520S06H03**	20.60	0.8110	28.40	1.1181	82.90	3.2638	0.90	0.0354	6.00	0.2362	2
					5	●	**MDM0520S06H05**	37.10	1.4606	44.90	1.7677	100.90	3.9724					2
5.30	0.2087		1/4-20 / M6x.75		3	●	**MDM0530S06H03**	20.50	0.8071	28.50	1.1220	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
					5	●	**MDM0530S06H05**	37.00	1.4567	45.00	1.7717	101.00	3.9764					2
5.31	0.2090	#4	1/4-20 / M6x.75	M5.5x.5	3	●	**MDM02090S06H03**	20.51	0.8075	28.47	1.1210	82.96	3.2660	0.97	0.0380	6.00	0.2362	2
					5	●	**MDM02090S06H05**	37.00	1.4565	44.96	1.7700	100.97	3.9750					2
5.40	0.2126				3	●	**MDM0540S06H03**	20.40	0.8031	28.50	1.1220	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
					5	●	**MDM0540S06H05**	36.90	1.4528	45.00	1.7717	101.00	3.9764					2
5.41	0.2130	#3			3	●	**MDM02130S06H03**	20.38	0.8023	28.49	1.1218	82.98	3.2670	0.99	0.0388	6.00	0.2362	2
					5	●	**MDM02130S06H05**	36.86	1.4513	44.98	1.7708	100.99	3.9760					2
5.50	0.2165		1/4-28		3	●	**MDM0550S06H03**	20.30	0.7992	28.50	1.1220	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
					5	●	**MDM0550S06H05**	36.80	1.4488	45.00	1.7717	101.00	3.9764					2
5.56	0.2188	7/32	1/4-28/ M6x.5	M6x1	3	●	**MDM02188S06H03**	22.67	0.8926	31.01	1.2208	83.01	3.2680	1.01	0.0398	6.00	0.2362	2
					5	●	**MDM02188S06H05**	40.68	1.6016	49.02	1.9298	101.02	3.9770					2
5.60	0.2205		1/4-28	M6x1	3	●	**MDM0560S06H03**	22.60	0.8898	31.00	1.2205	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
					5	●	**MDM0560S06H05**	40.60	1.5984	49.00	1.9291	101.00	3.9764					2
5.61	0.2210	#2			3	●	**MDM02210S06H03**	22.60	0.8897	31.02	1.2212	83.03	3.2690	1.02	0.0402	6.00	0.2362	2
					5	●	**MDM02210S06H05**	40.61	1.5987	49.03	1.9302	101.02	3.9770					2
5.70	0.2244			M6x.75	3	●	**MDM0570S06H03**	22.50	0.8858	31.00	1.2205	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
					5	●	**MDM0570S06H05**	40.50	1.5945	49.00	1.9291	101.00	3.9764					2
5.80	0.2283			1/4-20	3	●	**MDM0580S06H03**	22.40	0.8819	31.10	1.2244	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	**MDM0580S06H05**	40.40	1.5906	49.10	1.9331	101.10	3.9803					2
5.90	0.2323			1/4-20	3	●	**MDM0590S06H03**	22.20	0.8740	31.10	1.2244	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	**MDM0590S06H05**	40.20	1.5827	49.10	1.9331	101.10	3.9803					2
5.95	0.2344	15/64			3	●	**MDM02344S06H03**	22.15	0.8721	31.08	1.2237	83.08	3.2710	1.08	0.0427	6.00	0.2362	2
					5	●	**MDM02344S06H05**	40.16	1.5811	49.09	1.9327	101.09	3.9800					2

Grade: ACT70

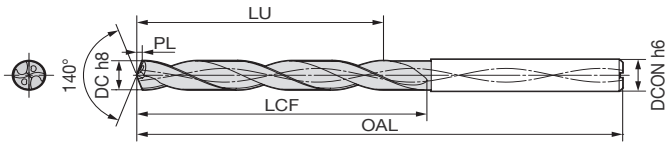
MDM Series (Internal Coolant Supply)

Stainless Steel | Ti Alloy | Heat-resistant Steel

NX Coat | 3D | 5D

●: USA Stocked item ★: Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter *ø6.00 to 7.50mm* (0.2362" to 0.2953") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
6.00	0.2362			1/4/28	3	●	**MDM0600S06H03**	22.10	0.8701	31.10	1.2244	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	**MDM0600S06H05**	40.10	1.5787	49.10	1.9331	101.10	3.9803					2
6.10	0.2402		M7x1		3	★	**MDM0610S07H03**	24.50	0.9646	33.60	1.3228	89.10	3.5079	1.10	0.0433	7.00	0.2756	2
					5	★	**MDM0610S07H05**	44.00	1.7323	53.10	2.0906	110.10	4.3346					2
					3	●	**MDM0610S08H03**	24.50	0.9646	33.60	1.3228	89.10	3.5079			8.00	0.3150	2
					5	●	**MDM0610S08H05**	44.00	1.7323	53.10	2.0906	110.10	4.3346					2
6.15	0.2420	C	M7x1		3	●	**MDM02420S08H03**	24.41	0.9610	33.63	1.3240	89.13	3.5090	1.12	0.0440	8.00	0.3150	2
6.20	0.2441				3	★	**MDM0620S07H03**	24.30	0.9567	33.60	1.3228	89.10	3.5079	1.10	0.0433	7.00	0.2756	2
					5	★	**MDM0620S07H05**	43.80	1.7244	53.10	2.0906	110.10	4.3346					2
					3	●	**MDM0620S08H03**	24.30	0.9567	33.60	1.3228	89.10	3.5079			8.00	0.3150	2
					5	●	**MDM0620S08H05**	43.80	1.7244	53.10	2.0906	110.10	4.3346					2
6.30	0.2480				3	★	**MDM0630S07H03**	24.20	0.9528	33.60	1.3228	89.10	3.5079	1.10	0.0433	7.00	0.2756	2
					5	★	**MDM0630S07H05**	43.70	1.7205	53.10	2.0906	110.10	4.3346					2
					3	●	**MDM0630S08H03**	24.20	0.9528	33.60	1.3228	89.10	3.5079			8.00	0.3150	2
					5	●	**MDM0630S08H05**	43.70	1.7205	53.10	2.0906	110.10	4.3346					2
6.35	0.2500	1/4			3	●	**MDM02500S08H03**	24.14	0.9505	33.67	1.3255	89.15	3.5100	1.16	0.0455	8.00	0.3150	2
					5	●	**MDM02500S08H05**	43.62	1.7175	53.15	2.0925	110.16	4.3370					2
6.40	0.2520				3	★	**MDM0640S07H03**	24.10	0.9488	33.70	1.3268	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	**MDM0640S07H05**	43.60	1.7165	53.20	2.0945	110.20	4.3386					2
					3	●	**MDM0640S08H03**	24.10	0.9488	33.70	1.3268	89.20	3.5118			8.00	0.3150	2
					5	●	**MDM0640S08H05**	43.60	1.7165	53.20	2.0945	110.20	4.3386					2
6.50	0.2559				3	★	**MDM0650S07H03**	23.90	0.9409	33.70	1.3268	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	**MDM0650S07H05**	43.40	1.7087	53.20	2.0945	110.20	4.3386					2
					3	●	**MDM0650S08H03**	23.90	0.9409	33.70	1.3268	89.20	3.5118			8.00	0.3150	2
					5	●	**MDM0650S08H05**	43.40	1.7087	53.20	2.0945	110.20	4.3386					2
6.53	0.2570	F		M7x1	3	●	**MDM02570S08H03**	26.40	1.0393	36.19	1.4248	89.18	3.5110	1.19	0.0468	8.00	0.3150	2
					5	●	**MDM02570S08H05**	47.40	1.8663	57.20	2.2518	110.19	4.3380					2
6.60	0.2598		5/16-18	M7x1	3	★	**MDM0660S07H03**	26.30	1.0354	36.20	1.4252	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	**MDM0660S07H05**	47.30	1.8622	57.20	2.2520	110.20	4.3386					2
					3	●	**MDM0660S08H03**	26.30	1.0354	36.20	1.4252	89.20	3.5118			8.00	0.3150	2
					5	●	**MDM0660S08H05**	47.30	1.8622	57.20	2.2520	110.20	4.3386					2
6.70	0.2638				3	★	**MDM0670S07H03**	26.20	1.0315	36.20	1.4252	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	**MDM0670S07H05**	47.20	1.8583	57.20	2.2520	110.20	4.3386					2
					3	●	**MDM0670S08H03**	26.20	1.0315	36.20	1.4252	89.20	3.5118			8.00	0.3150	2
					5	●	**MDM0670S08H05**	47.20	1.8583	57.20	2.2520	110.20	4.3386					2
6.75	0.2656	17/64	5/6-18		3	●	**MDM02656S08H03**	26.11	1.0279	36.23	1.4263	89.23	3.5130	1.23	0.0483	8.00	0.3150	2
					5	●	**MDM02656S08H05**	47.11	1.8549	57.23	2.2533	110.24	4.3400					2
6.76	0.2660	H	5/6-18		3	●	**MDM02660S08H03**	26.10	1.0274	36.23	1.4264	89.23	3.5130	1.23	0.0484	8.00	0.3150	2
					5	●	**MDM02660S08H05**	47.10	1.8544	57.24	2.2534	110.24	4.3400					2
6.80	0.2677				3	★	**MDM0680S07H03**	26.00	1.0236	36.20	1.4252	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	**MDM0680S07H05**	47.00	1.8504	57.20	2.2520	110.20	4.3386					2
					3	●	**MDM0680S08H03**	26.00	1.0236	36.20	1.4252	89.20	3.5118			8.00	0.3150	2
					5	●	**MDM0680S08H05**	47.00	1.8504	57.20	2.2520	110.20	4.3386					2
6.90	0.2717		M8x1.25		3	★	**MDM0690S07H03**	25.90	1.0197	36.30	1.4291	89.30	3.5157	1.30	0.0512	7.00	0.2756	2
					5	★	**MDM0690S07H05**	46.90	1.8465	57.30	2.2559	110.30	4.3425					2
					3	●	**MDM0690S08H03**	25.90	1.0197	36.30	1.4291	89.30	3.5157			8.00	0.3150	2
					5	●	**MDM0690S08H05**	46.90	1.8465	57.30	2.2559	110.30	4.3425					2
6.91	0.2720	I	M8x1.25		3	●	**MDM02720S08H03**	25.90	1.0195	36.26	1.4275	89.26	3.5140	1.26	0.0495	8.00	0.3150	2
					5	●	**MDM02720S08H05**	46.90	1.8465	57.26	2.2545	110.26	4.3410					2
7.00	0.2756		5/16-24		3	★	**MDM0700S07H03**	25.80	1.0157	36.30	1.4291	89.30	3.5157	1.30	0.0512	7.00	0.2756	2
					5	★	**MDM0700S07H05**	46.80	1.8425	57.30	2.2559	110.30	4.3425					2
					3	●	**MDM0700S08H03**	25.80	1.0157	36.30	1.4291	89.30	3.5157			8.00	0.3150	2
					5	●	**MDM0700S08H05**	46.80	1.8425	57.30	2.2559	110.30	4.3425					2
7.04	0.2770	J	5/16-24		3	●	**MDM02770S08H03**	28.22	1.1109	38.77	1.5264	95.28	3.7510	1.28	0.0504	8.00	0.3150	2
					5	●	**MDM02770S08H05**	50.72	1.9969	61.27	2.4124	119.28	4.6960					2
7.10	0.2795		M8x1		3	●	**MDM0710S08H03**	28.10	1.1063	38.80	1.5276	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	**MDM0710S08H05**	50.60	1.9921	61.30	2.4134	119.30	4.6969					2
7.14	0.2812	9/32	M8x1		3	●	**MDM02812S08H03**	28.08	1.1054	38.79	1.5272	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	**MDM02812S08H05**	50.58	1.9914	61.30	2.4132	119.30	4.6970					2
7.20	0.2835				3	●	**MDM0720S08H03**	28.00	1.1024	38.80	1.5276	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	**MDM0720S08H05**	50.50	1.9882	61.30	2.4134	119.30	4.6969					2
7.30	0.2874		M8x.75	5/16-18	3	●	**MDM0730S08H03**	27.90	1.0984	38.80	1.5276	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	**MDM0730S08H05**	50.40	1.9843	61.30	2.4134	119.30	4.6969					2
7.40	0.2913				3	●	**MDM0740S08H03**	27.70	1.0906	38.80	1.5276	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	**MDM0740S08H05**	50.20	1.9764	61.30	2.4134	119.30	4.6969					2
7.49	0.2950	M		5/16-24 / M8x1.25	3	●	**MDM02950S08H03**	27.61	1.0872	38.85	1.5297	95.35	3.7540	1.36	0.0537	8.00	0.3150	2
					5	●	**MDM02950S08H05**	50.12	1.9732	61.36	2.4157	119.35	4.6990					2
7.50	0.2953			5/16-24 / M8x1.25	3	●	**MDM0750S08H03**	27.60	1.0866	38.90	1.5315	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	**MDM0750S08H05**	50.10	1.9724	61.40	2.4173	119.40	4.7008					2

Grade: ACT70

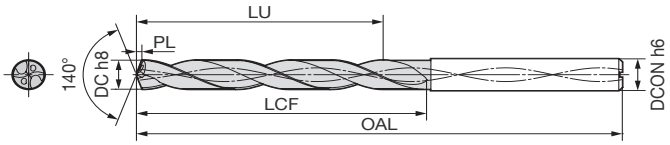
MDM Series (Internal Coolant Supply)

Stainless Steel | Ti Alloy | Heat-resistant Steel

NX Coat | 3D | 5D

●: USA Stocked item ★: Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter *ø7.54 to 9.20mm* (0.2969" to 0.3622") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
7.54	0.2969	19/64		M8x1	3	●	MDM02969S08H03	30.07	1.1837	41.38	1.6290	95.38	3.7550	1.37	0.0540	8.00	0.3150	2
					5	●	MDM02969S08H05	54.07	2.1287	65.38	2.5740	119.38	4.7000					2
7.60	0.2992			M8x1	3	●	MDM0760S08H03	30.00	1.1811	41.40	1.6299	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	MDM0760S08H05	54.00	2.1260	65.40	2.5748	119.40	4.7008					2
7.67	0.3020	N		M8x.75	3	●	MDM03020S08H03	29.90	1.1770	41.40	1.6300	95.40	3.7560	1.40	0.0550	8.00	0.3150	2
					5	●	MDM03020S08H05	53.90	2.1220	65.41	2.5750	119.41	4.7010					2
7.70	0.3031			M8x.75	3	●	MDM0770S08H03	29.90	1.1772	41.40	1.6299	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	MDM0770S08H05	53.90	2.1220	65.40	2.5748	119.40	4.7008					2
7.80	0.3071				3	●	MDM0780S08H03	29.70	1.1693	41.40	1.6299	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	MDM0780S08H05	53.70	2.1142	65.40	2.5748	119.40	4.7008					2
7.90	0.3110				3	●	MDM0790S08H03	29.60	1.1654	41.40	1.6299	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	MDM0790S08H05	53.60	2.1102	65.40	2.5748	119.40	4.7008					2
7.94	0.3125	5/16			3	●	MDM03125S08H03	29.55	1.1632	41.45	1.6319	95.45	3.7580	1.45	0.0569	8.00	0.3150	2
					5	●	MDM03125S08H05	53.55	2.1082	65.45	2.5769	119.46	4.7030					2
8.00	0.3150				3	●	MDM0800S08H03	29.50	1.1614	41.50	1.6339	95.50	3.7598	1.50	0.0591	8.00	0.3150	2
					5	●	MDM0800S08H05	53.50	2.1063	65.50	2.5787	119.50	4.7047					2
8.10	0.3189		3/8-16		3	★	MDM0810S09H03	31.80	1.2520	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0810S09H05	57.30	2.2559	69.50	2.7362	128.50	5.0591					2
					3	●	MDM0810S10H03	31.80	1.2520	44.00	1.7323	101.50	3.9961			10.00	0.3937	2
					5	●	MDM0810S10H05	57.30	2.2559	69.50	2.7362	128.50	5.0591					2
8.20	0.3228		3/8-16		3	★	MDM0820S09H03	31.70	1.2480	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0820S09H05	57.20	2.2520	69.50	2.7362	128.50	5.0591					2
					3	●	MDM0820S10H03	31.70	1.2480	44.00	1.7323	101.50	3.9961			10.00	0.3937	2
					5	●	MDM0820S10H05	57.20	2.2520	69.50	2.7362	128.50	5.0591					2
8.20	0.3230	P	3/8-16		3	●	MDM03230S10H03	31.68	1.2473	43.99	1.7318	101.50	3.9960	1.49	0.0588	10.00	0.3937	2
					5	●	MDM03230S10H05	57.18	2.2513	69.49	2.7358	128.50	5.0590					2
8.30	0.3268				3	★	MDM0830S09H03	31.60	1.2441	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0830S09H05	57.10	2.2480	69.50	2.7362	128.50	5.0591					2
					3	●	MDM0830S10H03	31.60	1.2441	44.00	1.7323	101.50	3.9961			10.00	0.3937	2
					5	●	MDM0830S10H05	57.10	2.2480	69.50	2.7362	128.50	5.0591					2
8.33	0.3281	21/64			3	●	MDM03281S10H03	31.51	1.2406	44.01	1.7327	101.52	3.9970	1.52	0.0597	10.00	0.3937	2
					5	●	MDM03281S10H05	57.01	2.2446	69.51	2.7367	128.52	5.0600					2
8.40	0.3307				3	★	MDM0840S09H03	31.40	1.2362	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0840S09H05	56.90	2.2402	69.50	2.7362	128.50	5.0591					2
					3	●	MDM0840S10H03	31.40	1.2362	44.00	1.7323	101.50	3.9961			10.00	0.3937	2
					5	●	MDM0840S10H05	56.90	2.2402	69.50	2.7362	128.50	5.0591					2
8.43	0.3320	Q			3	●	MDM03320S10H03	31.38	1.2354	44.03	1.7334	101.52	3.9970	1.53	0.0604	10.00	0.3937	2
					5	●	MDM03320S10H05	56.88	2.2394	69.53	2.7374	128.52	5.0600					2
8.50	0.3346				3	★	MDM0850S09H03	31.30	1.2323	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0850S09H05	56.80	2.2362	69.50	2.7362	128.50	5.0591					2
					3	●	MDM0850S10H03	31.30	1.2323	44.00	1.7323	101.50	3.9961			10.00	0.3937	2
					5	●	MDM0850S10H05	56.80	2.2362	69.50	2.7362	128.50	5.0591					2
8.60	0.3386		3/8-24 / M10x1.5		3	★	MDM0860S09H03	33.70	1.3268	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0860S09H05	60.70	2.3898	73.60	2.8976	128.60	5.0630					2
					3	●	MDM0860S10H03	33.70	1.3268	46.60	1.8346	101.60	4.0000			10.00	0.3937	2
					5	●	MDM0860S10H05	60.70	2.3898	73.60	2.8976	128.60	5.0630					2
8.70	0.3425		M10x1.5		3	★	MDM0870S09H03	33.50	1.3189	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0870S09H05	60.50	2.3819	73.60	2.8976	128.60	5.0630					2
					3	●	MDM0870S10H03	33.50	1.3189	46.60	1.8346	101.60	4.0000			10.00	0.3937	2
					5	●	MDM0870S10H05	60.50	2.3819	73.60	2.8976	128.60	5.0630					2
8.73	0.3438	11/32	M10x1.5		3	●	MDM03438S10H03	33.50	1.3189	46.60	1.8346	101.60	4.0000	1.59	0.0626	10.00	0.3937	2
					5	●	MDM03438S10H05	60.50	2.3819	73.60	2.8976	128.60	5.0630					2
8.80	0.3465			3/8-16	3	★	MDM0880S09H03	33.40	1.3150	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0880S09H05	60.40	2.3780	73.60	2.8976	128.60	5.0630					2
					3	●	MDM0880S10H03	33.40	1.3150	46.60	1.8346	101.60	4.0000			10.00	0.3937	2
					5	●	MDM0880S10H05	60.40	2.3780	73.60	2.8976	128.60	5.0630					2
8.90	0.3504		M10x1.25		3	★	MDM0890S09H03	33.30	1.3110	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0890S09H05	60.30	2.3740	73.60	2.8976	128.60	5.0630					2
					3	●	MDM0890S10H03	33.30	1.3110	46.60	1.8346	101.60	4.0000			10.00	0.3937	2
					5	●	MDM0890S10H05	60.30	2.3740	73.60	2.8976	128.60	5.0630					2
9.00	0.3543				3	★	MDM0900S09H03	33.10	1.3031	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0900S09H05	60.10	2.3661	73.60	2.8976	128.60	5.0630					2
					3	●	MDM0900S10H03	33.10	1.3031	46.60	1.8346	101.60	4.0000			10.00	0.3937	2
					5	●	MDM0900S10H05	60.10	2.3661	73.60	2.8976	128.60	5.0630					2
9.10	0.3583		M10x1	3/8-24	3	●	MDM0910S10H03	35.50	1.3976	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	MDM0910S10H05	64.00	2.5197	77.70	3.0591	137.70	5.4213					2
9.13	0.3594	23/64	M10x1		3	●	MDM03594S10H03	35.47	1.3963	49.16	1.9354	107.67	4.2390	1.66	0.0654	10.00	0.3937	2
					5	●	MDM03594S10H05	63.96	2.5183	77.66	3.0574	137.67	5.4200					2
9.20	0.3622				3	●	MDM0920S10H03	35.40	1.3937	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	MDM0920S10H05	63.90	2.5157	77.70	3.0591	137.70	5.4213					2

Grade: ACT70

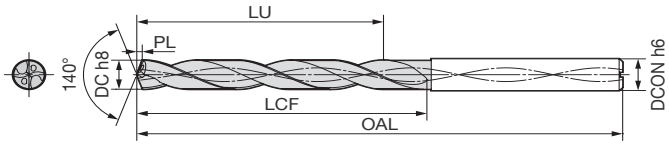
MDM Series (Internal Coolant Supply)

Stainless Steel | Ti Alloy | Heat-resistant Steel

NX Coat | 3D | 5D

●: USA Stocked item ★: Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter *ø9.30 to 11.00mm* (0.3661" to 0.4331") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
9.30	0.3661				3	●	**MDM0930S10H03**	35.20	1.3858	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	**MDM0930S10H05**	63.70	2.5079	77.70	3.0591	137.70	5.4213					2
9.35	0.3680	U	7/16-14	M10x1.5	3	●	**MDM03680S10H03**	35.18	1.3850	49.20	1.9370	107.70	4.2400	1.70	0.0670	10.00	0.3937	2
					5	●	**MDM03680S10H05**	63.68	2.5070	77.70	3.0590	137.69	5.4210					2
9.40	0.3701		7/16-14	M10x1.5	3	●	**MDM0940S10H03**	35.10	1.3819	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	**MDM0940S10H05**	63.60	2.5039	77.70	3.0591	137.70	5.4213					2
9.50	0.3740		7/16-14	M10x1.25	3	●	**MDM0950S10H03**	35.00	1.3780	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	**MDM0950S10H05**	63.50	2.5000	77.70	3.0591	137.70	5.4213					2
9.53	0.3750	3/8	7/16-14		3	●	**MDM03750S10H03**	37.46	1.4747	51.74	2.0372	107.72	4.2410	1.73	0.0682	10.00	0.3937	2
					5	●	**MDM03750S10H05**	67.45	2.6557	81.74	3.2182	137.74	5.4230					2
9.58	0.3770	V	7/16-14	M10x1	3	●	**MDM03770S10H03**	37.39	1.4721	51.76	2.0376	107.75	4.2420	1.74	0.0686	10.00	0.3937	2
					5	●	**MDM03770S10H05**	67.39	2.6531	81.75	3.2186	137.74	5.4230					2
9.60	0.3780			M10x1	3	●	**MDM0960S10H03**	37.30	1.4685	51.70	2.0354	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	★	**MDM0960S10H05**	67.30	2.6496	81.70	3.2165	137.70	5.4213					2
9.70	0.3819			M10x.75	3	●	**MDM0970S10H03**	37.20	1.4646	51.80	2.0394	107.80	4.2441	1.80	0.0709	10.00	0.3937	2
					5	●	**MDM0970S10H05**	67.20	2.6457	81.80	3.2205	137.80	5.4252					2
9.80	0.3858				3	●	**MDM0980S10H03**	37.10	1.4606	51.80	2.0394	107.80	4.2441	1.80	0.0709	10.00	0.3937	2
					5	●	**MDM0980S10H05**	67.10	2.6417	81.80	3.2205	137.80	5.4252					2
9.90	0.3898				3	●	**MDM0990S10H03**	37.00	1.4567	51.80	2.0394	107.80	4.2441	1.80	0.0709	10.00	0.3937	2
					5	●	**MDM0990S10H05**	67.00	2.6378	81.80	3.2205	137.80	5.4252					2
9.92	0.3906	25/64	7/16-20		3	●	**MDM03906S10H03**	36.94	1.4542	51.82	2.0401	107.80	4.2440	1.81	0.0711	10.00	0.3937	2
					5	●	**MDM03906S10H05**	66.93	2.6352	81.82	3.2211	137.80	5.4250					2
10.00	0.3937		7/16-20		3	●	**MDM1000S10H03**	36.80	1.4488	51.80	2.0394	107.80	4.2441	1.80	0.0709	10.00	0.3937	2
					5	●	**MDM1000S10H05**	66.80	2.6299	81.80	3.2205	137.80	5.4252					2
10.10	0.3976				3	★	**MDM1010S11H03**	39.20	1.5433	54.30	2.1378	117.80	4.6378	1.80	0.0709	11.00	0.4331	2
					5	★	**MDM1010S11H05**	70.70	2.7835	85.80	3.3780	150.80	5.9370					2
					3	●	**MDM1010S12H03**	39.20	1.5433	54.30	2.1378	117.80	4.6378			12.00	0.4724	2
					5	●	**MDM1010S12H05**	70.70	2.7835	85.80	3.3780	150.80	5.9370					2
10.20	0.4016				3	★	**MDM1020S11H03**	39.10	1.5394	54.40	2.1417	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	**MDM1020S11H05**	70.60	2.7795	85.90	3.3819	150.90	5.9409					2
					3	●	**MDM1020S12H03**	39.10	1.5394	54.40	2.1417	117.90	4.6417			12.00	0.4724	2
					5	●	**MDM1020S12H05**	70.60	2.7795	85.90	3.3819	150.90	5.9409					2
10.30	0.4055			7/16-14	3	★	**MDM1030S11H03**	38.90	1.5315	54.40	2.1417	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	**MDM1030S11H05**	70.40	2.7717	85.90	3.3819	150.90	5.9409					2
					3	●	**MDM1030S12H03**	38.90	1.5315	54.40	2.1417	117.90	4.6417			12.00	0.4724	2
					5	●	**MDM1030S12H05**	70.40	2.7717	85.90	3.3819	150.90	5.9409					2
10.32	0.4062	13/32		7/16-14	3	●	**MDM04062S12H03**	38.90	1.5316	54.38	2.1409	117.88	4.6410	1.88	0.0739	12.00	0.4724	2
					5	●	**MDM04062S12H05**	70.40	2.7716	85.87	3.3809	150.88	5.9400					2
10.40	0.4094		M12x1.75		3	★	**MDM1040S11H03**	38.80	1.5276	54.40	2.1417	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	**MDM1040S11H05**	70.30	2.7677	85.90	3.3819	150.90	5.9409					2
					3	●	**MDM1040S12H03**	38.80	1.5276	54.40	2.1417	117.90	4.6417			12.00	0.4724	2
					5	●	**MDM1040S12H05**	70.30	2.7677	85.90	3.3819	150.90	5.9409					2
10.49	0.4130	Z	M12x1.75		3	●	**MDM04130S12H03**	38.68	1.5227	54.41	2.1422	117.91	4.6420	1.91	0.0752	12.00	0.4724	2
					5	●	**MDM04130S12H05**	70.17	2.7627	85.91	3.3822	150.90	5.9410					2
10.50	0.4134		M12x1.75		3	★	**MDM1050S11H03**	38.70	1.5236	54.40	2.1417	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	**MDM1050S11H05**	70.20	2.7638	85.90	3.3819	150.90	5.9409					2
					3	●	**MDM1050S12H03**	38.70	1.5236	54.40	2.1417	117.90	4.6417			12.00	0.4724	2
					5	●	**MDM1050S12H05**	70.20	2.7638	85.90	3.3819	150.90	5.9409					2
10.60	0.4173			7/20	3	★	**MDM1060S11H03**	41.00	1.6142	56.90	2.2402	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	**MDM1060S11H05**	74.00	2.9134	89.90	3.5394	150.90	5.9409					2
					3	●	**MDM1060S12H03**	41.00	1.6142	56.90	2.2402	117.90	4.6417			12.00	0.4724	2
					5	●	**MDM1060S12H05**	74.00	2.9134	89.90	3.5394	150.90	5.9409					2
10.70	0.4213		M12x1.5		3	★	**MDM1070S11H03**	40.90	1.6102	56.90	2.2402	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	**MDM1070S11H05**	73.90	2.9094	89.90	3.5394	150.90	5.9409					2
					3	●	**MDM1070S12H03**	40.90	1.6102	56.90	2.2402	117.90	4.6417			12.00	0.4724	2
					5	●	**MDM1070S12H05**	73.90	2.9094	89.90	3.5394	150.90	5.9409					2
10.72	0.4219	27/64	M12x1.5		3	●	**MDM04219S12H03**	40.87	1.6090	56.94	2.2418	117.96	4.6440	1.95	0.0768	12.00	0.4724	2
					5	●	**MDM04219S12H05**	73.89	2.9090	89.96	3.5418	150.95	5.9430					2
10.80	0.4252				3	★	**MDM1080S11H03**	40.80	1.6063	57.00	2.2441	118.00	4.6457	2.00	0.0787	11.00	0.4331	2
					5	★	**MDM1080S11H05**	73.80	2.9055	90.00	3.5433	151.00	5.9449					2
					3	●	**MDM1080S12H03**	40.80	1.6063	57.00	2.2441	118.00	4.6457			12.00	0.4724	2
					5	●	**MDM1080S12H05**	73.80	2.9055	90.00	3.5433	151.00	5.9449					2
10.90	0.4291		1/2-13 / M12x1.25		3	★	**MDM1090S11H03**	40.60	1.5984	57.00	2.2441	118.00	4.6457	2.00	0.0787	11.00	0.4331	2
					5	★	**MDM1090S11H05**	73.60	2.8976	90.00	3.5433	151.00	5.9449					2
					3	●	**MDM1090S12H03**	40.60	1.5984	57.00	2.2441	118.00	4.6457			12.00	0.4724	2
					5	●	**MDM1090S12H05**	73.60	2.8976	90.00	3.5433	151.00	5.9449					2
11.00	0.4331		1/2-13		3	★	**MDM1100S11H03**	40.50	1.5945	57.00	2.2441	118.00	4.6457	2.00	0.0787	11.00	0.4331	2
					5	★	**MDM1100S11H05**	73.50	2.8937	90.00	3.5433	151.00	5.9449					2
					3	●	**MDM1100S12H03**	40.50	1.5945	57.00	2.2441	118.00	4.6457			12.00	0.4724	2
					5	●	**MDM1100S12H05**	73.50	2.8937	90.00	3.5433	151.00	5.9449					2

Grade: ACT70

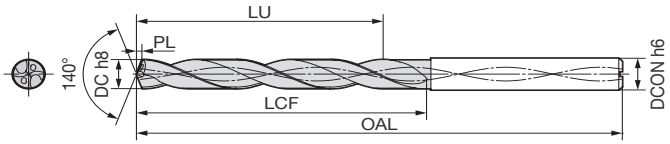
MDM Series (Internal Coolant Supply)

Stainless Steel | Ti Alloy | Heat-resistant Steel

NX Coat | 3D | 5D

●: USA Stocked item ★: Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter *ø11.10 to 13.00mm* (0.4370" to 0.5118") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
11.10	0.4370		1/2-13 / M12x1		3	●	**MDM1110S12H03**	42.90	1.6890	59.50	2.3425	124.00	4.8819	2.00	0.0787	12.00	0.4724	2
					5	●	**MDM1110S12H05**	77.40	3.0472	94.00	3.7008	160.00	6.2992					2
11.11	0.4375	7/16	M12x1		3	●	**MDM04375S12H03**	42.86	1.6874	59.53	2.3436	124.03	4.8830	2.02	0.0796	12.00	0.4724	2
					5	●	**MDM04375S12H05**	77.35	3.0454	94.02	3.7016	160.02	6.3000					2
11.20	0.4409		M12x1		3	●	**MDM1120S12H03**	42.70	1.6811	59.50	2.3425	124.00	4.8819	2.00	0.0787	12.00	0.4724	2
					5	●	**MDM1120S12H05**	77.20	3.0394	94.00	3.7008	160.00	6.2992					2
11.30	0.4449			M12x1.75	3	★	**MDM1130S12H03**	42.60	1.6772	59.60	2.3465	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	**MDM1130S12H05**	77.10	3.0354	94.10	3.7047	160.10	6.3031					2
11.40	0.4488			M12x1.5	3	●	**MDM1140S12H03**	42.50	1.6732	59.60	2.3465	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	**MDM1140S12H05**	77.00	3.0315	94.10	3.7047	160.10	6.3031					2
11.50	0.4528			M12x1.25	3	●	**MDM1150S12H03**	42.30	1.6654	59.60	2.3465	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	**MDM1150S12H05**	76.80	3.0236	94.10	3.7047	160.10	6.3031					2
11.51	0.4531	29/64	1/2-20		3	●	**MDM04531S12H03**	44.83	1.7649	62.09	2.4445	124.10	4.8860	2.10	0.0825	12.00	0.4724	2
					5	●	**MDM04531S12H05**	80.85	3.1829	98.11	3.8625	160.10	6.3030					2
11.60	0.4567		1/2-20		3	●	**MDM1160S12H03**	44.70	1.7598	62.10	2.4449	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	**MDM1160S12H05**	80.70	3.1772	98.10	3.8622	160.10	6.3031					2
11.70	0.4606				3	●	**MDM1170S12H03**	44.60	1.7559	62.10	2.4449	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	**MDM1170S12H05**	80.60	3.1732	98.10	3.8622	160.10	6.3031					2
11.80	0.4646				3	●	**MDM1180S12H03**	44.40	1.7480	62.10	2.4449	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	**MDM1180S12H05**	80.40	3.1654	98.10	3.8622	160.10	6.3031					2
11.90	0.4685			1/2-13	3	●	**MDM1190S12H03**	44.30	1.7441	62.20	2.4488	124.20	4.8898	2.20	0.0866	12.00	0.4724	2
					5	●	**MDM1190S12H05**	80.30	3.1614	98.20	3.8661	160.20	6.3071					2
11.91	0.4688	15/32		1/2-13	3	●	**MDM04688S12H03**	44.30	1.7441	62.16	2.4473	124.16	4.8880	2.17	0.0853	12.00	0.4724	2
					5	●	**MDM04688S12H05**	80.32	3.1621	98.18	3.8653	160.17	6.3060					2
12.00	0.4724				3	●	**MDM1200S12H03**	44.20	1.7402	62.20	2.4488	124.20	4.8898	2.20	0.0866	12.00	0.4724	2
					5	●	**MDM1200S12H05**	80.20	3.1575	98.20	3.8661	160.20	6.3071					2
12.10	0.4764				3	★	**MDM1210S13H03**	46.60	1.8346	64.70	2.5472	130.20	5.1260	2.20	0.0866	13.00	0.5118	2
					5	★	**MDM1210S13H05**	84.10	3.3110	102.20	4.0236	169.20	6.6614					2
					3	●	**MDM1210S14H03**	46.60	1.8346	64.70	2.5472	130.20	5.1260			14.00	0.5512	2
					5	●	**MDM1210S14H05**	84.10	3.3110	102.20	4.0236	169.20	6.6614					2
12.20	0.4803			1/2-20	3	★	**MDM1220S13H03**	46.40	1.8268	64.70	2.5472	130.20	5.1260	2.20	0.0866	13.00	0.5118	2
					5	★	**MDM1220S13H05**	83.90	3.3031	102.20	4.0236	169.20	6.6614					2
					3	●	**MDM1220S14H03**	46.40	1.8268	64.70	2.5472	130.20	5.1260			14.00	0.5512	2
					5	●	**MDM1220S14H05**	83.90	3.3031	102.20	4.0236	169.20	6.6614					2
12.30	0.4843		9/16-12 / M14x2		3	★	**MDM1230S13H03**	46.30	1.8228	64.70	2.5472	130.20	5.1260	2.20	0.0866	13.00	0.5118	2
					5	★	**MDM1230S13H05**	83.80	3.2992	102.20	4.0236	169.20	6.6614					2
					3	●	**MDM1230S14H03**	46.30	1.8228	64.70	2.5472	130.20	5.1260			14.00	0.5512	2
					5	●	**MDM1230S14H05**	83.80	3.2992	102.20	4.0236	169.20	6.6614					2
12.30	0.4844	31/64	9/16-12 / M14x2		3	●	**MDM04844S14H03**	46.29	1.8226	64.75	2.5492	130.25	5.1280	2.24	0.0882	14.00	0.5512	2
					5	●	**MDM04844S14H05**	83.78	3.2986	102.24	4.0252	169.24	6.6630					2
12.40	0.4882		9/16-12		3	★	**MDM1240S13H03**	46.20	1.8189	64.80	2.5512	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	**MDM1240S13H05**	83.70	3.2953	102.30	4.0276	169.30	6.6654					2
					3	●	**MDM1240S14H03**	46.20	1.8189	64.80	2.5512	130.30	5.1299			14.00	0.5512	2
					5	●	**MDM1240S14H05**	83.70	3.2953	102.30	4.0276	169.30	6.6654					2
12.50	0.4921		9/16-12		3	★	**MDM1250S13H03**	46.00	1.8110	64.80	2.5512	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	**MDM1250S13H05**	83.50	3.2874	102.30	4.0276	169.30	6.6654					2
					3	●	**MDM1250S14H03**	46.00	1.8110	64.80	2.5512	130.30	5.1299			14.00	0.5512	2
					5	●	**MDM1250S14H05**	83.50	3.2874	102.30	4.0276	169.30	6.6654					2
12.60	0.4961				3	★	**MDM1260S13H03**	48.40	1.9055	67.30	2.6496	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	**MDM1260S13H05**	87.40	3.4409	106.30	4.1850	169.30	6.6654					2
					3	●	**MDM1260S14H03**	48.40	1.9055	67.30	2.6496	130.30	5.1299			14.00	0.5512	2
					5	●	**MDM1260S14H05**	87.40	3.4409	106.30	4.1850	169.30	6.6654					2
12.70	0.5000	1/2	M14x1.5		3	★	**MDM1270S13H03**	48.30	1.9016	67.30	2.6496	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	**MDM1270S13H05**	87.30	3.4370	106.30	4.1850	169.30	6.6654					2
12.70	0.5000	1/2	M14x1.5		3	●	**MDM05000S14H03**	48.26	1.9000	67.31	2.6500	130.30	5.1300	2.31	0.0910	14.00	0.5512	2
					5	●	**MDM05000S14H05**	87.25	3.4350	106.30	4.1850	169.32	6.6660					2
12.80	0.5039				3	★	**MDM1280S13H03**	48.10	1.8937	67.30	2.6496	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	**MDM1280S13H05**	87.10	3.4291	106.30	4.1850	169.30	6.6654					2
					3	●	**MDM1280S14H03**	48.10	1.8937	67.30	2.6496	130.30	5.1299			14.00	0.5512	2
					5	●	**MDM1280S14H05**	87.10	3.4291	106.30	4.1850	169.30	6.6654					2
12.90	0.5079				3	★	**MDM1290S13H03**	48.00	1.8898	67.30	2.6496	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	**MDM1290S13H05**	87.00	3.4252	106.30	4.1850	169.30	6.6654					2
					3	●	**MDM1290S14H03**	48.00	1.8898	67.30	2.6496	130.30	5.1299			14.00	0.5512	2
					5	●	**MDM1290S14H05**	87.00	3.4252	106.30	4.1850	169.30	6.6654					2
13.00	0.5118		9/16-18		3	★	**MDM1300S13H03**	47.90	1.8858	67.40	2.6535	130.40	5.1339	2.40	0.0945	13.00	0.5118	2
					5	★	**MDM1300S13H05**	86.90	3.4213	106.40	4.1890	169.40	6.6693					2
					3	●	**MDM1300S14H03**	47.90	1.8858	67.40	2.6535	130.40	5.1339			14.00	0.5512	2
					5	●	**MDM1300S14H05**	86.90	3.4213	106.40	4.1890	169.40	6.6693					2

Grade: ACT70

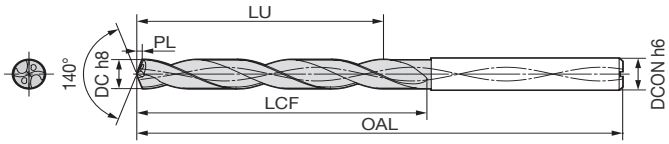
MDM Series (Internal Coolant Supply)

Stainless Steel | Ti Alloy | Heat-resistant Steel

NX Coat | 3D | 5D

●: USA Stocked item ★: Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter *ø13.10 to 15.00mm* (0.5156" to 0.5906") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
13.10	0.5156	33/64			3	●	**MDM05156S14H03**	50.23	1.9774	69.87	2.7508	136.37	5.3690	2.38	0.0938	14.00	0.5512	2
					5	●	**MDM05156S14H05**	90.74	3.5724	110.38	4.3458	178.38	7.0230					2
13.10	0.5157		9/16-18	M14x2	3	●	**MDM1310S14H03**	50.20	1.9764	69.90	2.7520	136.40	5.3701	2.40	0.0945	14.00	0.5512	2
					5	●	**MDM1310S14H05**	90.70	3.5709	110.40	4.3465	178.40	7.0236					2
13.20	0.5197				3	●	**MDM1320S14H03**	50.10	1.9724	69.90	2.7520	136.40	5.3701	2.40	0.0945	14.00	0.5512	2
					5	●	**MDM1320S14H05**	90.60	3.5669	110.40	4.3465	178.40	7.0236					2
13.30	0.5236				3	●	**MDM1330S14H03**	50.00	1.9685	69.90	2.7520	136.40	5.3701	2.40	0.0945	14.00	0.5512	2
					5	●	**MDM1330S14H05**	90.50	3.5630	110.40	4.3465	178.40	7.0236					2
13.40	0.5276			9/16-12 / M14x1.5	3	●	**MDM1340S14H03**	49.80	1.9606	69.90	2.7520	136.40	5.3701	2.40	0.0945	14.00	0.5512	2
					5	●	**MDM1340S14H05**	90.30	3.5551	110.40	4.3465	178.40	7.0236					2
13.49	0.5312	17/32			3	●	**MDM05312S14H03**	49.71	1.9569	69.94	2.7537	136.45	5.3720	2.46	0.0967	14.00	0.5512	2
					5	●	**MDM05312S14H05**	90.22	3.5519	110.46	4.3487	178.46	7.0260					2
13.50	0.5315				3	●	**MDM1350S14H03**	49.70	1.9567	70.00	2.7559	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	**MDM1350S14H05**	90.20	3.5512	110.50	4.3504	178.50	7.0276					2
13.60	0.5354				3	★	**MDM1360S14H03**	52.10	2.0512	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	★	**MDM1360S14H05**	94.10	3.7047	114.50	4.5079	178.50	7.0276					2
13.70	0.5394		5/8-11	9/16-18	3	●	**MDM1370S14H03**	51.90	2.0433	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	**MDM1370S14H05**	93.90	3.6969	114.50	4.5079	178.50	7.0276					2
13.80	0.5433		5/8-11		3	★	**MDM1380S14H03**	51.80	2.0394	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	**MDM1380S14H05**	93.80	3.6929	114.50	4.5079	178.50	7.0276					2
13.89	0.5469	35/64	5/8-11		3	●	**MDM05469S14H03**	51.69	2.0352	72.53	2.8555	136.53	5.3750	2.53	0.0995	14.00	0.5512	2
					5	●	**MDM05469S14H05**	93.68	3.6882	114.52	4.5085	178.54	7.0290					2
13.90	0.5472		5/8-11		3	●	**MDM1390S14H03**	51.70	2.0354	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	**MDM1390S14H05**	93.70	3.6890	114.50	4.5079	178.50	7.0276					2
14.00	0.5512		5/8-11		3	●	**MDM1400S14H03**	51.50	2.0276	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	**MDM1400S14H05**	93.50	3.6811	114.50	4.5079	178.50	7.0276					2
14.10	0.5551				3	★	**MDM1410S15H03**	53.90	2.1220	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	**MDM1410S15H05**	97.40	3.8346	118.60	4.6693	187.60	7.3858					2
					3	●	**MDM1410S16H03**	53.90	2.1220	75.10	2.9567	142.60	5.6142			16.00	0.6299	2
					5	●	**MDM1410S16H05**	97.40	3.8346	118.60	4.6693	187.60	7.3858					2
14.20	0.5591		M16x2		3	★	**MDM1420S15H03**	53.80	2.1181	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	**MDM1420S15H05**	97.30	3.8307	118.60	4.6693	187.60	7.3858					2
					3	●	**MDM1420S16H03**	53.80	2.1181	75.10	2.9567	142.60	5.6142			16.00	0.6299	2
					5	●	**MDM1420S16H05**	97.30	3.8307	118.60	4.6693	187.60	7.3858					2
14.29	0.5625	9/16	M16x2		3	●	**MDM05625S16H03**	53.66	2.1127	75.09	2.9564	142.60	5.6140	2.60	0.1024	16.00	0.6299	2
					5	●	**MDM05625S16H05**	97.17	3.8257	118.60	4.6694	187.60	7.3860					2
14.30	0.5630		M16x2		3	★	**MDM1430S15H03**	53.70	2.1142	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	**MDM1430S15H05**	97.20	3.8268	118.60	4.6693	187.60	7.3858					2
					3	●	**MDM1430S16H03**	53.70	2.1142	75.10	2.9567	142.60	5.6142			16.00	0.6299	2
					5	●	**MDM1430S16H05**	97.20	3.8268	118.60	4.6693	187.60	7.3858					2
14.40	0.5669				3	★	**MDM1440S15H03**	53.50	2.1063	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	**MDM1440S15H05**	97.00	3.8189	118.60	4.6693	187.60	7.3858					2
					3	●	**MDM1440S16H03**	53.50	2.1063	75.10	2.9567	142.60	5.6142			16.00	0.6299	2
					5	●	**MDM1440S16H05**	97.00	3.8189	118.60	4.6693	187.60	7.3858					2
14.50	0.5709				3	★	**MDM1450S15H03**	53.40	2.1024	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	**MDM1450S15H05**	96.90	3.8150	118.60	4.6693	187.60	7.3858					2
					3	●	**MDM1450S16H03**	53.40	2.1024	75.10	2.9567	142.60	5.6142			16.00	0.6299	2
					5	●	**MDM1450S16H05**	96.90	3.8150	118.60	4.6693	187.60	7.3858					2
14.60	0.5748		5/8-18 / M16x1.5		3	★	**MDM1460S15H03**	55.80	2.1969	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	**MDM1460S15H05**	100.80	3.9685	122.70	4.8307	187.70	7.3898					2
					3	●	**MDM1460S16H03**	55.80	2.1969	77.70	3.0591	142.70	5.6181			16.00	0.6299	2
					5	●	**MDM1460S16H05**	100.80	3.9685	122.70	4.8307	187.70	7.3898					2
14.68	0.5781	37/64	5/8-18 / M16x1.5		3	●	**MDM05781S16H03**	55.65	2.1911	77.68	3.0582	142.67	5.6170	2.67	0.1052	16.00	0.6299	2
					5	●	**MDM05781S16H05**	100.64	3.9621	122.66	4.8292	187.68	7.3890					2
14.70	0.5787		5/8-18 / M16x1.5		3	★	**MDM1470S15H03**	55.60	2.1890	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	**MDM1470S15H05**	100.60	3.9606	122.70	4.8307	187.70	7.3898					2
					3	●	**MDM1470S16H03**	55.60	2.1890	77.70	3.0591	142.70	5.6181			16.00	0.6299	2
					5	●	**MDM1470S16H05**	100.60	3.9606	122.70	4.8307	187.70	7.3898					2
14.80	0.5827				3	★	**MDM1480S15H03**	55.50	2.1850	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	**MDM1480S15H05**	100.50	3.9567	122.70	4.8307	187.70	7.3898					2
					3	●	**MDM1480S16H03**	55.50	2.1850	77.70	3.0591	142.70	5.6181			16.00	0.6299	2
					5	●	**MDM1480S16H05**	100.50	3.9567	122.70	4.8307	187.70	7.3898					2
14.90	0.5866			5/8-11	3	★	**MDM1490S15H03**	55.40	2.1811	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	**MDM1490S15H05**	100.40	3.9528	122.70	4.8307	187.70	7.3898					2
					3	●	**MDM1490S16H03**	55.40	2.1811	77.70	3.0591	142.70	5.6181			16.00	0.6299	2
					5	●	**MDM1490S16H05**	100.40	3.9528	122.70	4.8307	187.70	7.3898					2
15.00	0.5906			5/8-11	3	★	**MDM1500S15H03**	55.20	2.1732	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	**MDM1500S15H05**	100.20	3.9449	122.70	4.8307	187.70	7.3898					2
					3	●	**MDM1500S16H03**	55.20	2.1732	77.70	3.0591	142.70	5.6181			16.00	0.6299	2
					5	●	**MDM1500S16H05**	100.20	3.9449	122.70	4.8307	187.70	7.3898					2

Grade: ACT70

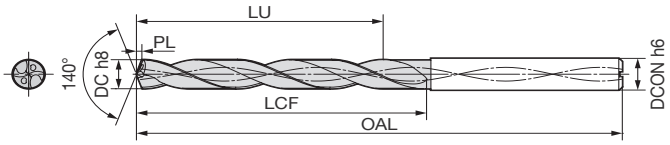
MDM Series (Internal Coolant Supply)

Stainless Steel | Ti Alloy | Heat-resistant Steel

NX Coat | 3D | 5D

●: USA Stocked item ★: Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter *ø15.08 to 16.00mm* (0.5937" to 0.6299") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
15.08	0.5937	19/32		M16x2	3	●	**MDM05937S16H03**	57.62	2.2685	80.24	3.1590	148.74	5.8560	2.74	0.1080	16.00	0.6299	2
					5	●	**MDM05937S16H05**	104.13	4.0995	126.75	4.9900	196.75	7.7460					2
15.10	0.5945			M16x2	3	●	**MDM1510S16H03**	57.60	2.2677	80.20	3.1575	148.70	5.8543	2.70	0.1063	16.00	0.6299	2
					5	●	**MDM1510S16H05**	104.10	4.0984	126.70	4.9882	196.70	7.7441					2
15.20	0.5984			5/8-18	3	●	**MDM1520S16H03**	57.50	2.2638	80.30	3.1614	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	**MDM1520S16H05**	104.00	4.0945	126.80	4.9921	196.80	7.7480					2
15.30	0.6024			5/8-18	3	●	**MDM1530S16H03**	57.30	2.2559	80.30	3.1614	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	**MDM1530S16H05**	103.80	4.0866	126.80	4.9921	196.80	7.7480					2
15.40	0.6063			M16x1.5	3	●	**MDM1540S16H03**	57.20	2.2520	80.30	3.1614	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	**MDM1540S16H05**	103.70	4.0827	126.80	4.9921	196.80	7.7480					2
15.48	0.6094	39/64			3	●	**MDM06094S16H03**	57.09	2.2478	80.31	3.1619	148.82	5.8590	2.82	0.1109	16.00	0.6299	2
					5	●	**MDM06094S16H05**	103.60	4.0788	126.82	4.9929	196.82	7.7490					2
15.50	0.6102				3	●	**MDM1550S16H03**	57.10	2.2480	80.30	3.1614	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	**MDM1550S16H05**	103.60	4.0787	126.80	4.9921	196.80	7.7480					2
15.60	0.6142				3	●	**MDM1560S16H03**	59.40	2.3386	82.80	3.2598	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	**MDM1560S16H05**	107.40	4.2283	130.80	5.1496	196.80	7.7480					2
15.70	0.6181		M18x2.5		3	●	**MDM1570S16H03**	59.30	2.3346	82.90	3.2638	148.90	5.8622	2.90	0.1142	16.00	0.6299	2
					5	●	**MDM1570S16H05**	107.30	4.2244	130.90	5.1535	196.90	7.7520					2
15.80	0.6220		M18x2.5		3	●	**MDM1580S16H03**	59.20	2.3307	82.90	3.2638	148.90	5.8622	2.90	0.1142	16.00	0.6299	2
					5	●	**MDM1580S16H05**	107.20	4.2205	130.90	5.1535	196.90	7.7520					2
15.88	0.6250	5/8	M18x2.5		3	●	**MDM06250S16H03**	59.09	2.3262	82.90	3.2637	148.89	5.8620	2.89	0.1137	16.00	0.6299	2
					5	●	**MDM06250S16H05**	107.07	4.2152	130.88	5.1527	196.90	7.7520					2
15.90	0.6260		M18x2.5		3	●	**MDM1590S16H03**	59.00	2.3228	82.90	3.2638	148.90	5.8622	2.90	0.1142	16.00	0.6299	2
					5	●	**MDM1590S16H05**	107.00	4.2126	130.90	5.1535	196.90	7.7520					2
16.00	0.6299				3	●	**MDM1600S16H03**	58.90	2.3189	82.90	3.2638	148.90	5.8622	2.90	0.1142	16.00	0.6299	2
					5	●	**MDM1600S16H05**	106.90	4.2087	130.90	5.1535	196.90	7.7520					2

Grade: ACT70

International Standards

Material	Hardness	US Standards ANSI	Japanese Industrial Standards JIS	International Standard ISO 15510	European Standards EN
Ferritic/ Martensitic Stainless Steel	≤ 200HB	405	SUS405	X6CrAl13	1.4002
		410	SUS410	X12Cr13	1.4006
		—	SUS410S	X6Cr13	1.4000
		430	SUS430	X6Cr17	1.4016
		434	SUS434	X6CrMo17-1	1.4113
	> 200HB	420	SUS420J1	X20Cr13	1.4021
		420	SUS420J2	X30Cr13	1.4028
		431	SUS431	X17CrNi16-2	1.4057
Stainless steel with deposition hardened structure	≤ 340HB	17-4PH (S17400)	SUS630	X5CrNiCuNb16-4	1.4542
		15-5PH (S15500)	–	–	–
		17-7PH (S17700)	SUS631	X7CrNiAl17-7	1.4568
Duplex stainless steel	≤ 310HB	329	SUS329J1	X6CrNiMo26-4-2	–
		–	SUS329J3L	X2CrNiMoN22-5-3	1.4462
		–	SUS329J4L	X2CrNiMoN25-7-3	–

Material	Hardness	US Standards ANSI	Japanese Industrial Standards JIS	International Standard ISO 15510	European Standards EN
Austenitic Stainless Steel	≤ 200HB	304	SUS304	X5CrNi18-10	1.4301
		305	SUS305	X6CrNi18-12	1.4303
		303	SUS303	X10CrNiS18-9	1.4305
		304L	SUS304L	X2CrNi18-9	1.4307
		316	SUS316	X5CrNiMo17-12-2	1.4401
		316L	SUS316L	X2CrNiMo17-12-2	1.4404
		317L	SUS317L	X2CrNiMo19-14-4	1.4438
		321	SUS321	X6CrNiTi18-10	1.4541
		347	SUS347	X6CrNiNb18-10	1.4550
		–	SUS316Ti	X6CrNiMoTi17-12-2	1.4571
		309S	SUS309S	X6CrNi23-13	1.4950
		310S	SUS310S	X6CrNi25-20	1.4951
	> 200HB	304N	SUS304N1	X5CrNiN19-9	1.4315
		301	SUS301	X5CrNi17-7	1.4319
		–	SUS301L	X2CrNiN18-7	1.4318

MDM Recommended Cutting Conditions - Inch

1. The recommended cutting conditions below are for cases where an internal supply of a water soluble coolant is used.
2. If using non-water soluble coolant, reduce the cutting speed by 20-30% and ensure that sufficient coolant is supplied.
3. When mounting the drill in the collet, make sure that runout around the cutting edge is no greater than 0.02mm. Make sure the flute does not enter the collet.
4. If the workpiece the tool is entering is abnormally shaped (tilted, interrupted etc.), reduce the feed rate to about half when inserting the drill in the workpiece.
   *If stable machining is still not possible, pre-machining of the flat surface with the MDF Flat MultiDrill is recommended.
5. When performing intermittent through drilling, reduce the feed rate to about half the feed rate used prior to this process.

	Dia. DC (in. *mm*)	Material	Ferritic/ Martensitic Stainless Steel	Austenitic Stainless Steel	Precipitation Hardening Stainless Steel (17-4 PH & 15-5 PH)		Duplex Stainless Steel (244, 2304, & 2507)		Titanium Alloy (y-TiAl, & Ti-6Al-4V)	Ni-Based Heat-Resistant Alloy (Inconel 718)
			≤ 200HB	> 200HB	<200 HB	> 200HB	<340 HB	<310 HB	260 to 340 HB	38 to 45 HRc
Inch	ø.1181 *ø3*	SFM	265 - 330	200 - 265	265 - 330	200 - 265	165 - 200	165 - 200	100 - 170	65 - 100
		IPR	.0023 - .0047	.0023 - .0047	.0023 - .0047	.0023 - .0047	.0023 - .0047	.0023 - .0047	.0023 - .0047	.002 - .0031
	ø.1575 *ø4*	SFM	265 - 330	200 - 265	265 - 330	200 - 265	165 - 200	165 - 200	100 - 170	65 - 100
		IPR	.0031 - .0066	.0031 - .0066	.0031 - .0066	.0031 - .0066	.0031 - .0066	.0031 - .0066	.0031 - .0066	.0023 - .004
	ø.1968 *ø5*	SFM	265 - 330	200 - 265	265 - 330	200 - 265	180 - 200	180 - 200	135 - 170	75 - 115
		IPR	.0031 - .0078	.0031 - .0078	.0031 - .0078	.0031 - .0078	.0031 - .0078	.0031 - .0078	.0031 - .0078	.0027 - .0047
	ø.2362 *ø6*	SFM	265 - 330	200 - 265	265 - 330	200 - 265	180 - 200	180 - 200	135 - 170	75 - 115
		IPR	.0039 - .0078	.0039 - .0078	.0039 - .0078	.0039 - .0078	.0039 - .0078	.0039 - .0078	.0039 - .0078	.0031 - .0059
	ø.2755 *ø7*	SFM	265 - 330	200 - 265	265 - 330	200 - 265	180 - 220	180 - 220	135 - 170	85 - 125
		IPR	.0047 - .009	.0047 - .009	.0047 - .009	.0047 - .009	.0047 - .009	.0047 - .009	.0047 - .009	.0031 - .0059
	ø.3149 *ø8*	SFM	265 - 330	220 - 265	265 - 330	220 - 265	180 - 220	180 - 220	150 - 185	85 - 125
		IPR	.0047 - .0098	.0047 - .0098	.0047 - .0098	.0047 - .0098	.0047 - .0098	.0047 - .0098	.0047 - .0098	.0039 - .007
	ø.3543 *ø9*	SFM	265 - 330	220 - 265	265 - 330	220 - 265	190 - 220	190 - 220	150 - 185	100 - 135
		IPR	.0066 - .0098	.0066 - .0098	.0066 - .0098	.0066 - .0098	.0066 - .0098	.0066 - .0098	.0066 - .0098	.0047 - .007
	ø.3937 *ø10*	SFM	265 - 330	220 - 265	265 - 330	220 - 265	190 - 220	190 - 220	150 - 185	100 - 135
		IPR	.007 - .011	.007 - .011	.007 - .011	.007 - .011	.007 - .011	.007 - .011	.007 - .011	.0047 - .0078
	ø.4331 *ø11*	SFM	265 - 330	220 - 265	265 - 330	220 - 265	190 - 220	190 - 220	150 - 185	100 - 135
		IPR	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0059 - .0078
	ø.4724 *ø12*	SFM	265 - 330	220 - 280	265 - 330	220 - 280	190 - 230	190 - 230	150 - 200	100 - 135
		IPR	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0059 - .0078
	ø.5118 *ø13*	SFM	265 - 330	220 - 280	265 - 330	220 - 280	190 - 230	190 - 230	150 - 200	110 - 150
		IPR	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0059 - .0078
	ø.5512 *ø14*	SFM	265 - 330	220 - 280	265 - 330	220 - 280	190 - 230	190 - 230	150 - 200	110 - 150
		IPR	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0059 - .0078
	ø.5905 *ø15*	SFM	265 - 330	220 - 280	265 - 330	220 - 280	190 - 230	190 - 230	150 - 200	110 - 150
		IPR	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0059 - .0078
	ø.6299 *ø16*	SFM	265 - 330	220 - 280	265 - 330	220 - 280	190 - 230	190 - 230	150 - 200	110 - 150
		IPR	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0078 - .0118	.0059 - .0078

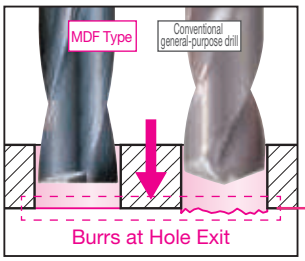
■ General Features

The flat MDF multidrill is a solid carbide drill that can be used for a variety of applications, including high-efficiency spot facing and drilling in inclined and curved surfaces.

■ Features and Applications

- NEW Inch sizes added for MDF□□□□H3D (see pages J54-J57)
- Suited to various types of drilling thanks to a point angle of 180°
  Can be used for high-efficiency spot facing, drilling in non-horizontal surfaces such as inclined and cylindrical surfaces, and interrupted drilling. Also reduces burrs at the hole exit.
- Improves machining stability
  Achieves high rigidity by employing RS THINNING, which provides a thick web at the bottom.
- Excellent chip evacuation
  Achieves excellent chip evacuation due to the wide chip pocket and high-quality rake face shape.
- Excellent cutting edge strength
  Achieves excellent cutting edge strength through optimized cutting edge design.
- Long types available
  Overhang lengths up to L/D=10 are now available.
- Types with oil hole available
  Coolant can now be supplied internally. This enables deeper drilling.

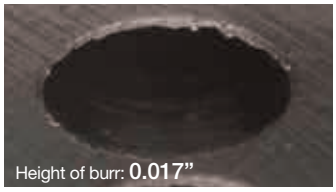
■ Reduction of Burrs at Hole Exit



Part Material: Alloy Steel
Tool: MDF 0500S2D (ø5.0mm 2D)
Cutting Conditions: V_c=213 SFM, f=0.0047", H=0.393", 150 holes, Wet
Machine: Vertical machining center (BT40)

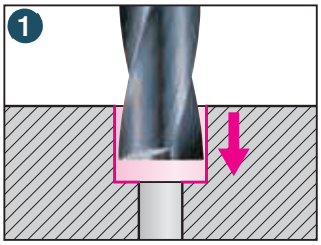
Reduces exit burrs by **half** compared with general-purpose drills

Flat MultiDrill MDF Type

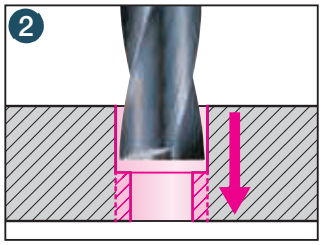


Conventional general-purpose drill

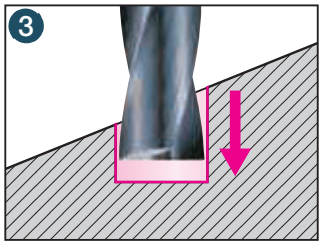
■ Machining Applications



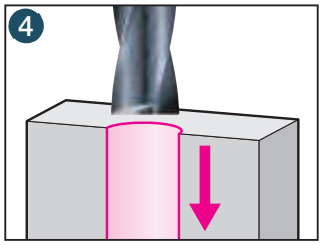
High-efficiency spot facing



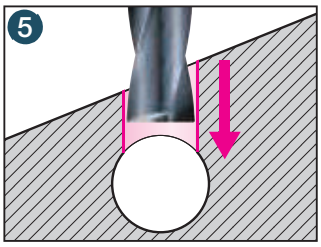
Hole expansion drilling



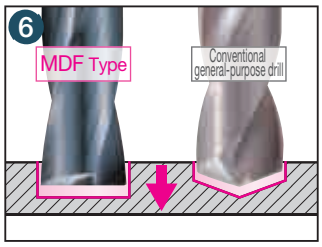
Drilling in non-horizontal surface (inclined surface, cylindrical surface, etc.)



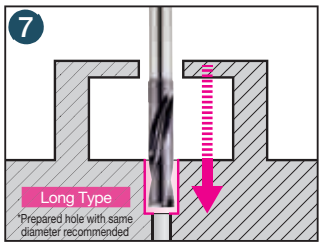
Interrupted drilling



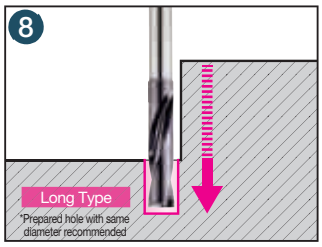
Cross drilling



Pre-tap hole drilling in thin sheets



Spot facing in deep positions



Avoids interference with work material

Long shanked (L2D) styles are available for flat base drilling, hole expansion and burr control in long overhang conditions.

- For drilling with long overhang and to avoid interference with the workpiece

*A prepared hole with the same diameter or centering hole with a larger diameter than the tool is needed for drilling with the long type.

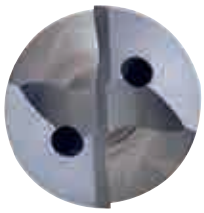
DC < *6mm*, stepped shank

DC ≥ *6mm*, relief shank

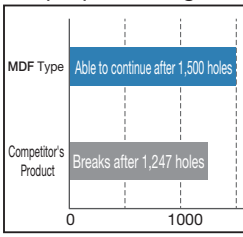
H-type with oil hole (3D/5D) for 2-5D deep hole applications

- Inch sizes now available
- Internal coolant supply enables deep flat hole drilling.

*A prepared hole with the same diameter or centering hole with a larger diameter than the tool is needed for drilling with an L/D=5 oil hole.

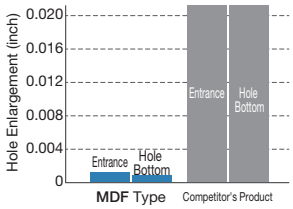


Deep Spot Facing



Tool: MDF 0600H5D
Part Material: Carbon Steel ø6mm
Cutting Conditions:
v_C=459 SFM, f=0.006 IPR
H = 1.181" (5D), Internal Coolant Supply
1.772" overhang, prepared hole depth 0.118" (ø6mm)

Long Overhang Spot Facing



Tool: MDF 0600H3D
Part Material: Carbon Steel
Cutting Conditions:
v_C=295 SFM, f=0.004 IPR
H = 0.709 (3D),
Internal Coolant Supply
Overhang 1.378"

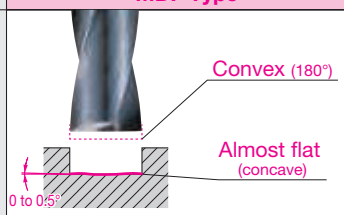
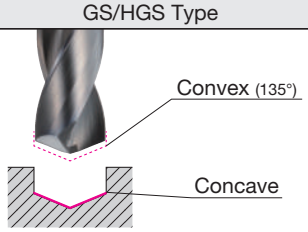
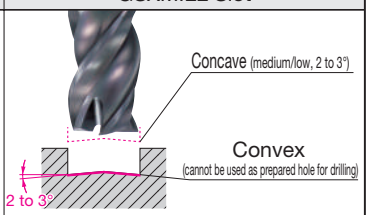
Drilling on slanted surfaces

Tool: MDF 0500S2D
Part Material: Alloy Structural Steel
Cutting Conditions:
v_C=213 SFM, f=0.003 IPR
H = 0.393", External MQL

Prevents burrs and conical remnants on tool withdrawal

Tool: MDF 1000S2D
Part Material: Low Carbon Steel
Cutting Conditions:
v_C=246 SFM, f=0.0047 IPR
H = 0.197", External MQL

■ Distinguishing flat drills, general-purpose drills and endmills

Tool	Flat Drill MDF Type		General-Purpose Drill GS/HGS Type		Endmill for Spot Facing GSXMILL Slot	
Shape of hole base						
Drilling in flat surfaces	○	Approx. 1/2 the feed of a general-purpose drill	◎	Best	△	Only for low feed 1D or smaller ≤1/5 the feed of a general-purpose drill
Drilling non-flat surfaces	◎	Ideal (2D or smaller recommended)	×	Impossible	○	Only for low feed 1D or smaller ≤1/2 the feed of a flat drill
Traverse Cutting	×	Impossible	×	Impossible	◎	Best

■ Product Range

Coolant Supply	Cat. No.	Diameter Range (Inch / *mm*)	Hole Depth (L/D)
External	MDF□□□□S2D	ø.0118 to .7874" *ø0.3 to 20.0*	up to 2D
	MDF□□□□L2D	ø.1181 to .7874" *ø3.0 to 20.0*	up to 2D
Internal	MDF□□□□H3D	ø.1181 to .6299" *ø3.0 to 16.0*	up to 3D
	MDF□□□□H5D	ø.1181 to .6299" *ø3.0 to 16.0*	up to 5D

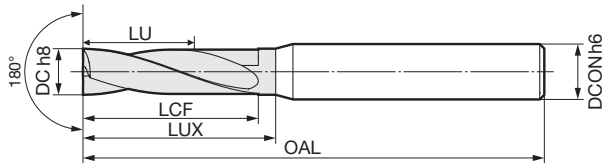
MDF Series (External Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.26% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

PVD Coat 2D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø0.3 to 5.2mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
0.3*	2	★	MDF0030S2D*	0.9	1.0	1.3	40	3.0	1
0.4*		★	MDF0040S2D*	1.2	1.4	1.8			1
0.5		★	MDF0050S2D	1.5	2.0	2.2			1
0.6		★	MDF0060S2D	1.8	2.4	2.6			1
0.7		★	MDF0070S2D	2.1	2.8	3.1			1
0.8		★	MDF0080S2D	2.4	3.2	3.5			1
0.9		★	MDF0090S2D	2.7	3.6	4.0			1
1.0	2	★	MDF0100S2D	3.0	4.0	4.4	45	3.0	1
1.1		★	MDF0110S2D	3.3	4.4	4.8			1
1.2		★	MDF0120S2D	3.6	4.8	5.3			1
1.3		★	MDF0130S2D	3.9	5.2	5.7			1
1.4		★	MDF0140S2D	4.2	5.6	6.2			1
1.5		★	MDF0150S2D	4.5	6.0	6.6			1
1.6		★	MDF0160S2D	4.8	6.4	7.0			1
1.7		★	MDF0170S2D	5.1	6.8	7.5			1
1.8		★	MDF0180S2D	5.4	7.2	7.9			1
1.9		★	MDF0190S2D	5.7	7.6	8.4			1
2.0	2	★	MDF0200S2D	6.0	8.0	8.8	50	4.0	1
2.1		★	MDF0210S2D	6.3	8.4	9.2			1
2.2		★	MDF0220S2D	6.6	8.8	9.7			1
2.3		★	MDF0230S2D	6.9	9.2	10.1			1
2.4		★	MDF0240S2D	7.2	9.6	10.6			1
2.5		★	MDF0250S2D	7.5	10.0	11.0			1
2.6		★	MDF0260S2D	7.8	10.4	11.4			1
2.7		★	MDF0270S2D	8.1	10.8	11.9			1
2.76		★	MDF0276S2D	6.9	11.0	12.0			1
2.78		★	MDF0278S2D	6.9	11.1	12.1			1
2.8		★	MDF0280S2D	8.4	11.2	12.3			1
2.9		★	MDF0290S2D	8.7	11.6	12.8			1
3.0		★	MDF0300S2D	9.0	12.0	13.2		6.0	1
3.1		★	MDF0310S2D	9.3	12.4	13.6			1
3.2		★	MDF0320S2D	9.6	12.8	14.1			1
3.3		★	MDF0330S2D	9.9	13.2	14.5			1
3.4		★	MDF0340S2D	10.2	13.6	15.0			1
3.5		★	MDF0350S2D	10.5	14.0	15.4			1
3.6		★	MDF0360S2D	10.8	14.4	15.8			1
3.66		★	MDF0366S2D	9.1	14.6	15.3		4.0	1
3.68		★	MDF0368S2D	9.2	14.7	15.4			1
3.7		★	MDF0370S2D	11.1	14.8	16.3		6.0	1
3.8		★	MDF0380S2D	11.4	15.2	16.7			1
3.9		★	MDF0390S2D	11.7	15.6	17.2			1
4.0		★	MDF0400S2D	12.0	16.0	17.6			1
4.1	2	★	MDF0410S2D	12.3	16.4	18.0	60	6.0	1
4.2		★	MDF0420S2D	12.6	16.8	18.5			1
4.3		★	MDF0430S2D	12.9	17.2	18.9			1
4.4		★	MDF0440S2D	13.2	17.6	19.4			1
4.5		★	MDF0450S2D	13.5	18.0	19.8			1
4.6		★	MDF0460S2D	13.8	18.4	20.2			1
4.62		★	MDF0462S2D	11.5	18.4	20.9			1
4.64		★	MDF0464S2D	11.6	18.5	21.0			1
4.7		★	MDF0470S2D	14.1	18.8	20.7			1
4.8		★	MDF0480S2D	14.4	19.2	21.1			1
4.9		★	MDF0490S2D	14.7	19.6	21.6			1
5.0		★	MDF0500S2D	15.0	20.0	22.0			1
5.1		★	MDF0510S2D	15.3	20.4	22.4			1
5.2		★	MDF0520S2D	15.6	20.8	22.9			1

*RS thinning is used for ø0.5mm and larger sizes.
Grade: ACF75

Diameter ø5.3 to 9.6mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
5.3	2	★	MDF0530S2D	15.9	21.2	23.3	60	6.0	1
5.4		★	MDF0540S2D	16.2	21.6	23.8			1
5.5		★	MDF0550S2D	16.5	22.0	24.2			1
5.52		★	MDF0552S2D	13.8	22.0	26.1			1
5.54		★	MDF0554S2D	13.8	22.1	26.2			1
5.6		★	MDF0560S2D	16.8	22.4	24.6			1
5.7		★	MDF0570S2D	17.1	22.8	25.1			1
5.8		★	MDF0580S2D	17.4	23.2	25.5			1
5.9		★	MDF0590S2D	17.7	23.6	26.0			1
6.0		★	MDF0600S2D	18.0	24.0	26.4			1
6.1	2	★	MDF0610S2D	18.3	24.4	26.8	70	8.0	1
6.2		★	MDF0620S2D	18.6	24.8	27.3			1
6.3		★	MDF0630S2D	18.9	25.2	27.7			1
6.4		★	MDF0640S2D	19.2	25.6	28.2			1
6.5		★	MDF0650S2D	19.5	26.0	28.6			1
6.6		★	MDF0660S2D	19.8	26.4	29.0			1
6.7		★	MDF0670S2D	20.1	26.8	29.5			1
6.8		★	MDF0680S2D	20.4	27.2	29.9			1
6.9		★	MDF0690S2D	20.7	27.6	30.4			1
7.0		★	MDF0700S2D	21.0	28.0	30.8			1
7.1		★	MDF0710S2D	21.3	28.4	31.2			1
7.2		★	MDF0720S2D	21.6	28.8	31.7			1
7.3		★	MDF0730S2D	21.9	29.2	32.1			1
7.36		★	MDF0736S2D	18.4	29.4	34.7			1
7.38		★	MDF0738S2D	18.4	29.5	34.8			1
7.4		★	MDF0740S2D	22.2	29.6	32.6			1
7.5		★	MDF0750S2D	22.5	30.0	33.0			1
7.52		★	MDF0752S2D	18.8	30.0	35.7			1
7.54		★	MDF0754S2D	18.8	30.1	35.8			1
7.6		★	MDF0760S2D	22.8	30.4	33.4			1
7.7		★	MDF0770S2D	23.1	30.8	33.9			1
7.8		★	MDF0780S2D	23.4	31.2	34.3			1
7.9		★	MDF0790S2D	23.7	31.6	34.8			1
8.0		★	MDF0800S2D	24.0	32.0	35.2			1
8.1	2	★	MDF0810S2D	24.3	32.4	35.6	80	10.0	1
8.2		★	MDF0820S2D	24.6	32.8	36.1			1
8.3		★	MDF0830S2D	24.9	33.2	36.5			1
8.4		★	MDF0840S2D	25.2	33.6	37.0			1
8.5		★	MDF0850S2D	25.5	34.0	37.4			1
8.6		★	MDF0860S2D	25.8	34.4	37.8			1
8.7		★	MDF0870S2D	26.1	34.8	38.3			1
8.8		★	MDF0880S2D	26.4	35.2	38.7			1
8.9		★	MDF0890S2D	26.7	35.6	39.2			1
9.0		★	MDF0900S2D	27.0	36.0	39.6			1
9.1		★	MDF0910S2D	27.3	36.4	40.0			1
9.2		★	MDF0920S2D	27.6	36.8	40.5			1
9.24		★	MDF0924S2D	23.1	36.9	43.6			1
9.26		★	MDF0926S2D	23.1	37.0	43.7			1
9.3		★	MDF0930S2D	27.9	37.2	40.9			1
9.36		★	MDF0936S2D	23.4	37.4	44.3			1
9.38		★	MDF0938S2D	23.4	37.5	44.4			1
9.4		★	MDF0940S2D	28.2	37.6	41.4			1
9.5		★	MDF0950S2D	28.5	38.0	41.8			1
9.52		★	MDF0952S2D	23.8	38.0	45.3			1
9.54		★	MDF0954S2D	23.8	38.1	45.4			1
9.6		★	MDF0960S2D	28.8	38.4	42.2			1

Grade: ACF75

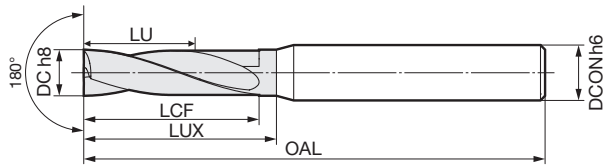
★: Worldwide Warehouse Item

MDF Series (External Coolant Supply)

PVD Coat 2D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø9.7 to 13.0mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
9.7	2	★	MDF0970S2D	29.1	38.8	42.7	80	10.0	1
9.8		★	MDF0980S2D	29.4	39.2	43.1			1
9.9		★	MDF0990S2D	29.7	39.6	43.6			1
10.0		★	MDF1000S2D	30.0	40.0	44.0			1
10.1	2	★	MDF1010S2D	30.3	40.4	44.4	90	12.0	1
10.2		★	MDF1020S2D	30.6	40.8	44.9			1
10.3		★	MDF1030S2D	30.9	41.2	45.3			1
10.4		★	MDF1040S2D	31.2	41.6	45.8			1
10.5		★	MDF1050S2D	31.5	42.0	46.2			1
10.6		★	MDF1060S2D	31.8	42.4	46.6			1
10.7		★	MDF1070S2D	32.1	42.8	47.1			1
10.8		★	MDF1080S2D	32.4	43.2	47.5			1
10.9		★	MDF1090S2D	32.7	43.6	48.0			1
11.0		★	MDF1100S2D	33.0	44.0	48.4			1
11.1		★	MDF1110S2D	33.3	44.4	48.8			1
11.2		★	MDF1120S2D	33.6	44.8	49.3			1
11.22		★	MDF1122S2D	28.0	44.8	53.1			1
11.24		★	MDF1124S2D	28.1	44.9	53.2			1
11.3		★	MDF1130S2D	33.9	45.2	49.7			1
11.36		★	MDF1136S2D	28.4	45.4	53.9			1
11.38		★	MDF1138S2D	28.4	45.5	54.0			1
11.4		★	MDF1140S2D	34.2	45.6	50.2			1
11.5		★	MDF1150S2D	34.5	46.0	50.6			1
11.6		★	MDF1160S2D	34.8	46.4	51.0			1
11.7		★	MDF1170S2D	35.1	46.8	51.5			1
11.8		★	MDF1180S2D	35.4	47.2	51.9			1
11.9		★	MDF1190S2D	35.7	47.6	52.4			1
12.0		★	MDF1200S2D	36.0	48.0	52.8			1
12.1	2	★	MDF1210S2D	30.2	48.4	52.2	100	14.0	1
12.2		★	MDF1220S2D	30.5	48.8	52.7			1
12.3		★	MDF1230S2D	30.7	49.2	53.1			1
12.4		★	MDF1240S2D	31.0	49.6	53.5			1
12.5		★	MDF1250S2D	37.5	50.0	54.0			1
12.6		★	MDF1260S2D	31.5	50.4	55.0			1
12.7		★	MDF1270S2D	31.7	50.8	55.4			1
12.8		★	MDF1280S2D	32.0	51.2	55.9			1
12.9		★	MDF1290S2D	32.2	51.6	56.3			1
13.0		★	MDF1300S2D	39.0	52.0	56.8			1

Grade: ACF75

Diameter ø13.10 to 20.0mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
13.1	2	★	MDF1310S2D	32.7	52.4	57.8	110	14.0	1
13.2		★	MDF1320S2D	33.0	52.8	58.2			1
13.3		★	MDF1330S2D	33.2	53.2	58.7			1
13.4		★	MDF1340S2D	33.5	53.6	59.1			1
13.5		★	MDF1350S2D	40.5	54.0	59.6			1
13.6		★	MDF1360S2D	34.0	54.4	60.6			1
13.7		★	MDF1370S2D	34.2	54.8	61.0			1
13.8		★	MDF1380S2D	34.5	55.2	61.5			1
13.9		★	MDF1390S2D	34.7	55.6	61.9			1
14.0		★	MDF1400S2D	42.0	56.0	62.4			1
14.1		★	MDF1410S2D	35.2	56.4	63.4		16.0	1
14.2		★	MDF1420S2D	35.5	56.8	63.8			1
14.3		★	MDF1430S2D	35.7	57.2	64.3			1
14.4		★	MDF1440S2D	36.0	57.6	64.7			1
14.5		★	MDF1450S2D	43.5	58.0	65.2			1
14.6		★	MDF1460S2D	36.5	58.4	66.1			1
14.7		★	MDF1470S2D	36.7	58.8	66.6			1
14.8		★	MDF1480S2D	37.0	59.2	67.0			1
14.9		★	MDF1490S2D	37.2	59.6	67.5			1
15.0		★	MDF1500S2D	45.0	60.0	68.0			1
15.1	2	★	MDF1510S2D	37.7	60.4	68.9	115	16.0	1
15.2		★	MDF1520S2D	38.0	60.8	69.4			1
15.3		★	MDF1530S2D	38.2	61.2	69.8			1
15.4		★	MDF1540S2D	38.5	61.6	70.3			1
15.5		★	MDF1550S2D	46.5	62.0	70.8			1
15.6		★	MDF1560S2D	39.0	62.4	71.7			1
15.7		★	MDF1570S2D	39.2	62.8	72.2			1
15.8		★	MDF1580S2D	39.5	63.2	72.6			1
15.9		★	MDF1590S2D	39.7	63.6	73.1			1
16.0		★	MDF1600S2D	48.0	64.0	73.6			1
16.5	2	★	MDF1650S2D	49.5	66.0	72.4	125	18.0	1
17.0		★	MDF1700S2D	51.0	68.0	75.2			1
17.5	2	★	MDF1750S2D	52.5	70.0	78.0	130	18.0	1
18.0		★	MDF1800S2D	54.0	72.0	80.8			1
18.5	2	★	MDF1850S2D	55.5	74.0	83.6	140	20.0	1
19.0		★	MDF1900S2D	57.0	76.0	86.4			1
19.5		★	MDF1950S2D	58.5	78.0	89.2			1
20.0		★	MDF2000S2D	60.0	80.0	92.0			1

Grade: ACF75

Recommended Cutting Conditions

1. The recommended hole depth is 2 x DC. The depth is measured from the highest point of the hole when drilling in inclined surfaces.
2. The recommended cutting conditions are those for drilling in flat horizontal surfaces.
3. Adjust the feed rate according to the inclination angle when drilling in an inclined surface.
4. Set the feed rate at 70% or lower when the inclination angle is 30° or less.
5. Set the feed rate at 50% or lower when the inclination angle is larger than 30°.
6. This product is a drilling tool. Do not use it for traverse cutting or helical milling.

(v_c: Cutting Speed (SFM), f: Feed Rate (IPR))

Dia. DC (*mm*)	Cutting Conditions	Mild Steel/General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to 50HRC)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450	Aluminum Alloy
ø0.5	v_c	115 - 190	115 - 150	60 - 95	60 - 95	115 - 190	75 - 150	225 - 380
	f	.0001 - .0002	.0001 - .0002	.0001 - .0002	.0001 - .0002	.0001 - .0002	.0001 - .0003	.0001 - .0003
ø1.0	v_c	170 - 250	130 - 210	75 - 150	75 - 115	170 - 250	115 - 190	300 - 450
	f	.0004 - .0024	.0004 - .0024	.0001 - .0004	.0002 - .0004	.0004 - .0020	.0002 - .0006	.0004 - .0012
ø2.0	v_c	190 - 270	150 - 230	75 - 150	75 - 150	190 - 270	170 - 250	340 - 500
	f	.0008 - .0024	.0008 - .0024	.0004 - .0010	.0004 - .0008	.0079 - .0024	.0006 - .0018	.0012 - .0028
ø4.0	v_c	230 - 340	190 - 300	75 - 150	75 - 150	230 - 340	210 - 290	340 - 500
	f	.0024 - .0039	.00020 - .0039	0.0004 - .0012	.0004 - .0012	.0024 - .0047	.0016 - .0031	.0024 - .0039
ø6.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0020 - .0059	.0020 - .0059	.0016 - .0031	.0012 - .0020	.0020 - .0059	.0024 - .0047	.0020 - .0059
ø8.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0039 - .0079	.0039 - .0079	.0024 - .0039	.0016 - .0024	.0039 - .0079	.0039 - .0059	.0039 - .0079
ø10.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0047 - .0086	.0047 - .0086	.0031 - .0039	.0031 - .0047	.0047 - .0086	.0047 - .0071	.0047 - .0086
ø12.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0059 - .0098	.0059 - .0098	.0047 - .0070	.0024 - .0039	.0059 - .0098	.0059 - .0079	.0059 - .0098
ø16.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0079 - .0118	.0079 - .0118	.0055 - .0079	.0039 - .0079	.0067 - .0106	.0059 - .0098	.0079 - .0118
ø20.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0098 - .0138	.0098 - .0138	.0063 - .0086	.0059 - .0098	.0098 - .0138	.0079 - .0118	.0098 - .0138

Min. - Max.

MEMO

MDF-L - Long Style (External Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

PVD Coat | 2D

*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (DC ≤ DCON)

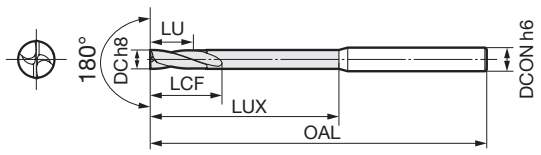
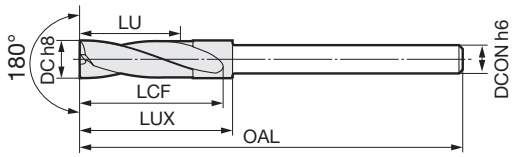


Fig. 2 (DC > DCON)



Diameter ø3.0 to 8.5mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
3.0		★	MDF0300L2D	9.0	13.5	30.0			1
3.1		★	MDF0310L2D	9.3	14.0	31.0			1
3.2		★	MDF0320L2D	9.6	14.4	32.0			1
3.3		★	MDF0330L2D	9.9	14.9	33.0			1
3.4		★	MDF0340L2D	10.2	15.3	34.0			1
3.5		★	MDF0350L2D	10.5	15.8	35.0			1
3.6		★	MDF0360L2D	10.8	16.2	36.0			1
3.7		★	MDF0370L2D	11.1	16.7	37.0			1
3.8		★	MDF0380L2D	11.4	17.1	38.0			1
3.9		★	MDF0390L2D	11.7	17.6	39.0			1
4.0	2	★	MDF0400L2D	12.0	18.0	40.0	100		1
4.1		★	MDF0410L2D	12.3	18.5	41.0			1
4.2		★	MDF0420L2D	12.6	18.9	42.0			1
4.3		★	MDF0430L2D	12.9	19.4	43.0			1
4.4		★	MDF0440L2D	13.2	19.8	44.0			1
4.5		★	MDF0450L2D	13.5	20.3	45.0		6.0	1
4.6		★	MDF0460L2D	13.8	20.7	46.0			1
4.7		★	MDF0470L2D	14.1	21.2	47.0			1
4.8		★	MDF0480L2D	14.4	21.6	48.0			1
4.9		★	MDF0490L2D	14.7	22.1	49.0			1
5.0		★	MDF0500L2D	15.0	22.5	50.0			1
5.1		★	MDF0510L2D	15.3	23.0	51.0			1
5.2		★	MDF0520L2D	15.6	23.4	52.0			1
5.3		★	MDF0530L2D	15.9	23.9	53.0			1
5.4		★	MDF0540L2D	16.2	24.3	54.0			1
5.5	2	★	MDF0550L2D	16.5	24.8	55.0	110		1
5.6		★	MDF0560L2D	16.8	25.2	56.0			1
5.7		★	MDF0570L2D	17.1	25.7	57.0			1
5.8		★	MDF0580L2D	17.4	26.1	58.0			1
5.9		★	MDF0590L2D	17.7	26.6	59.0			1
6.0	2	★	MDF0600L2D-S5	18.0	27.0	30.0	110	5.0	1
6.0	2	★	MDF0600L2D	18.0	27.0	60.0	110		1
6.1		★	MDF0610L2D	18.3	27.5	30.5			2
6.2		★	MDF0620L2D	18.6	27.9	30.9			2
6.3		★	MDF0630L2D	18.9	28.4	31.4			2
6.4		★	MDF0640L2D	19.2	28.8	31.8			2
6.5	2	★	MDF0650L2D	19.5	29.3	32.3	120		2
6.6		★	MDF0660L2D	19.8	29.7	32.7			2
6.7		★	MDF0670L2D	20.1	30.2	33.2			2
6.8		★	MDF0680L2D	20.4	30.6	33.6			2
6.9		★	MDF0690L2D	20.7	31.1	34.1			2
7.0		★	MDF0700L2D	21.0	31.5	34.5		6.0	2
7.1		★	MDF0710L2D	21.3	32.0	35.0			2
7.2		★	MDF0720L2D	21.6	32.4	35.4			2
7.3		★	MDF0730L2D	21.9	32.9	35.9			2
7.4		★	MDF0740L2D	22.2	33.3	36.3			2
7.5	2	★	MDF0750L2D	22.5	33.8	36.8	130		2
7.6		★	MDF0760L2D	22.8	34.2	37.2			2
7.7		★	MDF0770L2D	23.1	34.7	37.7			2
7.8		★	MDF0780L2D	23.4	35.1	38.1			2
7.9		★	MDF0790L2D	23.7	35.6	38.6			2
8.0		★	MDF0800L2D-S6	24.0	36.0	39.0			2
8.0	2	★	MDF0800L2D	24.0	36.0	80.0	130		1
8.1		★	MDF0810L2D	24.3	36.5	39.5			2
8.2		★	MDF0820L2D	24.6	36.9	39.9		8.0	2
8.3	2	★	MDF0830L2D	24.9	37.4	40.4	140		2
8.4		★	MDF0840L2D	25.2	37.8	40.8			2
8.5		★	MDF0850L2D	25.5	38.3	41.3			2

Grade: ACF75

Diameter ø8.6 to 20.0mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
8.6		★	MDF0860L2D	25.8	38.7	41.7			2
8.7		★	MDF0870L2D	26.1	39.2	42.2			2
8.8	2	★	MDF0880L2D	26.4	39.6	42.6	140		2
8.9		★	MDF0890L2D	26.7	40.1	43.1			2
9.0		★	MDF0900L2D	27.0	40.5	43.5			2
9.1		★	MDF0910L2D	27.3	41.0	44.0			2
9.2		★	MDF0920L2D	27.6	41.4	44.4			2
9.3		★	MDF0930L2D	27.9	41.9	44.9		8.0	2
9.4		★	MDF0940L2D	28.2	42.3	45.3			2
9.5	2	★	MDF0950L2D	28.5	42.8	45.8	150		2
9.6		★	MDF0960L2D	28.8	43.2	46.2			2
9.7		★	MDF0970L2D	29.1	43.7	46.7			2
9.8		★	MDF0980L2D	29.4	44.1	47.1			2
9.9		★	MDF0990L2D	29.7	44.6	47.6			2
10.0		★	MDF1000L2D-S8	30.0	45.0	48.0			2
10.0	2	★	MDF1000L2D	30.0	45.0	100.0	150		1
10.1		★	MDF1010L2D	30.3	45.5	48.5			2
10.2		★	MDF1020L2D	30.6	45.9	48.9			2
10.3		★	MDF1030L2D	30.9	46.4	49.4			2
10.4		★	MDF1040L2D	31.2	46.8	49.8			2
10.5	2	★	MDF1050L2D	31.5	47.3	50.3	160		2
10.6		★	MDF1060L2D	31.8	47.7	50.7			2
10.7		★	MDF1070L2D	32.1	48.2	51.2			2
10.8		★	MDF1080L2D	32.4	48.6	51.6			2
10.9		★	MDF1090L2D	32.7	49.1	52.1			2
11.0		★	MDF1100L2D	33.0	49.5	52.5		10.0	2
11.1		★	MDF1110L2D	33.3	50.0	53.0			2
11.2		★	MDF1120L2D	33.6	50.4	53.4			2
11.3		★	MDF1130L2D	33.9	50.9	53.9			2
11.4		★	MDF1140L2D	34.2	51.3	54.3			2
11.5	2	★	MDF1150L2D	34.5	51.8	54.8	170		2
11.6		★	MDF1160L2D	34.8	52.2	55.2			2
11.7		★	MDF1170L2D	35.1	52.7	55.7			2
11.8		★	MDF1180L2D	35.4	53.1	56.1			2
11.9		★	MDF1190L2D	35.7	53.6	56.6			2
12.0		★	MDF1200L2D-S10	36.0	54.0	57.0			2
12.0	2	★	MDF1200L2D	36.0	54.0	120.0	170		1
12.5	2	★	MDF1250L2D	37.5	56.3	59.3	180		2
13.0		★	MDF1300L2D	39.0	58.5	61.5		12.0	2
13.5	2	★	MDF1350L2D	40.5	60.8	63.8	190		2
14.0		★	MDF1400L2D-S12	42.0	63.0	66.0			2
14.0	2	★	MDF1400L2D	42.0	63.0	140.0	190		2
14.5	2	★	MDF1450L2D	43.5	65.3	68.3	200		2
15.0		★	MDF1500L2D	45.0	67.5	70.5		14.0	2
15.5	2	★	MDF1550L2D	46.5	69.8	72.8	210		2
16.0		★	MDF1600L2D-S14	48.0	72.0	75.0			2
16.0	2	★	MDF1600L2D	48.0	72.0	160.0	210		1
16.5	2	★	MDF1650L2D	49.5	74.3	77.3	220		2
17.0		★	MDF1700L2D	51.0	76.5	79.5		16.0	2
17.5	2	★	MDF1750L2D	52.5	78.8	81.8	230		2
18.0		★	MDF1800L2D-S16	54.0	81.0	84.0			2
18.0	2	★	MDF1800L2D	54.0	81.0	180.0	230		1
18.5	2	★	MDF1850L2D	55.5	83.3	86.3	240		2
19.0		★	MDF1900L2D	57.0	85.5	88.5		18.0	2
19.5	2	★	MDF1950L2D	58.5	87.8	90.8	250		2
20.0		★	MDF2000L2D-S18	60.0	90.0	93.0			2
20.0	2	★	MDF2000L2D	60.0	90.0	200.0	250	20.0	1

Grade: ACF75

*A prepared hole with the same diameter or centring hole with a larger diameter than the tool is needed for drilling with this tool.

★: Worldwide Warehouse Item

MDF-L Long Style (External Coolant Supply)

Recommended Cutting Conditions

1. A prepared hole with the same diameter is needed for drilling with this tool.
2. A prepared hole with the same diameter is recommended for the cutting conditions.
3. The recommended hole depth is 5 x DC. The depth is measured from the highest point of the hole when drilling in inclined surfaces.
4. This product is a drilling tool. Do not use it for traverse cutting or helical milling.

(v_c: Cutting Speed (SFM), f: Feed Rate (IPR))

Dia. DC (*mm*)	Cutting Conditions	Mild Steel/General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to 50HRC)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450	Aluminum Alloy
ø4.0	v_c	200 - 330	165 - 300	65 - 135	65 - 135	230 - 330	215 - 280	300 - 500
	f	.0024 - .0039	0.05 - 0.10	.0004 - .0012	.0004 - .0012	.0024 - .0039	.0016 - .0032	.0024 - .0039
ø6.0	v_c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0020 - .0059	.0020 - .0059	.0016 - .0032	.0012 - .0020	.0020 - .0059	.0024 - .0047	.0020 - .0059
ø8.0	v_c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0039 - .0079	.0039 - .0079	.0024 - .0039	.0016 - .0032	.0039 - .0079	.0039 - .0059	.0039 - .0079
ø10.0	v_c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0059 - .0098	.0059 - .0098	.0031 - .0047	.0024 - .0039	.0059 - .0098	.0047 - .0071	.0059 - .0098
ø12.0	v_c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0079 - .0118	.0079 - .0118	.0047 - .0071	.0032 - .0047	.0067 - .0106	.0059 - .0098	.0079 - .0118
ø16.0	v_c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0079 - .0118	.0079 - .0118	.0055 - .0079	.0039 - .0079	.0079 - .0118	.0079 - .0118	.0098 - .0138
ø20.0	v_c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0098 - .0138	.0098 - .0138	.0063 - .0087	.0059 - .0098	.0118 - .0157	.0098 - .0138	.01378 - .0177

Min. - Max.

MDF-H (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

PVD Coat | 3D | 5D

*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (3D single margin)

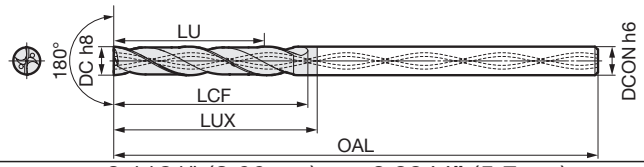
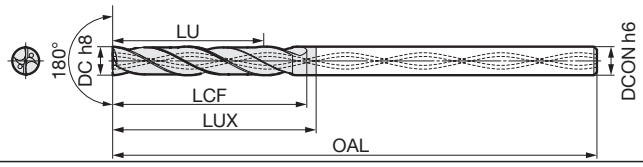


Fig. 2 (5D double margin)



Diameter ø0.1181" (*3.00mm*) to ø0.2244" (*5.7mm*)

Dimensions (inch/ *mm*)

Diameter DC inch	Diameter DC *mm*	Diameter DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU inch	Effective Length LU *mm*	Flute Length LCF inch	Flute Length LCF *mm*	Neck Length LUX inch	Neck Length LUX *mm*	Overall Length OAL inch	Overall Length OAL *mm*	Shank Diameter DCON inch	Shank Diameter DCON *mm*	Fig
0.1181	*3.00*		6-40 / M3.5x.6		3	★	**MDF0300H3D**	0.4724	*12.00*	0.5315	*13.50*	0.6496	*16.50*	2.6772	*68.00*	0.1181	*3.00*	*1*
					5	★	**MDF0300H5D**	0.7087	*18.00*	0.7913	*20.10*	0.9094	*23.10*	3.0709	*78.00*			*2*
0.1220	*3.10*			6-32	3	★	**MDF0310H3D**	0.4882	*12.40*	0.5512	*14.00*	0.6693	*17.00*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0310H5D**	0.7323	*18.60*	0.8189	*20.80*	0.9370	*23.80*	3.3858	*86.00*			*2*
0.1250	*3.18*	1/8		6-32	3	●	**MDF01250H3D**	0.5000	*12.70*	0.5625	*14.29*	0.6806	*17.29*	2.8350	*72.01*	0.1575	*4.00*	*1*
0.1260	*3.20*			6-32	3	★	**MDF0320H3D**	0.5039	*12.80*	0.5669	*14.40*	0.6850	*17.40*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0320H5D**	0.7559	*19.20*	0.8425	*21.40*	0.9606	*24.40*	3.3858	*86.00*			*2*
0.1299	*3.30*				3	★	**MDF0330H3D**	0.5197	*13.20*	0.5866	*14.90*	0.7047	*17.90*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0330H5D**	0.7795	*19.80*	0.8701	*22.10*	0.9882	*25.10*	3.3858	*86.00*			*2*
0.1339	*3.40*		8-32 / M4x.7		3	★	**MDF0340H3D**	0.5354	*13.60*	0.6024	*15.30*	0.7205	*18.30*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0340H5D**	0.8031	*20.40*	0.8976	*22.80*	1.0157	*25.80*	3.3858	*86.00*			*2*
0.1378	*3.50*		8-32 / 8-36		3	★	**MDF0350H3D**	0.5512	*14.00*	0.6220	*15.80*	0.7402	*18.80*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0350H5D**	0.8268	*21.00*	0.9252	*23.50*	1.0433	*26.50*	3.3858	*86.00*			*2*
0.1406	*3.57*	9/64	8-36 /M4x.5		3	●	**MDF01406H3D**	0.5625	*14.29*	0.6328	*16.07*	0.7509	*19.07*	2.835	*72.01*	0.1575	*4.00*	*1*
0.1417	*3.60*		8-36 / M4x.5		3	★	**MDF0360H3D**	0.5669	*14.40*	0.6378	*16.20*	0.7559	*19.20*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0360H5D**	0.8504	*21.60*	0.9488	*24.10*	1.0669	*27.10*	3.3858	*86.00*			*2*
0.1457	*3.70*			M4x.7	3	★	**MDF0370H3D**	0.5827	*14.80*	0.6575	*16.70*	0.7756	*19.70*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0370H5D**	0.8740	*22.20*	0.9764	*24.80*	1.0945	*27.80*	3.3858	*86.00*			*2*
0.1496	*3.80*		M4.5x.75	8-32 / M4x.5	3	★	**MDF0380H3D**	0.5984	*15.20*	0.6732	*17.10*	0.7913	*20.10*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0380H5D**	0.8976	*22.80*	1.0039	*25.50*	1.1220	*28.50*	3.3858	*86.00*			*2*
0.1535	*3.90*		0-24 / M4.5x.75	8-36	3	★	**MDF0390H3D**	0.6142	*15.60*	0.6929	*17.60*	0.8110	*20.60*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0390H5D**	0.9213	*23.40*	1.0276	*26.10*	1.1457	*29.10*	3.3858	*86.00*			*2*
0.1563	*3.97*	5/32			3	●	**MDF01562H3D**	0.6250	*15.88*	0.7031	*17.86*	0.8212	*20.86*	2.835	*72.01*	0.1575	*4.00*	*1*
0.1575	*4.00*				3	★	**MDF0400H3D**	0.6299	*16.00*	0.7087	*18.00*	0.8268	*21.00*	2.8346	*72.00*	0.1575	*4.00*	*1*
					5	★	**MDF0400H5D**	0.9449	*24.00*	1.0551	*26.80*	1.1732	*29.80*	3.3858	*86.00*			*2*
0.1614	*4.10*		10-32		3	★	**MDF0410H3D**	0.6457	*16.40*	0.7283	*18.50*	0.8465	*21.50*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0410H5D**	0.9685	*24.60*	1.0827	*27.50*	1.2008	*30.50*	3.8583	*98.00*			*2*
0.1654	*4.20*		10-32	M4x5x.75	3	★	**MDF0420H3D**	0.6614	*16.80*	0.7441	*18.90*	0.8622	*21.90*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0420H5D**	0.9921	*25.20*	1.1063	*28.10*	1.2244	*31.10*	3.8583	*98.00*			*2*
0.1693	*4.30*		M5x.8		3	★	**MDF0430H3D**	0.6772	*17.20*	0.7638	*19.40*	0.8819	*22.40*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0430H5D**	1.0157	*25.80*	1.1339	*28.80*	1.2520	*31.80*	3.8583	*98.00*			*2*
0.1732	*4.40*			10-24	3	★	**MDF0440H3D**	0.6929	*17.60*	0.7795	*19.80*	0.8976	*22.80*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0440H5D**	1.0394	*26.40*	1.1614	*29.50*	1.2795	*32.50*	3.8583	*98.00*			*2*
0.1772	*4.50*		12-24	10-32	3	★	**MDF0450H3D**	0.7087	*18.00*	0.7992	*20.30*	0.9173	*23.30*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0450H5D**	1.0630	*27.00*	1.1890	*30.20*	1.3071	*33.20*	3.8583	*98.00*			*2*
0.1811	*4.60*		12-24 / M5x.5		3	★	**MDF0460H3D**	0.7244	*18.40*	0.8150	*20.70*	0.9331	*23.70*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0460H5D**	1.0866	*27.60*	1.2126	*30.80*	1.3307	*33.80*	3.8583	*98.00*			*1*
0.1850	*4.70*		12-28	M5x.8	3	★	**MDF0470H3D**	0.7402	*18.80*	0.8346	*21.20*	0.9528	*24.20*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0470H5D**	1.1102	*28.20*	1.2402	*31.50*	1.3583	*34.50*	3.8583	*98.00*			*1*
0.1875	*4.76*	3/16			3	●	**MDF01875H3D**	0.7500	*19.05*	0.8438	*21.43*	0.9619	*24.43*	3.1000	*78.74*	0.1969	*5.00*	*1*
0.1890	*4.80*			M5x.5	3	★	**MDF0480H3D**	0.7559	*19.20*	0.8504	*21.60*	0.9685	*24.60*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0480H5D**	1.1339	*28.80*	1.2677	*32.20*	1.3858	*35.20*	3.8583	*98.00*			*1*
0.1929	*4.90*				3	★	**MDF0490H3D**	0.7717	*19.60*	0.8701	*22.10*	0.9882	*25.10*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0490H5D**	1.1575	*29.40*	1.2913	*32.80*	1.4094	*35.80*	3.8583	*98.00*			*2*
0.1969	*5.00*			12-24	3	★	**MDF0500H3D**	0.7874	*20.00*	0.8858	*22.50*	1.0039	*25.50*	3.1496	*80.00*	0.1969	*5.00*	*1*
					5	★	**MDF0500H5D**	1.1811	*30.00*	1.3189	*33.50*	1.4370	*36.50*	3.8583	*98.00*			*2*
0.2008	*5.10*		M6x1	12-28	3	★	**MDF0510H3D**	0.8031	*20.40*	0.9055	*23.00*	1.0236	*26.00*	3.2283	*82.00*	0.2362	*6.00*	*1*
					5	★	**MDF0510H5D**	1.2047	*30.60*	1.3465	*34.20*	1.4646	*37.20*	3.9370	*100.00*			*2*
0.2047	*5.20*		1/4-20		3	★	**MDF0520H3D**	0.8189	*20.80*	0.9213	*23.40*	1.0394	*26.40*	3.2283	*82.00*	0.2362	*6.00*	*1*
					5	★	**MDF0520H5D**	1.2283	*31.20*	1.3701	*34.80*	1.4882	*37.80*	3.9370	*100.00*			*2*
0.2087	*5.30*		1/4-20 / M6x.75		3	★	**MDF0530H3D**	0.8346	*21.20*	0.9409	*23.90*	1.0591	*26.90*	3.2283	*82.00*	0.2362	*6.00*	*1*
					5	★	**MDF0530H5D**	1.2520	*31.80*	1.3976	*35.50*	1.5157	*38.50*	3.9370	*100.00*			*2*
0.2126	*5.40*				3	★	**MDF0540H3D**	0.8504	*21.60*	0.9567	*24.30*	1.0748	*27.30*	3.2283	*82.00*	0.2362	*6.00*	*1*
					5	★	**MDF0540H5D**	1.2756	*32.40*	1.4252	*36.20*	1.5433	*39.20*	3.9370	*100.00*			*2*
0.2165	*5.50*		1/4-28		3	★	**MDF0550H3D**	0.8661	*22.00*	0.9764	*24.80*	1.0945	*27.80*	3.2283	*82.00*	0.2362	*6.00*	*1*
					5	★	**MDF0550H5D**	1.2992	*33.00*	1.4528	*36.90*	1.5709	*39.90*	3.9370	*100.00*			*2*
0.2188	*5.56*	*7/32*	1/4-28	M6x1	3	●	**MDF02188H3D**	0.8750	*22.23*	0.9844	*25.00*	1.1025	*28.00*	3.228	*81.99*	0.2362	*6.00*	*1*
0.2205	*5.60*		1/4-28	M6x1	3	★	**MDF0560H3D**	0.8819	*22.40*	0.9921	*25.20*	1.1102	*28.20*	3.2283	*82.00*	0.2362	*6.00*	*1*
					5	★	**MDF0560H5D**	1.3228	*33.60*	1.4764	*37.50*	1.5945	*40.50*	3.9370	*100.00*			*2*
0.2244	*5.70*			M6x.75	3	★	**MDF0570H3D**	0.8976	*22.80*	1.0118	*25.70*	1.1299	*28.70*	3.2283	*82.00*	0.2362	*6.00*	*1*
					5	★	**MDF0570H5D**	1.3465	*34.20*	1.5039	*38.20*	1.6220	*41.20*	3.9370	*100.00*			*2*

Grade: ACF75

*A prepared hole with the same diameter or centring hole with a larger diameter than the tool is needed for drilling with the 5D tool.

●: USA Stocked Item ★: Worldwide Warehouse Item

MDF-H (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

PVD Coat | 3D | 5D

*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (3D single margin)

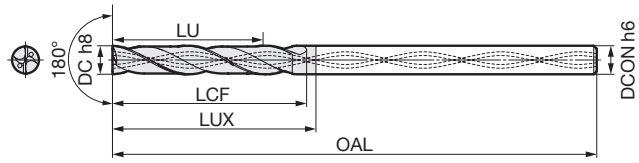
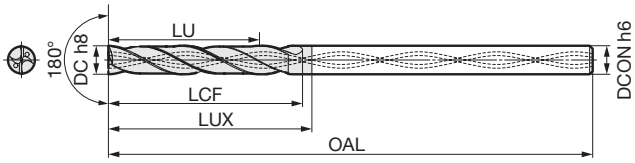


Fig. 2 (5D double margin)



Diameter ø0.2283" (*5.8mm*) to ø0.3386" (*8.6mm*)

Dimensions (inch/ *mm*)

Diameter DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Neck Length LUX		Overall Length OAL		Shank Diameter DCON		Fig
inch	*mm*	Fraction						inch	*mm*	inch	*mm*	inch	*mm*	inch	*mm*	inch	*mm*	
0.2283	*5.80*			1/4-20	3	★	**MDF0580H3D**	0.9134	*23.20*	1.0276	*26.10*	1.1457	*29.10*	3.2283	*82.00*	0.2362	*6.00*	1
					5	★	**MDF0580H5D**	1.3701	*34.80*	1.5315	*38.90*	1.6496	*41.90*	3.9370	*100.00*			2
0.2323	*5.90*			1/4-20	3	★	**MDF0590H3D**	0.9291	*23.60*	1.0472	*26.60*	1.1654	*29.60*	3.2283	*82.00*	0.2362	*6.00*	1
					5	★	**MDF0590H5D**	1.3937	*35.40*	1.5551	*39.50*	1.6732	*42.50*	3.9370	*100.00*			2
0.2362	*6.00*			1/4-28	3	★	**MDF0600H3D**	0.9449	*24.00*	1.0630	*27.00*	1.1811	*30.00*	3.2283	*82.00*	0.2362	*6.00*	1
					5	★	**MDF0600H5D**	1.4173	*36.00*	1.5827	*40.20*	1.7008	*43.20*	3.9370	*100.00*			2
0.2402	*6.10*		M7x1		3	★	**MDF0610H3D**	0.9606	*24.40*	1.0827	*27.50*	1.2008	*30.50*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0610H5D**	1.4409	*36.60*	1.6102	*40.90*	1.7283	*43.90*	4.2913	*109.00*			2
0.2441	*6.20*				3	★	**MDF0620H3D**	0.9764	*24.80*	1.0984	*27.90*	1.2165	*30.90*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0620H5D**	1.4646	*37.20*	1.6339	*41.50*	1.7520	*44.50*	4.2913	*109.00*			2
0.2480	*6.30*				3	★	**MDF0630H3D**	0.9921	*25.20*	1.1181	*28.40*	1.2362	*31.40*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0630H5D**	1.4882	*37.80*	1.6614	*42.20*	1.7795	*45.20*	4.2913	*109.00*			2
0.2500	*6.35*	1/4			3	●	**MDF02500H3D**	1.0000	*25.40*	1.1250	*28.58*	1.2431	*31.58*	3.465	*88.01*	0.2756	*7.00*	1
0.2520	*6.40*				3	★	**MDF0640H3D**	1.0079	*25.60*	1.1339	*28.80*	1.2520	*31.80*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0640H5D**	1.5118	*38.40*	1.6890	*42.90*	1.8071	*45.90*	4.2913	*109.00*			2
0.2559	*6.50*				3	★	**MDF0650H3D**	1.0236	*26.00*	1.1535	*29.30*	1.2717	*32.30*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0650H5D**	1.5354	*39.00*	1.7165	*43.60*	1.8346	*46.60*	4.2913	*109.00*			2
0.2598	*6.60*		5/16-18	M7x1	3	★	**MDF0660H3D**	1.0394	*26.40*	1.1693	*29.70*	1.2874	*32.70*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0660H5D**	1.5591	*39.60*	1.7402	*44.20*	1.8583	*47.20*	4.2913	*109.00*			2
0.2638	*6.70*		5/16-18		3	★	**MDF0670H3D**	1.0551	*26.80*	1.1890	*30.20*	1.3071	*33.20*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0670H5D**	1.5827	*40.20*	1.7677	*44.90*	1.8858	*47.90*	4.2913	*109.00*			2
0.2677	*6.80*				3	★	**MDF0680H3D**	1.0709	*27.20*	1.2047	*30.60*	1.3228	*33.60*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0680H5D**	1.6063	*40.80*	1.7953	*45.60*	1.9134	*48.60*	4.2913	*109.00*			2
0.2717	*6.90*		M8x1.25		3	★	**MDF0690H3D**	1.0866	*27.60*	1.2244	*31.10*	1.3425	*34.10*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0690H5D**	1.6299	*41.40*	1.8189	*46.20*	1.9370	*49.20*	4.2913	*109.00*			2
0.2756	*7.00*		5/16-24		3	★	**MDF0700H3D**	1.1024	*28.00*	1.2402	*31.50*	1.3583	*34.50*	3.4646	*88.00*	0.2756	*7.00*	1
					5	★	**MDF0700H5D**	1.6535	*42.00*	1.8465	*46.90*	1.9646	*49.90*	4.2913	*109.00*			2
0.2795	*7.10*		M8x1		3	★	**MDF0710H3D**	1.1181	*28.40*	1.2598	*32.00*	1.3780	*35.00*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0710H5D**	1.6772	*42.60*	1.8740	*47.60*	1.9921	*50.60*	4.6457	*118.00*			2
0.2813	*7.14*	9/32	M8x1		3	●	**MDF02812H3D**	1.1250	*28.58*	1.2656	*32.15*	1.3837	*35.15*	3.701	*94.01*	0.3150	*8.00*	1
0.2835	*7.20*				3	★	**MDF0720H3D**	1.1339	*28.80*	1.2756	*32.40*	1.3937	*35.40*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0720H5D**	1.7008	*43.20*	1.8976	*48.20*	2.0157	*51.20*	4.6457	*118.00*			2
0.2874	*7.30*		M8x.75	5/16-18	3	★	**MDF0730H3D**	1.1496	*29.20*	1.2953	*32.90*	1.4134	*35.90*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0730H5D**	1.7244	*43.80*	1.9252	*48.90*	2.0433	*51.90*	4.6457	*118.00*			2
0.2913	*7.40*		M8x.75	5/16-18	3	★	**MDF0740H3D**	1.1654	*29.60*	1.3110	*33.30*	1.4291	*36.30*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0740H5D**	1.7480	*44.40*	1.9528	*49.60*	2.0709	*52.60*	4.6457	*118.00*			2
0.2953	*7.50*			5/16-24 / M8x1.25	3	★	**MDF0750H3D**	1.1811	*30.00*	1.3307	*33.80*	1.4488	*36.80*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0750H5D**	1.7717	*45.00*	1.9803	*50.30*	2.0984	*53.30*	4.6457	*118.00*			2
0.2992	*7.60*			M8x1	3	★	**MDF0760H3D**	1.1969	*30.40*	1.3465	*34.20*	1.4646	*37.20*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0760H5D**	1.7953	*45.60*	2.0039	*50.90*	2.1220	*53.90*	4.6457	*118.00*			2
0.3031	*7.70*			M8x.75	3	★	**MDF0770H3D**	1.2126	*30.80*	1.3661	*34.70*	1.4843	*37.70*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0770H5D**	1.8189	*46.20*	2.0315	*51.60*	2.1496	*54.60*	4.6457	*118.00*			2
0.3071	*7.80*				3	★	**MDF0780H3D**	1.2283	*31.20*	1.3819	*35.10*	1.5000	*38.10*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0780H5D**	1.8425	*46.80*	2.0591	*52.30*	2.1772	*55.30*	4.6457	*118.00*			2
0.3110	*7.90*				3	★	**MDF0790H3D**	1.2441	*31.60*	1.4016	*35.60*	1.5197	*38.60*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0790H5D**	1.8661	*47.40*	2.0827	*52.90*	2.2008	*55.90*	4.6457	*118.00*			2
0.3125	*7.94*	5/16			3	●	**MDF03125H3D**	1.2500	*31.75*	1.4063	*35.72*	1.5244	*38.72*	3.701	*94.01*	0.3150	*8.00*	1
0.3150	*8.00*				3	★	**MDF0800H3D**	1.2598	*32.00*	1.4173	*36.00*	1.5354	*39.00*	3.7008	*94.00*	0.3150	*8.00*	1
					5	★	**MDF0800H5D**	1.8898	*48.00*	2.1102	*53.60*	2.2283	*56.60*	4.6457	*118.00*			2
0.3189	*8.10*		3/8-16		3	★	**MDF0810H3D**	1.2756	*32.40*	1.4370	*36.50*	1.5551	*39.50*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0810H5D**	1.9134	*48.60*	2.1378	*54.30*	2.2559	*57.30*	5.0000	*127.00*			2
0.3228	*8.20*		3/8-16		3	★	**MDF0820H3D**	1.2913	*32.80*	1.4528	*36.90*	1.5709	*39.90*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0820H5D**	1.9370	*49.20*	2.1614	*54.90*	2.2795	*57.90*	5.0000	*127.00*			2
0.3268	*8.30*				3	★	**MDF0830H3D**	1.3071	*33.20*	1.4724	*37.40*	1.5906	*40.40*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0830H5D**	1.9606	*49.80*	2.1890	*55.60*	2.3071	*58.60*	5.0000	*127.00*			2
0.3307	*8.40*				3	★	**MDF0840H3D**	1.3228	*33.60*	1.4882	*37.80*	1.6063	*40.80*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0840H5D**	1.9843	*50.40*	2.2165	*56.30*	2.3346	*59.30*	5.0000	*127.00*			2
0.3346	*8.50*		3/8-24		3	★	**MDF0850H3D**	1.3386	*34.00*	1.5079	*38.30*	1.6260	*41.30*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0850H5D**	2.0079	*51.00*	2.2441	*57.00*	2.3622	*60.00*	5.0000	*127.00*			2
0.3386	*8.60*		3/8-24 / M10x1.5		3	★	**MDF0860H3D**	1.3543	*34.40*	1.5236	*38.70*	1.6417	*41.70*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0860H5D**	2.0315	*51.60*	2.2677	*57.60*	2.3858	*60.60*	5.0000	*127.00*			2

Grade: ACF75

*A prepared hole with the same diameter or centring hole with a larger diameter than the tool is needed for drilling with the 5D tool.

●: USA Stocked Item ★: Worldwide Warehouse Item

MDF-H (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

PVD Coat | 3D | 5D

*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (3D single margin)

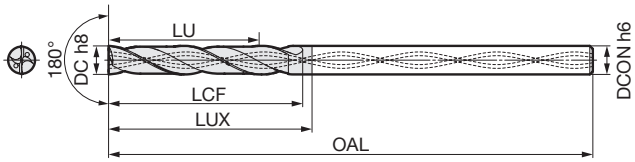
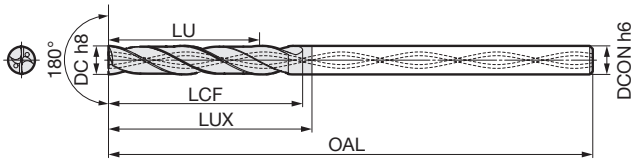


Fig. 2 (5D double margin)



Diameter ø0.3386" (*8.6mm*) to ø0.4488" (*11.4mm*)

Dimensions (inch/ *mm*)

Diameter DC inch	Diameter DC *mm*	Diameter DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU inch	Effective Length LU *mm*	Flute Length LCF inch	Flute Length LCF *mm*	Neck Length LUX inch	Neck Length LUX *mm*	Overall Length OAL inch	Overall Length OAL *mm*	Shank Diameter DCON inch	Shank Diameter DCON *mm*	Fig
0.3386	*8.60*				3	★	**MDF0860H3D**	1.3543	*34.40*	1.5236	*38.70*	1.6417	*41.70*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0860H5D**	2.0315	*51.60*	2.2677	*57.60*	2.3858	*60.60*	5.0000	*127.00*			2
0.3425	*8.70*		M10x1.5		3	★	**MDF0870H3D**	1.3701	*34.80*	1.5433	*39.20*	1.6614	*42.20*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0870H5D**	2.0551	*52.20*	2.2953	*58.30*	2.4134	*61.30*	5.0000	*127.00*			2
0.3438	*8.73*	11/32			3	●	**MDF03438H3D**	1.3750	*34.93*	1.5469	*39.29*	1.6650	*42.29*	3.937	*100.00*	0.3543	*9.00*	1
0.3465	*8.80*				3	★	**MDF0880H3D**	1.3858	*35.20*	1.5591	*39.60*	1.6772	*42.60*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0880H5D**	2.0787	*52.80*	2.3228	*59.00*	2.4409	*62.00*	5.0000	*127.00*			2
0.3504	*8.90*		M10x1.25		3	★	**MDF0890H3D**	1.4016	*35.60*	1.5787	*40.10*	1.6969	*43.10*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0890H5D**	2.1024	*53.40*	2.3465	*59.60*	2.4646	*62.60*	5.0000	*127.00*			2
0.3543	*9.00*				3	★	**MDF0900H3D**	1.4173	*36.00*	1.5945	*40.50*	1.7126	*43.50*	3.9370	*100.00*	0.3543	*9.00*	1
					5	★	**MDF0900H5D**	2.1260	*54.00*	2.3740	*60.30*	2.4921	*63.30*	5.0000	*127.00*			2
0.3583	*9.10*		M10x1.25	3/8-24	3	★	**MDF0910H3D**	1.4331	*36.40*	1.6142	*41.00*	1.7323	*44.00*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF0910H5D**	2.1496	*54.60*	2.4016	*61.00*	2.5197	*64.00*	5.3543	*136.00*			2
0.3622	*9.20*				3	★	**MDF0920H3D**	1.4488	*36.80*	1.6299	*41.40*	1.7480	*44.40*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF0920H5D**	2.1732	*55.20*	2.4252	*61.60*	2.5433	*64.60*	5.3543	*136.00*			2
0.3661	*9.30*		3/8-24	M10x1.5	3	★	**MDF0930H3D**	1.4646	*37.20*	1.6496	*41.90*	1.7677	*44.90*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF0930H5D**	2.1969	*55.80*	2.4528	*62.30*	2.5709	*65.30*	5.3543	*136.00*			2
0.3701	*9.40*		7/16-14	M10x1.5	3	★	**MDF0940H3D**	1.4803	*37.60*	1.6654	*42.30*	1.7835	*45.30*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF0940H5D**	2.2205	*56.40*	2.4803	*63.00*	2.5984	*66.00*	5.3543	*136.00*			2
0.3740	*9.50*		7/16-14	M10x1.25	3	★	**MDF0950H3D**	1.4961	*38.00*	1.6850	*42.80*	1.8031	*45.80*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF0950H5D**	2.2441	*57.00*	2.5079	*63.70*	2.6260	*66.70*	5.3543	*136.00*			2
0.3750	*9.53*	3/8	7/16-14		3	●	**MDF03750H3D**	1.5000	*38.10*	1.6875	*42.86*	1.8056	*45.86*	4.173	*105.99*	0.3937	*10.00*	1
0.3780	*9.60*			M10x1	3	★	**MDF0960H3D**	1.5118	*38.40*	1.7008	*43.20*	1.8189	*46.20*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF0960H5D**	2.2677	*57.60*	2.5315	*64.30*	2.6496	*67.30*	5.3543	*136.00*			2
0.3819	*9.70*			M10x.75	3	★	**MDF0970H3D**	1.5276	*38.80*	1.7205	*43.70*	1.8386	*46.70*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF0970H5D**	2.2913	*58.20*	2.5591	*65.00*	2.6772	*68.00*	5.3543	*136.00*			2
0.3858	*9.80*				3	★	**MDF0980H3D**	1.5433	*39.20*	1.7362	*44.10*	1.8543	*47.10*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF0980H5D**	2.3150	*58.80*	2.5866	*65.70*	2.7047	*68.70*	5.3543	*136.00*			2
0.3898	*9.90*				3	★	**MDF0990H3D**	1.5591	*39.60*	1.7559	*44.60*	1.8740	*47.60*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF0990H5D**	2.3386	*59.40*	2.6102	*66.30*	2.7283	*69.30*	5.3543	*136.00*			2
0.3937	*10.00*		7/16-20		3	★	**MDF1000H3D**	1.5748	*40.00*	1.7717	*45.00*	1.8898	*48.00*	4.1732	*106.00*	0.3937	*10.00*	1
					5	★	**MDF1000H5D**	2.3622	*60.00*	2.6378	*67.00*	2.7559	*70.00*	5.3543	*136.00*			2
0.3976	*10.10*				3	★	**MDF1010H3D**	1.5906	*40.40*	1.7913	*45.50*	1.9094	*48.50*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1010H5D**	2.3858	*60.60*	2.6654	*67.70*	2.7835	*70.70*	5.8661	*149.00*			2
0.4016	*10.20*				3	★	**MDF1020H3D**	1.6063	*40.80*	1.8071	*45.90*	1.9252	*48.90*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1020H5D**	2.4094	*61.20*	2.6890	*68.30*	2.8071	*71.30*	5.8661	*149.00*			2
0.4055	*10.30*			7/16-24	3	★	**MDF1030H3D**	1.6220	*41.20*	1.8268	*46.40*	1.9449	*49.40*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1030H5D**	2.4331	*61.80*	2.7165	*69.00*	2.8346	*72.00*	5.8661	*149.00*			2
0.4063	*10.32*	13/32			3	●	**MDF04062H3D**	1.6250	*41.28*	1.8281	*46.43*	1.9462	*49.43*	4.567	*116.00*	0.4331	*11.00*	2
0.4094	*10.40*		M12x1.75		3	★	**MDF1040H3D**	1.6378	*41.60*	1.8425	*46.80*	1.9606	*49.80*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1040H5D**	2.4567	*62.40*	2.7441	*69.70*	2.8622	*72.70*	5.8661	*149.00*			2
0.4134	*10.50*		M12x1.75		3	★	**MDF1050H3D**	1.6535	*42.00*	1.8622	*47.30*	1.9803	*50.30*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1050H5D**	2.4803	*63.00*	2.7717	*70.40*	2.8898	*73.40*	5.8661	*149.00*			2
0.4173	*10.60*			7/16-20	3	★	**MDF1060H3D**	1.6693	*42.40*	1.8780	*47.70*	1.9961	*50.70*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1060H5D**	2.5039	*63.60*	2.7953	*71.00*	2.9134	*74.00*	5.8661	*149.00*			2
0.4213	*10.70*		M12x1.5		3	★	**MDF1070H3D**	1.6850	*42.80*	1.8976	*48.20*	2.0157	*51.20*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1070H5D**	2.5276	*64.20*	2.8228	*71.70*	2.9409	*74.70*	5.8661	*149.00*			2
0.4252	*10.80*				3	★	**MDF1080H3D**	1.7008	*43.20*	1.9134	*48.60*	2.0315	*51.60*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1080H5D**	2.5512	*64.80*	2.8504	*72.40*	2.9685	*75.40*	5.8661	*149.00*			2
0.4291	*10.90*		1/2-13 / M12x1.25		3	★	**MDF1090H3D**	1.7165	*43.60*	1.9331	*49.10*	2.0512	*52.10*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1090H5D**	2.5748	*65.40*	2.8740	*73.00*	2.9921	*76.00*	5.8661	*149.00*			1
0.4331	*11.00*		1/2-13		3	★	**MDF1100H3D**	1.7323	*44.00*	1.9488	*49.50*	2.0669	*52.50*	4.5669	*116.00*	0.4331	*11.00*	1
					5	★	**MDF1100H5D**	2.5984	*66.00*	2.9016	*73.70*	3.0197	*76.70*	5.8661	*149.00*			1
0.4370	*11.10*		1/2-13 / M12x1		3	★	**MDF1110H3D**	1.7480	*44.40*	1.9685	*50.00*	2.0866	*53.00*	4.8031	*122.00*	0.4724	*12.00*	1
					5	★	**MDF1110H5D**	2.6220	*66.60*	2.9291	*74.40*	3.0472	*77.40*	6.2205	*158.00*			1
0.4375	*11.11*	7/16	M12x1		3	●	**MDF04375H3D**	1.7500	*44.45*	1.9688	*50.01*	2.0869	*53.01*	4.803	*122.00*	0.4724	*12.00*	1
0.4409	*11.20*		M12x1		3	★	**MDF1120H3D**	1.7638	*44.80*	1.9843	*50.40*	2.1024	*53.40*	4.8031	*122.00*	0.4724	*12.00*	1
					5	★	**MDF1120H5D**	2.6457	*67.20*	2.9528	*75.00*	3.0709	*78.00*	6.2205	*158.00*			1
0.4449	*11.30*			M12x1.75	3	★	**MDF1130H3D**	1.7795	*45.20*	2.0039	*50.90*	2.1220	*53.90*	4.8031	*122.00*	0.4724	*12.00*	1
					5	★	**MDF1130H5D**	2.6693	*67.80*	2.9803	*75.70*	3.0984	*78.70*	6.2205	*158.00*			1
0.4488	*11.40*			M12x1.5	3	★	**MDF1140H3D**	1.7953	*45.60*	2.0197	*51.30*	2.1378	*54.30*	4.8031	*122.00*	0.4724	*12.00*	1
					5	★	**MDF1140H5D**	2.6929	*68.40*	3.0079	*76.40*	3.1260	*79.40*	6.2205	*158.00*			1

Grade: ACF75

*A prepared hole with the same diameter or centring hole with a larger diameter than the tool is needed for drilling with the 5D tool.

●: USA Stocked Item ★: Worldwide Warehouse Item

MDF-H (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

PVD Coat **3D** **5D**

*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (3D single margin)

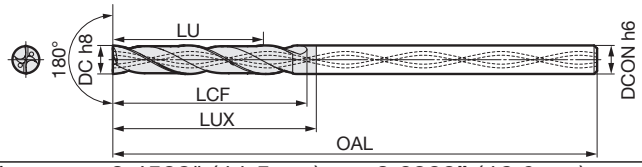
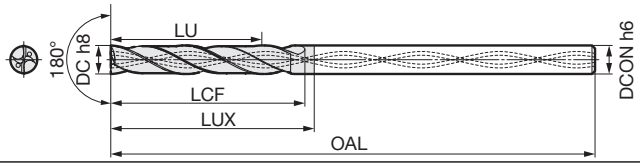


Fig. 2 (5D double margin)



Diameter ø0.4528" (*11.5mm*) to ø0.6299" (*16.0mm*)

Dimensions (inch/ *mm*)

Diameter DC inch	Diameter DC *mm*	Diameter DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU inch	Effective Length LU *mm*	Flute Length LCF inch	Flute Length LCF *mm*	Neck Length LUX inch	Neck Length LUX *mm*	Overall Length OAL inch	Overall Length OAL *mm*	Shank Diameter DCON inch	Shank Diameter DCON *mm*	Fig
0.4528	*11.50*		1/2-20	M12x1.25	3	★	**MDF1150H3D**	1.8110	*46.00*	2.0394	*51.80*	2.1575	*54.80*	4.8031	*122.00*	0.4724	*12.00*	1
					5	★	**MDF1150H5D**	2.7165	*69.00*	3.0354	*77.10*	3.1535	*80.10*	6.2205	*158.00*			2
0.4567	*11.60*		1/2-20	M12x1	3	★	**MDF1160H3D**	1.8268	*46.40*	2.0551	*52.20*	2.1732	*55.20*	4.8031	*122.00*	0.4724	*12.00*	1
					5	★	**MDF1160H5D**	2.7402	*69.60*	3.0591	*77.70*	3.1772	*80.70*	6.2205	*158.00*			2
0.4606	*11.70*				3	★	**MDF1170H3D**	1.8425	*46.80*	2.0748	*52.70*	2.1929	*55.70*	4.8031	*122.00*	0.4724	*12.00*	1
					3	★	**MDF1170H5D**	2.7638	*70.20*	3.0866	*78.40*	3.2047	*81.40*	6.2205	*158.00*			2
0.4646	*11.80*				5	★	**MDF1180H3D**	1.8583	*47.20*	2.0906	*53.10*	2.2087	*56.10*	4.8031	*122.00*	0.4724	*12.00*	1
					3	★	**MDF1180H5D**	2.7874	*70.80*	3.1142	*79.10*	3.2323	*82.10*	6.2205	*158.00*			2
0.4685	*11.90*			1/2-13	5	★	**MDF1190H3D**	1.8740	*47.60*	2.1102	*53.60*	2.2283	*56.60*	4.8031	*122.00*	0.4724	*12.00*	1
					3	★	**MDF1190H5D**	2.8110	*71.40*	3.1378	*79.70*	3.2559	*82.70*	6.2205	*158.00*			2
0.4688	*11.91*	15/32		1/2-13	3	●	**MDF04688H3D**	1.8750	*47.63*	2.1094	*53.58*	2.2275	*56.58*	4.803	*122.00*	0.4724	*12.00*	1
0.4724	*12.00*				3	★	**MDF1200H3D**	1.8898	*48.00*	2.1260	*54.00*	2.2441	*57.00*	4.8031	*122.00*	0.4724	*12.00*	1
					5	★	**MDF1200H5D**	2.8346	*72.00*	3.1654	*80.40*	3.2835	*83.40*	6.2205	*158.00*			2
0.4921	*12.50*		9/16-12		3	★	**MDF1250H3D**	1.9685	*50.00*	2.2165	*56.30*	2.3346	*59.30*	5.0394	*128.00*	0.5118	*13.00*	1
					5	★	**MDF1250H5D**	2.9528	*75.00*	3.2992	*83.80*	3.4173	*86.80*	6.5748	*167.00*			2
0.5000	*12.70*	1/2	M14x1.5		3	★	**MDF05000H3D**	2.0000	*50.80*	2.2500	*57.15*	2.3681	*60.15*	5.039	*127.99*	0.5118	*13.00*	1
0.5118	*13.00*		9/16-18		3	★	**MDF1300H3D**	2.0472	*52.00*	2.3031	*58.50*	2.4213	*61.50*	5.0394	*128.00*	0.5118	*13.00*	1
					6	★	**MDF1300H5D**	3.0709	*78.00*	3.4291	*87.10*	3.5472	*90.10*	6.5748	*167.00*			2
0.5315	*13.50*				3	★	**MDF1350H3D**	2.1260	*54.00*	2.3937	*60.80*	2.5118	*63.80*	5.2756	*134.00*	0.5512	*14.00*	1
					5	★	**MDF1350H5D**	3.1890	*81.00*	3.5630	*90.50*	3.6811	*93.50*	6.9291	*176.00*			2
0.5512	*14.00*				3	★	**MDF1400H3D**	2.2047	*56.00*	2.4803	*63.00*	2.5984	*66.00*	5.2756	*134.00*	0.5512	*14.00*	1
					5	★	**MDF1400H5D**	3.3071	*84.00*	3.6929	*93.80*	3.8110	*96.80*	6.9291	*176.00*			2
0.5625	*14.29*	9/16	M16x2		3	●	**MDF05625H3D**	2.2500	*57.15*	2.5313	*64.29*	2.6494	*67.29*	5.512	*140.00*	0.5906	*15.00*	1
0.5709	*14.50*				3	★	**MDF1450H3D**	2.2835	*58.00*	2.5709	*65.30*	2.6890	*68.30*	5.5118	*140.00*	0.5906	*15.00*	1
					5	★	**MDF1450H5D**	3.4252	*87.00*	3.8268	*97.20*	3.9449	*100.20*	7.2835	*185.00*			2
0.5906	*15.00*			5/8-11	3	★	**MDF1500H3D**	2.3622	*60.00*	2.6575	*67.50*	2.7756	*70.50*	5.5118	*140.00*	0.5906	*15.00*	1
					5	★	**MDF1500H5D**	3.5433	*90.00*	3.9567	*100.50*	4.0748	*103.50*	7.2835	*185.00*			2
0.6102	*15.50*				3	★	**MDF1550H3D**	2.4409	*62.00*	2.7480	*69.80*	2.8661	*72.80*	5.7480	*146.00*	0.6299	*16.00*	1
					5	★	**MDF1550H5D**	3.6614	*93.00*	4.0906	*103.90*	4.2087	*106.90*	7.6378	*194.00*			2
0.6299	*16.00*				3	★	**MDF1600H3D**	2.5197	*64.00*	2.8346	*72.00*	2.9528	*75.00*	5.7480	*146.00*	0.6299	*16.00*	1
					5	★	**MDF1600H5D**	3.7795	*96.00*	4.2205	*107.20*	4.3386	*110.20*	7.6378	*194.00*			2

Grade: ACF75 ●: USA Stocked Item ★: Worldwide Warehouse Item

*A prepared hole with the same diameter or centring hole with a larger diameter than the tool is needed for drilling with the 5D tool.

Recommended Cutting Conditions for 3D

1. The recommended hole depth is 3 x DC. The depth is measured from the highest point of the hole when drilling in inclined surfaces.
2. The recommended cutting conditions are those for drilling in flat horizontal surfaces.
3. Adjust the feed rate according to the inclination angle when drilling in an inclined surface.
4. Set the feed rate at 70% or lower when the inclination angle is 30° or less.
5. Set the feed rate at 50% or lower when the inclination angle is larger than 30°.
6. This product is a drilling tool. Do not use it for traverse cutting or helical milling.
7. A prepared hole with the same diameter is recommended for machining of stainless steel.

(v_c: Cutting Speed (SFM), *f*: Feed Rate (IPR))

Dia. DC (Inch/*mm*)	Cutting Conditions	Mild Steel/General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to HRC50)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450	Aluminum Alloy
ø4	*vc*	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
ø.1575	*f*	.0024 - .0039	.0020 - .0039	.0004 - .0012	.0004 - .0012	.0024 - .0039	.0016 - .0031	.0024 - .0039
ø6	*vc*	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
ø.2362	*f*	.0020 - .0059	.0020 - .0059	.0016 - .0031	.0012 - .0020	.0020 - .0059	.0024 - .0047	.0020 - .0059
ø8	*vc*	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
ø.3150	*f*	.0039 - .0079	.0039 - .0079	.0024 - .0039	.0016 - .0031	.0039 - .0079	.0039 - .0059	.0039 - .0079
ø10	*vc*	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
ø.3937	*f*	.0047 - .0087	.0047 - .0087	.0031 - .0047	.0024 - .0039	.0047 - .0087	.0047 - .0071	.0059 - 0098
ø12	*vc*	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
ø.4724	*f*	.0059 - 0098	.0059 - 0098	.0047 - .0071	.0031 - .0047	.0059 - 0098	.0059 - .0079	.0079 - .0118
ø16	*vc*	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
ø.6299	*f*	.0059 - 0098	.0059 - 0098	.0047 - .0071	.0039 - .0079	.0067 - .0106	.0059 - 0098	.0098 - .0157

Recommended Cutting Conditions for 5D

Min. - Max.

1. A prepared hole with the same diameter is needed for machining with this tool.
2. A prepared hole with the same diameter is recommended for the cutting conditions.
3. The recommended hole depth is 5 x DC. The depth is measured from the highest point of the hole when drilling in inclined surfaces.
4. This product is a drilling tool. Do not use it for traverse cutting or helical milling.

(v_c: Cutting Speed (SFM), *f*: Feed Rate (IPR))

Dia. DC (mm)	Cutting Conditions	Mild Steel/General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to HRC50)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450	Aluminum Alloy
ø4	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
ø.1575	*f*	.0024 - .0039	.0020 - .0039	.0004 - .0012	.0004 - .0012	.0024 - .0039	.0016 - .0031	.0024 - .0039
ø6	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
ø.2362	*f*	.0020 - .0059	.0020 - .0059	.0016 - .0031	.0012 - .0020	.0020 - .0059	.0024 - .0047	.0020 - .0059
ø8	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
ø.3150	*f*	.0039 - .0079	.0039 - .0079	.0024 - .0039	.0016 - .0031	.0039 - .0079	.0039 - .0059	.0039 - .0079
ø10	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
ø.3937	*f*	.0059 - 0098	.0059 - 0098	.0031 - .0047	.0024 - .0039	.0059 - 0098	.0047 - .0071	.0059 - 0098
ø12	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
ø.4724	*f*	.0079 - .0118	.0079 - .0118	.0047 - .0071	.0031 - .0047	.0067 - .0106	.0059 - 0098	.0079 - .0118
ø16	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
ø.6299	*f*	.0079 - .0118	.0079 - .0118	.0055 - .0079	.0039 - .0079	.0079 - .0118	.0079 - .0118	.0098 - .0138

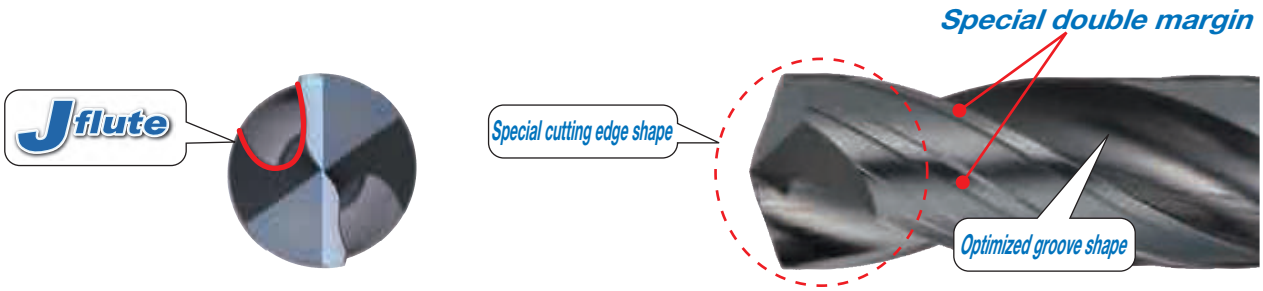
Min. - Max.

■ General Features

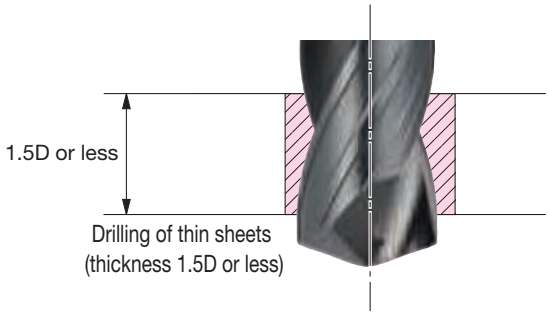
The J flutes of the Super MultiDrill WGS have been tuned for improved chip breaking capabilities during drilling of thin sheets. Excellent sharpness prevents work hardening from drilling. The special double margin structure also achieves stable hole diameter accuracy.

■ Features and Applications

J flutes (groove shape) have been tuned to create a optimized shape for drilling of thin sheets.



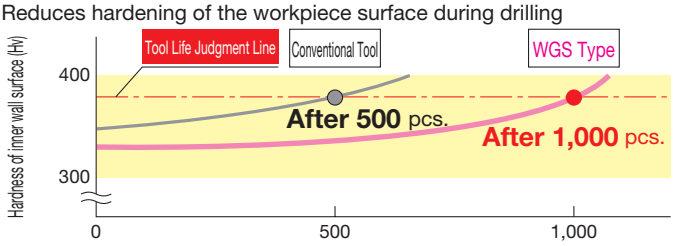
■ Target Workpieces



[Ideal for Common Automotive Components]
- Bearing hub (inner and outer rings)
- Knuckle
- Differential ring
- Components such as bolt holes in automobile flange parts

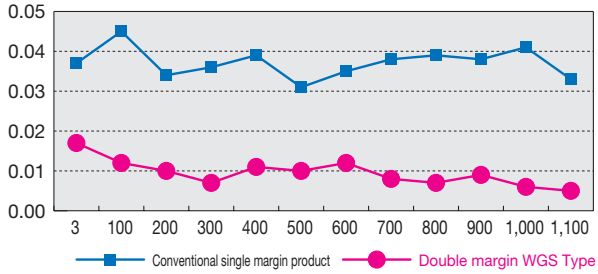
■ Cutting Performance

● Reduces hardening of the workpiece surface during drilling



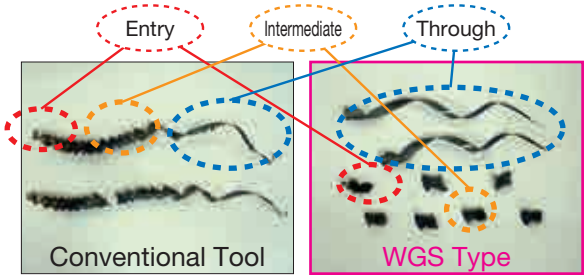
Work Material: S53C
Cutting Conditions: v_c=230 SFM, f =0.008 IPR
H=0.512”

● Stable hole expansion tolerance



Work Material: S50C
Cutting Conditions: v_c=262 SFM, f =0.01 IPR
H=0.630”

● Better chip breaking capabilities

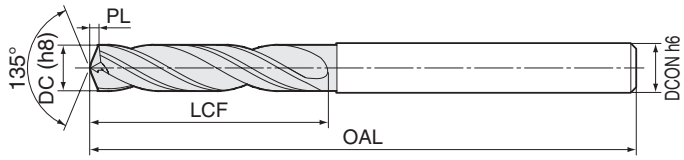


Work Material: SUJ2
Cutting Conditions: v_c=262 SFM, f =0.01 IPR
H=.512”

DEX Coating 2D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



This product is a made-to-order item. Please specify the hole diameter (including tolerance) when ordering.

Body

Dimensions (*mm*)

Dia. DC	Cat. No.	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
6.8 to 7.0	**MDW 0680** to **0700WGS2**	34	74	1.4	7.0	1
7.1 to 7.5	**MDW 0710** to **0750WGS2**	35	80	1.5	8.0	1
7.6 to 8.0	**MDW 0760** to **0800WGS2**	38		1.6		1
8.1 to 8.5	**MDW 0810** to **0850WGS2**	38	84	1.7	9.0	1
8.6 to 9.0	**MDW 0860** to **0900WGS2**	40		1.8		1
9.1 to 9.5	**MDW 0910** to **0950WGS2**	40	89	1.9	10.0	1
9.6 to 10.0	**MDW 0960** to **1000WGS2**	43		2.0		1
10.1 to 10.5	**MDW 1010** to **1050WGS2**	43	95	2.1	11.0	1
10.6 to 11.0	**MDW 1060** to **1100WGS2**	47		2.2		1
11.1 to 11.5	**MDW 1110** to **1150WGS2**	47	102	2.3	12.0	1
11.6 to 12.0	**MDW 1160** to **1200WGS2**	49		2.4		1
12.1 to 12.5	**MDW 1210** to **1250WGS2**	50	103	2.6	13.0	1
12.6 to 13.0	**MDW 1260** to **1300WGS2**	52		2.7		1
13.1 to 13.5	**MDW 1310** to **1350WGS2**	53	108	2.8	14.0	1
13.6 to 14.0	**MDW 1360** to **1400WGS2**	55		2.9		1
14.1 to 14.5	**MDW 1410** to **1450WGS2**	55	111	3.0	15.0	1
14.6 to 15.0	**MDW 1460** to **1500WGS2**	56		3.1		1
15.1 to 15.5	**MDW 1510** to **1550WGS2**	56	115	3.2	16.0	1
15.6 to 16.0	**MDW 1560** to **1600WGS2**	58		3.3		1

Grade: ACX70

Recommended Cutting Conditions

(v_c: Cutting Speed (*m/min*), *f*: Feed Rate (*mm/rev*))

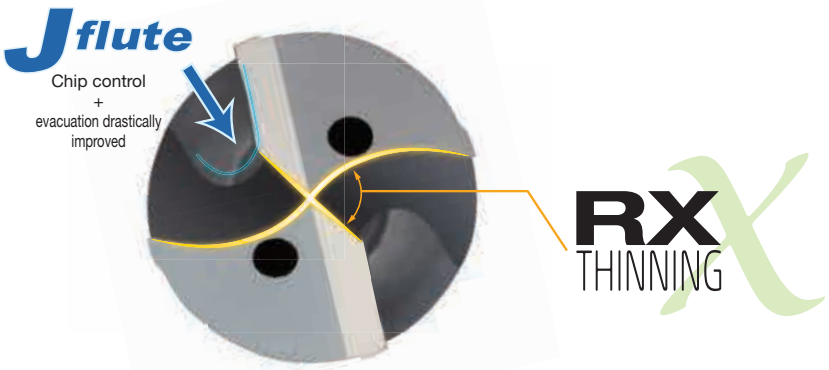
Dia. DC (mm)	Cutting Conditions	Mild Steel/General Steel (up to 300HB)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450
ø10.0	v_c	50 - 130	15 - 60	50 - 80	50 - 70
	f	0.20 - 0.35	0.10 - 0.20	0.20 - 0.35	0.20 - 0.35
ø16.0	v_c	60 - 140	20 - 60	60 - 100	50 - 80
	f	0.25 - 0.35	0.10 - 0.20	0.25 - 0.35	0.25 - 0.35

Min. - Max.

* The recommended cutting conditions are also affected by factors such as machine rigidity and the workpiece clamping. Please adjust the cutting conditions according to your work environment.
* If work hardening occurs during drilling, it is recommended to use a lower speed than the recommended cutting conditions.

■ General Features

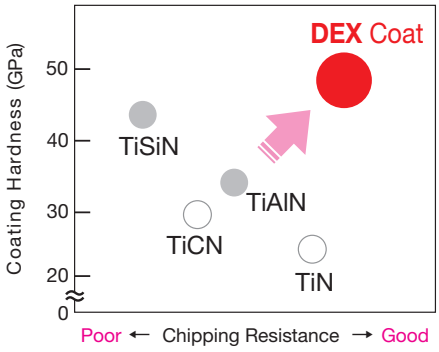
Strong MultiDrill HX Type is a special drill for cast iron that combines reduced cutting resistance and improved drill strength to achieve stable and high efficiency drilling of cast iron.



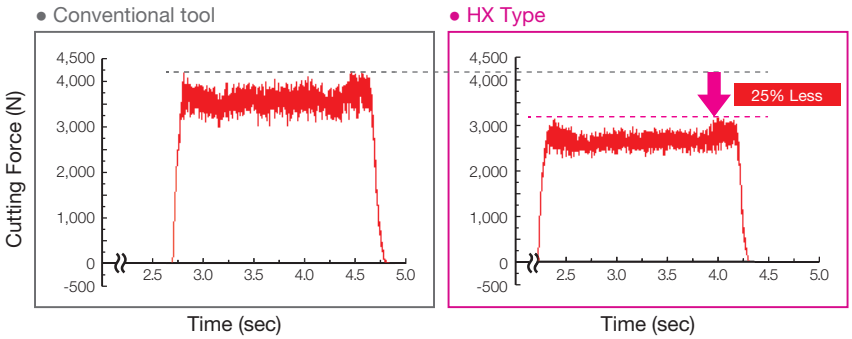
■ Features and Applications

- High-Efficiency Drilling of Cast Iron
  Thick web and a special double margin design ensure stable behavior even in high-efficiency drilling.
  Furthermore, RX THINNING drastically reduces cutting force and ensures more stable and efficient drilling.
  Enables high-efficiency drilling at speeds of over v_f=39.4 IPM. (for ø10mm sizes)

- Long Tool Life
  DEX Coat for drills utilizes nano-coating technology that provides more than double the tool life of conventional coatings. The drill guide function is enhanced through optimization of the margin position to prevent breakage due to hole bending.

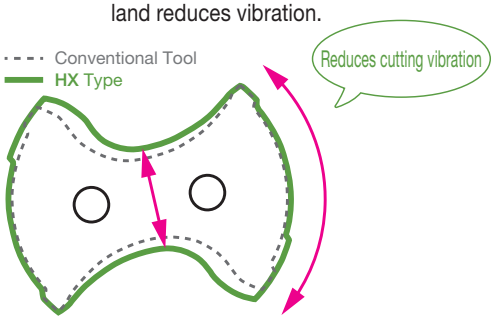


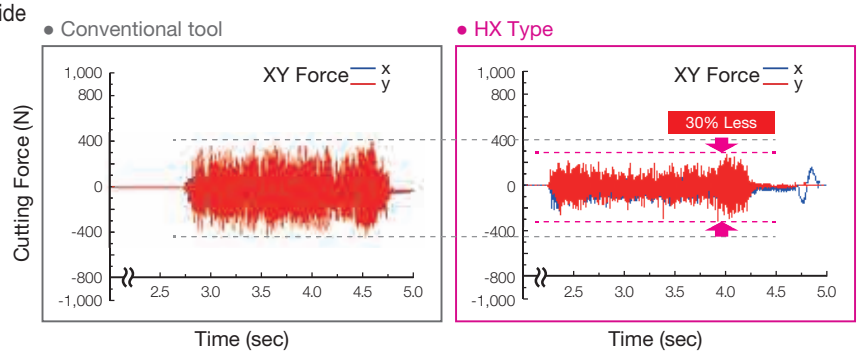
Low Resistance Wide chip pocket reduces thrust resistance.



Part Material : Grey Cast Iron, Tool: Conventional tool, MDW 1250HX5 (ø12.5mm 5D)
Cutting Conditions : v_c=328 SFM, f=0.024 IPR, H=1.979", internal coolant supply (water soluble)

High Rigidity Combination of large web thickness and wide land reduces vibration.



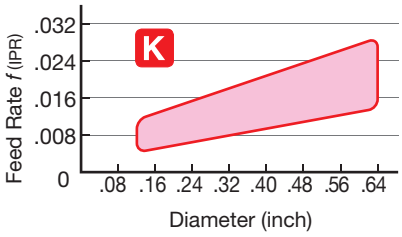


Part Material : Grey Cast Iron, Tool: Conventional tool, MDW 1250HX5 (ø12.5mm 5D)
Cutting Conditions : v_c=328 SFM, f=0.024 IPR, H=1.979", internal coolant supply (water soluble)

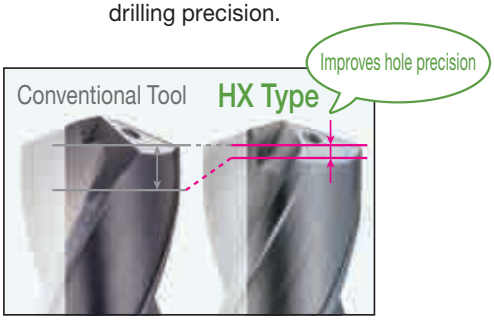
■ Product Range

Coolant Supply	Cat. No.	Diameter Range (mm)	Hole Depth (L/D)	Number of items
Internal	MDW□□□□HX3	ø3.0 to ø20.0	up to 3	108 items in stock
	MDW□□□□HX5	ø3.0 to ø20.0	up to 5	108 items in stock
	MDW□□□□HX8	ø3.0 to ø18.0	up to 8	32 items in stock

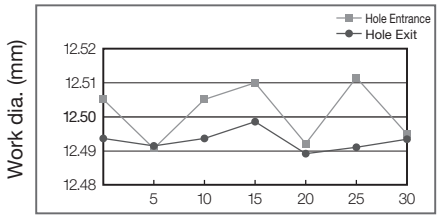
● Drilling of gray cast iron



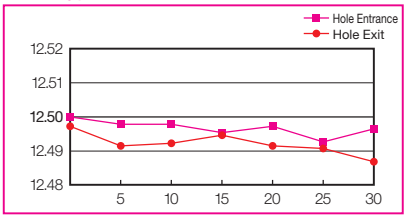
High Precision Improved margin point provides improved drilling precision.



● Conventional tool



● HX Type



Part Material : Grey Cast Iron, Tool: Conventional tool, MDW 1250HX5 (ø12.5mm 5D)
Cutting Conditions : v_c=328 SFM, f=0.024 IPR, H=1.979", internal coolant supply (water soluble)

Longer Tool Life High-feed cutting reduces margin wear and extends tool life.
→ Maintains replacement frequency (cutting time) and enables high efficiency drilling.

● Conventional tool

Cutting Conditions: f =0.012 IPR, cutting length: 98 ft. (cutting time 39 minutes)

● HX

Cutting Conditions: f =0.012 IPR, cutting length: 98 ft. (cutting time 39 minutes)

● HX

Cutting Conditions: f =0.024 IPR, cutting length: 197 ft. (cutting time 39 minutes)

Part Material: Grey Cast Iron, Tool: Conventional tool, MDW 1250HX5 (ø12.5mm 5D)
Cutting Conditions : v_c=328 SFM, f=0.024 IPR, H=1.979", internal coolant supply (water soluble)

■ Application Examples

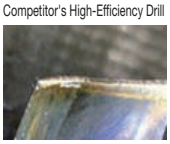
Machine Component Grey Cast Iron

·Tool: MDW 1850HX5 (ø18.5mm 5D)
·Drilling Distance: 164 ft.
·Cutting Conditions: v_c=230 SFM, f =0.035 IPR,
H=88.6 ft. (stop), internal coolant supply (water soluble)

Reduced cutting edge wear in ultra-high-speed drilling.

Cutting Edge Rake Face Condition after Preset Tool Life

Competitor's High-Efficiency Drill

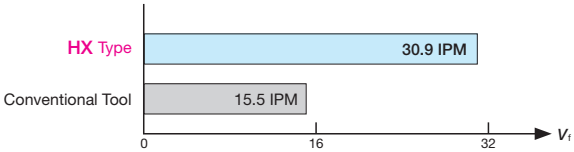


HX Type

Facility Component Ductile Cast Iron

·Tool: MDW 0850HX5 (ø8.5mm 5D)
·Drilling Distance: 164 ft.
·Cutting Conditions: v_c=230 SFM, f=0.012 IPR v_f=30.9 IPM,
H=88.6 ft. (stop), internal coolant supply (water soluble)

Double the drilling efficiency of conventional tools.



Engine Component Ductile Cast Iron

·Tool: MDW 1200HX3 (ø12.0mm 3D)
·Drilling Distance: 164 ft.
·Cutting Conditions: Conventional Tool: v_c=179 SFM, f =0.0087 IPR, v_f=11.48 IPM
HX Type: v_c=164 SFM, f =0.0157 IPR, v_f =20.88 IPM
H=91.9 ft. (stop), internal coolant supply (water soluble)

Stable cutting performance with 1.8 times the drilling efficiency of conventional tools.

Cutting Edge Wear Comparison after Fixed Tool Life

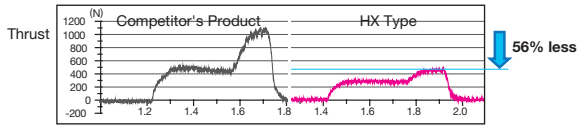
Conventional tool (f =0.0087 IPR)

HX Type (f =0.0157 IPR)

Machine Components (Sintered Material)

·Tool: MDW 0570HX3
·Cutting Conditions: v_c=230 SFM, f=0.035 IPR H=88.6 ft. (stop),
internal coolant supply (water soluble)

Less resistance and edge chipping than competitor's products!



Competitor's Product

Hole Entrance

HX Type

No edge chipping

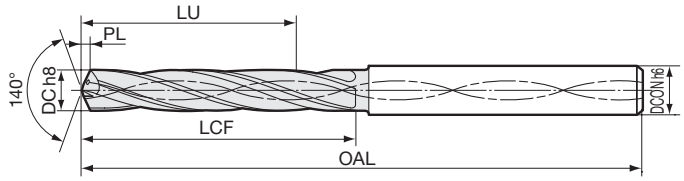
HX Series (Internal Coolant Supply)

Cast Iron | Ductile Cast Iron

DEX Coating | Coolant Hole | 3D | 5D | 8D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø3.0 to 4.7mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
3.0	3	★	**MDW0300HX3**	13.5	18.0	68.5	0.5	3.0	1
	5	★	**MDW0300HX5**	24.0	28.5	78.5			1
	8	★	**MDW0300HX8**	29.0	33.5	81.5			1
3.1	3	★	**MDW0310HX3**	16.0	20.6	72.6	0.6	4.0	1
	5	★	**MDW0310HX5**	28.0	32.6	86.6			1
	8		**MDW0310HX8**	34.5	39.1	92.6			1
3.2	3	★	**MDW0320HX3**	15.8	20.6	72.6	0.6	4.0	1
	5	★	**MDW0320HX5**	27.8	32.6	86.6			1
	8		**MDW0320HX8**	34.3	39.1	92.6			1
3.3	3	★	**MDW0330HX3**	15.7	20.6	72.6	0.6	4.0	1
	5	★	**MDW0330HX5**	27.7	32.6	86.6			1
	8		**MDW0330HX8**	34.2	39.1	92.6			1
3.4	3	★	**MDW0340HX3**	15.5	20.6	72.6	0.6	4.0	1
	5	★	**MDW0340HX5**	27.5	32.6	86.6			1
	8		**MDW0340HX8**	34.0	39.1	92.6			1
3.5	3	★	**MDW0350HX3**	15.4	20.6	72.6	0.6	4.0	1
	5	★	**MDW0350HX5**	27.4	32.6	86.6			1
	8	★	**MDW0350HX8**	33.9	39.1	92.6			1
3.6	3	★	**MDW0360HX3**	17.8	23.2	72.7	0.7	4.0	1
	5	★	**MDW0360HX5**	31.3	36.7	86.7			1
	8		**MDW0360HX8**	39.3	44.7	92.7			1
3.7	3	★	**MDW0370HX3**	17.7	23.2	72.7	0.7	4.0	1
	5	★	**MDW0370HX5**	31.2	36.7	86.7			1
	8		**MDW0370HX8**	39.2	44.7	92.7			1
3.8	3	★	**MDW0380HX3**	17.5	23.2	72.7	0.7	4.0	1
	5	★	**MDW0380HX5**	31.0	36.7	86.7			1
	8		**MDW0380HX8**	39.0	44.7	92.7			1
3.9	3	★	**MDW0390HX3**	17.4	23.2	72.7	0.7	4.0	1
	5	★	**MDW0390HX5**	30.9	36.7	86.7			1
	8		**MDW0390HX8**	38.9	44.7	92.7			1
4.0	3	★	**MDW0400HX3**	17.2	23.2	72.7	0.7	4.0	1
	5	★	**MDW0400HX5**	30.7	36.7	86.7			1
	8	★	**MDW0400HX8**	38.7	44.7	92.7			1
4.1	3	★	**MDW0410HX3**	19.6	25.7	80.7	0.7	5.0	1
	5	★	**MDW0410HX5**	34.6	40.7	98.7			1
	8		**MDW0410HX8**	44.1	50.2	105.7			1
4.2	3	★	**MDW0420HX3**	19.5	25.8	80.8	0.8	5.0	1
	5	★	**MDW0420HX5**	34.5	40.8	98.8			1
	8		**MDW0420HX8**	44.0	50.3	105.8			1
4.3	3	★	**MDW0430HX3**	19.4	25.8	80.8	0.8	5.0	1
	5	★	**MDW0430HX5**	34.4	40.8	98.8			1
	8		**MDW0430HX8**	43.9	50.3	105.8			1
4.4	3	★	**MDW0440HX3**	19.2	25.8	80.8	0.8	5.0	1
	5	★	**MDW0440HX5**	34.2	40.8	98.8			1
	8		**MDW0440HX8**	43.7	50.3	105.8			1
4.5	3	★	**MDW0450HX3**	19.1	25.8	80.8	0.8	5.0	1
	5	★	**MDW0450HX5**	34.1	40.8	98.8			1
	8	★	**MDW0450HX8**	43.6	50.3	105.8			1
4.6	3	★	**MDW0460HX3**	21.4	28.3	80.8	0.8	5.0	1
	5	★	**MDW0460HX5**	37.9	44.8	98.8			1
	8		**MDW0460HX8**	48.9	55.8	105.8			1
4.7	3	★	**MDW0470HX3**	21.4	28.4	80.9	0.9	5.0	1
	5	★	**MDW0470HX5**	37.9	44.9	98.9			1
	8		**MDW0470HX8**	48.9	55.9	105.9			1

Grade: ACX70

Diameter ø4.8 to 6.5mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
4.8	3	★	**MDW0480HX3**	21.2	28.4	80.9	0.9	5.0	1
	5	★	**MDW0480HX5**	37.7	44.9	98.9			1
	8		**MDW0480HX8**	48.7	55.9	105.9			1
4.9	3	★	**MDW0490HX3**	21.1	28.4	80.9	0.9	5.0	1
	5	★	**MDW0490HX5**	37.6	44.9	98.9			1
	8		**MDW0490HX8**	48.6	55.9	105.9			1
5.0	3	★	**MDW0500HX3**	20.9	28.4	80.9	0.9	5.0	1
	5	★	**MDW0500HX5**	37.4	44.9	98.9			1
	8	★	**MDW0500HX8**	48.4	55.9	105.9			1
5.1	3	★	**MDW0510HX3**	20.8	28.4	82.9	0.9	6.0	1
	5	★	**MDW0510HX5**	37.3	44.9	100.9			1
	8	★	**MDW0510HX8**	53.8	61.4	118.9			1
5.2	3	★	**MDW0520HX3**	20.6	28.4	82.9	0.9	6.0	1
	5	★	**MDW0520HX5**	37.1	44.9	100.9			1
	8		**MDW0520HX8**	53.6	61.4	118.9			1
5.3	3	★	**MDW0530HX3**	20.6	28.5	83.0	1.0	6.0	1
	5	★	**MDW0530HX5**	37.1	45.0	101.0			1
	8		**MDW0530HX8**	53.6	61.5	119.0			1
5.4	3	★	**MDW0540HX3**	20.4	28.5	83.0	1.0	6.0	1
	5	★	**MDW0540HX5**	36.9	45.0	101.0			1
	8		**MDW0540HX8**	53.4	61.5	119.0			1
5.5	3	★	**MDW0550HX3**	20.3	28.5	83.0	1.0	6.0	1
	5	★	**MDW0550HX5**	36.8	45.0	101.0			1
	8	★	**MDW0550HX8**	53.3	61.5	119.0			1
5.6	3	★	**MDW0560HX3**	22.6	31.0	83.0	1.0	6.0	1
	5	★	**MDW0560HX5**	40.6	49.0	101.0			1
	8		**MDW0560HX8**	58.6	67.0	119.0			1
5.7	3	★	**MDW0570HX3**	22.5	31.0	83.0	1.0	6.0	1
	5	★	**MDW0570HX5**	40.5	49.0	101.0			1
	8		**MDW0570HX8**	58.5	67.0	119.0			1
5.8	3	★	**MDW0580HX3**	22.4	31.1	83.1	1.1	6.0	1
	5	★	**MDW0580HX5**	40.4	49.1	101.1			1
	8	★	**MDW0580HX8**	58.4	67.1	119.1			1
5.9	3	★	**MDW0590HX3**	22.3	31.1	83.1	1.1	6.0	1
	5	★	**MDW0590HX5**	40.3	49.1	101.1			1
	8	★	**MDW0590HX8**	58.3	67.1	119.1			1
6.0	3	★	**MDW0600HX3**	22.1	31.1	83.1	1.1	6.0	1
	5	★	**MDW0600HX5**	40.1	49.1	101.1			1
	8	★	**MDW0600HX8**	58.1	67.1	119.1			1
6.1	3	★	**MDW0610HX3**	24.5	33.6	89.1	1.1	7.0	1
	5	★	**MDW0610HX5**	44.0	53.1	110.1			1
	8		**MDW0610HX8**	63.5	72.6	131.1			1
6.2	3	★	**MDW0620HX3**	24.3	33.6	89.1	1.1	7.0	1
	5	★	**MDW0620HX5**	43.8	53.1	110.1			1
	8		**MDW0620HX8**	63.3	72.6	131.1			1
6.3	3	★	**MDW0630HX3**	24.2	33.6	89.1	1.1	7.0	1
	5	★	**MDW0630HX5**	43.7	53.1	110.1			1
	8		**MDW0630HX8**	63.2	72.6	131.1			1
6.4	3	★	**MDW0640HX3**	24.1	33.7	89.2	1.2	7.0	1
	5	★	**MDW0640HX5**	43.6	53.2	110.2			1
	8		**MDW0640HX8**	63.1	72.7	131.2			1
6.5	3	★	**MDW0650HX3**	24.0	33.7	89.2	1.2	7.0	1
	5	★	**MDW0650HX5**	43.5	53.2	110.2			1
	8	★	**MDW0650HX8**	63.0	72.7	131.2			1

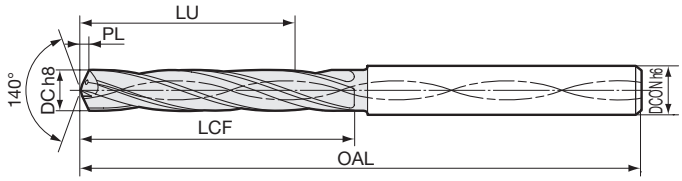
Grade: ACX70

★: Worldwide Warehouse Item

DEX Coating | Coolant Hole | 3D | 5D | 8D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø6.6 to 8.3mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
6.6	3	★	**MDW0660HX3**	26.3	36.2	89.2	1.2	7.0	1
	5	★	**MDW0660HX5**	47.3	57.2	110.2			1
	8		**MDW0660HX8**	68.3	78.2	131.2			1
6.7	3	★	**MDW0670HX3**	26.2	36.2	89.2	1.2	7.0	1
	5	★	**MDW0670HX5**	47.2	57.2	110.2			1
	8	★	**MDW0670HX8**	68.2	78.2	131.2			1
6.8	3	★	**MDW0680HX3**	26.0	36.2	89.2	1.2	7.0	1
	5	★	**MDW0680HX5**	47.0	57.2	110.2			1
	8	★	**MDW0680HX8**	68.0	78.2	131.2			1
6.9	3	★	**MDW0690HX3**	26.0	36.3	89.3	1.3	7.0	1
	5	★	**MDW0690HX5**	47.0	57.3	110.3			1
	8	★	**MDW0690HX8**	68.0	78.3	131.3			1
7.0	3	★	**MDW0700HX3**	25.8	36.3	89.3	1.3	7.0	1
	5	★	**MDW0700HX5**	46.8	57.3	110.3			1
	8	★	**MDW0700HX8**	67.8	78.3	131.3			1
7.1	3	★	**MDW0710HX3**	28.2	38.8	95.3	1.3	8.0	1
	5	★	**MDW0710HX5**	50.7	61.3	119.3			1
	8		**MDW0710HX8**	73.2	83.8	143.3			1
7.2	3	★	**MDW0720HX3**	28.0	38.8	95.3	1.3	8.0	1
	5	★	**MDW0720HX5**	50.5	61.3	119.3			1
	8		**MDW0720HX8**	73.0	83.8	143.3			1
7.3	3	★	**MDW0730HX3**	27.9	38.8	95.3	1.3	8.0	1
	5	★	**MDW0730HX5**	50.4	61.3	119.3			1
	8		**MDW0730HX8**	72.9	83.8	143.3			1
7.4	3	★	**MDW0740HX3**	27.7	38.8	95.3	1.3	8.0	1
	5	★	**MDW0740HX5**	50.2	61.3	119.3			1
	8		**MDW0740HX8**	72.7	83.8	143.3			1
7.5	3	★	**MDW0750HX3**	27.7	38.9	95.4	1.4	8.0	1
	5	★	**MDW0750HX5**	50.2	61.4	119.4			1
	8	★	**MDW0750HX8**	72.7	83.9	143.4			1
7.6	3	★	**MDW0760HX3**	30.0	41.4	95.4	1.4	8.0	1
	5	★	**MDW0760HX5**	54.0	65.4	119.4			1
	8		**MDW0760HX8**	78.0	89.4	143.4			1
7.7	3	★	**MDW0770HX3**	29.9	41.4	95.4	1.4	8.0	1
	5	★	**MDW0770HX5**	53.9	65.4	119.4			1
	8		**MDW0770HX8**	77.9	89.4	143.4			1
7.8	3	★	**MDW0780HX3**	29.7	41.4	95.4	1.4	8.0	1
	5	★	**MDW0780HX5**	53.7	65.4	119.4			1
	8		**MDW0780HX8**	77.7	89.4	143.4			1
7.9	3	★	**MDW0790HX3**	29.6	41.4	95.4	1.4	8.0	1
	5	★	**MDW0790HX5**	53.6	65.4	119.4			1
	8		**MDW0790HX8**	77.6	89.4	143.4			1
8.0	3	★	**MDW0800HX3**	29.5	41.5	95.5	1.5	8.0	1
	5	★	**MDW0800HX5**	53.5	65.5	119.5			1
	8	★	**MDW0800HX8**	77.5	89.5	143.5			1
8.1	3	★	**MDW0810HX3**	31.9	44.0	101.5	1.5	9.0	1
	5	★	**MDW0810HX5**	57.4	69.5	128.5			1
	8		**MDW0810HX8**	82.9	95.0	155.5			1
8.2	3	★	**MDW0820HX3**	31.7	44.0	101.5	1.5	9.0	1
	5	★	**MDW0820HX5**	57.2	69.5	128.5			1
	8		**MDW0820HX8**	82.7	95.0	155.5			1
8.3	3	★	**MDW0830HX3**	31.6	44.0	101.5	1.5	9.0	1
	5	★	**MDW0830HX5**	57.1	69.5	128.5			1
	8		**MDW0830HX8**	82.6	95.0	155.5			1

Grade: ACX70

Diameter ø8.4 to 10.1mm

Dimensions (*mm*)

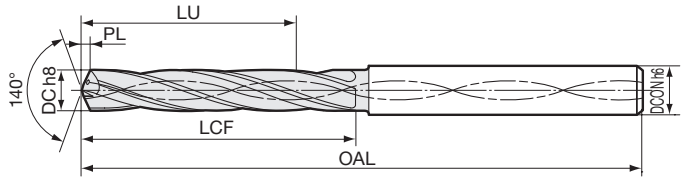
Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
8.4	3	★	**MDW0840HX3**	31.4	44.0	101.5	1.5	9.0	1
	5	★	**MDW0840HX5**	56.9	69.5	128.5			1
	8		**MDW0840HX8**	82.4	95.0	155.5			1
8.5	3	★	**MDW0850HX3**	31.3	44.0	101.5	1.5	9.0	1
	5	★	**MDW0850HX5**	56.8	69.5	128.5			1
	8	★	**MDW0850HX8**	82.3	95.0	155.5			1
8.6	3	★	**MDW0860HX3**	33.7	46.6	101.6	1.6	9.0	1
	5	★	**MDW0860HX5**	60.7	73.6	128.6			1
	8		**MDW0860HX8**	87.7	100.6	155.6			1
8.7	3	★	**MDW0870HX3**	33.6	46.6	101.6	1.6	9.0	1
	5	★	**MDW0870HX5**	60.6	73.6	128.6			1
	8		**MDW0870HX8**	87.6	100.6	155.6			1
8.8	3	★	**MDW0880HX3**	33.4	46.6	101.6	1.6	9.0	1
	5	★	**MDW0880HX5**	60.4	73.6	128.6			1
	8	★	**MDW0880HX8**	87.4	100.6	155.6			1
8.9	3	★	**MDW0890HX3**	33.3	46.6	101.6	1.6	9.0	1
	5	★	**MDW0890HX5**	60.3	73.6	128.6			1
	8		**MDW0890HX8**	87.3	100.6	155.6			1
9.0	3	★	**MDW0900HX3**	33.1	46.6	101.6	1.6	9.0	1
	5	★	**MDW0900HX5**	60.1	73.6	128.6			1
	8	★	**MDW0900HX8**	87.1	100.6	155.6			1
9.1	3	★	**MDW0910HX3**	35.6	49.2	107.7	1.7	10.0	1
	5	★	**MDW0910HX5**	64.1	77.7	137.7			1
	8		**MDW0910HX8**	92.6	106.2	167.7			1
9.2	3	★	**MDW0920HX3**	35.4	49.2	107.7	1.7	10.0	1
	5	★	**MDW0920HX5**	63.9	77.7	137.7			1
	8		**MDW0920HX8**	92.4	106.2	167.7			1
9.3	3	★	**MDW0930HX3**	35.3	49.2	107.7	1.7	10.0	1
	5	★	**MDW0930HX5**	63.8	77.7	137.7			1
	8		**MDW0930HX8**	92.3	106.2	167.7			1
9.4	3	★	**MDW0940HX3**	35.1	49.2	107.7	1.7	10.0	1
	5	★	**MDW0940HX5**	63.6	77.7	137.7			1
	8		**MDW0940HX8**	92.1	106.2	167.7			1
9.5	3	★	**MDW0950HX3**	35.0	49.2	107.7	1.7	10.0	1
	5	★	**MDW0950HX5**	63.5	77.7	137.7			1
	8	★	**MDW0950HX8**	92.0	106.2	167.7			1
9.6	3	★	**MDW0960HX3**	37.3	51.7	107.7	1.7	10.0	1
	5	★	**MDW0960HX5**	67.3	81.7	137.7			1
	8		**MDW0960HX8**	97.3	111.7	167.7			1
9.7	3	★	**MDW0970HX3**	37.3	51.8	107.8	1.8	10.0	1
	5	★	**MDW0970HX5**	67.3	81.8	137.8			1
	8		**MDW0970HX8**	97.3	111.8	167.8			1
9.8	3	★	**MDW0980HX3**	37.1	51.8	107.8	1.8	10.0	1
	5	★	**MDW0980HX5**	67.1	81.8	137.8			1
	8		**MDW0980HX8**	97.1	111.8	167.8			1
9.9	3	★	**MDW0990HX3**	37.0	51.8	107.8	1.8	10.0	1
	5	★	**MDW0990HX5**	67.0	81.8	137.8			1
	8		**MDW0990HX8**	97.0	111.8	167.8			1
10.0	3	★	**MDW1000HX3**	36.8	51.8	107.8	1.8	10.0	1
	5	★	**MDW1000HX5**	66.8	81.8	137.8			1
	8	★	**MDW1000HX8**	96.8	111.8	167.8			1
10.1	3	★	**MDW1010HX3**	39.2	54.3	117.8	1.8	11.0	1
	5	★	**MDW1010HX5**	70.7	85.8	150.8			1
	8		**MDW1010HX8**	102.2	117.3	183.8			1

Grade: ACX70

DEX Coating | Coolant Hole | 3D | 5D | 8D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø10.2 to 11.9mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
10.2	3	★	MDW1020HX3	39.1	54.4	117.9	1.9	11.0	1
	5	★	MDW1020HX5	70.6	85.9	150.9			1
	8		MDW1020HX8	102.1	117.4	183.9			1
10.3	3	★	MDW1030HX3	39.0	54.4	117.9	1.9	11.0	1
	5	★	MDW1030HX5	70.5	85.9	150.9			1
	8	★	MDW1030HX8	102.0	117.4	183.9			1
10.4	3	★	MDW1040HX3	38.8	54.4	117.9	1.9	11.0	1
	5	★	MDW1040HX5	70.3	85.9	150.9			1
	8		MDW1040HX8	101.8	117.4	183.9			1
10.5	3	★	MDW1050HX3	38.7	54.4	117.9	1.9	11.0	1
	5	★	MDW1050HX5	70.2	85.9	150.9			1
	8	★	MDW1050HX8	101.7	117.4	183.9			1
10.6	3	★	MDW1060HX3	41.0	56.9	117.9	1.9	11.0	1
	5	★	MDW1060HX5	74.0	89.9	150.9			1
	8		MDW1060HX8	107.0	122.9	183.9			1
10.7	3	★	MDW1070HX3	40.9	56.9	117.9	1.9	11.0	1
	5	★	MDW1070HX5	73.9	89.9	150.9			1
	8		MDW1070HX8	106.9	122.9	183.9			1
10.8	3	★	MDW1080HX3	40.8	57.0	118.0	2.0	11.0	1
	5	★	MDW1080HX5	73.8	90.0	151.0			1
	8		MDW1080HX8	106.8	123.0	184.0			1
10.9	3	★	MDW1090HX3	40.7	57.0	118.0	2.0	11.0	1
	5	★	MDW1090HX5	73.7	90.0	151.0			1
	8		MDW1090HX8	106.7	123.0	184.0			1
11.0	3	★	MDW1100HX3	40.5	57.0	118.0	2.0	11.0	1
	5	★	MDW1100HX5	73.5	90.0	151.0			1
	8	★	MDW1100HX8	106.5	123.0	184.0			1
11.1	3	★	MDW1110HX3	42.9	59.5	124.0	2.0	12.0	1
	5	★	MDW1110HX5	77.4	94.0	160.0			1
	8		MDW1110HX8	111.9	128.5	196.0			1
11.2	3	★	MDW1120HX3	42.7	59.5	124.0	2.0	12.0	1
	5	★	MDW1120HX5	77.2	94.0	160.0			1
	8		MDW1120HX8	111.7	128.5	196.0			1
11.3	3	★	MDW1130HX3	42.7	59.6	124.1	2.1	12.0	1
	5	★	MDW1130HX5	77.2	94.1	160.1			1
	8		MDW1130HX8	111.7	128.6	196.1			1
11.4	3	★	MDW1140HX3	42.5	59.6	124.1	2.1	12.0	1
	5	★	MDW1140HX5	77.0	94.1	160.1			1
	8		MDW1140HX8	111.5	128.6	196.1			1
11.5	3	★	MDW1150HX3	42.4	59.6	124.1	2.1	12.0	1
	5	★	MDW1150HX5	76.9	94.1	160.1			1
	8	★	MDW1150HX8	111.4	128.6	196.1			1
11.6	3	★	MDW1160HX3	44.7	62.1	124.1	2.1	12.0	1
	5	★	MDW1160HX5	80.7	98.1	160.1			1
	8		MDW1160HX8	116.7	134.1	196.1			1
11.7	3	★	MDW1170HX3	44.6	62.1	124.1	2.1	12.0	1
	5	★	MDW1170HX5	80.6	98.1	160.1			1
	8		MDW1170HX8	116.6	134.1	196.1			1
11.8	3	★	MDW1180HX3	44.4	62.1	124.1	2.1	12.0	1
	5	★	MDW1180HX5	80.4	98.1	160.1			1
	8		MDW1180HX8	116.4	134.1	196.1			1
11.9	3	★	MDW1190HX3	44.4	62.2	124.2	2.2	12.0	1
	5	★	MDW1190HX5	80.4	98.2	160.2			1
	8		MDW1190HX8	116.4	134.2	196.2			1

Grade: ACX70

Diameter ø12.0 to 13.7mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
12.0	3	★	MDW1200HX3	44.2	62.2	124.2	2.2	12.0	1
	5	★	MDW1200HX5	80.2	98.2	160.2			1
	8	★	MDW1200HX8	116.2	134.2	196.2			1
12.1	3		MDW1210HX3	46.6	64.7	130.2	2.2	13.0	1
	5		MDW1210HX5	84.1	102.2	169.2			1
	8		MDW1210HX8	121.6	139.7	208.2			1
12.2	3		MDW1220HX3	46.4	64.7	130.2	2.2	13.0	1
	5		MDW1220HX5	83.9	102.2	169.2			1
	8		MDW1220HX8	121.4	139.7	208.2			1
12.3	3		MDW1230HX3	46.3	64.7	130.2	2.2	13.0	1
	5		MDW1230HX5	83.8	102.2	169.2			1
	8		MDW1230HX8	121.3	139.7	208.2			1
12.4	3		MDW1240HX3	46.2	64.8	130.3	2.3	13.0	1
	5		MDW1240HX5	83.7	102.3	169.3			1
	8		MDW1240HX8	121.2	139.8	208.3			1
12.5	3	★	MDW1250HX3	46.1	64.8	130.3	2.3	13.0	1
	5	★	MDW1250HX5	83.6	102.3	169.3			1
	8	★	MDW1250HX8	121.1	139.8	208.3			1
12.6	3		MDW1260HX3	48.4	67.3	130.3	2.3	13.0	1
	5		MDW1260HX5	87.4	106.3	169.3			1
	8		MDW1260HX8	126.4	145.3	208.3			1
12.7	3		MDW1270HX3	48.3	67.3	130.3	2.3	13.0	1
	5		MDW1270HX5	87.3	106.3	169.3			1
	8		MDW1270HX8	126.3	145.3	208.3			1
12.8	3		MDW1280HX3	48.1	67.3	130.3	2.3	13.0	1
	5		MDW1280HX5	87.1	106.3	169.3			1
	8		MDW1280HX8	126.1	145.3	208.3			1
12.9	3		MDW1290HX3	48.0	67.3	130.3	2.3	13.0	1
	5		MDW1290HX5	87.0	106.3	169.3			1
	8		MDW1290HX8	126.0	145.3	208.3			1
13.0	3	★	MDW1300HX3	47.9	67.4	130.4	2.4	13.0	1
	5	★	MDW1300HX5	86.9	106.4	169.4			1
	8	★	MDW1300HX8	125.9	145.4	208.4			1
13.1	3		MDW1310HX3	50.3	69.9	136.4	2.4	14.0	1
	5		MDW1310HX5	90.8	110.4	178.4			1
	8		MDW1310HX8	131.3	150.9	220.4			1
13.2	3		MDW1320HX3	50.1	69.9	136.4	2.4	14.0	1
	5		MDW1320HX5	90.6	110.4	178.4			1
	8		MDW1320HX8	131.1	150.9	220.4			1
13.3	3		MDW1330HX3	50.0	69.9	136.4	2.4	14.0	1
	5		MDW1330HX5	90.5	110.4	178.4			1
	8		MDW1330HX8	131.0	150.9	220.4			1
13.4	3		MDW1340HX3	49.8	69.9	136.4	2.4	14.0	1
	5		MDW1340HX5	90.3	110.4	178.4			1
	8		MDW1340HX8	130.8	150.9	220.4			1
13.5	3	★	MDW1350HX3	49.8	70.0	136.5	2.5	14.0	1
	5	★	MDW1350HX5	90.3	110.5	178.5			1
	8	★	MDW1350HX8	130.8	151.0	220.5			1
13.6	3		MDW1360HX3	52.1	72.5	136.5	2.5	14.0	1
	5		MDW1360HX5	94.1	114.5	178.5			1
	8		MDW1360HX8	136.1	156.5	220.5			1
13.7	3		MDW1370HX3	52.0	72.5	136.5	2.5	14.0	1
	5		MDW1370HX5	94.0	114.5	178.5			1
	8		MDW1370HX8	136.0	156.5	220.5			1

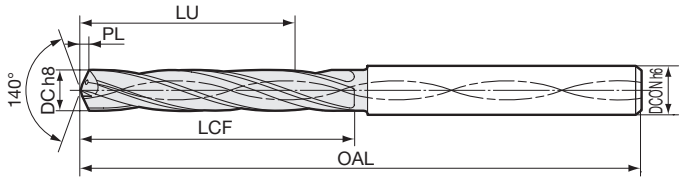
Grade: ACX70

★: Worldwide Warehouse Item

DEX Coating | Coolant Hole | 3D | 5D | 8D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø13.8 to 15.5mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
13.8	3		**MDW1380HX3**	51.8	72.5	136.5	2.5	14.0	1
	5		**MDW1380HX5**	93.8	114.5	178.5			1
	8		**MDW1380HX8**	135.8	156.5	220.5			1
13.9	3		**MDW1390HX3**	51.7	72.5	136.5	2.5	14.0	1
	5		**MDW1390HX5**	93.7	114.5	178.5			1
	8		**MDW1390HX8**	135.7	156.5	220.5			1
14.0	3	★	**MDW1400HX3**	51.5	72.5	136.5	2.5	14.0	1
	5	★	**MDW1400HX5**	93.5	114.5	178.5			1
	8		**MDW1400HX8**	135.5	156.5	220.5			1
14.1	3		**MDW1410HX3**	54.0	75.1	142.6	2.6	15.0	1
	5		**MDW1410HX5**	97.5	118.6	187.6			1
	8		**MDW1410HX8**	141.0	162.1	232.6			1
14.2	3		**MDW1420HX3**	53.8	75.1	142.6	2.6	15.0	1
	5		**MDW1420HX5**	97.3	118.6	187.6			1
	8		**MDW1420HX8**	140.8	162.1	232.6			1
14.3	3		**MDW1430HX3**	53.7	75.1	142.6	2.6	15.0	1
	5		**MDW1430HX5**	97.2	118.6	187.6			1
	8		**MDW1430HX8**	140.7	162.1	232.6			1
14.4	3		**MDW1440HX3**	53.5	75.1	142.6	2.6	15.0	1
	5		**MDW1440HX5**	97.0	118.6	187.6			1
	8		**MDW1440HX8**	140.5	162.1	232.6			1
14.5	3	★	**MDW1450HX3**	53.4	75.1	142.6	2.6	15.0	1
	5	★	**MDW1450HX5**	96.9	118.6	187.6			1
	8		**MDW1450HX8**	140.4	162.1	232.6			1
14.6	3		**MDW1460HX3**	55.8	77.7	142.7	2.7	15.0	1
	5		**MDW1460HX5**	100.8	122.7	187.7			1
	8		**MDW1460HX8**	145.8	167.7	232.7			1
14.7	3		**MDW1470HX3**	55.7	77.7	142.7	2.7	15.0	1
	5		**MDW1470HX5**	100.7	122.7	187.7			1
	8		**MDW1470HX8**	145.7	167.7	232.7			1
14.8	3		**MDW1480HX3**	55.5	77.7	142.7	2.7	15.0	1
	5		**MDW1480HX5**	100.5	122.7	187.7			1
	8		**MDW1480HX8**	145.5	167.7	232.7			1
14.9	3		**MDW1490HX3**	55.4	77.7	142.7	2.7	15.0	1
	5		**MDW1490HX5**	100.4	122.7	187.7			1
	8		**MDW1490HX8**	145.4	167.7	232.7			1
15.0	3	★	**MDW1500HX3**	55.2	77.7	142.7	2.7	15.0	1
	5	★	**MDW1500HX5**	100.2	122.7	187.7			1
	8	★	**MDW1500HX8**	145.2	167.7	232.7			1
15.1	3		**MDW1510HX3**	57.6	80.2	148.7	2.7	16.0	1
	5		**MDW1510HX5**	104.1	126.7	196.7			1
	8		**MDW1510HX8**	150.6	173.2	244.7			1
15.2	3		**MDW1520HX3**	57.5	80.3	148.8	2.8	16.0	1
	5		**MDW1520HX5**	104.0	126.8	196.8			1
	8		**MDW1520HX8**	150.5	173.3	244.8			1
15.3	3		**MDW1530HX3**	57.4	80.3	148.8	2.8	16.0	1
	5		**MDW1530HX5**	103.9	126.8	196.8			1
	8		**MDW1530HX8**	150.4	173.3	244.8			1
15.4	3		**MDW1540HX3**	57.2	80.3	148.8	2.8	16.0	1
	5		**MDW1540HX5**	103.7	126.8	196.8			1
	8		**MDW1540HX8**	150.2	173.3	244.8			1
15.5	3	★	**MDW1550HX3**	57.1	80.3	148.8	2.8	16.0	1
	5	★	**MDW1550HX5**	103.6	126.8	196.8			1
	8		**MDW1550HX8**	150.1	173.3	244.8			1

Grade: ACX70

Diameter ø15.6 to 17.3mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
15.6	3		**MDW1560HX3**	59.4	82.8	148.8	2.8	16.0	1
	5		**MDW1560HX5**	107.4	130.8	196.8			1
	8		**MDW1560HX8**	155.4	178.8	244.8			1
15.7	3		**MDW1570HX3**	59.4	82.9	148.9	2.9	16.0	1
	5		**MDW1570HX5**	107.4	130.9	196.9			1
	8		**MDW1570HX8**	155.4	178.9	244.9			1
15.8	3		**MDW1580HX3**	59.2	82.9	148.9	2.9	16.0	1
	5		**MDW1580HX5**	107.2	130.9	196.9			1
	8		**MDW1580HX8**	155.2	178.9	244.9			1
15.9	3		**MDW1590HX3**	59.1	82.9	148.9	2.9	16.0	1
	5		**MDW1590HX5**	107.1	130.9	196.9			1
	8		**MDW1590HX8**	155.1	178.9	244.9			1
16.0	3	★	**MDW1600HX3**	58.9	82.9	148.9	2.9	16.0	1
	5	★	**MDW1600HX5**	106.9	130.9	196.9			1
	8		**MDW1600HX8**	154.9	178.9	244.9			1
16.1	3		**MDW1610HX3**	61.3	85.4	154.9	2.9	17.0	1
	5		**MDW1610HX5**	110.8	134.9	205.9			1
	8		**MDW1610HX8**	160.3	184.4	256.9			1
16.2	3		**MDW1620HX3**	61.1	85.4	154.9	2.9	17.0	1
	5		**MDW1620HX5**	110.6	134.9	205.9			1
	8		**MDW1620HX8**	160.1	184.4	256.9			1
16.3	3		**MDW1630HX3**	61.1	85.5	155.0	3.0	17.0	1
	5		**MDW1630HX5**	110.6	135.0	206.0			1
	8		**MDW1630HX8**	160.1	184.5	257.0			1
16.4	3		**MDW1640HX3**	60.9	85.5	155.0	3.0	17.0	1
	5		**MDW1640HX5**	110.4	135.0	206.0			1
	8		**MDW1640HX8**	159.9	184.5	257.0			1
16.5	3	★	**MDW1650HX3**	60.8	85.5	155.0	3.0	17.0	1
	5	★	**MDW1650HX5**	110.3	135.0	206.0			1
	8		**MDW1650HX8**	159.8	184.5	257.0			1
16.6	3		**MDW1660HX3**	63.1	88.0	155.0	3.0	17.0	1
	5		**MDW1660HX5**	114.1	139.0	206.0			1
	8		**MDW1660HX8**	165.1	190.0	257.0			1
16.7	3		**MDW1670HX3**	63.0	88.0	155.0	3.0	17.0	1
	5		**MDW1670HX5**	114.0	139.0	206.0			1
	8		**MDW1670HX8**	165.0	190.0	257.0			1
16.8	3		**MDW1680HX3**	62.9	88.1	155.1	3.1	17.0	1
	5		**MDW1680HX5**	113.9	139.1	206.1			1
	8		**MDW1680HX8**	164.9	190.1	257.1			1
16.9	3		**MDW1690HX3**	62.8	88.1	155.1	3.1	17.0	1
	5		**MDW1690HX5**	113.8	139.1	206.1			1
	8		**MDW1690HX8**	164.8	190.1	257.1			1
17.0	3	★	**MDW1700HX3**	62.6	88.1	155.1	3.1	17.0	1
	5	★	**MDW1700HX5**	113.6	139.1	206.1			1
	8		**MDW1700HX8**	164.6	190.1	257.1			1
17.1	3	★	**MDW1710HX3**	65.0	90.6	161.1	3.1	18.0	1
	5	★	**MDW1710HX5**	117.5	143.1	217.1			1
	8	★	**MDW1710HX8**	170.0	195.6	269.1			1
17.2	3		**MDW1720HX3**	64.8	90.6	161.1	3.1	18.0	1
	5		**MDW1720HX5**	117.3	143.1	217.1			1
	8		**MDW1720HX8**	169.8	195.6	269.1			1
17.3	3		**MDW1730HX3**	64.7	90.6	161.1	3.1	18.0	1
	5		**MDW1730HX5**	117.2	143.1	217.1			1
	8		**MDW1730HX8**	169.7	195.6	269.1			1

Grade: ACX70

★: Worldwide Warehouse Item

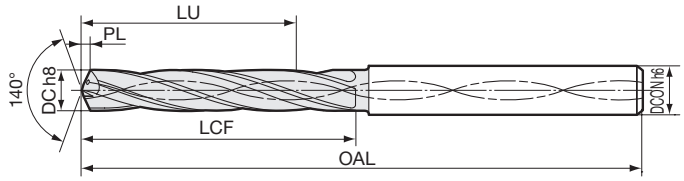
HX Series (Internal Coolant Supply)

Cast Iron | Ductile Cast Iron

DEX Coating | Coolant Hole | 3D | 5D | 8D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø17.4 to 18.3mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
17.4	3		**MDW1740HX3**	64.6	90.7	161.2	3.2	18.0	1
	5		**MDW1740HX5**	117.1	143.2	217.2			1
	8		**MDW1740HX8**	169.6	195.7	269.2			1
17.5	3	★	**MDW1750HX3**	64.5	90.7	161.2	3.2	18.0	1
	5	★	**MDW1750HX5**	117.0	143.2	217.2			1
	8		**MDW1750HX8**	169.5	195.7	269.2			1
17.6	3		**MDW1760HX3**	66.8	93.2	161.2	3.2	18.0	1
	5		**MDW1760HX5**	120.8	147.2	217.2			1
	8		**MDW1760HX8**	174.8	201.2	269.2			1
17.7	3		**MDW1770HX3**	66.7	93.2	161.2	3.2	18.0	1
	5		**MDW1770HX5**	120.7	147.2	217.2			1
	8		**MDW1770HX8**	174.7	201.2	269.2			1
17.8	3		**MDW1780HX3**	66.5	93.2	161.2	3.2	18.0	1
	5		**MDW1780HX5**	120.5	147.2	217.2			1
	8		**MDW1780HX8**	174.5	201.2	269.2			1
17.9	3		**MDW1790HX3**	66.5	93.3	161.3	3.3	18.0	1
	5		**MDW1790HX5**	120.5	147.3	217.3			1
	8		**MDW1790HX8**	174.5	201.3	269.3			1
18.0	3	★	**MDW1800HX3**	66.3	93.3	161.3	3.3	18.0	1
	5	★	**MDW1800HX5**	120.3	147.3	217.3			1
	8		**MDW1800HX8**	174.3	201.3	269.3			1
18.1	3		**MDW1810HX3**	68.7	95.8	167.3	3.3	19.0	1
	5		**MDW1810HX5**	124.2	151.3	224.3			1
18.2	3		**MDW1820HX3**	68.5	95.8	167.3	3.3	19.0	1
	5		**MDW1820HX5**	124.0	151.3	224.3			1
18.3	3		**MDW1830HX3**	68.4	95.8	167.3	3.3	19.0	1
	5		**MDW1830HX5**	123.9	151.3	224.3			1

Grade: ACX70

Diameter ø18.4 to 20.0mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
18.4	3		**MDW1840HX3**	68.2	95.8	167.3	3.3	19.0	1
	5		**MDW1840HX5**	123.7	151.3	224.3			1
18.5	3	★	**MDW1850HX3**	68.2	95.9	167.4	3.4	19.0	1
	5	★	**MDW1850HX5**	123.7	151.4	224.4			1
18.6	3		**MDW1860HX3**	70.5	98.4	167.4	3.4	19.0	1
	5		**MDW1860HX5**	127.5	155.4	224.4			1
18.7	3		**MDW1870HX3**	70.4	98.4	167.4	3.4	19.0	1
	5		**MDW1870HX5**	127.4	155.4	224.4			1
18.8	3		**MDW1880HX3**	70.2	98.4	167.4	3.4	19.0	1
	5		**MDW1880HX5**	127.2	155.4	224.4			1
18.9	3		**MDW1890HX3**	70.1	98.4	167.4	3.4	19.0	1
	5		**MDW1890HX5**	127.1	155.4	224.4			1
19.0	3	★	**MDW1900HX3**	70.0	98.5	167.5	3.5	19.0	1
	5	★	**MDW1900HX5**	127.0	155.5	224.5			1
19.1	3		**MDW1910HX3**	72.4	101.0	173.5	3.5	20.0	1
	5		**MDW1910HX5**	130.9	159.5	233.5			1
19.2	3		**MDW1920HX3**	72.2	101.0	173.5	3.5	20.0	1
	5		**MDW1920HX5**	130.7	159.5	233.5			1
19.3	3		**MDW1930HX3**	72.1	101.0	173.5	3.5	20.0	1
	5		**MDW1930HX5**	130.6	159.5	233.5			1
19.4	3		**MDW1940HX3**	71.9	101.0	173.5	3.5	20.0	1
	5		**MDW1940HX5**	130.4	159.5	233.5			1
19.5	3	★	**MDW1950HX3**	71.8	101.0	173.5	3.5	20.0	1
	5	★	**MDW1950HX5**	130.3	159.5	233.5			1
19.6	3		**MDW1960HX3**	74.2	103.6	173.6	3.6	20.0	1
	5		**MDW1960HX5**	134.2	163.6	233.6			1
19.7	3		**MDW1970HX3**	74.1	103.6	173.6	3.6	20.0	1
	5		**MDW1970HX5**	134.1	163.6	233.6			1
19.8	3		**MDW1980HX3**	73.9	103.6	173.6	3.6	20.0	1
	5		**MDW1980HX5**	133.9	163.6	233.6			1
19.9	3		**MDW1990HX3**	73.8	103.6	173.6	3.6	20.0	1
	5		**MDW1990HX5**	133.8	163.6	233.6			1
20.0	3	★	**MDW2000HX3**	73.6	103.6	173.6	3.6	20.0	1
	5	★	**MDW2000HX5**	133.6	163.6	233.6			1

Grade: ACX70

Recommended Cutting Conditions

(v_c: Cutting Speed (*m/min*), *f*: Feed Rate (*mm/rev*))

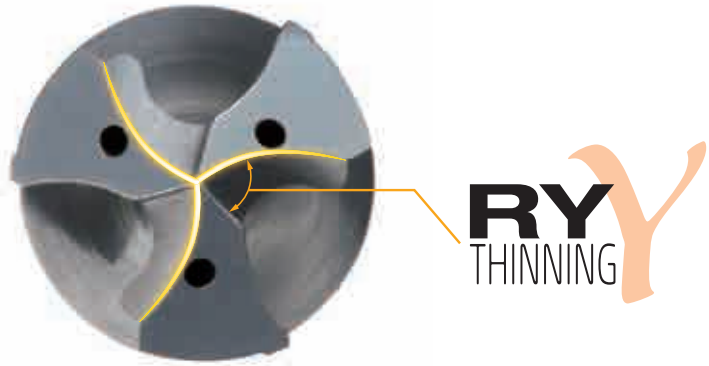
Dia. DC (mm)	Cutting Conditions	Gray Cast Iron FC250	Ductile Cast Iron FCD450
ø3.0	v_c	50 - 90	40 - 80
	f	0.10 - 0.30	0.12 - 0.24
ø5.0	v_c	50 - 90	40 - 80
	f	0.15 - 0.35	0.15 - 0.30
ø10.0	v_c	60 - 100	50 - 90
	f	0.20 - 0.50	0.20 - 0.40
ø20.0	v_c	70 - 120	60 - 100
	f	0.25 - 0.70	0.25 - 0.60

Min. - Max.

★: Worldwide Warehouse Item

■ General Features

Strong MultiDrill HY Type is a 3-flute drill that achieves stability and high efficiency in machining of steel and cast iron, reducing the load on each flute and extending the tool life.



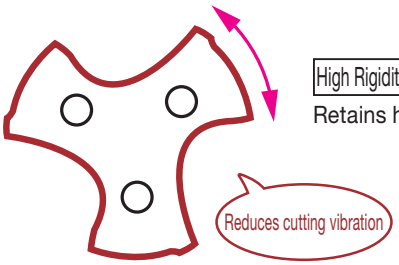
■ Features and Applications

- High-Efficiency Drilling of Steel and Cast Iron

  Thick web and 3-point margin design ensures stable hole diameter accuracy in high-efficiency drilling.
  RY THINNING also reduces cutting force in high-efficiency drilling.
  Applicable to cutting conditions exceeding v_f=31.5 IPM in steel drilling and v_f=39.4 IPM in cast iron drilling. (for ø10mm sizes)

- Long Tool Life

  DEX Coat for drills utilizes nano-coating technology to provide more than double the tool life of conventional coatings.
  3-point margin design gives excellent guide performance for vibration control and long, stable tool life.



High Rigidity
Retains high rigidity with a wide land.

J flute

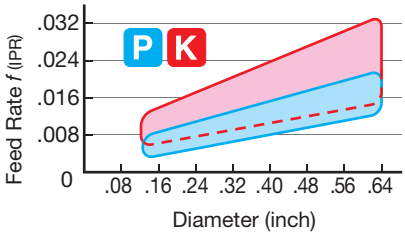
Evacuation
Drastically improved chip control and evacuation

Improves chip evacuation

■ Product Range

Coolant Supply	Cat. No.	Diameter Range (mm)	Hole Depth (L/D)	Number of items
Internal	MDW□□□□HY3	ø5.0 to ø16.0	up to 3	23 items in stock
	MDW□□□□HY5		up to 5	23 items in stock
	MDW□□□□HY8		up to 8	6 items in stock

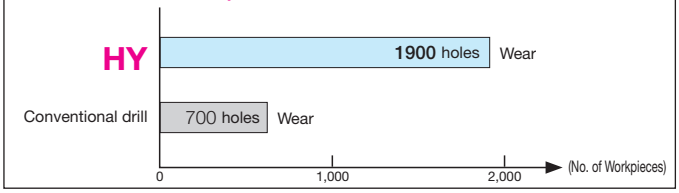
- Drilling of general steel and gray cast iron



■ Application Examples

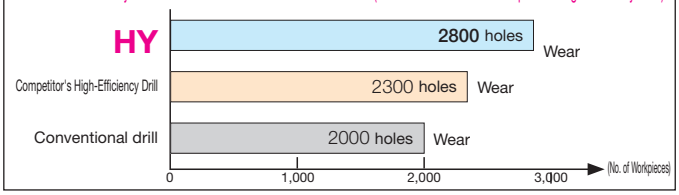
Machine components Alloy Steel
·Tool: MDW 1250HY3 (ø12.5mm 3D)
·Cutting Conditions: Conventional Tool : v_c=295 SFM, f =0.01 IPR, v_f=22.6 IPM
HY Type : v_c=230 SFM, f =0.0157 IPR, v_f=28 IPM
H=12mm (through), internal coolant supply (water soluble)

1.25 times the efficiency and 2.7 times the tool life of conventional drills



Machine components Ductile Cast Iron
·Tool: MDW 1020HY3 (ø10.2mm 3D)
·Cutting Conditions: Conventional Tool : v_c=230 SFM, f =0.011 IPR, v_f=24 IPM
HY Type : v_c=262 SFM, f =0.024 IPR, v_f=59 IPM
H=28mm (stop), internal coolant supply (water soluble)

2.5 times the efficiency and +1.4 times the tool life of conventional drills (1.2 times the tool life of competitors' high-efficiency drills)

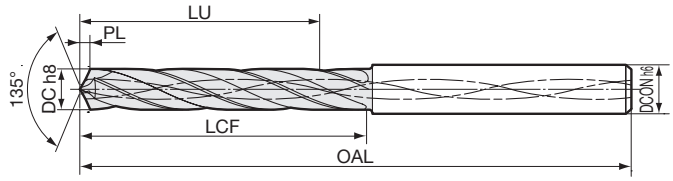


Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Cast Iron | Ductile Cast Iron

DEX Coating | Coolant Hole | 3D | 5D | 8D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø5.0 to 9.5mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
5.0	3	★	**MDW0500HY3**	21.0	28.5	81.0	1.0	5.0	1
	5	★	**MDW0500HY5**	37.5	45.0	99.0			1
	8	★	**MDW0500HY8**	48.5	56.0	106.0			1
5.1	3	★	**MDW0510HY3**	21.0	28.6	83.1	1.1	6.0	1
	5	★	**MDW0510HY5**	37.5	45.1	101.1			1
	8		**MDW0510HY8**	54.0	61.6	119.1			1
6.0	3	★	**MDW0600HY3**	22.2	31.2	83.2	1.2	6.0	1
	5	★	**MDW0600HY5**	40.2	49.2	101.2			1
	8	★	**MDW0600HY8**	58.2	67.2	119.2			1
6.5	3	★	**MDW0650HY3**	24.1	33.8	89.3	1.3	7.0	1
	5	★	**MDW0650HY5**	43.6	53.3	110.3			1
	8		**MDW0650HY8**	63.1	72.8	131.3			1
6.8	3	★	**MDW0680HY3**	26.2	36.4	89.4	1.4	7.0	1
	5	★	**MDW0680HY5**	47.2	57.4	110.4			1
	8	★	**MDW0680HY8**	68.2	78.4	131.4			1
7.0	3	★	**MDW0700HY3**	25.9	36.4	89.4	1.4	7.0	1
	5	★	**MDW0700HY5**	46.9	57.4	110.4			1
	8		**MDW0700HY8**	67.9	78.4	131.4			1
8.0	3	★	**MDW0800HY3**	29.7	41.7	95.7	1.7	8.0	1
	5	★	**MDW0800HY5**	53.7	65.7	119.7			1
	8		**MDW0800HY8**	77.7	89.7	143.7			1
8.5	3	★	**MDW0850HY3**	31.6	44.3	101.8	1.8	9.0	1
	5	★	**MDW0850HY5**	57.1	69.8	128.8			1
	8	★	**MDW0850HY8**	82.6	95.3	155.8			1
8.6	3	★	**MDW0860HY3**	33.9	46.8	101.8	1.8	9.0	1
	5	★	**MDW0860HY5**	60.9	73.8	128.8			1
	8		**MDW0860HY8**	87.9	100.8	155.8			1
8.8	3	★	**MDW0880HY3**	33.6	46.8	101.8	1.8	9.0	1
	5	★	**MDW0880HY5**	60.6	73.8	128.8			1
	8		**MDW0880HY8**	87.6	100.8	155.8			1
9.0	3	★	**MDW0900HY3**	33.4	46.9	101.9	1.9	9.0	1
	5	★	**MDW0900HY5**	60.4	73.9	128.9			1
	8		**MDW0900HY8**	87.4	100.9	155.9			1
9.5	3	★	**MDW0950HY3**	35.3	49.5	108.0	2.0	10.0	1
	5	★	**MDW0950HY5**	63.8	78.0	138.0			1
	8		**MDW0950HY8**	92.3	106.5	168.0			1

Grade: ACX70

Diameter ø10.0 to 16.0mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
10.0	3	★	**MDW1000HY3**	37.1	52.1	108.1	2.1	10.0	1
	5	★	**MDW1000HY5**	67.1	82.1	138.1			1
	8		**MDW1000HY8**	97.1	112.1	168.1			1
10.2	3	★	**MDW1020HY3**	39.3	54.6	118.1	2.1	11.0	1
	5	★	**MDW1020HY5**	70.8	86.1	151.1			1
	8		**MDW1020HY8**	102.3	117.6	184.1			1
10.3	3	★	**MDW1030HY3**	39.2	54.6	118.1	2.1	11.0	1
	5	★	**MDW1030HY5**	70.7	86.1	151.1			1
	8	★	**MDW1030HY8**	102.2	117.6	184.1			1
11.0	3	★	**MDW1100HY3**	40.8	57.3	118.3	2.3	11.0	1
	5	★	**MDW1100HY5**	73.8	90.3	151.3			1
	8		**MDW1100HY8**	106.8	123.3	184.3			1
11.4	3	★	**MDW1140HY3**	42.8	59.9	124.4	2.4	12.0	1
	5	★	**MDW1140HY5**	77.3	94.4	160.4			1
	8		**MDW1140HY8**	111.8	128.9	196.4			1
11.5	3	★	**MDW1150HY3**	42.7	59.9	124.4	2.4	12.0	1
	5	★	**MDW1150HY5**	77.2	94.4	160.4			1
	8		**MDW1150HY8**	111.7	128.9	196.4			1
12.0	3	★	**MDW1200HY3**	44.5	62.5	124.5	2.5	12.0	1
	5	★	**MDW1200HY5**	80.5	98.5	160.5			1
	8		**MDW1200HY8**	116.5	134.5	196.5			1
12.5	3	★	**MDW1250HY3**	46.4	65.1	130.6	2.6	13.0	1
	5	★	**MDW1250HY5**	83.9	102.6	169.6			1
	8	★	**MDW1250HY8**	121.4	140.1	208.6			1
13.0	3	★	**MDW1300HY3**	48.2	67.7	130.7	2.7	13.0	1
	5	★	**MDW1300HY5**	87.2	106.7	169.7			1
	8		**MDW1300HY8**	126.2	145.7	208.7			1
14.0	3	★	**MDW1400HY3**	51.9	72.9	136.9	2.9	14.0	1
	5	★	**MDW1400HY5**	93.9	114.9	178.9			1
	8		**MDW1400HY8**	135.9	156.9	220.9			1
16.0	3	★	**MDW1600HY3**	59.3	83.3	149.3	3.3	16.0	1
	5	★	**MDW1600HY5**	107.3	131.3	197.3			1
	8		**MDW1600HY8**	155.3	179.3	245.3			1

Grade: ACX70

Recommended Cutting Conditions

(v_c: Cutting Speed (*m/min*), *f*: Feed Rate (*mm/rev*))

Dia. DC (*mm*)	Cutting Conditions	Mild Steel/General Steel (up to 300HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450
ø5.0	v_c	50 - 120	50 - 90	40 - 80
	f	0.15 - 0.25	0.20 - 0.45	0.18 - 0.30
ø10.0	v_c	70 - 150	60 - 100	50 - 90
	f	0.20 - 0.40	0.30 - 0.60	0.30 - 0.50
ø16.0	v_c	80 - 160	70 - 120	60 - 100
	f	0.35 - 0.55	0.40 - 0.80	0.40 - 0.70

Min. - Max.

★: Worldwide Warehouse Item

■ General Features

SGS type drills for heat-resistant alloys employ a sharp cutting edge to reduce heat during drilling (reduces cutting force) and provide a long, stable tool life.

■ Features and Applications

Long tool life

- Combination of optimised cutting edge design and dedicated grade significantly reduces wear.
- Minute honing (edge treatment) amount and special thinning shape reduce cutting force. This reduces cutting edge breakage.
- Perfect for drilling Ni-based heat-resistant alloys (Inconel/Waspaloy/Hastelloy).

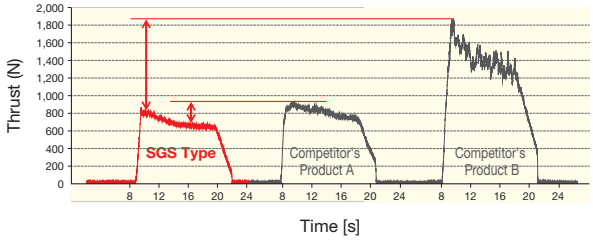
■ Product Range

Cat. No.	Diameter Range (*mm*)	Hole Depth (L/D)
MDW□□□□SGS3	*ø3.0 to 12.0*	up to 3

■ Performance

Comparison of Cutting Force (Thrust)

Low Resistance (Reduced Load on Cutting Edge)



Tool Diameter : *ø6.0mm*
Part Material : Inconel 718
Cutting Conditions : v_c=33 SFM, *f* =0.003 IPR, *H*=0.315" (through), external coolant supply

Tool Life Comparison

Long Tool Life (No Fracturing or Breakage)

Tool	SGS Type	Competitor's Product A	Competitor's Product B
No. of Workpieces	Able to Continue after 50 Holes	Breakage after 30 Holes	Breakage after 5 Holes
Photo			

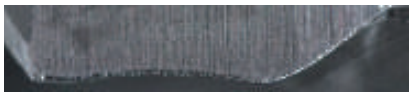
Tool Diameter : *ø6.0mm*
Part Material : Inconel 718
Cutting Conditions : v_c=33 SFM, *f* =0.003 IPR, *H* =0.630" (stop hole), external coolant supply

■ Application Examples

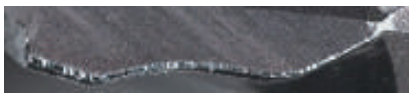
Comparison of Cutting Edge Wear after 30 Holes

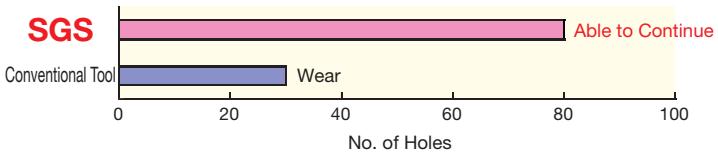
Significantly Reduced Flank Wear

SGS



Conventional Tool





Tool : MDW 0600SGS3
Part Material : Inconel 718 (aeronautic components)
Cutting Conditions : v_c=33 SFM, *f* =0.0023 IPR, *H*=0.118" (through), external coolant supply

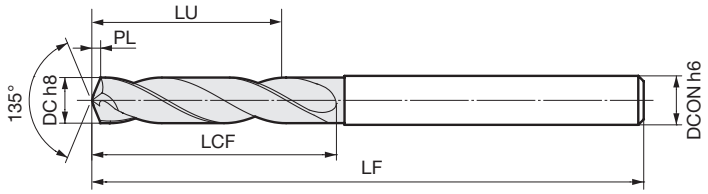
SGS Type (External Coolant Supply)

Stainless Steel | Ti Alloy | Heat-resistant Steel

PVD Coat | 3D

*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø3.0 to 12.0mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
3.0	3	★	**MDW0300SGS3**	13.6	18.1	49.6	0.6	3.0	1
3.5	3	★	**MDW0350SGS3**	15.5	20.7	60.7	0.7	4.0	1
4.0		★	**MDW0400SGS3**	17.3	23.3	60.8	0.8		1
4.5	3	★	**MDW0450SGS3**	19.2	25.9	76.9	0.9	5.0	1
5.0		★	**MDW0500SGS3**	21.0	28.5	77.0	1.0		1
5.5	3	★	**MDW0550SGS3**	20.4	28.6	82.1	1.1	6.0	1
6.0		★	**MDW0600SGS3**	22.2	31.2	82.2	1.2		1
6.5	3	★	**MDW0650SGS3**	24.1	33.8	84.3	1.3	7.0	1
7.0		★	**MDW0700SGS3**	25.9	36.4	84.4	1.4		1
7.5	3	★	**MDW0750SGS3**	27.9	39.1	91.6	1.6	8.0	1
8.0		★	**MDW0800SGS3**	29.7	41.7	91.7	1.7		1
8.5	3	★	**MDW0850SGS3**	31.6	44.3	99.8	1.8	9.0	1
9.0		★	**MDW0900SGS3**	33.4	46.9	99.9	1.9		1
9.5	3	★	**MDW0950SGS3**	35.3	49.5	107.0	2.0	10.0	1
10.0		★	**MDW1000SGS3**	37.1	52.1	107.1	2.1		1
10.5	3	★	**MDW1050SGS3**	39.0	54.7	116.2	2.2	11.0	1
11.0		★	**MDW1100SGS3**	40.8	57.3	116.3	2.3		1
11.5	3	★	**MDW1150SGS3**	42.7	59.9	123.4	2.4	12.0	1
12.0		★	**MDW1200SGS3**	44.5	62.5	123.5	2.5		1

Grade: ACW528

Recommended Cutting Conditions

(v_c: Cutting Speed (*m/min*), *f*: Feed Rate (*mm/rev*))

Dia. DC (*mm*)	Cutting Conditions	Titanium Alloy Ti	Heat-Resistant Alloy Inconel
ø6.0	v_c	10 - 30	10 - 30
	f	0.05 - 0.10	0.05 - 0.10
ø10.0	v_c	10 - 30	10 - 30
	f	0.07 - 0.12	0.07 - 0.12
ø12.0	v_c	10 - 30	15 - 30
	f	0.07 - 0.12	0.07 - 0.12

Min. - Max.

★: Worldwide Warehouse Item

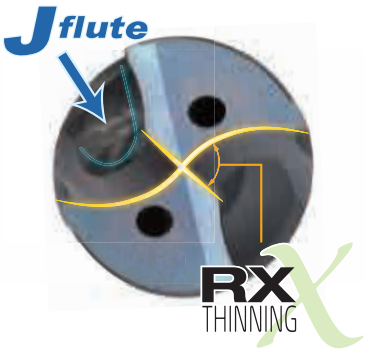
XHGS / PHT

■ General Features

Super MultiDrill XHGS, a next-generation drill specialized for deep hole drilling, features high drill strength and stable chip control to further enhance efficiency of deep hole drilling.

■ Features

- Deep hole drilling
  - New groove shape (J flute) achieves improved chip control during deep hole drilling
  - High-efficiency drilling at over v_f=39.37 IPM at depths 20 times the drill diameter (diameter ø5, equivalent to S48C)
  - Special web thinning shape (RX thinning) reduces cutting force during high-efficiency machining
- Long tool life
  - Special DEX Coat provides long tool life on a wide variety of work materials
  - Improved chip evacuation makes it possible to reduce spindle load fluctuation, ensuring long, stable tool life
- Eco-Friendly
  - Compatible with the MQL (Minimum Quantity Lubrication) system
  - Compatible with dual-fluid mist (simultaneous spray of oil and water)



■ Product Range

Applications	Cat. No.	Diameter Range (*mm*)	Hole Depth (L/D)
Deep Hole Drilling	MDW□□□□XHGS10	*ø2.1 to 16.0*	up to 10
	MDW□□□□XHGS12	*ø2.5 to 16.0*	up to 12
	MDW□□□□XHGS15	*ø2.1 to 16.0*	up to 15
	MDW□□□□XHGS20	*ø2.1 to 14.0*	up to 20
	MDW□□□□XHGS25	*ø2.1 to 12.0*	up to 25
	MDW□□□□XHGS30	*ø2.1 to 10.0*	up to 30
For Guide Holes	MDW□□□□PHT	*ø2.1 to 16.0*	up to 2

■ Application Examples

● Automotive components (Medium Carbon Steel)

Tool : ø5.0x115mm (PHT), ø5.0x170mm (XHGS Type)
Machine : Horizontal single-spindle NC machine
Coolant : MQL (air pressure 0.5MPa, volume approx. 4cc/h)
Cutting Conditions : v_c=262 SFM, *f* =0.011 IPR, *H* =3.346" per hole (3 holes per unit)
Tool life : 500 units (371 ft.)

● Automotive components (Structural Carbon Steel)

Tool : ø6.0x170mm (PHT), ø6.0x230mm (XHGS Type)
Machine : Horizontal single-spindle NC machine
Coolant : MQL (air pressure 0.5MPa, volume approx. 40cc/h)
Cutting Conditions : v_c=262 SFM, *f* =0.007 IPR, *H* =4.33" per hole (4 holes per unit)
Tool life : 150 units (371 ft.)

● Automotive components (Ductile Cast Iron)

Tool : ø5.0x105mm (PHT), ø5.0x155mm (XHGS Type)
Machine : Horizontal single-spindle NC machine
Coolant : MQL (air pressure 0.4MPa, volume approx. 4cc/h)
Cutting Conditions : v_c=165 SFM, *f* =0.007 IPR *H* =2.362" per hole (5 holes per unit)
Tool life : 400 units (394 ft.)

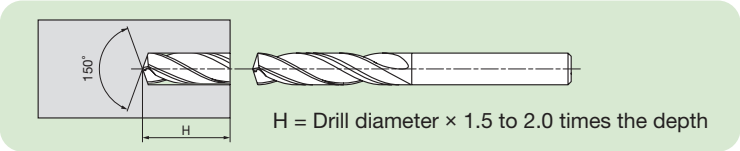
● Machine components (1045 Steel)

Tool : ø6.0x90mm (PHT), ø6.0x145mm (XHGS Type)
Machine : Horizontal single-spindle NC machine
Coolant : MQL (air pressure 0.5MPa, volume approx. 60cc/h)
Cutting Conditions : v_c=262 SFM, *f* =0.0078, *H* =2.44" per hole (3 holes per unit)
Tool life : 550 units (341 ft.)

■ Recommended Drilling Method

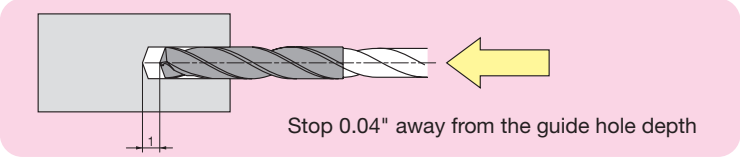
(1) Make a guide hole using the PHT

- Select the same nominal diameter for the PHT type dedicated guide hole drill as the XHGS type deep hole drill. (The guide drill diameter is designed to be 0.02 mm to 0.05 mm larger than the long drill diameter.)



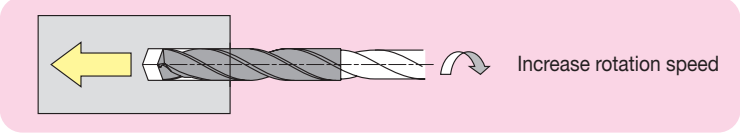
(2) Feed the XHGS deep hole drill through the guide hole at low rotation speed

- Spindle Speed: 500 RPM
- Feed Rate: 39 to 78 IPM



* If the drill is inserted into the guide hole at the set cutting speed, peripheral run-out may cause damage to the drill's peripheral edges.

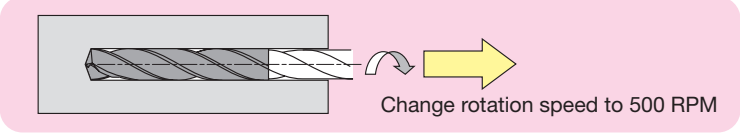
(3) Increase rotation speed until the set cutting speed is reached, then start normal drilling operation



* On some NC machines, the feed command may be activated before the set spindle speed is reached, so it is recommended to enter a dwell sequence before the feed command.

(4) After drilling, rotation speed is reduced and the drill is retracted from the work material

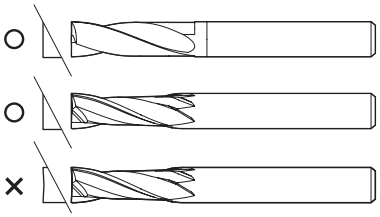
- Spindle speed: 500 RPM Feed rate: 39 to 78 IPM



* Retracting a drill from the work material at a high rotation speed is dangerous as doing so may result in breakage due to runout.

(5) Other notes

- A flat base should be prepared first if the entry side is a non-flat surface (slanted surface, cylindrical surface, etc.).



Spot facing using an endmill or flat MultiDrill MDF type (see page J44)

Concave ended endmills cannot be used.

- If the exit side is a non-flat surface, reduce the feed rate to f=0.002 IPR immediately before the breakthrough point to prevent the drill from breaking or burrs from forming.

■ Coolant

(1) Internal coolant supply

- Use coolant equivalent to JIS A1-1 (emulsion).
- Pump pressure Steel: 1. 5 to 2. 0MPa (higher pressure results in a stronger cooling effect, which affects chips and wear)
  Cast iron and aluminum alloy: 4. 0 to 6. 0MPa (prioritize cooling performance)

(2) Internal MQL

- Air pressure : 0.5MPa or greater
- Evacuation volume : It is recommended to set the maximum evacuation volume for your equipment.
  *Consult the manufacturer if you intend to machine aluminum alloy.

(3) Internal dual-fluid mist

- Air pressure : 0.5MPa or greater
- Evacuation volume : It is recommended to use the optimal setting for your equipment.

XHGS / PHT (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron

DEX Coating | Coolant Hole | 10D | 12D | 15D | 20D | 25D | 30D | Pilot 3D

*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

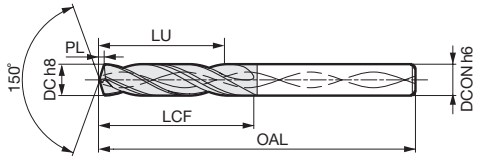
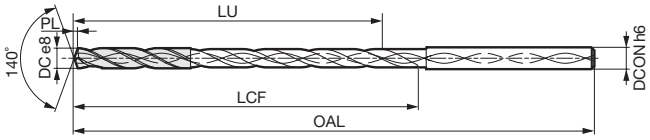


Fig. 2 (XHGS Type)



Diameter ø2.1 to 2.8mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
2.1	3	★	MDW0210PHT	12.2	15.3	68.3	0.3	3.0	1
	10	★	MDW0210XHGS10	35.3	38.4	88.4	0.4		2
	15	★	MDW0210XHGS15	45.3	48.4	98.4			2
	20	★	MDW0210XHGS20	58.3	61.4	111.4			2
	25	★	MDW0210XHGS25	70.3	73.4	123.4			2
	30	★	MDW0210XHGS30	83.3	86.4	136.4			2
2.2	3	★	MDW0220PHT	12.0	15.3	68.3	0.3	3.0	1
	10	★	MDW0220XHGS10	35.1	38.4	88.4	0.4		2
	15	★	MDW0220XHGS15	45.1	48.4	98.4			2
	20	★	MDW0220XHGS20	58.1	61.4	111.4			2
	25	★	MDW0220XHGS25	70.1	73.4	123.4			2
	30	★	MDW0220XHGS30	83.1	86.4	136.4			2
2.3	3	★	MDW0230PHT	11.9	15.3	68.3	0.3	3.0	1
	10	★	MDW0230XHGS10	35.0	38.4	88.4	0.4		2
	15	★	MDW0230XHGS15	45.0	48.4	98.4			2
	20	★	MDW0230XHGS20	58.0	61.4	111.4			2
	25	★	MDW0230XHGS25	70.0	73.4	123.4			2
	30	★	MDW0230XHGS30	83.0	86.4	136.4			2
2.4	3	★	MDW0240PHT	11.7	15.3	68.3	0.3	3.0	1
	10	★	MDW0240XHGS10	34.8	38.4	88.4	0.4		2
	15	★	MDW0240XHGS15	44.8	48.4	98.4			2
	20	★	MDW0240XHGS20	57.8	61.4	111.4			2
	25	★	MDW0240XHGS25	69.8	73.4	123.4			2
	30	★	MDW0240XHGS30	82.8	86.4	136.4			2
2.5	3	★	MDW0250PHT	11.6	15.3	68.3	0.3	3.0	1
	10	★	MDW0250XHGS10	34.8	38.5	88.5	0.5		2
	12	★	MDW0250XHGS12	37.8	41.5	91.5			2
	15	★	MDW0250XHGS15	44.8	48.5	98.5			2
	20	★	MDW0250XHGS20	57.8	61.5	111.5			2
	25	★	MDW0250XHGS25	69.8	73.5	123.5			2
	30	★	MDW0250XHGS30	82.8	86.5	136.5			2
2.6	3	★	MDW0260PHT	13.9	17.8	68.3	0.3	3.0	1
	10	★	MDW0260XHGS10	41.6	45.5	93.5	0.5		2
	12		MDW0260XHGS12	47.6	51.5	99.5			2
	15	★	MDW0260XHGS15	56.6	60.5	108.5			2
	20	★	MDW0260XHGS20	71.6	75.5	123.5			2
	25	★	MDW0260XHGS25	86.6	90.5	138.5			2
	30	★	MDW0260XHGS30	101.6	105.5	153.5			2
2.7	3	★	MDW0270PHT	13.9	17.9	68.4	0.4	3.0	1
	10	★	MDW0270XHGS10	41.5	45.5	93.5	0.5		2
	12		MDW0270XHGS12	47.5	51.5	99.5			2
	15	★	MDW0270XHGS15	56.5	60.5	108.5			2
	20	★	MDW0270XHGS20	71.5	75.5	123.5			2
	25	★	MDW0270XHGS25	86.5	90.5	138.5			2
	30	★	MDW0270XHGS30	101.5	105.5	153.5			2
2.8	3	★	MDW0280PHT	13.7	17.9	68.4	0.4	3.0	1
	10	★	MDW0280XHGS10	41.3	45.5	93.5	0.5		2
	12		MDW0280XHGS12	47.3	51.5	99.5			2
	15	★	MDW0280XHGS15	56.3	60.5	108.5			2
	20	★	MDW0280XHGS20	71.3	75.5	123.5			2
	25	★	MDW0280XHGS25	86.3	90.5	138.5			2
	30	★	MDW0280XHGS30	101.3	105.5	153.5			2

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

Diameter ø2.9 to 3.6mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
2.9	3	★	MDW0290PHT	13.6	17.9	68.4	0.4	3.0	1
	10	★	MDW0290XHGS10	41.2	45.5	93.5	0.5		2
	12		MDW0290XHGS12	47.2	51.5	99.5			2
	15	★	MDW0290XHGS15	56.2	60.5	108.5			2
	20	★	MDW0290XHGS20	71.2	75.5	123.5			2
	25	★	MDW0290XHGS25	86.2	90.5	138.5			2
	30	★	MDW0290XHGS30	101.2	105.5	153.5			2
3.0	3	★	MDW0300PHT	13.4	17.9	68.4	0.4	3.0	1
	10	★	MDW0300XHGS10	41.0	45.5	93.5	0.5		2
	12	★	MDW0300XHGS12	47.0	51.5	99.5			2
	15	★	MDW0300XHGS15	56.0	60.5	108.5			2
	20	★	MDW0300XHGS20	71.0	75.5	123.5			2
	25	★	MDW0300XHGS25	86.0	90.5	138.5			2
	30	★	MDW0300XHGS30	101.0	105.5	153.5			2
3.1	3	★	MDW0310PHT	15.8	20.4	72.4	0.4	4.0	1
	10	★	MDW0310XHGS10	49.0	53.6	103.6	0.6		2
	12		MDW0310XHGS12	54.0	58.6	108.6			2
	15	★	MDW0310XHGS15	64.0	68.6	118.6			2
	20	★	MDW0310XHGS20	82.0	86.6	136.6			2
	25	★	MDW0310XHGS25	99.0	103.6	153.6			2
	30	★	MDW0310XHGS30	117.0	121.6	171.6			2
3.2	3	★	MDW0320PHT	15.6	20.4	72.4	0.4	4.0	1
	10	★	MDW0320XHGS10	48.8	53.6	103.6	0.6		2
	12		MDW0320XHGS12	53.8	58.6	108.6			2
	15	★	MDW0320XHGS15	63.8	68.6	118.6			2
	20	★	MDW0320XHGS20	81.8	86.6	136.6			2
	25	★	MDW0320XHGS25	98.8	103.6	153.6			2
	30	★	MDW0320XHGS30	116.8	121.6	171.6			2
3.3	3	★	MDW0330PHT	15.5	20.4	72.4	0.4	4.0	1
	10	★	MDW0330XHGS10	48.7	53.6	103.6	0.6		2
	12		MDW0330XHGS12	53.7	58.6	108.6			2
	15	★	MDW0330XHGS15	63.7	68.6	118.6			2
	20	★	MDW0330XHGS20	81.7	86.6	136.6			2
	25	★	MDW0330XHGS25	98.7	103.6	153.6			2
	30	★	MDW0330XHGS30	116.7	121.6	171.6			2
3.4	3	★	MDW0340PHT	15.4	20.5	72.5	0.5	4.0	1
	10	★	MDW0340XHGS10	48.5	53.6	103.6	0.6		2
	12		MDW0340XHGS12	53.5	58.6	108.6			2
	15	★	MDW0340XHGS15	63.5	68.6	118.6			2
	20	★	MDW0340XHGS20	81.5	86.6	136.6			2
	25	★	MDW0340XHGS25	98.5	103.6	153.6			2
	30	★	MDW0340XHGS30	116.5	121.6	171.6			2
3.5	3	★	MDW0350PHT	15.3	20.5	72.5	0.5	4.0	1
	10	★	MDW0350XHGS10	48.4	53.6	103.6	0.6		2
	12	★	MDW0350XHGS12	53.4	58.6	108.6			2
	15	★	MDW0350XHGS15	63.4	68.6	118.6			2
	20	★	MDW0350XHGS20	81.4	86.6	136.6			2
	25	★	MDW0350XHGS25	98.4	103.6	153.6			2
	30	★	MDW0350XHGS30	116.4	121.6	171.6			2
3.6	3	★	MDW0360PHT	17.6	23.0	72.5	0.5	4.0	1
	10	★	MDW0360XHGS10	55.3	60.7	108.7	0.7		2
	12		MDW0360XHGS12	63.3	68.7	116.7			2
	15	★	MDW0360XHGS15	75.3	80.7	128.7			2
	20	★	MDW0360XHGS20	95.3	100.7	148.7			2
	25	★	MDW0360XHGS25	115.3	120.7	168.7			2
	30	★	MDW0360XHGS30	135.3	140.7	188.7			2

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

★: Worldwide Warehouse Item

XHGS / PHT (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron

DEX Coating | Coolant Hole | 10D | 12D | 15D | 20D | 25D | 30D | Pilot 3D

*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

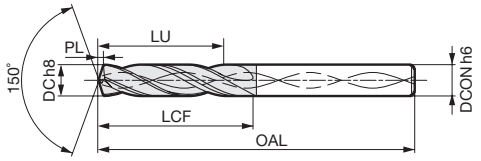
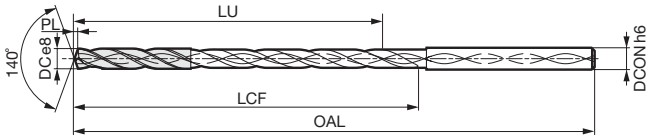


Fig. 2 (XHGS Type)



Diameter ø3.7 to 4.4mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
3.7	3	★	MDW0370PHT	17.5	23.0	72.5	0.5	4.0	1
	10	★	MDW0370XHGS10	55.2	60.7	108.7	0.7		2
	12		MDW0370XHGS12	63.2	68.7	116.7			2
	15	★	MDW0370XHGS15	75.2	80.7	128.7			2
	20	★	MDW0370XHGS20	95.2	100.7	148.7			2
	25	★	MDW0370XHGS25	115.2	120.7	168.7			2
	30	★	MDW0370XHGS30	135.2	140.7	188.7			2
3.8	3	★	MDW0380PHT	17.3	23.0	72.5	0.5	4.0	1
	10	★	MDW0380XHGS10	55.0	60.7	108.7	0.7		2
	12		MDW0380XHGS12	63.0	68.7	116.7			2
	15	★	MDW0380XHGS15	75.0	80.7	128.7			2
	20	★	MDW0380XHGS20	95.0	100.7	148.7			2
	25	★	MDW0380XHGS25	115.0	120.7	168.7			2
	30	★	MDW0380XHGS30	135.0	140.7	188.7			2
3.9	3	★	MDW0390PHT	17.2	23.0	72.5	0.5	4.0	1
	10	★	MDW0390XHGS10	54.9	60.7	108.7	0.7		2
	12		MDW0390XHGS12	62.9	68.7	116.7			2
	15	★	MDW0390XHGS15	74.9	80.7	128.7			2
	20	★	MDW0390XHGS20	94.9	100.7	148.7			2
	25	★	MDW0390XHGS25	114.9	120.7	168.7			2
	30	★	MDW0390XHGS30	134.9	140.7	188.7			2
4.0	3	★	MDW0400PHT	17.0	23.0	72.5	0.5	4.0	1
	10	★	MDW0400XHGS10	54.7	60.7	108.7	0.7		2
	12	★	MDW0400XHGS12	62.7	68.7	116.7			2
	15	★	MDW0400XHGS15	74.7	80.7	128.7			2
	20	★	MDW0400XHGS20	94.7	100.7	148.7			2
	25	★	MDW0400XHGS25	114.7	120.7	168.7			2
	30	★	MDW0400XHGS30	134.7	140.7	188.7			2
4.1	3	★	MDW0410PHT	19.4	25.5	80.5	0.5	5.0	1
	10	★	MDW0410XHGS10	62.6	68.7	120.7	0.7		2
	12		MDW0410XHGS12	69.6	75.7	127.7			2
	15	★	MDW0410XHGS15	82.6	88.7	140.7			2
	20	★	MDW0410XHGS20	105.6	111.7	163.7			2
	25	★	MDW0410XHGS25	127.6	133.7	185.7			2
	30	★	MDW0410XHGS30	150.6	156.7	208.7			2
4.2	3	★	MDW0420PHT	19.3	25.6	80.6	0.6	5.0	1
	10	★	MDW0420XHGS10	62.5	68.8	120.8	0.8		2
	12		MDW0420XHGS12	69.5	75.8	127.8			2
	15	★	MDW0420XHGS15	82.5	88.8	140.8			2
	20	★	MDW0420XHGS20	105.5	111.8	163.8			2
	25	★	MDW0420XHGS25	127.5	133.8	185.8			2
	30	★	MDW0420XHGS30	150.5	156.8	208.8			2
4.3	3	★	MDW0430PHT	19.2	25.6	80.6	0.6	5.0	1
	10	★	MDW0430XHGS10	62.4	68.8	120.8	0.8		2
	12		MDW0430XHGS12	69.4	75.8	127.8			2
	15	★	MDW0430XHGS15	82.4	88.8	140.8			2
	20	★	MDW0430XHGS20	105.4	111.8	163.8			2
	25	★	MDW0430XHGS25	127.4	133.8	185.8			2
	30	★	MDW0430XHGS30	150.4	156.8	208.8			2
4.4	3	★	MDW0440PHT	19.0	25.6	80.6	0.6	5.0	1
	10	★	MDW0440XHGS10	62.2	68.8	120.8	0.8		2
	12		MDW0440XHGS12	69.2	75.8	127.8			2
	15	★	MDW0440XHGS15	82.2	88.8	140.8			2
	20	★	MDW0440XHGS20	105.2	111.8	163.8			2
	25	★	MDW0440XHGS25	127.2	133.8	185.8			2
	30	★	MDW0440XHGS30	150.2	156.8	208.8			2

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

Diameter ø4.5 to 5.2mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
4.5	3	★	MDW0450PHT	18.9	25.6	80.6	0.6	5.0	1
	10	★	MDW0450XHGS10	62.1	68.8	120.8	0.8		2
	12	★	MDW0450XHGS12	69.1	75.8	127.8			2
	15	★	MDW0450XHGS15	82.1	88.8	140.8			2
	20	★	MDW0450XHGS20	105.1	111.8	163.8			2
	25	★	MDW0450XHGS25	127.1	133.8	185.8			2
	30	★	MDW0450XHGS30	150.1	156.8	208.8			2
4.6	3	★	MDW0460PHT	21.2	28.1	80.6	0.6	5.0	1
	10	★	MDW0460XHGS10	68.9	75.8	125.8	0.8		2
	12		MDW0460XHGS12	78.9	85.8	135.8			2
	15	★	MDW0460XHGS15	93.9	100.8	150.8			2
	20	★	MDW0460XHGS20	118.9	125.8	175.8			2
	25	★	MDW0460XHGS25	143.9	150.8	200.8			2
	30	★	MDW0460XHGS30	168.9	175.8	225.8			2
4.7	3	★	MDW0470PHT	21.1	28.1	80.6	0.6	5.0	1
	10	★	MDW0470XHGS10	68.9	75.9	125.9	0.9		2
	12		MDW0470XHGS12	78.9	85.9	135.9			2
	15	★	MDW0470XHGS15	93.9	100.9	150.9			2
	20	★	MDW0470XHGS20	118.9	125.9	175.9			2
	25	★	MDW0470XHGS25	143.9	150.9	200.9			2
	30	★	MDW0470XHGS30	168.9	175.9	225.9			2
4.8	3	★	MDW0480PHT	20.9	28.1	80.6	0.6	5.0	1
	10	★	MDW0480XHGS10	68.7	75.9	125.9	0.9		2
	12		MDW0480XHGS12	78.7	85.9	135.9			2
	15	★	MDW0480XHGS15	93.7	100.9	150.9			2
	20	★	MDW0480XHGS20	118.7	125.9	175.9			2
	25	★	MDW0480XHGS25	143.7	150.9	200.9			2
	30	★	MDW0480XHGS30	168.7	175.9	225.9			2
4.9	3	★	MDW0490PHT	20.9	28.2	80.7	0.7	5.0	1
	10	★	MDW0490XHGS10	68.6	75.9	125.9	0.9		2
	12		MDW0490XHGS12	78.6	85.9	135.9			2
	15	★	MDW0490XHGS15	93.6	100.9	150.9			2
	20	★	MDW0490XHGS20	118.6	125.9	175.9			2
	25	★	MDW0490XHGS25	143.6	150.9	200.9			2
	30	★	MDW0490XHGS30	168.6	175.9	225.9			2
5.0	3	★	MDW0500PHT	20.7	28.2	80.7	0.7	5.0	1
	10	★	MDW0500XHGS10	68.4	75.9	125.9	0.9		2
	12	★	MDW0500XHGS12	78.4	85.9	135.9			2
	15	★	MDW0500XHGS15	93.4	100.9	150.9			2
	20	★	MDW0500XHGS20	118.4	125.9	175.9			2
	25	★	MDW0500XHGS25	143.4	150.9	200.9			2
	30	★	MDW0500XHGS30	168.4	175.9	225.9			2
5.1	3	★	MDW0510PHT	20.6	28.2	82.7	0.7	6.0	1
	10	★	MDW0510XHGS10	76.3	83.9	137.9	0.9		2
	12		MDW0510XHGS12	85.3	92.9	146.9			2
	15	★	MDW0510XHGS15	101.3	108.9	162.9			2
	20	★	MDW0510XHGS20	131.3	138.9	192.9			2
	25	★	MDW0510XHGS25	156.3	163.9	217.9			2
	30	★	MDW0510XHGS30	184.3	191.9	245.9			2
5.2	3	★	MDW0520PHT	20.4	28.2	82.7	0.7	6.0	1
	10	★	MDW0520XHGS10	76.1	83.9	137.9	0.9		2
	12		MDW0520XHGS12	85.1	92.9	146.9			2
	15	★	MDW0520XHGS15	101.1	108.9	162.9			2
	20	★	MDW0520XHGS20	131.1	138.9	192.9			2
	25	★	MDW0520XHGS25	156.1	163.9	217.9			2
	30	★	MDW0520XHGS30	184.1	191.9	245.9			2

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

★: Worldwide Warehouse Item

XHGS / PHT (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.28% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron

DEX Coating | Coolant Hole | 10D | 12D | 15D | 20D | 25D | 30D | Pilot 3D

*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

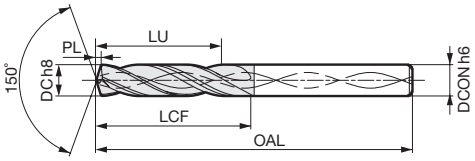
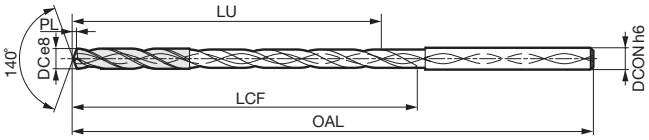


Fig. 2 (XHGS Type)



Diameter ø5.3 to 5.9mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
5.3	3	★	MDW0530PHT	20.3	28.2	82.7	0.7	6.0	1
	10	★	MDW0530XHGS10	76.1	84.0	138.0	1.0		2
	12		MDW0530XHGS12	85.1	93.0	147.0			2
	15	★	MDW0530XHGS15	101.1	109.0	163.0			2
	20	★	MDW0530XHGS20	131.1	139.0	193.0			2
	25	★	MDW0530XHGS25	156.1	164.0	218.0			2
	30	★	MDW0530XHGS30	184.1	192.0	246.0			2
5.4	3	★	MDW0540PHT	20.1	28.2	82.7	0.7	6.0	1
	10	★	MDW0540XHGS10	75.9	84.0	138.0	1.0		2
	12		MDW0540XHGS12	84.9	93.0	147.0			2
	15	★	MDW0540XHGS15	100.9	109.0	163.0			2
	20	★	MDW0540XHGS20	130.9	139.0	193.0			2
	25	★	MDW0540XHGS25	155.9	164.0	218.0			2
	30	★	MDW0540XHGS30	183.9	192.0	246.0			2
5.5	3	★	MDW0550PHT	20.0	28.2	82.7	0.7	6.0	1
	10	★	MDW0550XHGS10	75.8	84.0	138.0	1.0		2
	12	★	MDW0550XHGS12	84.8	93.0	147.0			2
	15	★	MDW0550XHGS15	100.8	109.0	163.0			2
	20	★	MDW0550XHGS20	130.8	139.0	193.0			2
	25	★	MDW0550XHGS25	155.8	164.0	218.0			2
	30	★	MDW0550XHGS30	183.8	192.0	246.0			2
5.6	3	★	MDW0560PHT	22.4	30.8	82.8	0.8	6.0	1
	10	★	MDW0560XHGS10	82.6	91.0	143.0	1.0		2
	12		MDW0560XHGS12	94.6	103.0	155.0			2
	15	★	MDW0560XHGS15	112.6	121.0	173.0			2
	20	★	MDW0560XHGS20	142.6	151.0	203.0			2
	25	★	MDW0560XHGS25	172.6	181.0	233.0			2
	30	★	MDW0560XHGS30	202.6	211.0	263.0			2
5.7	3	★	MDW0570PHT	22.3	30.8	82.8	0.8	6.0	1
	10	★	MDW0570XHGS10	82.5	91.0	143.0	1.0		2
	12		MDW0570XHGS12	94.5	103.0	155.0			2
	15	★	MDW0570XHGS15	112.5	121.0	173.0			2
	20	★	MDW0570XHGS20	142.5	151.0	203.0			2
	25	★	MDW0570XHGS25	172.5	181.0	233.0			2
	30	★	MDW0570XHGS30	202.5	211.0	263.0			2
5.8	3	★	MDW0580PHT	22.1	30.8	82.8	0.8	6.0	1
	10	★	MDW0580XHGS10	82.4	91.1	143.1	1.1		2
	12		MDW0580XHGS12	94.4	103.1	155.1			2
	15	★	MDW0580XHGS15	112.4	121.1	173.1			2
	20	★	MDW0580XHGS20	142.4	151.1	203.1			2
	25	★	MDW0580XHGS25	172.4	181.1	233.1			2
	30	★	MDW0580XHGS30	202.4	211.1	263.1			2
5.9	3	★	MDW0590PHT	22.0	30.8	82.8	0.8	6.0	1
	10	★	MDW0590XHGS10	82.3	91.1	143.1	1.1		2
	12		MDW0590XHGS12	94.3	103.1	155.1			2
	15	★	MDW0590XHGS15	112.3	121.1	173.1			2
	20	★	MDW0590XHGS20	142.3	151.1	203.1			2
	25	★	MDW0590XHGS25	172.3	181.1	233.1			2
	30	★	MDW0590XHGS30	202.3	211.1	263.1			2

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

Diameter ø6.0 to 6.6mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
6.0	3	★	MDW0600PHT	21.8	30.8	82.8	0.8	6.0	1
	10	★	MDW0600XHGS10	82.1	91.1	143.1	1.1		2
	12	★	MDW0600XHGS12	94.1	103.1	155.1			2
	15	★	MDW0600XHGS15	112.1	121.1	173.1			2
	20	★	MDW0600XHGS20	142.1	151.1	203.1			2
	25	★	MDW0600XHGS25	172.1	181.1	233.1			2
	30	★	MDW0600XHGS30	202.1	211.1	263.1			2
6.1	3	★	MDW0610PHT	24.2	33.3	88.8	0.8	7.0	1
	10	★	MDW0610XHGS10	90.0	99.1	154.1	1.1		2
	12		MDW0610XHGS12	101.0	110.1	165.1			2
	15	★	MDW0610XHGS15	120.0	129.1	184.1			2
	20	★	MDW0610XHGS20	153.0	162.1	217.1			2
	25	★	MDW0610XHGS25	185.0	194.1	249.1			2
	30	★	MDW0610XHGS30	218.0	227.1	282.1			2
6.2	3	★	MDW0620PHT	24.0	33.3	88.8	0.8	7.0	1
	10	★	MDW0620XHGS10	89.8	99.1	154.1	1.1		2
	12		MDW0620XHGS12	100.8	110.1	165.1			2
	15	★	MDW0620XHGS15	119.8	129.1	184.1			2
	20	★	MDW0620XHGS20	152.8	162.1	217.1			2
	25	★	MDW0620XHGS25	184.8	194.1	249.1			2
	30	★	MDW0620XHGS30	217.8	227.1	282.1			2
6.3	3	★	MDW0630PHT	23.9	33.3	88.8	0.8	7.0	1
	10	★	MDW0630XHGS10	89.7	99.1	154.1	1.1		2
	12		MDW0630XHGS12	100.7	110.1	165.1			2
	15	★	MDW0630XHGS15	119.7	129.1	184.1			2
	20	★	MDW0630XHGS20	152.7	162.1	217.1			2
	25	★	MDW0630XHGS25	184.7	194.1	249.1			2
	30	★	MDW0630XHGS30	217.7	227.1	282.1			2
6.4	3	★	MDW0640PHT	23.8	33.4	88.9	0.9	7.0	1
	10	★	MDW0640XHGS10	89.6	99.2	154.2	1.2		2
	12		MDW0640XHGS12	100.6	110.2	165.2			2
	15	★	MDW0640XHGS15	119.6	129.2	184.2			2
	20	★	MDW0640XHGS20	152.6	162.2	217.2			2
	25	★	MDW0640XHGS25	184.6	194.2	249.2			2
	30	★	MDW0640XHGS30	217.6	227.2	282.2			2
6.5	3	★	MDW0650PHT	23.7	33.4	88.9	0.9	7.0	1
	10	★	MDW0650XHGS10	89.5	99.2	154.2	1.2		2
	12	★	MDW0650XHGS12	100.5	110.2	165.2			2
	15	★	MDW0650XHGS15	119.5	129.2	184.2			2
	20	★	MDW0650XHGS20	152.5	162.2	217.2			2
	25	★	MDW0650XHGS25	184.5	194.2	249.2			2
	30	★	MDW0650XHGS30	217.5	227.2	282.2			2
6.6	3	★	MDW0660PHT	26.0	35.9	88.9	0.9	7.0	1
	10	★	MDW0660XHGS10	96.3	106.2	159.2	1.2		2
	12		MDW0660XHGS12	110.3	120.2	173.2			2
	15	★	MDW0660XHGS15	131.3	141.2	194.2			2
	20	★	MDW0660XHGS20	166.3	176.2	229.2			2
	25	★	MDW0660XHGS25	201.3	211.2	264.2			2
	30	★	MDW0660XHGS30	236.3	246.2	299.2			2

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

★: Worldwide Warehouse Item

XHGS / PHT (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron

DEX Coating | Coolant Hole | 10D | 12D | 15D | 20D | 25D | 30D | Pilot 3D

*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

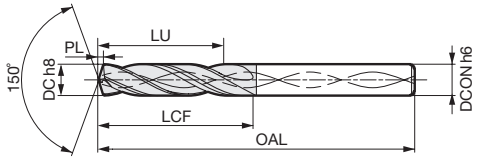
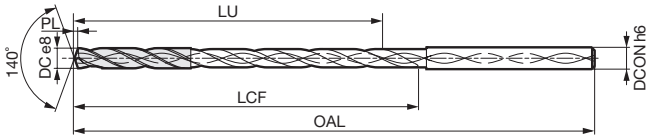


Fig. 2 (XHGS Type)



Diameter ø6.7 to 7.3mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
6.7	3	★	MDW0670PHT	25.9	35.9	88.9	0.9	7.0	1
	10	★	MDW0670XHGS10	96.2	106.2	159.2	1.2		2
	12		MDW0670XHGS12	110.2	120.2	173.2			2
	15	★	MDW0670XHGS15	131.2	141.2	194.2			2
	20	★	MDW0670XHGS20	166.2	176.2	229.2			2
	25	★	MDW0670XHGS25	201.2	211.2	264.2			2
	30	★	MDW0670XHGS30	236.2	246.2	299.2			2
6.8	3	★	MDW0680PHT	25.7	35.9	88.9	0.9	7.0	1
	10	★	MDW0680XHGS10	96.0	106.2	159.2	1.2		2
	12		MDW0680XHGS12	110.0	120.2	173.2			2
	15	★	MDW0680XHGS15	131.0	141.2	194.2			2
	20	★	MDW0680XHGS20	166.0	176.2	229.2			2
	25	★	MDW0680XHGS25	201.0	211.2	264.2			2
	30	★	MDW0680XHGS30	236.0	246.2	299.2			2
6.9	3	★	MDW0690PHT	25.6	35.9	88.9	0.9	7.0	1
	10	★	MDW0690XHGS10	96.0	106.3	159.3	1.3		2
	12		MDW0690XHGS12	110.0	120.3	173.3			2
	15	★	MDW0690XHGS15	131.0	141.3	194.3			2
	20	★	MDW0690XHGS20	166.0	176.3	229.3			2
	25	★	MDW0690XHGS25	201.0	211.3	264.3			2
	30	★	MDW0690XHGS30	236.0	246.3	299.3			2
7.0	3	★	MDW0700PHT	25.4	35.9	88.9	0.9	7.0	1
	10	★	MDW0700XHGS10	95.8	106.3	159.3	1.3		2
	12	★	MDW0700XHGS12	109.8	120.3	173.3			2
	15	★	MDW0700XHGS15	130.8	141.3	194.3			2
	20	★	MDW0700XHGS20	165.8	176.3	229.3			2
	25	★	MDW0700XHGS25	200.8	211.3	264.3			2
	30	★	MDW0700XHGS30	235.8	246.3	299.3			2
7.1	3	★	MDW0710PHT	27.9	38.5	95.0	1.0	8.0	1
	10	★	MDW0710XHGS10	103.7	114.3	170.3	1.3		2
	12		MDW0710XHGS12	116.7	127.3	183.3			2
	15	★	MDW0710XHGS15	138.7	149.3	205.3			2
	20	★	MDW0710XHGS20	176.7	187.3	243.3			2
	25	★	MDW0710XHGS25	213.7	224.3	280.3			2
	30	★	MDW0710XHGS30	251.7	262.3	318.3			2
7.2	3	★	MDW0720PHT	27.7	38.5	95.0	1.0	8.0	1
	10	★	MDW0720XHGS10	103.5	114.3	170.3	1.3		2
	12		MDW0720XHGS12	116.5	127.3	183.3			2
	15	★	MDW0720XHGS15	138.5	149.3	205.3			2
	20	★	MDW0720XHGS20	176.5	187.3	243.3			2
	25	★	MDW0720XHGS25	213.5	224.3	280.3			2
	30	★	MDW0720XHGS30	251.5	262.3	318.3			2
7.3	3	★	MDW0730PHT	27.6	38.5	95.0	1.0	8.0	1
	10	★	MDW0730XHGS10	103.4	114.3	170.3	1.3		2
	12		MDW0730XHGS12	116.4	127.3	183.3			2
	15	★	MDW0730XHGS15	138.4	149.3	205.3			2
	20	★	MDW0730XHGS20	176.4	187.3	243.3			2
	25	★	MDW0730XHGS25	213.4	224.3	280.3			2
	30	★	MDW0730XHGS30	251.4	262.3	318.3			2

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

Diameter ø7.4 to 8.0mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
7.4	3	★	MDW0740PHT	27.4	38.5	95.0	1.0	8.0	1
	10	★	MDW0740XHGS10	103.2	114.3	170.3	1.3		2
	12		MDW0740XHGS12	116.2	127.3	183.3			2
	15	★	MDW0740XHGS15	138.2	149.3	205.3			2
	20	★	MDW0740XHGS20	176.2	187.3	243.3			2
	25	★	MDW0740XHGS25	213.2	224.3	280.3			2
	30	★	MDW0740XHGS30	251.2	262.3	318.3			2
7.5	3	★	MDW0750PHT	27.3	38.5	95.0	1.0	8.0	1
	10	★	MDW0750XHGS10	103.2	114.4	170.4	1.4		2
	12	★	MDW0750XHGS12	116.2	127.4	183.4			2
	15	★	MDW0750XHGS15	138.2	149.4	205.4			2
	20	★	MDW0750XHGS20	176.2	187.4	243.4			2
	25	★	MDW0750XHGS25	213.2	224.4	280.4			2
	30	★	MDW0750XHGS30	251.2	262.4	318.4			2
7.6	3	★	MDW0760PHT	29.6	41.0	95.0	1.0	8.0	1
	10	★	MDW0760XHGS10	110.0	121.4	175.4	1.4		2
	12		MDW0760XHGS12	126.0	137.4	191.4			2
	15	★	MDW0760XHGS15	150.0	161.4	215.4			2
	20	★	MDW0760XHGS20	190.0	201.4	255.4			2
	25	★	MDW0760XHGS25	230.0	241.4	295.4			2
	30	★	MDW0760XHGS30	270.0	281.4	335.4			2
7.7	3	★	MDW0770PHT	29.5	41.0	95.0	1.0	8.0	1
	10	★	MDW0770XHGS10	109.9	121.4	175.4	1.4		2
	12		MDW0770XHGS12	125.9	137.4	191.4			2
	15	★	MDW0770XHGS15	149.9	161.4	215.4			2
	20	★	MDW0770XHGS20	189.9	201.4	255.4			2
	25	★	MDW0770XHGS25	229.9	241.4	295.4			2
	30	★	MDW0770XHGS30	269.9	281.4	335.4			2
7.8	3	★	MDW0780PHT	29.3	41.0	95.0	1.0	8.0	1
	10	★	MDW0780XHGS10	109.7	121.4	175.4	1.4		2
	12		MDW0780XHGS12	125.7	137.4	191.4			2
	15	★	MDW0780XHGS15	149.7	161.4	215.4			2
	20	★	MDW0780XHGS20	189.7	201.4	255.4			2
	25	★	MDW0780XHGS25	229.7	241.4	295.4			2
	30	★	MDW0780XHGS30	269.7	281.4	335.4			2
7.9	3	★	MDW0790PHT	29.3	41.1	95.1	1.1	8.0	1
	10	★	MDW0790XHGS10	109.6	121.4	175.4	1.4		2
	12		MDW0790XHGS12	125.6	137.4	191.4			2
	15	★	MDW0790XHGS15	149.6	161.4	215.4			2
	20	★	MDW0790XHGS20	189.6	201.4	255.4			2
	25	★	MDW0790XHGS25	229.6	241.4	295.4			2
	30	★	MDW0790XHGS30	269.6	281.4	335.4			2
8.0	3	★	MDW0800PHT	29.1	41.1	95.1	1.1	8.0	1
	10	★	MDW0800XHGS10	109.5	121.5	175.5	1.5		2
	12	★	MDW0800XHGS12	125.5	137.5	191.5			2
	15	★	MDW0800XHGS15	149.5	161.5	215.5			2
	20	★	MDW0800XHGS20	189.5	201.5	255.5			2
	25	★	MDW0800XHGS25	229.5	241.5	295.5			2
	30	★	MDW0800XHGS30	269.5	281.5	335.5			2

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

★: Worldwide Warehouse Item

XHGS / PHT (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron

DEX Coating | Coolant Hole | 10D | 12D | 15D | 20D | 25D | 30D | Pilot 3D

*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

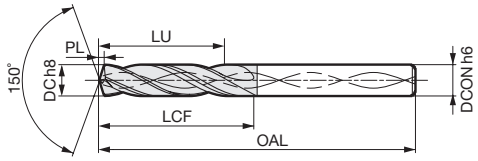
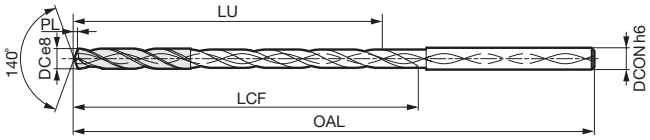


Fig. 2 (XHGS Type)



Diameter ø8.5 to 11.5mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
8.5	3	★	MDW0850PHT	30.9	43.6	101.1	1.1	9.0	1
	10	★	MDW0850XHGS10	116.8	129.5	186.5	1.5		2
	12	★	MDW0850XHGS12	131.8	144.5	201.5			2
	15	★	MDW0850XHGS15	156.8	169.5	226.5			2
	20	★	MDW0850XHGS20	199.8	212.5	269.5			2
	25	★	MDW0850XHGS25	241.8	254.5	311.5			2
	30	★	MDW0850XHGS30	284.8	297.5	354.5			2
9.0	3	★	MDW0900PHT	32.7	46.2	101.2	1.2	9.0	1
	10	★	MDW0900XHGS10	123.1	136.6	191.6	1.6		2
	12	★	MDW0900XHGS12	141.1	154.6	209.6			2
	15	★	MDW0900XHGS15	168.1	181.6	236.6			2
	20	★	MDW0900XHGS20	213.1	226.6	281.6			2
	25	★	MDW0900XHGS25	258.1	271.6	326.6			2
	30	★	MDW0900XHGS30	303.1	316.6	371.6			2
9.5	3	★	MDW0950PHT	34.6	48.8	107.3	1.3	10.0	1
	10	★	MDW0950XHGS10	130.5	144.7	202.7	1.7		2
	12	★	MDW0950XHGS12	147.5	161.7	219.7			2
	15	★	MDW0950XHGS15	175.5	189.7	247.7			2
	20	★	MDW0950XHGS20	223.5	237.7	295.7			2
	25	★	MDW0950XHGS25	270.5	284.7	342.7			2
	30	★	MDW0950XHGS30	318.5	332.7	390.7			2
10.0	3	★	MDW1000PHT	36.3	51.3	107.3	1.3	10.0	1
	10	★	MDW1000XHGS10	136.8	151.8	207.8	1.8		2
	12	★	MDW1000XHGS12	156.8	171.8	227.8			2
	15	★	MDW1000XHGS15	186.8	201.8	257.8			2
	20	★	MDW1000XHGS20	236.8	251.8	307.8			2
	25	★	MDW1000XHGS25	286.8	301.8	357.8			2
	30	★	MDW1000XHGS30	336.8	351.8	407.8			2
10.5	3	★	MDW1050PHT	38.2	53.9	117.4	1.4	11.0	1
	10	★	MDW1050XHGS10	144.2	159.9	222.9	1.9		2
	12	★	MDW1050XHGS12	163.2	178.9	241.9			2
	15	★	MDW1050XHGS15	194.2	209.9	272.9			2
	20	★	MDW1050XHGS20	247.2	262.9	325.9			2
	25	★	MDW1050XHGS25	299.2	314.9	377.9			2
11.0	3	★	MDW1100PHT	40.0	56.5	117.5	1.5	11.0	1
	10	★	MDW1100XHGS10	150.5	167.0	228.0	2.0		2
	12	★	MDW1100XHGS12	172.5	189.0	250.0			2
	15	★	MDW1100XHGS15	205.5	222.0	283.0			2
	20	★	MDW1100XHGS20	260.5	277.0	338.0			2
	25	★	MDW1100XHGS25	315.5	332.0	393.0			2
11.5	3	★	MDW1150PHT	41.8	59.0	123.5	1.5	12.0	1
	10	★	MDW1150XHGS10	157.9	175.1	239.1	2.1		2
	12	★	MDW1150XHGS12	178.9	196.1	260.1			2
	15	★	MDW1150XHGS15	212.9	230.1	294.1			2
	20	★	MDW1150XHGS20	270.9	288.1	352.1			2
	25	★	MDW1150XHGS25	327.9	345.1	409.1			2

Part Number Suffix PHT: For Guide Hole Grade: ACX70 (XHGS) / ACX20 (PHT)

Diameter ø12.0 to 16.0mm

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
12.0	3	★	MDW1200PHT	43.6	61.6	123.6	1.6	12.0	1
	10	★	MDW1200XHGS10	164.2	182.2	244.2	2.2		2
	12	★	MDW1200XHGS12	188.2	206.2	268.2			2
	15	★	MDW1200XHGS15	224.2	242.2	304.2			2
	20	★	MDW1200XHGS20	284.2	302.2	364.2			2
	25	★	MDW1200XHGS25	344.2	362.2	424.2			2
12.5	3	★	MDW1250PHT	45.5	64.2	129.7	1.7	13.0	1
	10	★	MDW1250XHGS10	171.6	190.3	255.3	2.3		2
	12	★	MDW1250XHGS12	194.6	213.3	278.3			2
	15	★	MDW1250XHGS15	231.6	250.3	315.3			2
	20	★	MDW1250XHGS20	294.6	313.3	378.3			2
13.0	3	★	MDW1300PHT	47.2	66.7	129.7	1.7	13.0	1
	10	★	MDW1300XHGS10	177.9	197.4	260.4	2.4		2
	12	★	MDW1300XHGS12	203.9	223.4	286.4			2
	15	★	MDW1300XHGS15	242.9	262.4	325.4			2
	20	★	MDW1300XHGS20	307.9	327.4	390.4			2
13.5	3	★	MDW1350PHT	49.1	69.3	135.8	1.8	14.0	1
	10	★	MDW1350XHGS10	185.3	205.5	271.5	2.5		2
	12	★	MDW1350XHGS12	210.3	230.5	296.5			2
	15	★	MDW1350XHGS15	250.3	270.5	336.5			2
	20	★	MDW1350XHGS20	318.3	338.5	404.5			2
14.0	3	★	MDW1400PHT	50.9	71.9	135.9	1.9	14.0	1
	10	★	MDW1400XHGS10	191.5	212.5	276.5	2.5		2
	12	★	MDW1400XHGS12	219.5	240.5	304.5			2
	15	★	MDW1400XHGS15	261.5	282.5	346.5			2
	20	★	MDW1400XHGS20	331.5	352.5	416.5			2
14.5	3	★	MDW1450PHT	52.7	74.4	141.9	1.9	15.0	1
	10	★	MDW1450XHGS10	198.9	220.6	287.6	2.6		2
	12	★	MDW1450XHGS12	225.9	247.6	314.6			2
	15	★	MDW1450XHGS15	268.9	290.6	357.6			2
15.0	3	★	MDW1500PHT	54.5	77.0	142.0	2.0	15.0	1
	10	★	MDW1500XHGS10	205.2	227.7	292.7	2.7		2
	12	★	MDW1500XHGS12	235.2	257.7	322.7			2
	15	★	MDW1500XHGS15	280.2	302.7	367.7			2
15.5	3	★	MDW1550PHT	56.4	79.6	148.1	2.1	16.0	1
	10	★	MDW1550XHGS10	212.6	235.8	303.8	2.8		2
	12	★	MDW1550XHGS12	241.6	264.8	332.8			2
	15	★	MDW1550XHGS15	287.6	310.8	378.8			2
16.0	3	★	MDW1600PHT	58.1	82.1	148.1	2.1	16.0	1
	10	★	MDW1600XHGS10	218.9	242.9	308.9	2.9		2
	12	★	MDW1600XHGS12	248.9	272.9	340.9			2
	15	★	MDW1600XHGS15	298.9	322.9	388.9			2

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS Type) / ACX20 (PHT Type)

★: Worldwide Warehouse Item

Recommended Cutting Conditions

(v_c: Cutting Speed (*m/min*), *f*: Feed Rate (*mm/rev*))

Dia. DC (*mm*)	Cutting Conditions	Mild Steel (up to 200HB)	General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to 40HRC)	Gray Cast Iron Ductile Cast Iron
ø3.0	v_c	50 - 80	60 - 100	40 - 70	30 - 50	40 - 70
	f	0.12 - 0.20	0.12 - 0.20	0.10 - 0.16	0.06 - 0.12	0.15 - 0.23
ø5.0	v_c	50 - 80	60 - 100	50 - 70	30 - 55	50 - 70
	f	0.15 - 0.25	0.15 - 0.30	0.12 - 0.20	0.08 - 0.14	0.17 - 0.35
ø10.0	v_c	50 - 90	60 - 110	50 - 80	30 - 60	50 - 80
	f	0.20 - 0.30	0.20 - 0.32	0.15 - 0.25	0.10 - 0.20	0.25 - 0.35
ø16.0	v_c	60 - 100	60 - 120	50 - 80	40 - 70	50 - 80
	f	0.25 - 0.35	0.25 - 0.35	0.15 - 0.27	0.12 - 0.23	0.25 - 0.35

Note: Use lower speed when using MQL coolant, and higher speed when using internal coolant supply or dual-liquid mist. Min. - Max.

XHV / PHV (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron

DEX Coating | Coolant Hole | 12D | 20D | Pilot 3D

Fig. 1 (PHV Type)

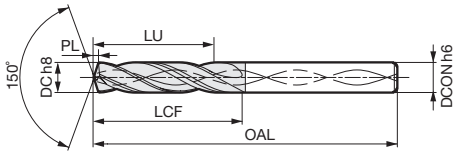
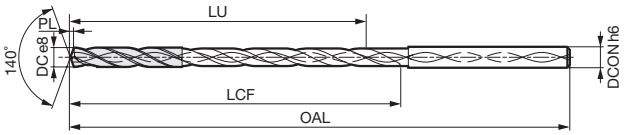


Fig. 2 (XHV Type)



Diameter ø0.125" to 0.332"

Dimensions (inch)

Dia. DC	Fraction	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Shank Dia. DCON	Fig
0.125	1/8	3	●	**MDW01250PHV**	0.516	0.703	2.672	0.157	1
		12	●	**MDW1250XHV12**	1.772	1.890	3.780		2
		20	●	**MDW1250XHV20**	2.834	2.952	4.842		2
0.141	9/64	3	●	**MDW01406PHV**	0.680	0.891	2.828	0.157	1
		12	●	**MDW1406XHV12**	2.126	2.244	4.134		2
		20	●	**MDW1406XHV20**	3.464	3.582	5.472		2
0.156	5/32	3	●	**MDW01563PHV**	0.657	0.891	2.828	0.157	1
		12	●	**MDW1563XHV12**	2.362	2.480	4.370		2
		20	●	**MDW1563XHV20**	3.464	3.582	5.472		2
0.172	13/64	3	●	**MDW01719PHV**	0.726	1.078	3.156	0.236	1
		12	●	**MDW1719XHV12**	2.520	2.638	4.607		2
		20	●	**MDW1719XHV20**	4.331	4.449	6.418		2
0.188	3/16	3	●	**MDW01875PHV**	0.796	1.078	3.156	0.236	1
		12	●	**MDW1875XHV12**	3.071	3.189	5.158		2
		20	●	**MDW1875XHV25**	4.527	4.645	6.614		2
0.203	13/64	3	●	**MDW02031PHV**	0.774	1.078	3.234	0.236	1
		12	●	**MDW2031XHV12**	3.071	3.189	5.158		2
		20	●	**MDW2031XHV25**	4.527	4.645	6.614		2
0.213	#3	3	●	**MDW02131PHV**	0.759	1.078	3.234	0.236	1
		12	●	**MDW2131XHV12**	3.071	3.189	5.158		2
		20	●	**MDW2131XHV20**	5.433	5.551	7.520		2
0.219	7/32	3	●	**MDW02187PHV**	0.750	1.078	3.234	0.236	1
		12	●	**MDW2187XHV12**	3.346	3.465	5.433		2
		20	●	**MDW2187XHV20**	5.433	5.551	7.520		2
0.250	1/4	3	●	**MDW02500PHV**	0.906	1.281	3.469	0.315	1
		12	●	**MDW2500XHV12**	3.937	4.055	6.102		2
		20	●	**MDW2500XHV20**	5.748	5.866	7.913		2
0.257	#F	3	●	**MDW02570PHV**	0.990	1.375	3.469	0.315	1
		12	●	**MDW2570XHV12**	3.937	4.055	6.102		2
		20	●	**MDW2570XHV20**	5.748	5.866	7.913		2
0.266	17/64	3	●	**MDW02656PHV**	0.976	1.375	3.469	0.315	1
		12	●	**MDW2656XHV12**	3.937	4.055	6.102		2
		20	●	**MDW2656XHV20**	5.748	5.866	7.913		2
0.281	9/32	3	●	**MDW02813PHV**	1.063	1.484	3.703	0.315	1
		12	●	**MDW2813XHV12**	4.331	4.449	6.496		2
		20	●	**MDW2813XHV20**	6.929	7.047	9.094		2
0.297	19/64	3	●	**MDW02969PHV**	1.029	1.484	3.703	0.315	1
		12	●	**MDW2969XHV12**	4.331	4.449	6.496		2
		20	●	**MDW2969XHV20**	6.929	7.047	9.094		2
0.313	5/16	3	●	**MDW03125PHV**	1.109	1.578	3.703	0.315	1
		12	●	**MDW3125XHV12**	4.331	4.449	6.496		2
		20	●	**MDW3125XHV20**	6.929	7.047	9.094		2
0.328	21/64	3	●	**MDW03281PHV**	1.180	1.672	3.938	0.394	1
0.332	#Q	3	●	**MDW03320PHV**	1.174	1.672	3.938	0.394	1
		12	●	**MDW3320XHV12**	5.433	5.551	7.677		2
		20	●	**MDW3320XHV20**	8.661	8.779	10.905		2

Part Number Suffix PHV: For Guide Hole

Diameter ø0.344" to 0.750"

Dimensions (inch)

Dia. DC	Fraction	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Shank Dia. DCON	Fig
0.344	11/32"	3	●	**MDW03438PHV**	1.250	1.766	3.938	0.394	1
		12	●	**MDW3438XHV12**	5.433	5.551	7.677		2
		20	●	**MDW3438XHV20**	8.661	8.779	10.905		2
0.359	23/64"	3	●	**MDW03594PHV**	1.228	1.766	3.938	0.394	1
		12	●	**MDW3594XHV12**	5.433	5.551	7.677		2
		20	●	**MDW3594XHV20**	8.661	8.779	10.905		2
0.375	3/8"	3	●	**MDW03750PHV**	1.313	1.875	4.172	0.394	1
		12	●	**MDW3750XHV12**	5.433	5.551	7.677		2
		20	●	**MDW3750XHV20**	8.661	8.779	10.905		2
0.391	25/64"	3	●	**MDW03906PHV**	1.383	1.969	4.172	0.394	1
		12	●	**MDW3906XHV12**	5.433	5.551	7.677		2
		20	●	**MDW3906XHV20**	8.661	8.779	10.905		2
0.406	13/32	3	●	**MDW04063PHV**	*1.438*	2.047	4.563	0.472	1
		12	●	**MDW4063XHV12**	6.220	6.339	8.543		2
		20	●	**MDW4063XHV20**	10.394	10.508	12.713		2
0.422	27/64	3	●	**MDW04219PHV**	1.539	2.172	4.563	0.472	1
		12	●	**MDW4219XHV12**	6.220	6.339	8.543		2
		20	●	**MDW4219XHV20**	10.394	10.508	12.713		2
0.437	7/16	3	●	**MDW04375PHV**	1.517	2.172	4.563	0.472	1
		12	●	**MDW4375XHV12**	6.220	6.339	8.543		2
		20	●	**MDW4375XHV20**	10.394	10.508	12.713		2
0.453	29/64	3	●	**MDW04531PHV**	1.602	2.281	4.813	0.472	1
		12	●	**MDW4531XHV12**	6.220	6.339	8.543		2
		20	●	**MDW4531XHV20**	10.394	10.508	12.713		2
0.469	15/32	3	●	**MDW04688PHV**	1.656	2.359	4.813	0.472	1
		12	●	**MDW4688XHV12**	6.220	6.339	8.543		2
		20	●	**MDW4688XHV20**	10.394	10.508	12.713		2
0.484	31/64	3	●	**MDW04844PHV**	1.743	2.469	5.032	0.551	1
		12	●	**MDW4844XHV12**	7.165	7.283	9.566		2
		20	●	**MDW4844XHV20**	12.126	12.238	14.521		2
0.500	1/2	3	●	**MDW05000PHV**	1.812	2.562	5.032	0.551	1
		12	●	**MDW5000XHV12**	7.165	7.283	9.566		2
		20	●	**MDW5000XHV20**	12.126	12.238	14.521		2
0.531	17/32	3	●	**MDW05312PHV**	1.860	2.656	5.281	0.551	1
		12	●	**MDW5312XHV12**	7.165	7.283	9.566		2
		20	●	**MDW5312XHV20**	12.126	12.238	14.521		2
0.562	9/16	3	●	**MDW05625PHV**	2.016	2.859	5.516	0.630	1
		12	●	**MDW5625XHV12**	8.189	8.307	10.669		2
0.625	5/8	3	●	**MDW06250PHV**	2.219	3.156	5.750	0.630	1
		12	●	**MDW6250XHV12**	8.189	8.307	10.669		2
0.750	3/4	3	●	**MDW07500PHV**	2.625	3.750	6.453	0.787	1
		12	●	**MDW7500XHV12**	10.157	10.268	12.709		2

●: USA Stocked Item

Tolerance of Diameters		
øD	Tolerance	
.1181 < øD ≤ .2362	-.00080	-.00145
.2362 < øD ≤ .3937	-.00080	-.00165
.3937 < øD < .7087	-.00080	-.00185

Recommended Cutting Conditions

Vc= SFM / *m/min*
f= IPR / *mm/rev*

		General Steel (>300HB)	Hardened Steel (>45HrC)	Stainless Steel (>200HB)	Gray Cast Iron	Ductile Iron
~ø.125 in	Vc	165~330 / *50~100*	65~130 / *20~40*	100~165 / *30~50*	165~295 / *50~90*	130~260 / *40~80*
	f	0.003~0.006 / *0.08~0.15*	0.002~0.003 / *0.06~0.05*	0.002~0.005 / *0.06~0.12*	0.006~0.010 / *0.15~0.25*	0.005~0.008 / *0.12~0.20*
ø.125 ~ ø.203"	Vc	260~395 / *80~120*	65~130 / *20~40*	100~195 / *30~60*	165~295 / *50~90*	130~260 / *40~80*
	f	0.006~0.010 / *0.15~0.25*	0.003~0.004 / *0.08~0.10*	0.003~0.006 / *0.08~0.15*	0.006~0.012 / *0.15~0.30*	0.006~0.010 / *0.15~0.25*
ø.203 ~ ø.406"	Vc	260~395 / *80~120*	65~130 / *20~40*	130~260/ *40~80*	195~330 / *60~100*	165~295 / *50~90*
	f	0.008~0.014 / *0.20~0.35*	0.004~0.006 / *0.10~0.15*	0.004~0.008 / *0.10~0.20*	0.008~0.014 / *0.20~0.35*	0.008~0.014 / *0.20~0.35*
ø.406 ~ ø0.625"	Vc	260~425 / *80~130*	65~130 / *20~40*	165~260/ *50~80*	230~395/ *70~120*	195~330 / *60~100*
	f	0.010~0.014 / *0.25~0.35*	0.004~0.006 / *0.10~0.15*	0.004~0.008 / *0.10~0.20*	0.010~0.014 / *0.25~0.35*	0.010~0.014 / *0.25~0.35*

■ Features

- High-efficiency drilling

  DLC Coating (AURORA Coat) and low resistance WL (Wide L) thinning drastically reduce cutting force.

- Stable drilling performance

  Special cutting edge design and WW (Wide W) margin improve hole quality.

- Long tool life

  DLC Coating (AURORA Coat) coupled with the cutting edge shape acheives a long and stable tool life.

- Deep hole drilling

  Drills for deep hole drilling can be made to oder.
  (Production range: Drill diameters: *ø3.0 to ø16.0mm*
  Overall length: Available on inquiry)

■ Product Range (Stocked Sizes)

Coolant Supply	Cat. No.	Diameter Range (*mm*)	Hole Depth (L/D)
Internal	**MDW□□□□NHGS3**	*ø3.0 to 16.0*	up to 3
	MDW□□□□NHGS5		up to 5
	MDW□□□□NHGS10	*ø3.0 to 13.0*	up to 10

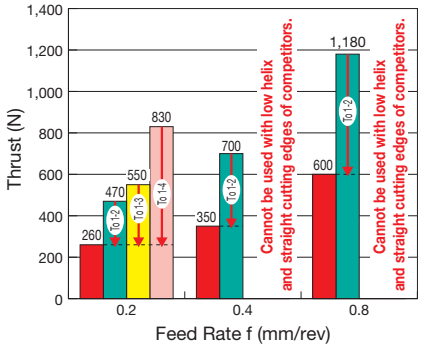
■ Performance

Cutting force

- Low cutting force, achieving 2 to 4 times the feed rate

  The cutting force of the NHGS is
  1/2 that of competitors' 30° helix drills > double the feed rate!
  1/3 that of competitors' light helix drills > 3x the feed rate!
  1/4 that of straight-blade drills > 4x the feed rate!

Thrust



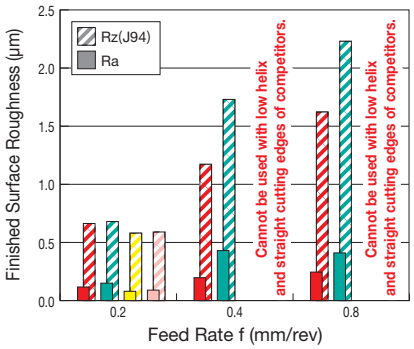
Tool: MDW 0800NHGS5 (DL1300)	Part Material: Aluminum Alloy Die Casting
Cutting Speed: v_c=656 SFM	Machine: Vertical machining center (BT30)
Coolant: Internal supply (1.5MPa)	Coolant: Emulsion (dilute to around 25x)

Machined surface quality

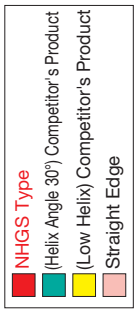
- Achieves good surface roughness over a wide range of feed rates

  Good surface roughness from low to high feed rates:
  Ra=0.11 to 0.25
  Rz (J94)=0.66 to 1.62

Finished Surface Roughness



Legend (common)



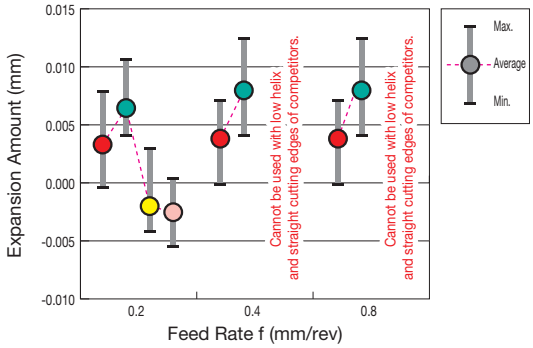
Tool: MDW 0800NHGS5 (DL1300)	Part Material: Aluminum Alloy Die Casting
Cutting Speed: v_c=656 SFM	Machine: Vertical machining center (BT30)
Coolant: Internal supply (1.5MPa)	Coolant: Emulsion (dilute to around 25x)

Machined hole accuracy (hole expansion)

- Stable hole accuracy with hole expansion within 0.01mm

  Achieves minimal expansion and stable machining from low to high feed rates

Hole diameter expansion



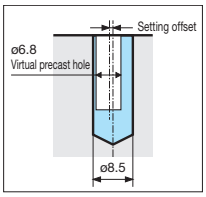
Tool: MDW 0800NHGS5 (DL1300)	Part Material: Aluminum Alloy Die Casting
Cutting Speed: v_c=656 SFM	Machine: Vertical machining center (BT30)
Coolant: Internal supply (1.5MPa)	Coolant: Emulsion (dilute to around 25x)

Machined hole accuracy (hole position accuracy)

- Pre-cast hole accuracy within ±1/10 to ±1/5 of axial offset

Pre-cast hole accuracy (hole position accuracy)

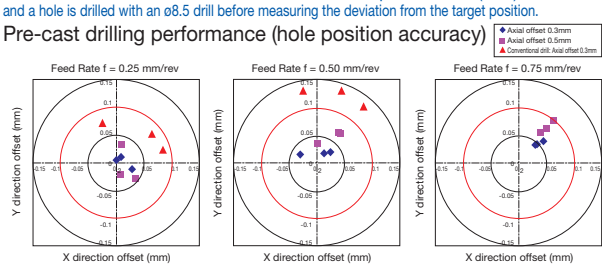
Offset \ Feed Rate	*0.25mm/rev*	*0.50mm/rev*	*0.75mm/rev*
0.3mm	*±0.03mm*	*±0.04mm*	*±0.06mm*
0.5mm	*±0.05mm*	*±0.07mm*	*±0.10mm*
Conventional drill: 0.3mm	*±0.09mm*	*±0.19mm*	



- Test method

An axial offset of 0.3mm to 0.5mm is set for a virtual pre-cast hole (ø6.8) and a hole is drilled with an ø8.5 drill before measuring the deviation from the target position.

Pre-cast drilling performance (hole position accuracy)



Tool: MDW 0850NHGS5 (DL1300)	Part Material: Alluminum Alloy
Cutting Speed: v_c=656 SFM (n=7, 489 RPM)	Machine: Vertical machining center (BT30)
Coolant: Internal supply	

NHGS Series (Internal Coolant Supply)

Aluminum Alloy | Copper Alloy

Aurora DLC Coat | Coolant Hole | 3D | 5D | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

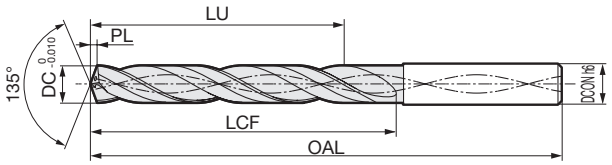
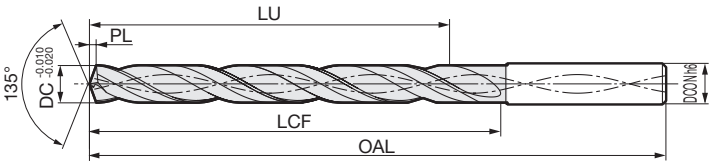


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter *ø1.59 to 4.20mm* (0.0625" to 0.1654") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
1.59	0.0625	1/16			5	●	**MDW00625NHGS5S**	16.95	0.6672	19.33	0.7609	70.33	2.7690	0.33	0.0129	3.00	0.1181	1
2.57	0.1010				5	●	**MDW01010NHGS5S**	24.67	0.9714	28.52	1.1229	78.54	3.0920	0.53	0.0209	3.00	0.1181	1
3.00	0.1181				3	●	**MDW0300NHGS3**	13.60	0.5354	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	1
					5	●	**MDW0300NHGS5**	24.10	0.9488	28.60	1.1260	78.60	3.0945					1
					10	●	**MDW0300NHGS10**	38.10	1.5000	42.60	1.6772	92.60	3.6457					2
3.05	0.1200	#31			5	●	**MDW01200NHGS5S**	28.06	1.1049	32.64	1.2849	86.64	3.4110	0.63	0.0249	4.00	0.1575	1
3.10	0.1220				3		**MDW0310NHGS3**	16.00	0.6299	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	**MDW0310NHGS5**	28.00	1.1024	32.60	1.2835	86.60	3.4094					1
					10		**MDW0310NHGS10**	45.00	1.7717	49.60	1.9528	106.60	4.1969					2
3.18	0.1250	1/8		6-32	3	●	**MDW01250NHGS3S**	15.89	0.6254	20.65	0.8129	72.67	2.8610	0.66	0.0259	4.00	0.1575	1
					5	●	**MDW01250NHGS5S**	27.90	1.0984	32.66	1.2859	86.66	3.4120					1
3.20	0.1260				3	●	**MDW0320NHGS3**	15.90	0.6260	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	**MDW0320NHGS5**	27.90	1.0984	32.70	1.2874	86.70	3.4134					1
					10	●	**MDW0320NHGS10**	44.90	1.7677	49.70	1.9567	106.70	4.2008					2
3.30	0.1299				3	●	**MDW0330NHGS3**	15.70	0.6181	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	**MDW0330NHGS5**	27.70	1.0906	32.70	1.2874	86.70	3.4134					1
					10		**MDW0330NHGS10**	44.70	1.7598	49.70	1.9567	106.70	4.2008					2
3.40	0.1339		M4x.7		3		**MDW0340NHGS3**	15.60	0.6142	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	**MDW0340NHGS5**	27.60	1.0866	32.70	1.2874	86.70	3.4134					1
					10	●	**MDW0340NHGS10**	44.60	1.7559	49.70	1.9567	106.70	4.2008					2
3.50	0.1378		8-32		3	●	**MDW0350NHGS3**	15.50	0.6102	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	**MDW0350NHGS5**	27.50	1.0827	32.70	1.2874	86.70	3.4134					1
					10	●	**MDW0350NHGS10**	44.50	1.7520	49.70	1.9567	106.70	4.2008					2
3.60	0.1417				3		**MDW0360NHGS3**	17.80	0.7008	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	★	**MDW0360NHGS5**	31.30	1.2323	36.70	1.4449	86.70	3.4134					1
					10	●	**MDW0360NHGS10**	51.30	2.0197	56.70	2.2323	106.70	4.2008					2
3.65	0.1437				3	●	**MDW0365NHGS3**	17.80	0.7008	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	★	**MDW0365NHGS5**	31.30	1.2323	36.80	1.4488	86.80	3.4173					1
					10		**MDW0365NHGS10**	51.30	2.0197	56.80	2.2362	106.80	4.2047					2
3.66	0.1441	#27		M4x.7	3		**MDW0366NHGS3**	17.80	0.7008	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	**MDW0366NHGS5**	31.30	1.2323	36.80	1.4488	86.80	3.4173					1
					10		**MDW0366NHGS10**	51.30	2.0197	56.80	2.2362	106.80	4.2047					2
3.70	0.1457		M4.5x.7		3		**MDW0370NHGS3**	17.70	0.6969	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	**MDW0370NHGS5**	31.20	1.2283	36.80	1.4488	86.80	3.4173					1
					10		**MDW0370NHGS10**	51.20	2.0157	56.80	2.2362	106.80	4.2047					2
3.80	0.1496			8-32	3		**MDW0380NHGS3**	17.60	0.6929	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	**MDW0380NHGS5**	31.10	1.2244	36.80	1.4488	86.80	3.4173					1
					10		**MDW0380NHGS10**	51.10	2.0118	56.80	2.2362	106.80	4.2047					2
3.80	0.1495	#25			5	●	**MDW01495NHGS5S**	31.08	1.2238	36.78	1.4480	86.79	3.4170	0.79	0.0310	4.00	0.1575	1
3.90	0.1535				3		**MDW0390NHGS3**	17.50	0.6890	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	**MDW0390NHGS5**	31.00	1.2205	36.80	1.4488	86.80	3.4173					1
					10	●	**MDW0390NHGS10**	51.00	2.0079	56.80	2.2362	106.80	4.2047					2
3.97	0.1562	5/32			3	●	**MDW01562NHGS3S**	17.38	0.6841	23.33	0.9184	72.82	2.8670	0.82	0.0324	4.00	0.1575	1
					5	●	**MDW01562NHGS5S**	30.86	1.2151	36.81	1.4494	86.82	3.4180					1
4.00	0.1575				3	●	**MDW0400NHGS3**	17.30	0.6811	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	**MDW0400NHGS5**	30.80	1.2126	36.80	1.4488	86.80	3.4173					1
					10	●	**MDW0400NHGS10**	50.80	2.0000	56.80	2.2362	106.80	4.2047					2
4.10	0.1614		10-32		3	●	**MDW0410NHGS3**	19.70	0.7756	25.80	1.0157	80.80	3.1811	0.80	0.0315	5.00	0.1969	1
					5	●	**MDW0410NHGS5**	34.70	1.3661	40.80	1.6063	98.80	3.8898					1
					10		**MDW0410NHGS10**	57.70	2.2717	63.80	2.5118	121.80	4.7953					2
4.20	0.1654				3	●	**MDW0420NHGS3**	19.60	0.7717	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	1
					5	●	**MDW0420NHGS5**	34.60	1.3622	40.90	1.6102	98.90	3.8937					1
					10		**MDW0420NHGS10**	57.60	2.2677	63.90	2.5157	121.90	4.7992					2

Grade: DL1300

● : USA Stock Item

NHGS Series (Internal Coolant Supply)

Aluminum Alloy | Copper Alloy

Aurora DLC Coat | Coolant Hole | 3D | 5D | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

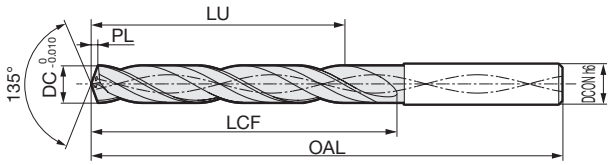
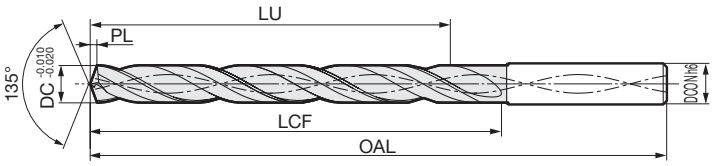


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter *ø4.30 to 5.80mm* (0.1693" to 0.2283") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
4.30	0.1693		M5x.8		3		MDW0430NHGS3	19.40	0.7638	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	1
					5	●	MDW0430NHGS5	34.40	1.3543	40.90	1.6102	98.90	3.8937					1
					10		MDW0430NHGS10	57.40	2.2598	63.90	2.5157	121.90	4.7992					2
4.40	0.1732				3		MDW0440NHGS3	19.30	0.7598	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	1
					5	★	MDW0440NHGS5	34.30	1.3504	40.90	1.6102	98.90	3.8937					1
					10		MDW0440NHGS10	57.30	2.2559	63.90	2.5157	121.90	4.7992					2
4.50	0.1772	#16		10-32	3	●	MDW0450NHGS3	19.20	0.7559	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	1
					5	★	MDW0450NHGS5	34.20	1.3465	40.90	1.6102	98.90	3.8937					1
					10	●	MDW0450NHGS10	57.20	2.2520	63.90	2.5157	121.90	4.7992					2
4.60	0.1811				3	●	MDW0460NHGS3	21.60	0.8504	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	★	MDW0460NHGS5	38.10	1.5000	45.00	1.7717	99.00	3.8976					1
					10		MDW0460NHGS10	64.10	2.5236	71.00	2.7953	122.00	4.8031					2
4.70	0.1850	#13	12-28		3		MDW0470NHGS3	21.40	0.8425	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	●	MDW0470NHGS5	37.90	1.4921	45.00	1.7717	99.00	3.8976					1
					10		MDW0470NHGS10	63.90	2.5157	71.00	2.7953	122.00	4.8031					2
4.76	0.1875	3/16		M5x.8	3	●	MDW01875NHGS3S	21.35	0.8406	28.49	1.1218	80.98	3.1880	0.99	0.0388	6.00	0.2362	1
					5	●	MDW01875NHGS5S	37.84	1.4896	44.98	1.7708	98.98	3.8970					1
4.80	0.1890	#12			3		MDW0480NHGS3	21.30	0.8386	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	●	MDW0480NHGS5	37.80	1.4882	45.00	1.7717	99.00	3.8976					1
					10		MDW0480NHGS10	63.80	2.5118	71.00	2.7953	122.00	4.8031					2
4.90	0.1929				3		MDW0490NHGS3	21.20	0.8346	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	★	MDW0490NHGS5	37.70	1.4843	45.00	1.7717	99.00	3.8976					1
					10	●	MDW0490NHGS10	63.70	2.5079	71.00	2.7953	122.00	4.8031					2
5.00	0.1969			12-24	3	●	MDW0500NHGS3	21.00	0.8268	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	●	MDW0500NHGS5	37.50	1.4764	45.00	1.7717	99.00	3.8976					1
					10	●	MDW0500NHGS10	63.50	2.5000	71.00	2.7953	122.00	4.8031					2
5.10	0.2008			12-28	3		MDW0510NHGS3	20.90	0.8228	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	●	MDW0510NHGS5	37.40	1.4724	45.10	1.7756	101.10	3.9803					1
					10	●	MDW0510NHGS10	70.40	2.7717	78.10	3.0748	137.10	5.3976					2
5.11	0.2010	#7			5	●	MDW02010NHGS5S	37.39	1.4721	45.05	1.7736	101.07	3.9790	1.06	0.0416	6.00	0.2362	1
5.20	0.2047				3	●	MDW0520NHGS3	20.80	0.8189	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	●	MDW0520NHGS5	37.30	1.4685	45.10	1.7756	101.10	3.9803					1
					10		MDW0520NHGS10	70.30	2.7677	78.10	3.0748	137.10	5.3976					2
5.30	0.2087				3	●	MDW0530NHGS3	20.60	0.8110	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	★	MDW0530NHGS5	37.10	1.4606	45.10	1.7756	101.10	3.9803					1
					10		MDW0530NHGS10	70.10	2.7598	78.10	3.0748	137.10	5.3976					2
5.40	0.2126				3		MDW0540NHGS3	20.50	0.8071	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	●	MDW0540NHGS5	37.00	1.4567	45.10	1.7756	101.10	3.9803					1
					10		MDW0540NHGS10	70.00	2.7559	78.10	3.0748	137.10	5.3976					2
5.50	0.2165				3	★	MDW0550NHGS3	20.40	0.8031	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	●	MDW0550NHGS5	36.90	1.4528	45.10	1.7756	101.10	3.9803					1
					10	●	MDW0550NHGS10	69.90	2.7520	78.10	3.0748	137.10	5.3976					2
5.56	0.2188	7/32	1/4-28 M6x.5	M6x1	3	●	MDW02188NHGS3S	22.81	0.8981	31.15	1.2263	83.16	3.2740	1.15	0.0453	6.00	0.2362	1
					5	●	MDW02188NHGS5S	40.82	1.6071	49.16	1.9353	101.14	3.9820					1
5.60	0.2205				3		MDW0560NHGS3	22.80	0.8976	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	★	MDW0560NHGS5	40.80	1.6063	49.20	1.9370	101.20	3.9843					1
					10		MDW0560NHGS10	76.80	3.0236	85.20	3.3543	137.20	5.4016					2
5.70	0.2244				3		MDW0570NHGS3	22.60	0.8898	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	●	MDW0570NHGS5	40.60	1.5984	49.20	1.9370	101.20	3.9843					1
					10		MDW0570NHGS10	76.60	3.0157	85.20	3.3543	137.20	5.4016					2
5.80	0.2283			1/4-20	3		MDW0580NHGS3	22.50	0.8858	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	●	MDW0580NHGS5	40.50	1.5945	49.20	1.9370	101.20	3.9843					1
					10		MDW0580NHGS10	76.50	3.0118	85.20	3.3543	137.20	5.4016					2

Grade: DL1300

● : USA Stock Item

★: Worldwide Warehouse Item

NHGS Series (Internal Coolant Supply)

Aluminum Alloy | Copper Alloy

Aurora DLC Coat | Coolant Hole | 3D | 5D | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

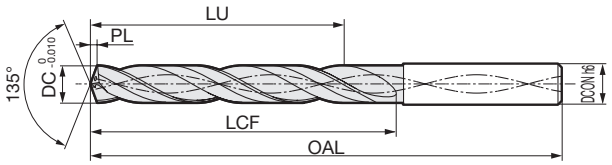
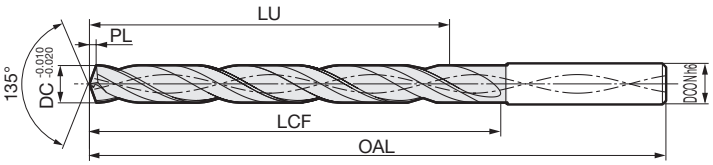


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter *ø5.90 to 7.35mm* (0.2323" to 0.2894") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
5.90	0.2323			1/4-20	3	★	**MDW0590NHGS3**	22.40	0.8819	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	●	**MDW0590NHGS5**	40.40	1.5906	49.20	1.9370	101.20	3.9843					1
					10		**MDW0590NHGS10**	76.40	3.0079	85.20	3.3543	137.20	5.4016					2
6.00	0.2362			1/4/28	3	●	**MDW0600NHGS3**	22.20	0.8740	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	●	**MDW0600NHGS5**	40.20	1.5827	49.20	1.9370	101.20	3.9843					1
					10	●	**MDW0600NHGS10**	76.20	3.0000	85.20	3.3543	137.20	5.4016					2
6.10	0.2402		M7x1		3		**MDW0610NHGS3**	24.60	0.9685	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	★	**MDW0610NHGS5**	44.10	1.7362	53.30	2.0984	110.30	4.3425					1
					10	★	**MDW0610NHGS10**	83.10	3.2717	92.30	3.6339	152.30	5.9961					2
6.20	0.2441				3		**MDW0620NHGS3**	24.50	0.9646	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	●	**MDW0620NHGS5**	44.00	1.7323	53.30	2.0984	110.30	4.3425					1
					10		**MDW0620NHGS10**	83.00	3.2677	92.30	3.6339	152.30	5.9961					2
6.30	0.2480				3		**MDW0630NHGS3**	24.40	0.9606	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	●	**MDW0630NHGS5**	43.90	1.7283	53.30	2.0984	110.30	4.3425					1
					10		**MDW0630NHGS10**	82.90	3.2638	92.30	3.6339	152.30	5.9961					2
6.35	0.2500	1/4			3	●	**MDW02500NHGS3S**	24.30	0.9568	33.83	1.3318	89.31	3.5160	1.32	0.0518	8.00	0.3150	1
					5	●	**MDW02500NHGS5S**	43.78	1.7238	53.31	2.0988	110.31	4.3430					1
6.40	0.2520				3		**MDW0640NHGS3**	24.20	0.9528	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	●	**MDW0640NHGS5**	43.70	1.7205	53.30	2.0984	110.30	4.3425					1
					10		**MDW0640NHGS10**	82.70	3.2559	92.30	3.6339	152.30	5.9961					2
6.50	0.2559				3	●	**MDW0650NHGS3**	24.10	0.9488	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	★	**MDW0650NHGS5**	43.60	1.7165	53.30	2.0984	110.30	4.3425					1
					10	●	**MDW0650NHGS10**	82.60	3.2520	92.30	3.6339	152.30	5.9961					2
6.60	0.2598		5/16-18	M7x1	3		**MDW0660NHGS3**	26.50	1.0433	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	●	**MDW0660NHGS5**	47.50	1.8701	57.40	2.2598	110.40	4.3465					1
					10		**MDW0660NHGS10**	89.50	3.5236	99.40	3.9134	152.40	6.0000					2
6.70	0.2638				3	●	**MDW0670NHGS3**	26.30	1.0354	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	●	**MDW0670NHGS5**	47.30	1.8622	57.40	2.2598	110.40	4.3465					1
					10	●	**MDW0670NHGS10**	89.30	3.5157	99.40	3.9134	152.40	6.0000					2
6.80	0.2677				3	●	**MDW0680NHGS3**	26.20	1.0315	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	●	**MDW0680NHGS5**	47.20	1.8583	57.40	2.2598	110.40	4.3465					1
					10	●	**MDW0680NHGS10**	89.20	3.5118	99.40	3.9134	152.40	6.0000					2
6.90	0.2717		M8x1.25		3		**MDW0690NHGS3**	26.10	1.0276	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	●	**MDW0690NHGS5**	47.10	1.8543	57.40	2.2598	110.40	4.3465					1
					10		**MDW0690NHGS10**	89.10	3.5079	99.40	3.9134	152.40	6.0000					2
7.00	0.2756		5/16-24		3	★	**MDW0700NHGS3**	25.90	1.0197	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	★	**MDW0700NHGS5**	46.90	1.8465	57.40	2.2598	110.40	4.3465					1
					10	●	**MDW0700NHGS10**	88.90	3.5000	99.40	3.9134	152.40	6.0000					2
7.10	0.2795		M8x1		3		**MDW0710NHGS3**	28.30	1.1142	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
					5	●	**MDW0710NHGS5**	50.80	2.0000	61.50	2.4213	119.50	4.7047					1
					10		**MDW0710NHGS10**	95.80	3.7717	106.50	4.1929	167.50	6.5945					2
7.14	0.2812	9/32	M8x1		3	●	**MDW02812NHGS3S**	28.25	1.1124	38.97	1.5342	95.48	3.7590	1.48	0.0582	8.00	0.3150	1
					5	●	**MDW02812NHGS5S**	50.76	1.9984	61.47	2.4202	119.48	4.7040					1
7.20	0.2835				3		**MDW0720NHGS3**	28.20	1.1102	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
					5	●	**MDW0720NHGS5**	50.70	1.9961	61.50	2.4213	119.50	4.7047					1
					10	●	**MDW0720NHGS10**	95.70	3.7677	106.50	4.1929	167.50	6.5945					2
7.30	0.2874		M8x.75	5/16-18	3		**MDW0730NHGS3**	28.10	1.1063	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
					5	●	**MDW0730NHGS5**	50.60	1.9921	61.50	2.4213	119.50	4.7047					1
					10		**MDW0730NHGS10**	95.60	3.7638	106.50	4.1929	167.50	6.5945					2
7.35	0.2894				3	●	**MDW0735NHGS3**	28.00	1.1024	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
					5	●	**MDW0735NHGS5**	50.50	1.9882	61.50	2.4213	119.50	4.7047					1
					10		**MDW0735NHGS10**	95.50	3.7598	106.50	4.1929	167.50	6.5945					2

Grade: DL1300

● : USA Stock Item

NHGS Series (Internal Coolant Supply)

Aluminum Alloy | Copper Alloy

Aurora DLC Coat | Coolant Hole | 3D | 5D | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

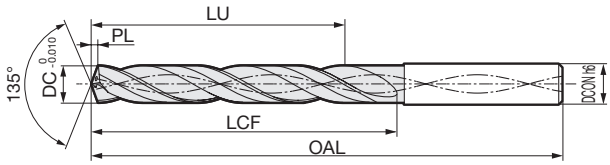
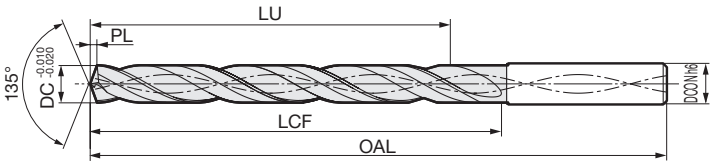


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter *ø7.40 to 8.90mm* (0.2913" to 0.3504") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
7.40	0.2913				3	●	MDW0740NHGS3	27.90	1.0984	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
					5	●	MDW0740NHGS5	50.40	1.9843	61.50	2.4213	119.50	4.7047					1
					10		MDW0740NHGS10	95.40	3.7559	106.50	4.1929	167.50	6.5945					2
7.50	0.2953			5/16-24 / M8x1.25	3	●	MDW0750NHGS3	27.80	1.0945	39.10	1.5394	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
					5	●	MDW0750NHGS5	50.30	1.9803	61.60	2.4252	119.60	4.7087					1
					10	●	MDW0750NHGS10	95.30	3.7520	106.60	4.1969	167.60	6.5984					2
7.60	0.2992			M8x1	3		MDW0760NHGS3	30.20	1.1890	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
					5	●	MDW0760NHGS5	54.20	2.1339	65.60	2.5827	119.60	4.7087					1
					10		MDW0760NHGS10	102.20	4.0236	113.60	4.4724	167.60	6.5984					2
7.70	0.3031			M8x.75	3		MDW0770NHGS3	30.00	1.1811	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
					5	●	MDW0770NHGS5	54.00	2.1260	65.60	2.5827	119.60	4.7087					1
					10		MDW0770NHGS10	102.00	4.0157	113.60	4.4724	167.60	6.5984					2
7.80	0.3071				3	●	MDW0780NHGS3	29.90	1.1772	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
					5	●	MDW0780NHGS5	53.90	2.1220	65.60	2.5827	119.60	4.7087					1
					10	●	MDW0780NHGS10	101.90	4.0118	113.60	4.4724	167.60	6.5984					2
7.90	0.3110				3		MDW0790NHGS3	29.80	1.1732	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
					5	●	MDW0790NHGS5	53.80	2.1181	65.60	2.5827	119.60	4.7087					1
					10		MDW0790NHGS10	101.80	4.0079	113.60	4.4724	167.60	6.5984					2
7.94	0.3125	5/16			3	●	MDW03125NHGS3S	29.74	1.1710	41.65	1.6397	95.66	3.7660	1.64	0.0647	8.00	0.3150	1
					5	●	MDW03125NHGS5S	53.75	2.1160	65.65	2.5847	119.63	4.7100					1
8.00	0.3150				3	★	MDW0800NHGS3	29.70	1.1693	41.70	1.6417	95.70	3.7677	1.70	0.0669	8.00	0.3150	1
					5	●	MDW0800NHGS5	53.70	2.1142	65.70	2.5866	119.70	4.7126					1
					10	●	MDW0800NHGS10	101.70	4.0039	113.70	4.4764	167.70	6.6024					2
8.10	0.3189		3/8-16		3		MDW0810NHGS3	32.00	1.2598	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	1
					5	●	MDW0810NHGS5	57.50	2.2638	69.70	2.7441	128.70	5.0669					1
					10		MDW0810NHGS10	108.50	4.2717	120.70	4.7520	182.70	7.1929					2
8.20	0.3228		3/8-16		3		MDW0820NHGS3	31.90	1.2559	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	1
					5	●	MDW0820NHGS5	57.40	2.2598	69.70	2.7441	128.70	5.0669					1
					10		MDW0820NHGS10	108.40	4.2677	120.70	4.7520	182.70	7.1929					2
8.30	0.3268				3		MDW0830NHGS3	31.80	1.2520	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	1
					5	●	MDW0830NHGS5	57.30	2.2559	69.70	2.7441	128.70	5.0669					1
					10		MDW0830NHGS10	108.30	4.2638	120.70	4.7520	182.70	7.1929					2
8.33	0.3281	21/64			3	●	MDW03281NHGS3S	31.72	1.2489	44.22	1.7410	101.73	4.0050	1.73	0.0680	10.00	0.3937	1
					5	●	MDW03281NHGS5S	57.22	2.2529	69.72	2.7450	128.73	5.0680					1
8.40	0.3307				3		MDW0840NHGS3	31.60	1.2441	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	1
					5	●	MDW0840NHGS5	57.10	2.2480	69.70	2.7441	128.70	5.0669					1
					10		MDW0840NHGS10	108.10	4.2559	120.70	4.7520	182.70	7.1929					2
8.50	0.3346				3	●	MDW0850NHGS3	31.50	1.2402	44.30	1.7441	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
					5	★	MDW0850NHGS5	57.00	2.2441	69.80	2.7480	128.80	5.0709					1
					10	●	MDW0850NHGS10	108.00	4.2520	120.80	4.7559	182.80	7.1969					2
8.60	0.3386		3/8-24 / M10x1.5		3	●	MDW0860NHGS3	33.90	1.3346	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
					5	●	MDW0860NHGS5	60.90	2.3976	73.80	2.9055	128.80	5.0709					1
					10		MDW0860NHGS10	114.90	4.5236	127.80	5.0315	182.80	7.1969					2
8.70	0.3425		M10x1.5		3		MDW0870NHGS3	33.80	1.3307	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
					5	●	MDW0870NHGS5	60.80	2.3937	73.80	2.9055	128.80	5.0709					1
					10		MDW0870NHGS10	114.80	4.5197	127.80	5.0315	182.80	7.1969					2
8.80	0.3465			3/8-16	3	●	MDW0880NHGS3	33.60	1.3228	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
					5	●	MDW0880NHGS5	60.60	2.3858	73.80	2.9055	128.80	5.0709					1
					10		MDW0880NHGS10	114.60	4.5118	127.80	5.0315	182.80	7.1969					2
8.90	0.3504		M10x1.25		3		MDW0890NHGS3	33.50	1.3189	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
					5	●	MDW0890NHGS5	60.50	2.3819	73.80	2.9055	128.80	5.0709					1
					10		MDW0890NHGS10	114.50	4.5079	127.80	5.0315	182.80	7.1969					2

Grade: DL1300

● : USA Stock Item

NHGS Series (Internal Coolant Supply)

Aluminum Alloy | Copper Alloy

Aurora DLC Coat | Coolant Hole | 3D | 5D | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

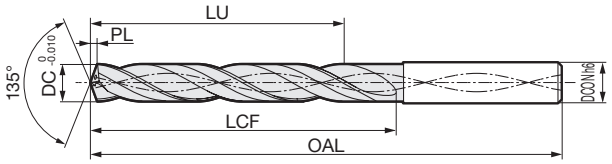
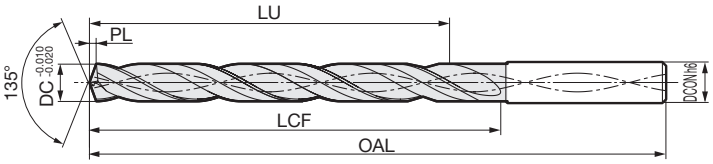


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter *ø9.00 to 10.40mm* (0.3543" to 0.4094") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
9.00	0.3543				3	●	MDW0900NHGS3	33.40	1.3150	46.90	1.8465	101.90	4.0118	1.90	0.0748	9.00	0.3543	1
					5	●	MDW0900NHGS5	60.40	2.3780	73.90	2.9094	128.90	5.0748					1
					10	●	MDW0900NHGS10	114.40	4.5039	127.90	5.0354	182.90	7.2008					2
9.10	0.3583		M10x1	3/8-24	3		MDW0910NHGS3	35.70	1.4055	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0910NHGS5	64.20	2.5276	77.90	3.0669	137.90	5.4291					1
					10		MDW0910NHGS10	121.20	4.7717	134.90	5.3110	197.90	7.7913					2
9.13	0.3594	23/64	M10x1		3	●	MDW03594NHGS3S	35.69	1.4053	49.39	1.9444	107.90	4.2480	1.89	0.0744	10.00	0.3937	1
					5	●	MDW03594NHGS5S	64.19	2.5273	77.89	3.0664	137.90	5.4290					1
9.20	0.3622				3		MDW0920NHGS3	35.60	1.4016	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0920NHGS5	64.10	2.5236	77.90	3.0669	137.90	5.4291					1
					10		MDW0920NHGS10	121.10	4.7677	134.90	5.3110	197.90	7.7913					2
9.21	0.3626				3	●	MDW0921NHGS3	35.60	1.4016	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0921NHGS5	64.10	2.5236	77.90	3.0669	137.90	5.4291					1
					10		MDW0921NHGS10	121.10	4.7677	134.90	5.3110	197.90	7.7913					2
9.30	0.3661				3		MDW0930NHGS3	35.50	1.3976	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0930NHGS5	64.00	2.5197	77.90	3.0669	137.90	5.4291					1
					10		MDW0930NHGS10	121.00	4.7638	134.90	5.3110	197.90	7.7913					2
9.40	0.3701		7/16-14	M10x1.5	3	●	MDW0940NHGS3	35.30	1.3898	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0940NHGS5	63.80	2.5118	77.90	3.0669	137.90	5.4291					1
					10		MDW0940NHGS10	120.80	4.7559	134.90	5.3110	197.90	7.7913					2
9.50	0.3740		7/16-14	M10x1.5	3	●	MDW0950NHGS3	35.20	1.3858	49.50	1.9488	108.00	4.2520	2.00	0.0787	10.00	0.3937	1
					5	●	MDW0950NHGS5	63.70	2.5079	78.00	3.0709	138.00	5.4331					1
					10	★	MDW0950NHGS10	120.70	4.7520	135.00	5.3150	198.00	7.7953					2
9.53	0.3750	3/8	7/16-14		3	●	MDW03750NHGS3S	37.70	1.4842	51.99	2.0467	107.98	4.2510	1.97	0.0777	10.00	0.3937	1
					5	●	MDW03750NHGS5S	67.70	2.6652	81.98	3.2277	137.97	5.4320					1
9.60	0.3780			M10x1	3		MDW0960NHGS3	37.60	1.4803	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	1
					5	●	MDW0960NHGS5	67.60	2.6614	82.00	3.2283	138.00	5.4331					1
					10		MDW0960NHGS10	127.60	5.0236	142.00	5.5906	198.00	7.7953					2
9.70	0.3819			M10x.75	3		MDW0970NHGS3	37.50	1.4764	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	1
					5	●	MDW0970NHGS5	67.50	2.6575	82.00	3.2283	138.00	5.4331					1
					10		MDW0970NHGS10	127.50	5.0197	142.00	5.5906	198.00	7.7953					2
9.80	0.3858				3		MDW0980NHGS3	37.30	1.4685	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	1
					5	●	MDW0980NHGS5	67.30	2.6496	82.00	3.2283	138.00	5.4331					1
					10	●	MDW0980NHGS10	127.30	5.0118	142.00	5.5906	198.00	7.7953					2
9.90	0.3898				3		MDW0990NHGS3	37.20	1.4646	52.10	2.0512	108.10	4.2559	2.10	0.0827	10.00	0.3937	1
					5	●	MDW0990NHGS5	67.20	2.6457	82.10	3.2323	138.10	5.4370					1
					10		MDW0990NHGS10	127.20	5.0079	142.10	5.5945	198.10	7.7992					2
10.00	0.3937		7/16-20		3	★	MDW1000NHGS3	37.10	1.4606	52.10	2.0512	108.10	4.2559	2.10	0.0827	10.00	0.3937	1
					5	★	MDW1000NHGS5	67.10	2.6417	82.10	3.2323	138.10	5.4370					1
					10	★	MDW1000NHGS10	127.10	5.0039	142.10	5.5945	198.10	7.7992					2
10.10	0.3976				3	★	MDW1010NHGS3	39.40	1.5512	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	1
					5		MDW1010NHGS5	70.90	2.7913	86.10	3.3898	151.10	5.9488					1
					10		MDW1010NHGS10	133.90	5.2717	149.10	5.8701	217.10	8.5472					2
10.20	0.4016				3		MDW1020NHGS3	39.30	1.5472	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	1
					5		MDW1020NHGS5	70.80	2.7874	86.10	3.3898	151.10	5.9488					1
					10		MDW1020NHGS10	133.80	5.2677	149.10	5.8701	217.10	8.5472					2
10.30	0.4055			7/16-14	3	●	MDW1030NHGS3	39.20	1.5433	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	1
					5	●	MDW1030NHGS5	70.70	2.7835	86.10	3.3898	151.10	5.9488					1
					10		MDW1030NHGS10	133.70	5.2638	149.10	5.8701	217.10	8.5472					2
10.32	0.4062	13/32		7/16-14	3	●	MDW04062NHGS3S	39.16	1.5418	54.64	2.1511	118.14	4.6510	2.14	0.0841	12.00	0.4724	1
					5	●	MDW04062NHGS5S	70.66	2.7818	86.13	3.3911	151.13	5.9500					1
10.40	0.4094		M12x1.75		3		MDW1040NHGS3	39.10	1.5394	54.70	2.1535	118.20	4.6535	2.20	0.0866	11.00	0.4331	1
					5	★	MDW1040NHGS5	70.60	2.7795	86.20	3.3937	151.20	5.9528					1
					10		MDW1040NHGS10	133.60	5.2598	149.20	5.8740	217.20	8.5512					2

Grade: DL1300

● : USA Stock Item

NHGS Series (Internal Coolant Supply)

Aluminum Alloy | Copper Alloy

Aurora DLC Coat | Coolant Hole | 3D | 5D | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

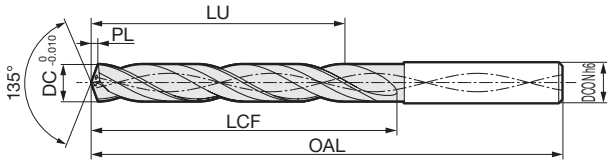
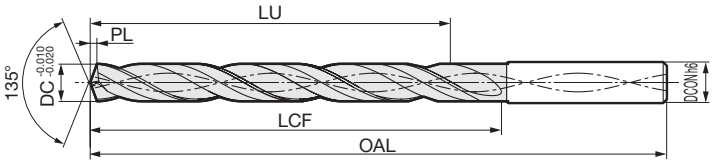


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter *ø10.50 to 11.91mm* (0.4134" to 0.4688") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
10.50	0.4134		M12x1.75		3	●	**MDW1050NHGS3**	38.90	1.5315	54.70	2.1535	118.20	4.6535	2.20	0.0866	11.00	0.4331	1
					5	●	**MDW1050NHGS5**	70.40	2.7717	86.20	3.3937	151.20	5.9528					1
					10	●	**MDW1050NHGS10**	133.40	5.2520	149.20	5.8740	217.20	8.5512					2
10.60	0.4173			7/20	3	●	**MDW1060NHGS3**	41.30	1.6260	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	1
					5	●	**MDW1060NHGS5**	74.30	2.9252	90.20	3.5512	151.20	5.9528					1
					10		**MDW1060NHGS10**	140.30	5.5236	156.20	6.1496	217.20	8.5512					2
10.70	0.4213		M12x1.5		3		**MDW1070NHGS3**	41.20	1.6220	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	1
					5		**MDW1070NHGS5**	74.20	2.9213	90.20	3.5512	151.20	5.9528					1
					10		**MDW1070NHGS10**	140.20	5.5197	156.20	6.1496	217.20	8.5512					2
10.80	0.4252				3		**MDW1080NHGS3**	41.00	1.6142	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	1
					5		**MDW1080NHGS5**	74.00	2.9134	90.20	3.5512	151.20	5.9528					1
					10		**MDW1080NHGS10**	140.00	5.5118	156.20	6.1496	217.20	8.5512					2
10.90	0.4291		1/2-13		3		**MDW1090NHGS3**	40.90	1.6102	57.30	2.2559	118.30	4.6575	2.30	0.0906	11.00	0.4331	1
					5		**MDW1090NHGS5**	73.90	2.9094	90.30	3.5551	151.30	5.9567					1
					10		**MDW1090NHGS10**	139.90	5.5079	156.30	6.1535	217.30	8.5551					2
11.00	0.4331		1/2-13		3	★	**MDW1100NHGS3**	40.80	1.6063	57.30	2.2559	118.30	4.6575	2.30	0.0906	11.00	0.4331	1
					5	●	**MDW1100NHGS5**	73.80	2.9055	90.30	3.5551	151.30	5.9567					1
					10	●	**MDW1100NHGS10**	139.80	5.5039	156.30	6.1535	217.30	8.5551					2
11.08	0.4362				3	●	**MDW1108NHGS3**	43.20	1.7008	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	1
					5	●	**MDW1108NHGS5**	77.70	3.0591	94.30	3.7126	160.30	6.3110					1
					10		**MDW1108NHGS10**	146.70	5.7756	163.30	6.4291	232.30	9.1457					2
11.10	0.4370		1/2-13 / M12x1		3	●	**MDW1110NHGS3**	43.10	1.6969	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	1
					5	●	**MDW1110NHGS5**	77.60	3.0551	94.30	3.7126	160.30	6.3110					1
					10		**MDW1110NHGS10**	146.60	5.7717	163.30	6.4291	232.30	9.1457					2
11.11	0.4375	7/16	M12x1		3	●	**MDW04375NHGS3S**	43.14	1.6984	59.81	2.3546	124.31	4.8940	2.30	0.0906	12.00	0.4724	1
					5	●	**MDW04375NHGS5S**	77.63	3.0564	94.30	3.7126	160.30	6.3110					1
11.20	0.4409		M12x1		3	●	**MDW1120NHGS3**	43.00	1.6929	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	1
					5	★	**MDW1120NHGS5**	77.50	3.0512	94.30	3.7126	160.30	6.3110					1
					10		**MDW1120NHGS10**	146.50	5.7677	163.30	6.4291	232.30	9.1457					2
11.30	0.4449		M12x1.75		3		**MDW1130NHGS3**	42.90	1.6890	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	1
					5		**MDW1130NHGS5**	77.40	3.0472	94.30	3.7126	160.30	6.3110					1
					10		**MDW1130NHGS10**	146.40	5.7638	163.30	6.4291	232.30	9.1457					2
11.40	0.4488		M12x1.5		3	●	**MDW1140NHGS3**	42.80	1.6850	59.90	2.3583	124.40	4.8976	2.40	0.0945	12.00	0.4724	1
					5	●	**MDW1140NHGS5**	77.30	3.0433	94.40	3.7165	160.40	6.3150					1
					10		**MDW1140NHGS10**	146.30	5.7598	163.40	6.4331	232.40	9.1496					2
11.50	0.4528		M12x1.25		3	●	**MDW1150NHGS3**	42.60	1.6772	59.90	2.3583	124.40	4.8976	2.40	0.0945	12.00	0.4724	1
					5	●	**MDW1150NHGS5**	77.10	3.0354	94.40	3.7165	160.40	6.3150					1
					10	●	**MDW1150NHGS10**	146.10	5.7520	163.40	6.4331	232.40	9.1496					2
11.51	0.4531	29/64	1/2-20		3	●	**MDW04531NHGS3S**	45.12	1.7762	62.38	2.4558	124.38	4.8970	2.38	0.0938	12.00	0.4724	1
					5	●	**MDW04531NHGS5S**	81.13	3.1942	98.39	3.8738	160.38	6.3140					1
11.60	0.4567		1/2-20		3		**MDW1160NHGS3**	45.00	1.7717	62.40	2.4567	124.40	4.8976	2.40	0.0945	12.00	0.4724	1
					5		**MDW1160NHGS5**	81.00	3.1890	98.40	3.8740	160.40	6.3150					1
					10		**MDW1160NHGS10**	153.00	6.0236	170.40	6.7087	232.40	9.1496					2
11.70	0.4606				3		**MDW1170NHGS3**	44.90	1.7677	62.40	2.4567	124.40	4.8976	2.40	0.0945	12.00	0.4724	1
					5		**MDW1170NHGS5**	80.90	3.1850	98.40	3.8740	160.40	6.3150					1
					10		**MDW1170NHGS10**	152.90	6.0197	170.40	6.7087	232.40	9.1496					2
11.80	0.4646				3		**MDW1180NHGS3**	44.70	1.7598	62.40	2.4567	124.40	4.8976	2.40	0.0945	12.00	0.4724	1
					5		**MDW1180NHGS5**	80.70	3.1772	98.40	3.8740	160.40	6.3150					1
					10		**MDW1180NHGS10**	152.70	6.0118	170.40	6.7087	232.40	9.1496					2
11.90	0.4685			1/2-13	3		**MDW1190NHGS3**	44.60	1.7559	62.50	2.4606	124.50	4.9016	2.50	0.0984	12.00	0.4724	1
					5		**MDW1190NHGS5**	80.60	3.1732	98.50	3.8780	160.50	6.3189					1
					10		**MDW1190NHGS10**	152.60	6.0079	170.50	6.7126	232.50	9.1535					2
11.91	0.4688	15/32		1/2-13	3	●	**MDW04688NHGS3S**	44.60	1.7559	62.46	2.4591	124.46	4.9000	2.47	0.0971	12.00	0.4724	1
					5	●	**MDW04688NHGS5S**	80.62	3.1739	98.48	3.8771	160.48	6.3180					1

Grade: DL1300

● : USA Stock Item

NHGS Series (Internal Coolant Supply)

Aluminum Alloy | Copper Alloy

Aurora DLC Coat | Coolant Hole | 3D | 5D | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

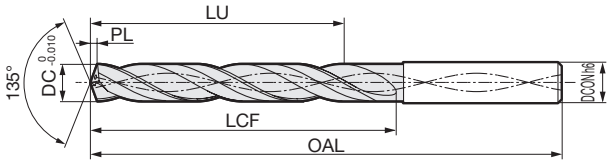
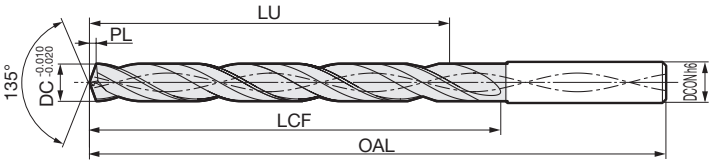


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter *ø12.00 to 13.50mm* (0.4724" to 0.5315") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
12.00	0.4724				3	●	MDW1200NHGS3	44.50	1.7520	62.50	2.4606	124.50	4.9016	2.50	0.0984	12.00	0.4724	1
					5	★	MDW1200NHGS5	80.50	3.1693	98.50	3.8780	160.50	6.3189					1
					10	●	MDW1200NHGS10	152.50	6.0039	170.50	6.7126	232.50	9.1535					2
12.10	0.4764				3	●	MDW1210NHGS3	46.90	1.8465	65.00	2.5591	130.50	5.1378	2.50	0.0984	13.00	0.5118	1
					5	●	MDW1210NHGS5	84.40	3.3228	102.50	4.0354	169.50	6.6732					1
					10		MDW1210NHGS10	159.40	6.2756	177.50	6.9882	247.50	9.7441					2
12.20	0.4803			1/2-20	3		MDW1220NHGS3	46.70	1.8386	65.00	2.5591	130.50	5.1378	2.50	0.0984	13.00	0.5118	1
					5		MDW1220NHGS5	84.20	3.3150	102.50	4.0354	169.50	6.6732					1
					10		MDW1220NHGS10	159.20	6.2677	177.50	6.9882	247.50	9.7441					2
12.30	0.4843	31/64	9/16-12 M14x2		3	●	MDW1230NHGS3	46.60	1.8346	65.00	2.5591	130.50	5.1378	2.50	0.0984	13.00	0.5118	1
					5	●	MDW1230NHGS5	84.10	3.3110	102.50	4.0354	169.50	6.6732					1
					10		MDW1230NHGS10	159.10	6.2638	177.50	6.9882	247.50	9.7441					2
12.40	0.4882		9/16-12		3		MDW1240NHGS3	46.50	1.8307	65.10	2.5630	130.60	5.1417	2.60	0.1024	13.00	0.5118	1
					5		MDW1240NHGS5	84.00	3.3071	102.60	4.0394	169.60	6.6772					1
					10		MDW1240NHGS10	159.00	6.2598	177.60	6.9921	247.60	9.7480					2
12.50	0.4921		9/16-12		3	●	MDW1250NHGS3	46.30	1.8228	65.10	2.5630	130.60	5.1417	2.60	0.1024	13.00	0.5118	1
					5	●	MDW1250NHGS5	83.80	3.2992	102.60	4.0394	169.60	6.6772					1
					10	●	MDW1250NHGS10	158.80	6.2520	177.60	6.9921	247.60	9.7480					2
12.60	0.4961				3		MDW1260NHGS3	48.70	1.9173	67.60	2.6614	130.60	5.1417	2.60	0.1024	13.00	0.5118	1
					5		MDW1260NHGS5	87.70	3.4528	106.60	4.1969	169.60	6.6772					1
					10		MDW1260NHGS10	165.70	6.5236	184.60	7.2677	247.60	9.7480					2
12.70	0.5000	1/2	M14x1.5		3		MDW1270NHGS3	48.60	1.9134	67.60	2.6614	130.60	5.1417	2.60	0.1024	13.00	0.5118	1
					5		MDW1270NHGS5	87.60	3.4488	106.60	4.1969	169.60	6.6772					1
					10		MDW1270NHGS10	165.60	6.5197	184.60	7.2677	247.60	9.7480					2
12.70	0.5000	1/2	M14x1.5		3	●	MDW05000NHGS3S	48.58	1.9126	67.63	2.6626	130.63	5.1430	2.63	0.1036	14.00	0.5512	1
					5	●	MDW05000NHGS5S	87.57	3.4476	106.62	4.1976	169.62	6.6780					1
12.80	0.5039				3		MDW1280NHGS3	48.50	1.9094	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	1
					5		MDW1280NHGS5	87.50	3.4449	106.70	4.2008	169.70	6.6811					1
					10		MDW1280NHGS10	165.50	6.5157	184.70	7.2717	247.70	9.7520					2
12.90	0.5079				3		MDW1290NHGS3	48.30	1.9016	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	1
					5		MDW1290NHGS5	87.30	3.4370	106.70	4.2008	169.70	6.6811					1
					10		MDW1290NHGS10	165.30	6.5079	184.70	7.2717	247.70	9.7520					2
12.96	0.5102				3	●	MDW1296NHGS3	48.20	1.8976	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	1
					5	●	MDW1296NHGS5	87.20	3.4331	106.70	4.2008	169.70	6.6811					1
					10		MDW1296NHGS10	165.20	6.5039	184.70	7.2717	247.70	9.7520					2
13.00	0.5118		9/16-18		3	●	MDW1300NHGS3	48.20	1.8976	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	1
					5	●	MDW1300NHGS5	87.20	3.4331	106.70	4.2008	169.70	6.6811					1
					10	●	MDW1300NHGS10	165.20	6.5039	184.70	7.2717	247.70	9.7520					2
13.10	0.5157	33/64	9/16-18	M14x2	3		MDW1310NHGS3	50.60	1.9921	70.20	2.7638	136.70	5.3819	2.70	0.1063	14.00	0.5512	1
					5		MDW1310NHGS5	91.10	3.5866	110.70	4.3583	178.70	7.0354					1
					10		MDW1310NHGS10	172.10	6.7756	191.70	7.5472	262.70	10.3425					2
13.20	0.5197				3		MDW1320NHGS3	50.40	1.9843	70.20	2.7638	136.70	5.3819	2.70	0.1063	14.00	0.5512	1
					5		MDW1320NHGS5	90.90	3.5787	110.70	4.3583	178.70	7.0354					1
					10		MDW1320NHGS10	171.90	6.7677	191.70	7.5472	262.70	10.3425					2
13.30	0.5236				3		MDW1330NHGS3	50.30	1.9803	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5		MDW1330NHGS5	90.80	3.5748	110.80	4.3622	178.80	7.0394					1
					10		MDW1330NHGS10	171.80	6.7638	191.80	7.5512	262.80	10.3465					2
13.40	0.5276			9/16-12 / M14x1.5	3		MDW1340NHGS3	50.20	1.9764	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5		MDW1340NHGS5	90.70	3.5709	110.80	4.3622	178.80	7.0394					1
					10		MDW1340NHGS10	171.70	6.7598	191.80	7.5512	262.80	10.3465					2
13.50	0.5315				3	●	MDW1350NHGS3	50.00	1.9685	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5	●	MDW1350NHGS5	90.50	3.5630	110.80	4.3622	178.80	7.0394					1
					10		MDW1350NHGS10	171.50	6.7520	191.80	7.5512	262.80	10.3465					2

Grade: DL1300

● : USA Stock Item

NHGS Series (Internal Coolant Supply)

Aluminum Alloy | Copper Alloy

Aurora DLC Coat | Coolant Hole | 3D | 5D | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

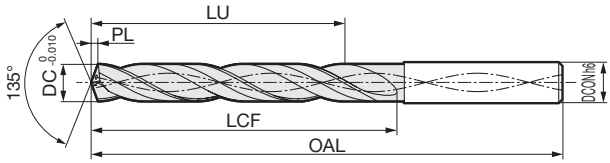
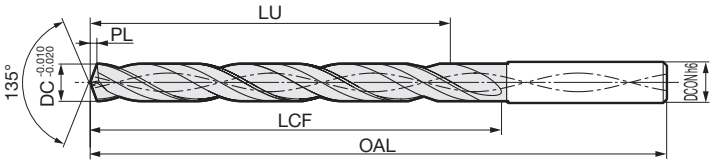


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter *ø13.60 to 15.10mm* (0.5354" to 0.5945") Dimensions (*mm*/inch)

Dia.DC mm	Dia.DC in.	Dia.DC Fraction	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU mm	Effective Length LU in.	Flute Length LCF mm	Flute Length LCF in.	Overall Length OAL mm	Overall Length OAL in.	Tip PL mm	Tip PL in.	Shank Dia DCON mm	Shank Dia DCON in.	Fig
13.60	0.5354				3		**MDW1360NHGS3**	52.40	2.0630	72.80	2.8661	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5		**MDW1360NHGS5**	94.40	3.7165	114.80	4.5197	178.80	7.0394					1
					10		**MDW1360NHGS10**	178.40	7.0236	198.80	7.8268	262.80	10.3465					2
13.70	0.5394		5/8-11	9/16-18	3		**MDW1370NHGS3**	52.30	2.0591	72.80	2.8661	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5		**MDW1370NHGS5**	94.30	3.7126	114.80	4.5197	178.80	7.0394					1
					10		**MDW1370NHGS10**	178.30	7.0197	198.80	7.8268	262.80	10.3465					2
13.80	0.5433		5/8-11		3		**MDW1380NHGS3**	52.20	2.0551	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	1
					5		**MDW1380NHGS5**	94.20	3.7087	114.90	4.5236	178.90	7.0433					1
					10		**MDW1380NHGS10**	178.20	7.0157	198.90	7.8307	262.90	10.3504					2
13.90	0.5472		5/8-11		3		**MDW1390NHGS3**	52.00	2.0472	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	1
					5		**MDW1390NHGS5**	94.00	3.7008	114.90	4.5236	178.90	7.0433					1
					10		**MDW1390NHGS10**	178.00	7.0079	198.90	7.8307	262.90	10.3504					2
14.00	0.5512		5/8-11		3	●	**MDW1400NHGS3**	51.90	2.0433	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	1
					5	●	**MDW1400NHGS5**	93.90	3.6969	114.90	4.5236	178.90	7.0433					1
					10		**MDW1400NHGS10**	177.90	7.0039	198.90	7.8307	262.90	10.3504					2
14.10	0.5551				3	●	**MDW1410NHGS3**	54.30	2.1378	75.40	2.9685	142.90	5.6260	2.90	0.1142	15.00	0.5906	1
					5	●	**MDW1410NHGS5**	97.80	3.8504	118.90	4.6811	187.90	7.3976					1
					10		**MDW1410NHGS10**	184.80	7.2756	205.90	8.1063	277.90	10.9409					2
14.20	0.5591		M16x2		3		**MDW1420NHGS3**	54.10	2.1299	75.40	2.9685	142.90	5.6260	2.90	0.1142	15.00	0.5906	1
					5		**MDW1420NHGS5**	97.60	3.8425	118.90	4.6811	187.90	7.3976					1
					10		**MDW1420NHGS10**	184.60	7.2677	205.90	8.1063	277.90	10.9409					2
14.29	0.5625	9/16	M16x2		3	●	**MDW05625NHGS3S**	54.02	2.1268	75.45	2.9705	142.95	5.6280	2.96	0.1165	16.00	0.6299	1
					5	●	**MDW05625NHGS5S**	97.53	3.8398	118.96	4.6835	187.96	7.4000					1
14.30	0.5630		M16x2		3		**MDW1430NHGS3**	54.00	2.1260	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5		**MDW1430NHGS5**	97.50	3.8386	119.00	4.6850	188.00	7.4016					1
					10		**MDW1430NHGS10**	184.50	7.2638	206.00	8.1102	278.00	10.9449					2
14.40	0.5669				3		**MDW1440NHGS3**	53.90	2.1220	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5		**MDW1440NHGS5**	97.40	3.8346	119.00	4.6850	188.00	7.4016					1
					10		**MDW1440NHGS10**	184.40	7.2598	206.00	8.1102	278.00	10.9449					2
14.50	0.5709				3	●	**MDW1450NHGS3**	53.80	2.1181	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5	●	**MDW1450NHGS5**	97.30	3.8307	119.00	4.6850	188.00	7.4016					1
					10		**MDW1450NHGS10**	184.30	7.2559	206.00	8.1102	278.00	10.9449					2
14.60	0.5748		5/8-18 M16x1.5		3		**MDW1460NHGS3**	56.10	2.2087	78.00	3.0709	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5		**MDW1460NHGS5**	101.10	3.9803	123.00	4.8425	188.00	7.4016					1
					10		**MDW1460NHGS10**	191.10	7.5236	213.00	8.3858	278.00	10.9449					2
14.70	0.5787		5/8-18 M16x1.5		3		**MDW1470NHGS3**	56.00	2.2047	78.00	3.0709	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5		**MDW1470NHGS5**	101.00	3.9764	123.00	4.8425	188.00	7.4016					1
					10		**MDW1470NHGS10**	191.00	7.5197	213.00	8.3858	278.00	10.9449					2
14.80	0.5827				3		**MDW1480NHGS3**	55.90	2.2008	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	1
					5		**MDW1480NHGS5**	100.90	3.9724	123.10	4.8465	188.10	7.4055					1
					10		**MDW1480NHGS10**	190.90	7.5157	213.10	8.3898	278.10	10.9488					2
14.90	0.5866			5/8-11	3	●	**MDW1490NHGS3**	55.70	2.1929	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	1
					5	●	**MDW1490NHGS5**	100.70	3.9646	123.10	4.8465	188.10	7.4055					1
					10		**MDW1490NHGS10**	190.70	7.5079	213.10	8.3898	278.10	10.9488					2
14.96	0.5890				3	●	**MDW1496NHGS3**	55.70	2.1929	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	1
					5	●	**MDW1496NHGS5**	100.70	3.9646	123.10	4.8465	188.10	7.4055					1
					10		**MDW1496NHGS10**	190.70	7.5079	213.10	8.3898	278.10	10.9488					2
15.00	0.5906			5/8-11	3	●	**MDW1500NHGS3**	55.60	2.1890	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	1
					5	●	**MDW1500NHGS5**	100.60	3.9606	123.10	4.8465	188.10	7.4055					1
					10		**MDW1500NHGS10**	190.60	7.5039	213.10	8.3898	278.10	10.9488					2
15.10	0.5945			M16x2	3		**MDW1510NHGS3**	58.00	2.2835	80.60	3.1732	149.10	5.8701	3.10	0.1220	16.00	0.6299	1
					5		**MDW1510NHGS5**	104.50	4.1142	127.10	5.0039	197.10	7.7598					1
					10		**MDW1510NHGS10**	197.50	7.7756	220.10	8.6654	293.10	11.5394					2

Grade: DL1300

● : USA Stock Item

NHGS Series (Internal Coolant Supply)

Aluminum Alloy | Copper Alloy

Aurora DLC Coat | Coolant Hole | 3D | 5D | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

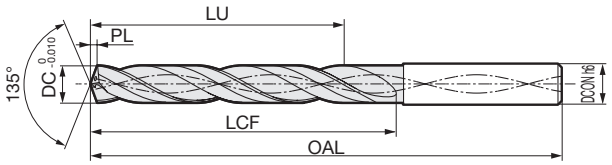
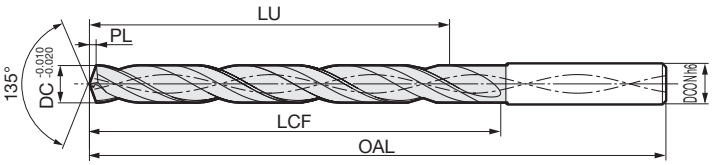


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter *ø15.20 to 16.00mm* (0.5984" to 0.6299") Dimensions (*mm*/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						*mm*	in.	*mm*	in.	*mm*	in.	*mm*	in.	*mm*	in.	
15.20	0.5984			5/8-18	3		**MDW1520NHGS3**	*57.80*	2.2756	*80.60*	3.1732	*149.10*	5.8701	*3.10*	0.1220	*16.00*	0.6299	1
					5		**MDW1520NHGS5**	*104.30*	4.1063	*127.10*	5.0039	*197.10*	7.7598					1
					10		**MDW1520NHGS10**	*197.30*	7.7677	*220.10*	8.6654	*293.10*	11.5394					2
15.30	0.6024			5/8-18	3		**MDW1530NHGS3**	*57.70*	2.2717	*80.70*	3.1772	*149.20*	5.8740	*3.20*	0.1260	*16.00*	0.6299	1
					5		**MDW1530NHGS5**	*104.20*	4.1024	*127.20*	5.0079	*197.20*	7.7638					1
					10		**MDW1530NHGS10**	*197.20*	7.7638	*220.20*	8.6693	*293.20*	11.5433					2
15.40	0.6063			M16x1.5	3		**MDW1540NHGS3**	*57.60*	2.2677	*80.70*	3.1772	*149.20*	5.8740	*3.20*	0.1260	*16.00*	0.6299	1
					5		**MDW1540NHGS5**	*104.10*	4.0984	*127.20*	5.0079	*197.20*	7.7638					1
					10		**MDW1540NHGS10**	*197.10*	7.7598	*220.20*	8.6693	*293.20*	11.5433					2
15.50	0.6102				3	●	**MDW1550NHGS3**	*57.50*	2.2638	*80.70*	3.1772	*149.20*	5.8740	*3.20*	0.1260	*16.00*	0.6299	1
					5	●	**MDW1550NHGS5**	*104.00*	4.0945	*127.20*	5.0079	*197.20*	7.7638					1
					10		**MDW1550NHGS10**	*197.00*	7.7559	*220.20*	8.6693	*293.20*	11.5433					2
15.60	0.6142				3		**MDW1560NHGS3**	*59.80*	2.3543	*83.20*	3.2756	*149.20*	5.8740	*3.20*	0.1260	*16.00*	0.6299	1
					5		**MDW1560NHGS5**	*107.80*	4.2441	*131.20*	5.1654	*197.20*	7.7638					1
					10		**MDW1560NHGS10**	*203.80*	8.0236	*227.20*	8.9449	*293.20*	11.5433					2
15.70	0.6181		M18x2.5		3		**MDW1570NHGS3**	*59.70*	2.3504	*83.30*	3.2795	*149.30*	5.8780	*3.30*	0.1299	*16.00*	0.6299	1
					5		**MDW1570NHGS5**	*107.70*	4.2402	*131.30*	5.1693	*197.30*	7.7677					1
					10		**MDW1570NHGS10**	*203.70*	8.0197	*227.30*	8.9488	*293.30*	11.5472					2
15.80	0.6220		M18x2.5		3		**MDW1580NHGS3**	*59.60*	2.3465	*83.30*	3.2795	*149.30*	5.8780	*3.30*	0.1299	*16.00*	0.6299	1
					5		**MDW1580NHGS5**	*107.60*	4.2362	*131.30*	5.1693	*197.30*	7.7677					1
					10		**MDW1580NHGS10**	*203.60*	8.0157	*227.30*	8.9488	*293.30*	11.5472					2
15.88	0.6250		M18x2.5		3	●	**MDW06250NHGS3S**	*59.48*	2.3419	*83.30*	3.2794	*149.28*	5.8770	*3.29*	0.1294	*16.00*	0.6299	1
					5	●	**MDW06250NHGS5S**	*107.46*	4.2309	*131.28*	5.1684	*197.28*	7.7670					1
15.90	0.6260		M18x2.5		3		**MDW1590NHGS3**	*59.40*	2.3386	*83.30*	3.2795	*149.30*	5.8780	*3.30*	0.1299	*16.00*	0.6299	1
					5		**MDW1590NHGS5**	*107.40*	4.2283	*131.30*	5.1693	*197.30*	7.7677					1
					10		**MDW1590NHGS10**	*203.40*	8.0079	*227.30*	8.9488	*293.30*	11.5472					2
16.00	0.6299				3	●	**MDW1600NHGS3**	*59.30*	2.3346	*83.30*	3.2795	*149.30*	5.8780	*3.30*	0.1299	*16.00*	0.6299	1
					5	●	**MDW1600NHGS5**	*107.30*	4.2244	*131.30*	5.1693	*197.30*	7.7677					1
					10		**MDW1600NHGS10**	*203.30*	8.0039	*227.30*	8.9488	*293.30*	11.5472					2

Grade: DL1300

● : USA Stock Item

Recommended Cutting Conditions (v_c: Cutting Speed (SFM), *f*: Feed Rate (IPR))

Dia. DC	Cutting Conditions	Aluminum alloy castings/ aluminum alloy die castings	Wrought Aluminum Alloy
Up to 0.2188"/ *6 mm*	v_c	260 - 720	260 - 720
	f	0.008" - 0.024"	0.008" - 0.016"
Up to 0.375"/ *10 mm*	v_c	330 - 900	330 - 820
	f	0.016" - 0.032"	0.008" - 0.020"
Up to 0.625"/ *16 mm*	v_c	400 - 900	400 - 820
	f	0.016" - 0.040"	0.012" - 0.024"

Min. - Max.

Contact Sumitomo Engineering Department for further questions.

SDC Series (External Coolant Supply)

■ General Features

Diamond Coating SDC (SUMIDIA) drills for carbon fiber reinforced polymers (CFRP) employ Sumitomo's proprietary multi-step point angle. Combined with a diamond coating, this technology improves machined surface quality and extends tool life.

■ Product Range

Cat. No.	Diameter Range (mm)	Point Angle	Hole Depth (L/D)
MDS□□□□□SDC3	ø2.0 to ø4.0	90°	up to 3
	ø4.851 to ø10.0	130°	

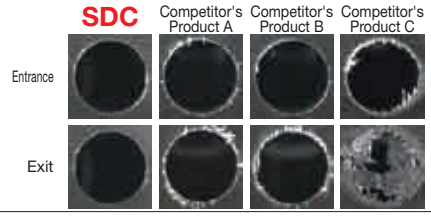
■ Features and Applications

- Excellent Drilled-Hole Quality
  - Sharp cutting edge shape reduces delamination of fiber layers and minimizes burrs.
  - Continuously changing point angle, disperses the load placed on the cutting edge and preventing breakage.
- Long Tool Life
  - Utilizing a high-strength diamond coating with excellent adhesion, delivering high quality and long tool life.

■ Performance

Comparison of Machined Surface Quality

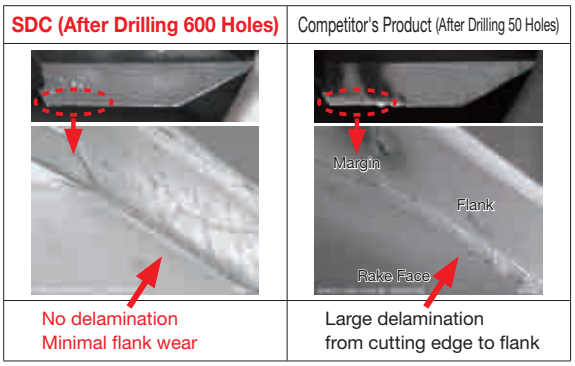
Excellent machined surface quality
Prevents delamination and burrs



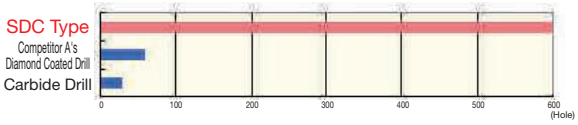
Tool: SUMIDIA COAT Drill SDC ø6.35
Part Material: CFRP
Cutting Conditions: n =6,000 SFM, f =0.004 IPR H =91.86" (through), dry

Tool Life Comparison

Effects of Diamond Coating



Stable diamond layer adhesion prevents delamination.
Excellent wear resistance enables high-quality drilling with long tool life.



Tool: SUMIDIA COAT Drill ø6.35
Part Material: CFRP
Cutting Conditions: n =6,000 SFM, f =0.003 IPR, H =49.2" (through), dry

SUMIDIA Coat | 3D

*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (Diameter ø2.0 to 4.0mm)

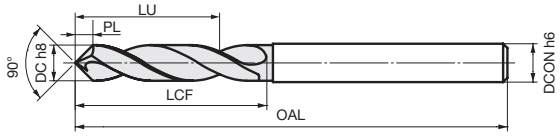
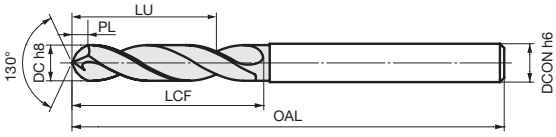


Fig. 2 (Diameter ø4.851 to 10.0mm)



Diameter *ø2.0 to 10.0mm*

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
2.0	3	★	**MDS02000SDC3**	10.50	13.5	50.0	1.0	2.0	1
2.489	3	★	**MDS02489SDC3**	12.47	16.2	50.2	1.2	2.489	1
3.0	3	★	**MDS03000SDC3**	14.5	19.0	50.5	1.5	3.0	1
3.300	3	★	**MDS03300SDC3**	16.8	21.7	61.7	1.7	3.300	1
4.0	3	★	**MDS04000SDC3**	18.5	24.5	62.0	2.0	4.0	1
4.851	3	★	**MDS04851SDC3**	21.3	28.6	77.1	1.1	4.851	2
5.0	3	★	**MDS05000SDC3**	21.2	28.7	77.2	1.2	5.0	2
5.6	3	★	**MDS05600SDC3**	22.9	31.3	82.3	1.3	5.6	2
6.0	3	★	**MDS06000SDC3**	22.4	31.4	82.4	1.4	6.0	2
6.375	3	★	**MDS06375SDC3**	24.4	34.0	84.5	1.5	6.375	2
7.0	3	★	**MDS07000SDC3**	26.1	36.6	84.6	1.6	7.0	2
7.938	3	★	**MDS07938SDC3**	30.0	41.9	91.9	1.9	7.938	2
8.0	3	★	**MDS08000SDC3**	29.9	41.9	91.9	1.9	8.0	2
9.0	3	★	**MDS09000SDC3**	33.6	47.1	100.1	2.1	9.0	2
9.550	3	★	**MDS09550SDC3**	37.9	52.2	107.2	2.2	9.550	2
10.0	3	★	**MDS10000SDC3**	37.3	52.3	107.3	2.3	10.0	2

Grade: DCX20

Recommended Cutting Conditions (v_c: Cutting Speed (m/min), f: Feed Rate (mm/rev))

Dia. DC (*mm*)	Conditions	CFRP Only (Dry Machining)	Stacked Sheets of CFRP and Aluminum Alloys (Dry Machining)
ø6.0	v_c	80 - 150	40 - 80
	f	0.05 - 0.10	0.03 - 0.10
ø12.0	v_c	80 - 120	40 - 80
	f	0.05 - 0.10	0.03 - 0.10

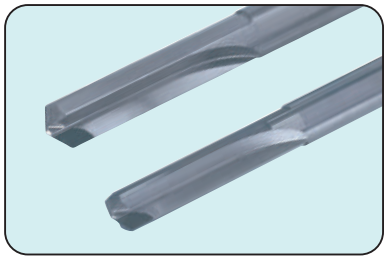
Min. - Max.

★: Worldwide Warehouse Item

DAL / DDL

Aluminum Alloy | Composite CFRP

PCD 3D



For General to High Precision Drilling of Aluminum Alloys

- High precision DAL is able to produce holes of IT Class of 7 to 8.
- General DDL is able to produce holes of IT class 11 to 12, mainly for pre-tap hole drilling.

This product is a made-to-order item.

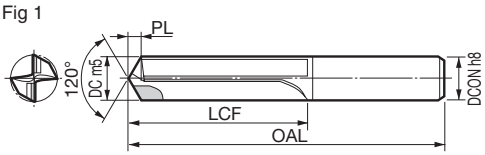
DAL

*Refer to N74 for the tolerance of m5, h8 Dimensions (*mm*)

Grade		SUMIDIA
Process	High-speed/Light	N
	General-purpose	
	Roughing	

Cat. No.	DA2200	Dia. (Shank Dia.) DC(DCON)	Flute Length LCF	Overall Length OAL	Tip PL	Fig
DAL 0500H to 0600H		*ø5 ≤ DC ≤ ø6*	*31.6*	*81.6*	*1.6*	1
DAL 0601H to 0700H		*ø6 < DC ≤ ø7*	*36.9*	*91.9*	*1.9*	1
DAL 0701H to 0800H		*ø7 < DC ≤ ø8*	*37.2*	*92.2*	*2.2*	1
DAL 0801H to 0900H		*ø8 < DC ≤ ø9*	*42.5*	*102.5*	*2.5*	1
DAL 0901H to 1000H		*ø9 < DC ≤ ø10*	*42.8*	*102.8*	*2.8*	1
DAL 1001H to 1100H		*ø10 < DC ≤ ø11*	*53.1*	*113.1*	*3.1*	1
DAL 1101H to 1200H		*ø11 < DC ≤ ø12*	*53.4*	*113.4*	*3.4*	1

Fig 1



Ordering numbers should be handled according to this example: ø6.05mm drill → DAL0605H.

This product is a made-to-order item.

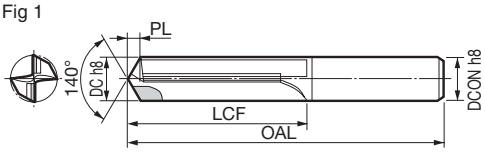
DDL

*Refer to N74 for the tolerance of h8 Dimensions (*mm*)

Grade		SUMIDIA
Process	High-speed/Light	N
	General-purpose	
	Roughing	

Cat. No.	DA2200	Dia. (Shank Dia.) DC(DCON)	Flute Length LCF	Overall Length OAL	Tip PL	Fig
DDL 050V to 060V		*ø5 ≤ DC ≤ ø6*	*31.5*	*81.0*	*1.0*	1
DDL 061V to 070V		*ø6 < DC ≤ ø7*	*36.2*	*91.2*	*1.2*	1
DDL 071V to 080V		*ø7 < DC ≤ ø8*	*36.4*	*91.4*	*1.4*	1
DDL 081V to 090V		*ø8 < DC ≤ ø9*	*41.6*	*101.6*	*1.6*	1
DDL 091V to 100V		*ø9 < DC ≤ ø10*	*41.7*	*101.7*	*1.7*	1
DDL 101V to 110V		*ø10 < DC ≤ ø11*	*51.9*	*111.9*	*1.9*	1
DDL 111V to 120V		*ø11 < DC ≤ ø12*	*52.1*	*112.1*	*2.1*	1

Fig 1



Ordering numbers should be handled according to this example: ø10.5mm drill → DDL105V.

Recommended Cutting Conditions

(v_c: Cutting Speed (m/min), f: Feed Rate (mm/rev))

Dia. DC (*mm*)	Conditions	DAL	DDL	Depth of Cut	Oil
ø8.0	v_c	80 - 150	150 - 250	L/D=Below 3	Emulsion
	f	0.05 - 0.15	0.1 - 0.25		
ø12.0	v_c	80 - 150	150 - 250		
	f	0.08 - 0.2	0.15 - 0.3		

Min. - Max.

Important Notes

- When using DAL type for high precision machining, select a high rigidity machine and high precision holder.
- Supply coolant generously at the entrance of the hole.

MLDH-L / MLDH-P

■ General Features

Micro Long Drills are oil-hole drills for high efficiency drilling that were developed for drilling deep, small-diameter holes. These next-generation drills for small diameter deep holes feature improved strength - addressing a frequent problem with small diameter drills.

■ Features and Applications

- Deep hole drilling
  New groove shape ensures good drill rigidity and chip evacuation.
  High-efficiency drilling to depths of over 20 times the drill diameter at over v_f=*500mm/min* (drill diameter ø1.3, Stainless Steel). Optimal thinning and edge balance for stable chip control.
- Long tool life
  Special coating provides long tool life with a wide variety of work materials.
  Improved chip evacuation makes it possible to reduce spindle load fluctuation, ensuring long, stable tool life.

■ Product Range

Applications	Cat. No.	Diameter Range (*mm*)	Hole Depth (L/D)
Deep Hole Drilling	MLDH□□□□L5	*ø0.8 to 2.0*	up to 5
	MLDH□□□□L12	*ø0.8 to 2.0*	up to 12
	MLDH□□□□L20	*ø0.8 to 2.0*	up to 20
	MLDH□□□□L30	*ø0.8 to 2.0*	up to 30
For Guide Holes	MLDH□□□□P	*ø0.8 to 2.0*	up to 2

■ Recommended Cutting Conditions - *METRIC*

MLDH-P / MLDH-L5

(v_c: Cutting Speed (*m/min*), *f*: Feed Rate (*mm/rev*))

Dia. DC (*mm*)	Cutting Conditions	Mild Steel up to 200HB	General Steel up to 250HB	Alloy Steel up to 300HB	Stainless Steel up to 200HB	Cast Iron FC/FCD	Aluminum Alloy	Heat-resistant Steel
ø1.0	v_c	*40 - 60*	*40 - 60*	*40 - 60*	*20 - 40*	*40 - 60*	*50 - 70*	*5 - 15*
	f	*0.01 - 0.03*	*0.01 - 0.03*	*0.01 - 0.03*	*0.01 - 0.03*	*0.02 - 0.04*	*0.03 - 0.06*	*0.005 - 0.02*
ø1.5	v_c	*40 - 60*	*40 - 60*	*40 - 60*	*20 - 40*	*40 - 60*	*50 - 70*	*5 - 15*
	f	*0.04 - 0.12*	*0.04 - 0.12*	*0.04 - 0.12*	*0.02 - 0.10*	*0.04 - 0.12*	*0.05 - 0.15*	*0.01 - 0.05*
ø2.0	v_c	*40 - 60*	*40 - 60*	*40 - 60*	*20 - 40*	*40 - 60*	*50 - 70*	*5 - 15*
	f	*0.06 - 0.12*	*0.06 - 0.12*	*0.06 - 0.12*	*0.04 - 0.10*	*0.06 - 0.12*	*0.08 - 0.15*	*0.01 - 0.05*

Min. - Max.

MLDH-L12 / MLDH-L20 / MLDH-L30

Dia. DC (*mm*)	Cutting Conditions	Mild Steel up to 200HB	General Steel up to 250HB	Alloy Steel up to 300HB	Stainless Steel up to 200HB	Cast Iron FC/FCD	Aluminum Alloy	Heat-resistant Steel
ø1.0	v_c	*40 - 60*	*40 - 60*	*40 - 60*	*20 - 40*	*40 - 60*	*50 - 70*	*5 - 15*
	f	*0.01 - 0.03*	*0.01 - 0.03*	*0.01 - 0.03*	*0.01 - 0.03*	*0.02 - 0.04*	*0.03 - 0.06*	*0.005 - 0.02*
ø1.5	v_c	*40 - 60*	*40 - 60*	*40 - 60*	*20 - 40*	*40 - 60*	*50 - 70*	*5 - 15*
	f	*0.03 - 0.07*	*0.03 - 0.07*	*0.03 - 0.07*	*0.02 - 0.07*	*0.04 - 0.10*	*0.05 - 0.12*	*0.01 - 0.03*
ø2.0	v_c	*40 - 60*	*40 - 60*	*40 - 60*	*20 - 40*	*40 - 60*	*50 - 70*	*5 - 15*
	f	*0.04 - 0.08*	*0.04 - 0.08*	*0.04 - 0.08*	*0.04 - 0.08*	*0.04 - 0.10*	*0.05 - 0.12*	*0.01 - 0.03*

Min. - Max.

■ Application Examples

● Automotive component molds - Stainless Steel

Tool : MLDH 1400L20 (guide: MLDH1400P)
Machine : Vertical machining center (HSKA63)
Coolant : Internal coolant supply (emulsion type, pump source pressure: 4MPa)
Cutting Conditions : v_c=197 SFM, *f* =0.001 IPR, *H* =0.827"
Tool Life : 600 holes (37.4 ft.)

● Tooling components - Tool Steel

Tool : MLDH 1900L20 (guide: MLDH1900P)
Machine : Vertical machining center (HSKA63)
Coolant : Internal coolant supply (emulsion type, pump source pressure: 4MPa)
Cutting Conditions : v_c=195 SFM, *f* =0.004 IPR, *H* =1.063"
Tool life : 600 units

MLDH-L / MLDH-P (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

PVD Coat | Coolant Hole | 5D | 12D | 20D | 30D | Pilot 2D

Fig. 1 (MLDH-P Type)

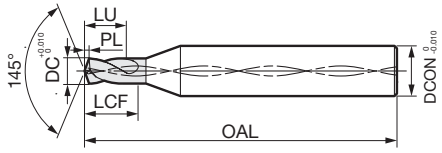
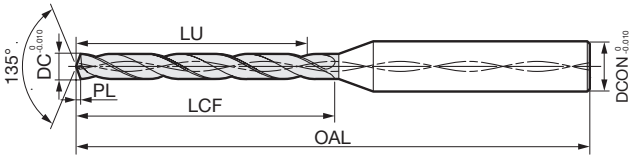


Fig. 2 (MLDH-L Type)



Diameter ø0.80 to 0.90mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
0.80	2	★	MLDH0800P	2.0	3.2	45	0.1	3.0	1
	5	★	MLDH0800L5	6.8	8	50.0	0.2		2
	12	★	MLDH0800L12	12.8	14	55			2
	20	★	MLDH0800L20	17.8	19	60			2
	30	★	MLDH0800L30	26.8	28	70			2
0.81	2	★	MLDH0810P	2.0	3.2	45	0.1	3.0	1
	5	★	MLDH0810L5	7.8	9	50.0	0.2		2
	12	★	MLDH0810L12	12.8	14	55			2
	20	★	MLDH0810L20	17.8	19	60			2
	30	★	MLDH0810L30	26.8	28	70			2
0.82	2	★	MLDH0820P	2.1	3.3	45	0.1	3.0	1
	5	★	MLDH0820L5	7.8	9	50.0	0.2		2
	12	★	MLDH0820L12	12.8	14	55			2
	20	★	MLDH0820L20	18.8	20	60			2
	30	★	MLDH0820L30	26.8	28	70			2
0.83	2	★	MLDH0830P	2.1	3.3	45	0.1	3.0	1
	5	★	MLDH0830L5	7.8	9	50.0	0.2		2
	12	★	MLDH0830L12	12.8	14	55			2
	20	★	MLDH0830L20	18.8	20	60			2
	30	★	MLDH0830L30	26.8	28	70			2
0.84	2	★	MLDH0840P	2.1	3.4	45	0.1	3.0	1
	5	★	MLDH0840L5	7.7	9	50.0	0.2		2
	12	★	MLDH0840L12	12.7	14	55			2
	20	★	MLDH0840L20	18.7	20	60			2
	30	★	MLDH0840L30	27.7	29	70			2
0.85	2	★	MLDH0850P	2.1	3.4	45	0.1	3.0	1
	5	★	MLDH0850L5	7.7	9	50.0	0.2		2
	12	★	MLDH0850L12	12.7	14	55			2
	20	★	MLDH0850L20	18.7	20	60			2
	30	★	MLDH0850L30	27.7	29	70			2
0.86	2	★	MLDH0860P	2.1	3.4	45	0.1	3.0	1
	5	★	MLDH0860L5	7.7	9	50.0	0.2		2
	12	★	MLDH0860L12	13.7	15	55			2
	20	★	MLDH0860L20	19.7	21	65			2
	30	★	MLDH0860L30	27.7	29	70			2
0.87	2	★	MLDH0870P	2.2	3.5	45	0.1	3.0	1
	5	★	MLDH0870L5	7.7	9	50.0	0.2		2
	12	★	MLDH0870L12	13.7	15	55			2
	20	★	MLDH0870L20	19.7	21	65			2
	30	★	MLDH0870L30	28.7	30	70			2
0.88	2	★	MLDH0880P	2.2	3.5	45	0.1	3.0	1
	5	★	MLDH0880L5	7.7	9	50.0	0.2		2
	12	★	MLDH0880L12	13.7	15	55			2
	20	★	MLDH0880L20	19.7	21	65			2
	30	★	MLDH0880L30	28.7	30	70			2
0.89	2	★	MLDH0890P	2.3	3.6	45	0.1	3.0	1
	5	★	MLDH0890L5	7.7	9	50.0	0.2		2
	12	★	MLDH0890L12	13.7	15	55			2
	20	★	MLDH0890L20	19.7	21	65			2
	30	★	MLDH0890L30	28.7	30	70			2
0.90	2	★	MLDH0900P	2.3	3.6	45	0.1	3.0	1
	5	★	MLDH0900L5	7.7	10	50.0	0.2		2
	12	★	MLDH0900L12	13.7	15	55			2
	20	★	MLDH0900L20	20.7	22	65			2
	30	★	MLDH0900L30	29.7	31	75			2

Part Number Suffix P: For Guide Hole
Grade: ACV70

Diameter ø0.91 to 1.05mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
0.91	2	★	MLDH0910P	2.2	3.6	45	0.1	3.0	1
	5	★	MLDH0910L5	8.6	10	50.0	0.2		2
	12	★	MLDH0910L12	13.6	15	55			2
	20	★	MLDH0910L20	20.6	22	65			2
	30	★	MLDH0910L30	29.6	31	75			2
0.92	2	★	MLDH0920P	2.3	3.7	45	0.1	3.0	1
	5	★	MLDH0920L5	8.6	10	50.0	0.2		2
	12	★	MLDH0920L12	14.6	16	60			2
	20	★	MLDH0920L20	20.6	22	65			2
	30	★	MLDH0920L30	29.6	31	75			2
0.93	2	★	MLDH0930P	2.3	3.7	45	0.1	3.0	1
	5	★	MLDH0930L5	8.6	10	50.0	0.2		2
	12	★	MLDH0930L12	14.6	16	60			2
	20	★	MLDH0930L20	20.6	22	65			2
	30	★	MLDH0930L30	30.6	32	75			2
0.94	2	★	MLDH0940P	2.4	3.8	45	0.1	3.0	1
	5	★	MLDH0940L5	8.6	10	50.0	0.2		2
	12	★	MLDH0940L12	14.6	16	60			2
	20	★	MLDH0940L20	21.6	23	65			2
	30	★	MLDH0940L30	30.6	32	75			2
0.95	2	★	MLDH0950P	2.4	3.8	45	0.2	3.0	1
	5	★	MLDH0950L5	8.6	10	50.0			2
	12	★	MLDH0950L12	14.6	16	60			2
	20	★	MLDH0950L20	21.6	23	65			2
	30	★	MLDH0950L30	30.6	32	75			2
0.96	2	★	MLDH0960P	2.4	3.8	45	0.2	3.0	1
	5	★	MLDH0960L5	8.6	10	50.0			2
	12	★	MLDH0960L12	14.6	16	60			2
	20	★	MLDH0960L20	21.6	23	65			2
	30	★	MLDH0960L30	31.6	33	75			2
0.97	2	★	MLDH0970P	2.4	3.9	45	0.2	3.0	1
	5	★	MLDH0970L5	8.5	10	50.0			2
	12	★	MLDH0970L12	14.5	16	60			2
	20	★	MLDH0970L20	21.5	23	65			2
	30	★	MLDH0970L30	31.5	33	75			2
0.98	2	★	MLDH0980P	2.4	3.9	45	0.2	3.0	1
	5	★	MLDH0980L5	8.5	10	50.0			2
	12	★	MLDH0980L12	15.5	17	60			2
	20	★	MLDH0980L20	22.5	24	65			2
	30	★	MLDH0980L30	31.5	33	75			2
0.99	2	★	MLDH0990P	2.5	4	45	0.2	3.0	1
	5	★	MLDH0990L5	8.5	10	50.0			2
	12	★	MLDH0990L12	15.5	17	60			2
	20	★	MLDH0990L20	22.5	24	65			2
	30	★	MLDH0990L30	32.5	34	75			2
1.00	2	★	MLDH1000P	2.5	4	45	0.2	3.0	1
	5	★	MLDH1000L5	8.5	10	50.0			2
	12	★	MLDH1000L12	15.5	17	60			2
	20	★	MLDH1000L20	22.5	24	65			2
	30	★	MLDH1000L30	32.5	34	75			2
1.05	2	★	MLDH1050P	2.6	4.2	45	0.2	3.0	1
	5	★	MLDH1050L5	10.4	12	55.0			2
	12	★	MLDH1050L12	16.4	18	60			2
	20	★	MLDH1050L20	23.4	25	65			2
	30	★	MLDH1050L30	34.4	36	80			2

Part Number Suffix P: For Guide Hole
Grade: ACV70

Made-to-order items: Inquire about production of drills in tool diameters and lengths that are not listed in the dimensions above, or not in stock.

★: Worldwide Warehouse Item

MLDH-L / MLDH-P (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

PVD Coat | Coolant Hole | 5D | 12D | 20D | 30D | Pilot 2D

Fig. 1 (MLDH-P Type)

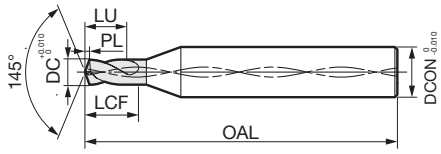
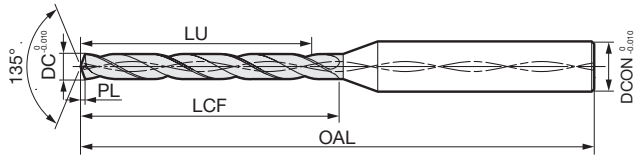


Fig. 2 (MLDH-L Type)



Diameter ø1.10 to 1.60mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
1.10	2	★	**MLDH1100P**	2.8	4.4	45	0.2	3.0	1
	5	★	**MLDH1100L5**	10.4	12	55.0			2
	12	★	**MLDH1100L12**	17.4	19	60			2
	20	★	**MLDH1100L20**	24.4	26	70			2
	30	★	**MLDH1100L30**	35.4	37	80			2
1.15	2	★	**MLDH1150P**	2.9	4.5	45	0.2	3.0	1
	5	★	**MLDH1150L5**	10.3	12	55.0			2
	12	★	**MLDH1150L12**	18.3	20	60			2
	20	★	**MLDH1150L20**	26.3	28	70			2
	30	★	**MLDH1150L30**	37.3	39	80			2
1.20	2	★	**MLDH1200P**	3.0	4.8	45	0.2	3.0	1
	5	★	**MLDH1200L5**	10.2	12	55.0			2
	12	★	**MLDH1200L12**	18.2	20	60			2
	20	★	**MLDH1200L20**	27.2	29	70			2
	30	★	**MLDH1200L30**	39.2	41	85			2
1.25	2	★	**MLDH1250P**	3.1	8	45	0.2	3.0	1
	5	★	**MLDH1250L5**	12.1	14	55.0	0.3		2
	12	★	**MLDH1250L12**	19.1	21	65			2
	20	★	**MLDH1250L20**	28.1	30	70			2
	30	★	**MLDH1250L30**	41.1	43	85			2
1.30	2	★	**MLDH1300P**	3.3	5.2	45	0.2	3.0	1
	5	★	**MLDH1300L5**	12.1	14	55.0	0.3		2
	12	★	**MLDH1300L12**	20.1	22	65			2
	20	★	**MLDH1300L20**	29.1	31	75			2
	30	★	**MLDH1300L30**	42.1	44	85			2
1.35	2	★	**MLDH1350P**	3.4	5.4	45	0.2	3.0	1
	5	★	**MLDH1350L5**	12.0	14	55.0	0.3		2
	12	★	**MLDH1350L12**	21.0	23	65			2
	20	★	**MLDH1350L20**	30.0	32	75			2
	30	★	**MLDH1350L30**	44.0	46	90			2
1.40	2	★	**MLDH1400P**	3.5	5.6	45	0.2	3.0	1
	5	★	**MLDH1400L5**	11.9	14	55.0	0.3		2
	12	★	**MLDH1400L12**	21.9	24	65			2
	20	★	**MLDH1400L20**	31.9	34	75			2
	30	★	**MLDH1400L30**	45.9	48	90			2
1.45	2	★	**MLDH1450P**	3.6	5.8	45	0.2	3.0	1
	5	★	**MLDH1450L5**	13.8	16	55.0	0.3		2
	12	★	**MLDH1450L12**	22.8	25	65			2
	20	★	**MLDH1450L20**	32.8	35	75			2
	30	★	**MLDH1450L30**	46.8	49	90			2
1.50	2	★	**MLDH1500P**	3.8	6	45	0.2	3.0	1
	5	★	**MLDH1500L5**	13.8	16	55.0	0.3		2
	12	★	**MLDH1500L12**	23.8	26	65			2
	20	★	**MLDH1500L20**	33.8	36	75			2
	30	★	**MLDH1500L30**	48.8	51	90			2
1.55	2	★	**MLDH1550P**	3.9	6.2	45	0.2	3.0	1
	5	★	**MLDH1550L5**	13.7	16	55.0	0.3		2
	12	★	**MLDH1550L12**	23.7	26	65			2
	20	★	**MLDH1550L20**	34.7	37	80			2
	30	★	**MLDH1550L30**	50.7	53	95			2
1.60	2	★	**MLDH1600P**	4.0	6.4	45	0.3	3.0	1
	5	★	**MLDH1600L5**	13.6	16	55.0			2
	12	★	**MLDH1600L12**	24.6	27	70			2
	20	★	**MLDH1600L20**	35.6	38	80			2
	30	★	**MLDH1600L30**	51.6	54	95			2

Part Number Suffix P: For Guide Hole
Grade: ACV70

Diameter ø1.65 to 2.00mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
1.65	2	★	**MLDH1650P**	4.1	6.6	50	0.3	3.0	1
	5	★	**MLDH1650L5**	15.5	18	60.0			2
	12	★	**MLDH1650L12**	25.5	28	70			2
	20	★	**MLDH1650L20**	37.5	40	80			2
	30	★	**MLDH1650L30**	53.5	56	95			2
1.70	2	★	**MLDH1700P**	4.3	6.8	50	0.3	3.0	1
	5	★	**MLDH1700L5**	15.5	18	60.0	0.4		2
	12	★	**MLDH1700L12**	26.5	29	70			2
	20	★	**MLDH1700L20**	38.5	41	80			2
	30	★	**MLDH1700L30**	55.5	58	100			2
1.75	2	★	**MLDH1750P**	4.4	7	50	0.3	3.0	1
	5	★	**MLDH1750L5**	15.4	18	60.0	0.4		2
	12	★	**MLDH1750L12**	27.4	30	70			2
	20	★	**MLDH1750L20**	39.4	42	85			2
	30	★	**MLDH1750L30**	57.4	60	100			2
1.80	2	★	**MLDH1800P**	4.5	7.2	50	0.3	3.0	1
	5	★	**MLDH1800L5**	15.3	18	60.0	0.4		2
	12	★	**MLDH1800L12**	28.3	31	70			2
	20	★	**MLDH1800L20**	40.3	43	85			2
	30	★	**MLDH1800L30**	58.3	61	100			2
1.85	2	★	**MLDH1850P**	4.6	7.4	50	0.3	3.0	1
	5	★	**MLDH1850L5**	17.2	20	60.0	0.4		2
	12	★	**MLDH1850L12**	28.2	31	70			2
	20	★	**MLDH1850L20**	41.2	44	85			2
	30	★	**MLDH1850L30**	59.2	62	103			2
1.90	2	★	**MLDH1900P**	4.8	7.6	50	0.3	3.0	1
	5	★	**MLDH1900L5**	17.2	20	60.0	0.4		2
	12	★	**MLDH1900L12**	29.2	32	75			2
	20	★	**MLDH1900L20**	43.2	46	85			2
	30	★	**MLDH1900L30**	60.2	63	103			2
1.95	2	★	**MLDH1950P**	4.9	7.8	50	0.3	3.0	1
	5	★	**MLDH1950L5**	17.1	20	60.0	0.4		2
	12	★	**MLDH1950L12**	30.1	33	75			2
	20	★	**MLDH1950L20**	44.1	47	85			2
	30	★	**MLDH1950L30**	61.1	64	103			2
2.00	2	★	**MLDH2000P**	5.0	8	50	0.3	3.0	1
	5	★	**MLDH2000L5**	17.0	20	60.0	0.4		2
	12	★	**MLDH2000L12**	31.0	34	75			2
	20	★	**MLDH2000L20**	45.0	48	90			2
	30	★	**MLDH2000L30**	63.0	66	103			2

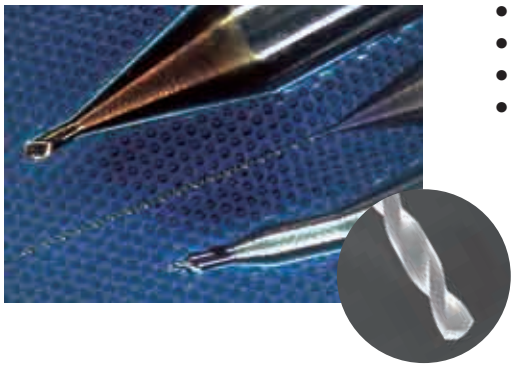
Part Number Suffix P: For Guide Hole
Grade: ACV70

★: Worldwide Warehouse Item

MDUS / MDSS

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Stainless Steel | Aluminum Alloy | Copper Alloy

For Steel, Stainless Steel and Other Metals



■ Micro Drill: MDUS ø0.03 to ø0.19mm

- High-precision shank (Shank tolerance h3, circularity 0.3μm or less, cylindricity 0.5μm or less)
- New ultra-thin TiAlN coating gives improved wear resistance
- Perfect for drilling steel, stainless steel, or copper
- Available from *ø0.03 mm to ø0.19 mm in 0.005 mm* increments

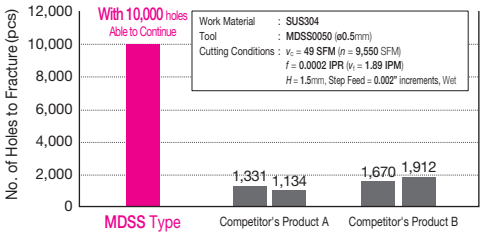
■ Application Examples

Part Material : 304 Stainless Steel
Tool : MDUS 0030-30C (ø0.03mm)
Cutting Conditions : n = 15,000 RPM, v_f = 0.118" IPM
Step Feed = 0.0001"

Part Material : 316 Stainless Steel
Tool : MDUS 0100-30C (ø0.04")
Cutting Conditions : n = 20,000 RPM, v_f = 0.787 IPM
Step Feed = 0.0004"

■ Solid Carbide MINI Drill: MDSS ø0.20 to ø1.00mm

- The combination of a hard, tough carbide substrate and a high-rigidity design (web thickness, flute width ratio, helix angle) greatly improves fracture resistance
- PVD coating designed for small drills significantly extends tool life
- Can be used for a wide range of work materials including carbon steel, alloy steel, die steel, and stainless steel
- Shanks standardised to ø3mm diameter and overall length of 38mm for greater ease of use



MDSS Recommended Cutting Conditions (Wet) <Inquire about cutting conditions for the MDUS type>

Work Material / Cutting Conditions	Alloy Steel, Pre-hardened Steel SCM,NAK			Die Steel, Tempered Steel (30 to 40HRC)			Stainless Steel SUS		
Dia. DC (mm)	Spindle Speed min^{-1}	Feed Rate mm/min	Step Feed (mm)	Spindle Speed min^{-1}	Feed Rate mm/min	Step Feed (mm)	Spindle Speed min^{-1}	Feed Rate mm/min	Step Feed (mm)
ø0.2	26,500	50	0.1D	21,200	40	0.1D	10,600	20	0.1D
ø0.3	26,500	80		21,200	60		10,600	30	
ø0.4	25,900	100		19,900	80		9,500	40	
ø0.5	25,500	150		19,100	110		9,500	50	
ø1.0	15,900	240	0.2D to 0.5D*	12,700	190	0.2D to 0.5D*	5,600	80	

1. The conditions on the left are recommended under wet conditions, using water-soluble coolant.
2. If cutting noise and vibration are present, please adjust the cutting conditions accordingly.
3. If the machine cannot achieve the standard spindle speed, please use the maximum spindle speed available. In this case, lower the feed rate by the same ratio.

* Step feed is recommended for drilling of holes deeper than 3xD (D=drill diameter).

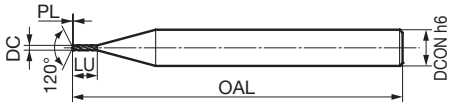
■ Micro Pointing Drill MDUP ø0.03 to ø0.18mm

- For drilling guide holes for MDUS drills

PVD Coat

*Refer to N74 for the tolerance of h6

Fig. 1 (Helix Angle: 30°)



DC	Tolerance
Less than 0.1	From -0.005 to -0.010
0.1 or more	From -0.010 to -0.015

Micro Multi Pointing Drill MDUP Diameter *ø0.03 to 0.18 mm* Dimensions (*mm*)

Dia. DC	Stock	Cat. No.	Effective Length LU	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
0.03	★	MDUP0030-30C	0.02	38.2	0.01	3.0	1
0.04	★	MDUP0040-30C	0.04	38.2	0.01	3.0	1
0.05	★	MDUP0050-30C	0.05	38.2	0.01	3.0	1
0.08	★	MDUP0080-30C	0.06	38.2	0.02	3.0	1
0.10	★	MDUP0100-30C	0.10	38.2	0.03	3.0	1
0.12	★	MDUP0120-30C	0.08	38.2	0.03	3.0	1
0.15	★	MDUP0150-30C	0.08	38.2	0.04	3.0	1
0.18	★	MDUP0180-30C	0.17	38.2	0.05	3.0	1

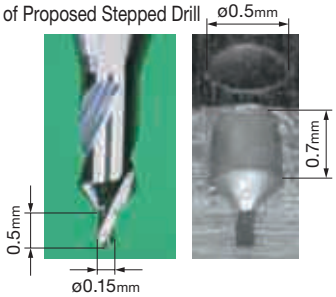
Grade: KP011

For Ceramics and Non-metals

■ Made-to-order Fine Drills ø0.02mm up

- Dedicated cutting edge designs are available for various work materials including non-metals, ceramics, and resins
- Customized designs are also available for improved efficiency, such as integration of processes by using a stepped drill
- Various drill diameters (from ø0.02) and LxDs are available to order (Contact us for possible profiles)

Example of Proposed Stepped Drill



★: Worldwide Warehouse Item

MDUS / MDSS (External Coolant Supply/Small Diameter)

MDUS: Carbon Steel/Alloy Steel up to 0.28% | Carbon Steel/Alloy Steel from 0.29% | Stainless Steel | Aluminum Alloy | Copper Alloy

MDSS: Carbon Steel/Alloy Steel up to 0.28% | Carbon Steel/Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Hardened Steel from 46HRC | Stainless Steel | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

PVD Coat | FB Coat | 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (ø0.030 to 0.190mm)

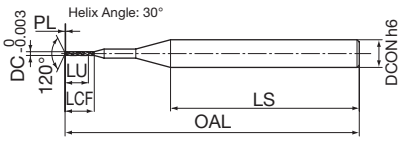


Fig. 2 (ø0.20 to 0.34mm)

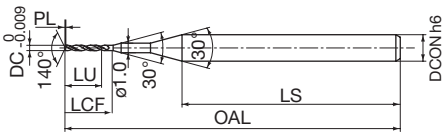
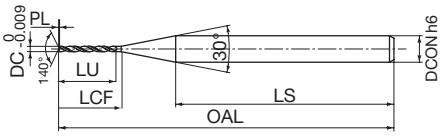


Fig. 3 (ø0.35 to 1.00mm)



Diameter *ø0.030 to 0.49mm*

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank LS	Shank Dia. DCON	Fig
0.030	10	★	MDUS0030-30C	0.26	0.30	38.0	0.01	28	3.0	1
0.035			MDUS0035-30C	0.35	0.40					1
0.040		★	MDUS0040-30C	0.34	0.39					1
0.045			MDUS0045-30C	0.46	0.52					1
0.050		★	MDUS0050-30C	0.45	0.51					1
0.055	10		MDUS0055-30C	0.55	0.63	38.0	0.02	28	3.0	1
0.060			MDUS0060-30C	0.54	0.61					1
0.065			MDUS0065-30C	0.64	0.73					1
0.070			MDUS0070-30C	0.63	0.72					1
0.075			MDUS0075-30C	0.73	0.83					1
0.080		★	MDUS0080-30C	0.72	0.82					1
0.085			MDUS0085-30C	0.92	1.05					1
0.090	10		MDUS0090-30C	0.91	1.03	38.0	0.03	28	3.0	1
0.095			MDUS0095-30C	0.91	1.03					1
0.100		★	MDUS0100-30C	0.90	1.02					1
0.110			MDUS0110-30C	1.09	1.24					1
0.120		★	MDUS0120-30C	1.08	1.23					1
0.130	10		MDUS0130-30C	1.37	1.56	38.0	0.04	28	3.0	1
0.140			MDUS0140-30C	1.36	1.55					1
0.150		★	MDUS0150-30C	1.35	1.53					1
0.160	10		MDUS0160-30C	1.64	1.86	38.0	0.05	28	3.0	1
0.170			MDUS0170-30C	1.63	1.85					1
0.180		★	MDUS0180-30C	1.62	1.84					1
0.190			MDUS0190-30C	1.71	1.94					1
0.20	10	★	MDSS0020	2.25	2.5	38	0.04	28	3.0	2
0.21		★	MDSS0021	2.24	2.5					2
0.22		★	MDSS0022	2.23	2.5					2
0.23		★	MDSS0023	2.21	2.5					2
0.24		★	MDSS0024	2.20	2.5					2
0.25	10	★	MDSS0025	2.19	2.5	38	0.05	28	3.0	2
0.26		★	MDSS0026	2.18	2.5					2
0.27		★	MDSS0027	2.16	2.5					2
0.28		★	MDSS0028	2.15	2.5					2
0.29		★	MDSS0029	2.14	2.5					2
0.30		★	MDSS0030	2.6	3.0					2
0.31	10	★	MDSS0031	2.6	3.0	38	0.06	28	3.0	2
0.32		★	MDSS0032	2.6	3.0					2
0.33		★	MDSS0033	2.6	3.0					2
0.34		★	MDSS0034	2.6	3.0					2
0.35		★	MDSS0035	3.6	4.0					3
0.36	10	★	MDSS0036	3.6	4.0	38	0.07	28	3.0	3
0.37		★	MDSS0037	3.5	4.0					3
0.38		★	MDSS0038	3.5	4.0					3
0.39		★	MDSS0039	3.5	4.0					3
0.40		★	MDSS0040	4.5	5.0					3
0.41		★	MDSS0041	4.5	5.0					3
0.42	10	★	MDSS0042	4.5	5.0	38	0.08	28	3.0	3
0.43		★	MDSS0043	4.5	5.0					3
0.44		★	MDSS0044	4.5	5.0					3
0.45		★	MDSS0045	4.4	5.0					3
0.46		★	MDSS0046	4.4	5.0					3
0.47	10	★	MDSS0047	4.4	5.0	38	0.09	28	3.0	3
0.48		★	MDSS0048	4.4	5.0					3
0.49		★	MDSS0049	4.4	5.0					3

Grade: ACF40B (MDUS, KP011/MDSS)

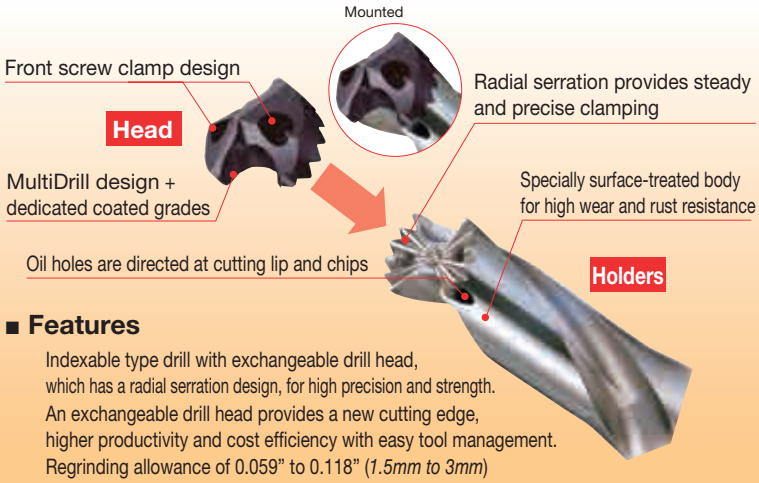
Diameter *ø0.50 to 1.00mm*

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank LS	Shank Dia. DCON	Fig
0.50	10	★	MDSS0050	5.4	6.0	38	0.09	27	3.0	3
0.51		★	MDSS0051	5.4	6.0					3
0.52		★	MDSS0052	5.4	6.0					3
0.53	10	★	MDSS0053	5.3	6.0	38	0.10	27	3.0	3
0.54		★	MDSS0054	5.3	6.0					3
0.55		★	MDSS0055	5.3	6.0					3
0.56		★	MDSS0056	5.3	6.0					3
0.57		★	MDSS0057	5.3	6.0					3
0.58	10	★	MDSS0058	5.3	6.0	38	0.11	27	3.0	3
0.59		★	MDSS0059	5.3	6.0					3
0.60		★	MDSS0060	6.3	7.0			26		3
0.61		★	MDSS0061	6.2	7.0					3
0.62		★	MDSS0062	6.2	7.0					3
0.63		★	MDSS0063	6.2	7.0					3
0.64	10	★	MDSS0064	6.2	7.0	38	0.12	26	3.0	3
0.65		★	MDSS0065	6.2	7.0					3
0.66		★	MDSS0066	6.2	7.0					3
0.67		★	MDSS0067	6.2	7.0					3
0.68		★	MDSS0068	6.2	7.0					3
0.69	10	★	MDSS0069	6.1	7.0	38	0.13	26	3.0	3
0.70		★	MDSS0070	8.1	9.0			24		3
0.71		★	MDSS0071	8.1	9.0					3
0.72		★	MDSS0072	8.1	9.0					3
0.73		★	MDSS0073	8.1	9.0					3
0.74		★	MDSS0074	8.1	9.0					3
0.75	10	★	MDSS0075	8.1	9.0	38	0.14	24	3.0	3
0.76		★	MDSS0076	8.1	9.0					3
0.77		★	MDSS0077	8.0	9.0					3
0.78		★	MDSS0078	8.0	9.0					3
0.79		★	MDSS0079	8.0	9.0					3
0.80	10	★	MDSS0080	9.0	10.0	38	0.15	23	3.0	3
0.81		★	MDSS0081	9.0	10.0					3
0.82		★	MDSS0082	9.0	10.0					3
0.83		★	MDSS0083	9.0	10.0					3
0.84		★	MDSS0084	9.0	10.0					3
0.85		★	MDSS0085	8.9	10.0					3
0.86	10	★	MDSS0086	8.9	10.0	38	0.16	23	3.0	3
0.87		★	MDSS0087	8.9	10.0					3
0.88		★	MDSS0088	8.9	10.0					3
0.89		★	MDSS0089	8.9	10.0					3
0.90		★	MDSS0090	9.9	11.0			22		3
0.91	10	★	MDSS0091	9.9	11.0	38	0.17	22	3.0	3
0.92		★	MDSS0092	9.9	11.0					3
0.93		★	MDSS0093	9.8	11.0					3
0.94		★	MDSS0094	9.8	11.0					3
0.95		★	MDSS0095	9.8	11.0					3
0.96		★	MDSS0096	9.8	11.0					3
0.97	10	★	MDSS0097	9.8	11.0	38	0.18	22	3.0	3
0.98		★	MDSS0098	9.8	11.0					3
0.99		★	MDSS0099	9.8	11.0					3
1.00		★	MDSS0100	10.8	12.0			21		3

Grade: ACF40B (MDUS, KP011/MDSS Type)

★: Worldwide Warehouse Item



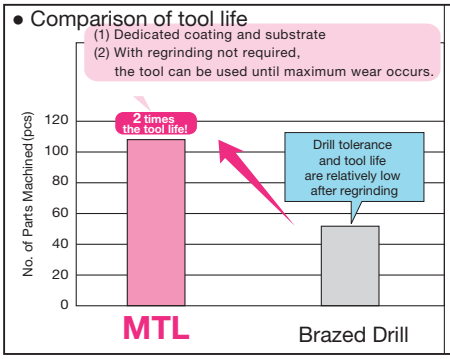
■ Features

Indexable type drill with exchangeable drill head, which has a radial serration design, for high precision and strength.
An exchangeable drill head provides a new cutting edge, higher productivity and cost efficiency with easy tool management.
Regrinding allowance of 0.059" to 0.118" (*1.5mm to 3mm*) makes further tool cost reductions possible.* Regrinding is available only for MTL/MEL/MB Type

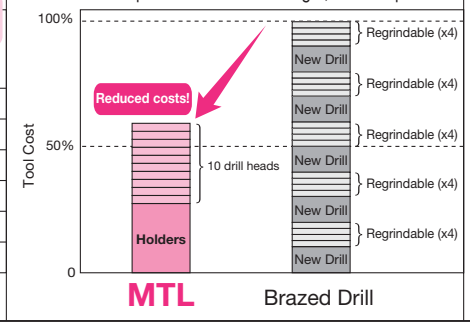
Tip	Holder (L/D)		Applications	øDc range
MTL	1.5D / 1.5DF	1.5XD	General Steel	ø0.4688" to ø1.2125" (*ø12.0 to ø30.8mm*)
	M / 3D / 3DF	3XD		ø0.4688" to ø1.6732" (*ø12.0 to ø42.5mm*)
	L / 5D / 5DF	5XD		
	D / 8D / 8DF	8XD		
	12D	12XD		ø0.5315" to ø1.0157" (*ø13.5 to ø25.8mm*)
MEL / MTL-C	1.5D / 1.5DF	1.5XD	Stainless Steel, Super Alloy, Cast Iron	ø0.4688" to ø1.2125" (*ø12.0 to ø30.8mm*)
	M / 3D / 3DF	3XD		ø0.4688" to ø1.2125" (*ø12.0 to ø30.8mm*)
	L / 5D / 5DF	5XD		
	D / 8D / 8DF	8XD		
	12D	12XD		ø0.5315" to ø1.0157" (*ø13.5 to ø25.8mm*)
NAL	M / 3D / 3DF	3XD	Non-Ferrous, Aluminum Alloys	ø0.4688" to ø1.2500" (*ø12.0 to ø31.75mm*)
	L / 5D / 5DF	5XD		
	D / 8D / 8DF	8XD		
MFS	1.5D	1.5XD	Spot Facing	ø0.4688" to ø1.1875" (*ø12.0 to ø30mm*)
	M / 3D / 3DF	3XD		ø0.4688" to ø1.1875" (*ø12.0 to ø30mm*)
	L / 5D / 5DF	5XD		
	D / 8D / 8DF	8XD		
	12D	12XD		ø0.5315" to ø1.0157" (*ø13.5 to ø25.8mm*)

■ Tool Life and Cost

● Comparison of tool life



● Total tool comparison when machining 1,000 workpieces

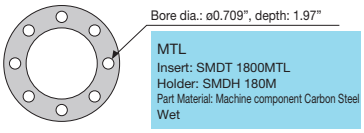


● Conclusion

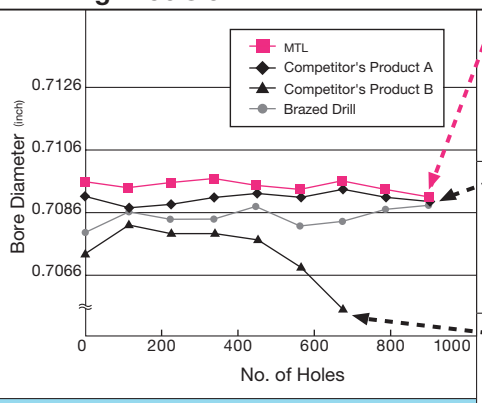
For regrinding purposes, brazed drills are only used for **50-70%** of their actual tool ife potential. **MTL reaches 100%!**

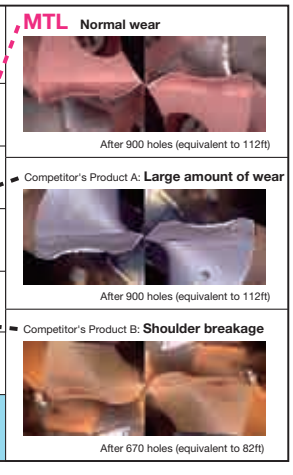
MTL has **double the tool life of brazed drills!** **Shorter tool change time!**

● Workpiece Example



■ Drilling Precision

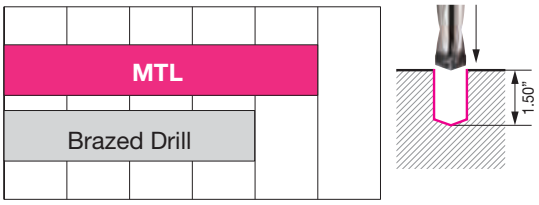




Part Material : Carbon Steel, O.D.: ø0.709"
Cutting Conditions : v_c=230 SFM, f =0.010"
Hole Depth 1.50" (through), wet

■ Tool Strength

● Durability Comparison

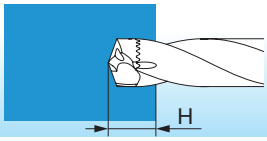


Part Material : Carbon Steel, O.D. : ø0.630"
Cutting Conditions : v_c=262 SFM
Hole Depth : 1.50"

■ Recommended drilling method for 12D: Use a collet, hydro chuck or milling chuck to hold the 12D drill body (tapered collet chuck cannot be used)

(1) Drill a guide hole with SMDHOOOM (3D holder) + MTL (head)

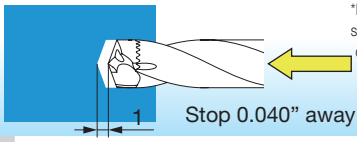
● Use a 3D drill body and a drill head with the same diameter as the 12D (same cat. no.) when drilling the guide hole.



H = Drill diameter × 1 to 1.5 times the depth

(2) Feed the SMDHOOO-12D (12D holder) + MTL Type (head) through the guide hole at a low spindle speed

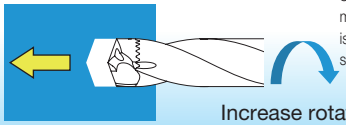
● Spindle speed: 500 RPM ●Feed rate: 39.37 IPM to 78.74 IPM



*If the drill is inserted into the guide hole at the set cutting speed, peripheral run-out may cause damage to the drill's peripheral edges.

Stop 0.040" away from the guide hole depth

(3) Increase spindle speed until the set spindle speed is reached, then start drilling

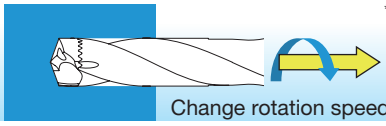


*On some NC machines, the feed command may be activated before the set spindle speed is reached, so it is recommended to enter a dwell sequence before the feed command.

Increase rotation speed

(4) After drilling, rotation speed is reduced and the drill is retracted from the work material

● Spindle speed: 500 RPM●Feed rate: 39.37 IPM to 78.74 IPM



*Retracting a drill from the work material at a high spindle speed, is dangerous as doing so may result in breakage due to runout.

Change rotation speed to 500 RPM

SMDH_1.5D = 1.5x Diameter

SMDH_M, 3D, 3DF = 3x Diameter

SMDH_L, 5D, 5DF = 5x Diameter

SMDH_D, 8D, 8DF = 8x Diameter

SMDH_12D = 12x Diameter

See page J99 for SMDT-NAL recommendations for Non-Ferrous Materials
See page J113 for SMDT-MFS recommendations for 1.5XD

■ Recommended Cutting Conditions

Material		Mild Steel <HB250	General Steel HB250-320	Pre-hardened Steel HRC45	Stainless Steels* (up to 200HB)	Gray Cast Iron	Ductile Cast Iron	Titanium	Inconel
SMD Tip		MTL	MTL	MTL	MEL	MTL-C / MEL	MTL-C / MEL	MEL	MEL
Drill Dia. (Inch)	Speeds/ Feeds	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max
~ .4688"	Vc (SFM)	260 - 400	230 - 400	130-260	100 - 265	260 - 430	230 - 330	65 - 130	35 - 100
	f (IPR)	0.006 - 0.012	0.006 - 0.012	0.006 - 0.008	0.004 - 0.008	0.008 - 0.012	0.006 - 0.012	0.004 - 0.008	0.004 - 0.008
~ .8440"	Vc (SFM)	260 - 400	230 - 400	160-300	100 - 300	260 - 430	230 - 330	85 - 150	50 - 115
	f (IPR)	0.006 - 0.014	0.008 - 0.014	0.006 - 0.010	0.004 - 0.010	0.008 - 0.014	0.006 - 0.014	0.004 - 0.008	0.004 - 0.009
~ 1.250"	Vc (SFM)	260 - 430	230 - 400	160-300	100 - 300	300 - 460	260 - 360	85 - 150	50 - 115
	f (IPR)	0.008 - 0.016	0.008 - 0.014	0.006 - 0.010	0.004 - 0.010	0.008 - 0.018	0.008 - 0.015	0.004 - 0.008	0.006 - 0.010

* For difficult to machine stainless steels (316, 302, 304, 17-4ph, etc.) adjust speeds & feeds accordingly.

■ Recommended Speeds and Feeds - 12XD

Material		Soft Steel	General Steel	Hardened Steel	Stainless Steel	Gray Cast Iron	Ductile Cast Iron	Aluminum Alloy
Drill Dia. (Inch)	Speeds/ Feeds	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max
~0.6299"	Vc (SFM)	160 - 260	160 - 260	100 - 230	130 - 200	130 -260	130 - 230	590 - 790
	f (IPR)	.0059 - .014	.0059 - .014	.0039 - .0079	.0039 - .0079	.0078 - .012	.0078 - .012	.014 - .022
~0.7874"	Vc (SFM)	160 - 260	160 - 260	100 - 230	130 - 230	160 - 300	130 - 260	590 - 790
	f (IPR)	.0059 - .014	.0059 - .014	.0039 - .0098	.0039 - .0098	.0079 - .014	.0079 - .014	.014 - .024
~1.000"	Vc (SFM)	160 - 260	160 - 260	100 - 230	130 - 300	160 - 300	130 - 300	590 - 790
	f (IPR)	.0078 - .014	.0078 - .014	.0039 - .0098	.0039 - .0098	.0079 - .016	.0098 - .014	.014 - .024

■ Cleaning instructions

1) Air Pressure
Remove the used head and any debris from the serrated parts of the holder with an air nozzle.

2) Brushing
Use a wire or nylon brush to remove debris left behind by air nozzle.

■ Attaching instructions

1) Use caution when tightening the head screws.
2) Hold wrench parallel to SMD body when tightening. Forcing out wrench may cause screw hole breakage.
3) Tighten both screws to recommend torque settings in Tightening Torque chart (right).

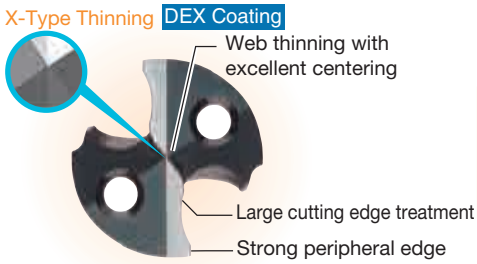
■ Recommended Tightening Torque

Drill Head Size (in/*mm*)	Screw	Recommended Tightening Torque (in/lbs.)	Recommended Tightening Torque (N·m)
.4688 - .6102 *12.00 - 15.50*	BXD02208IP	6.6 to 8.8	0.75 to 1.00
.6103 - .7283 *15.51 - 18.50*	BXD02509IP	8.2 to 11.0	0.93 to 1.24
.7284 - .8464 *18.51 - 21.50*	BXD03011IP	16.3 to 21.6	1.83 to 2.44
.8465 - .9763 *21.51 - 24.80*	BXD03512IP	24.2 to 32.9	2.79 to 3.72
.9764 - 1.0944 *24.81 - 27.80*	BXD04014IP	36.6 to 48.8	4.14 to 5.12
1.0945 - 1.3189 *27.81 - 33.50*	BXD04515IP	44.0 to 58.7	4.98 to 6.64

Caution!

1) Please wear safety gloves and glasses.
2) Please remove SMD from any adapator when replacing SMDT Tip.
3) Serrations may contain some debris. Placing a tip without removing any foreign particles may cause loose screws and possibly lead to tip and body breakage.

MTL Suitable for high-efficiency drilling of general steel

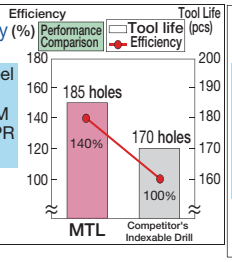


- **Excellent cutting edge strength**
  Large edge treatment reduces breakage of the cutting edge.
- **Stable machined hole accuracy**
  X Type thinning achieves excellent centering on entry and stable drilling.

■ Application Examples: MTL

Improved tool life and efficiency

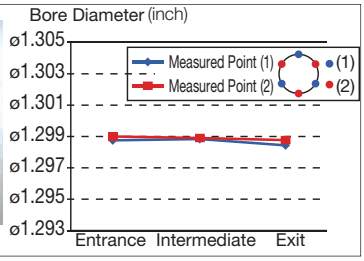
Part Material : Housing Mild Steel
Drill Size : .5905", 5XD
Cutting Conditions : v_c=351 SFM
f=0.0118 IPR
Hole Depth : 1.26" × 12 holes



■ Drilling Precision

High drilling accuracy even with large diameters

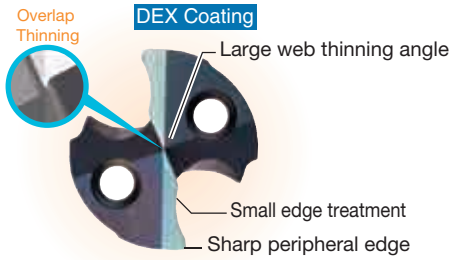
Part Material : Structural Steel Plate (base substrate for construction machinery)
Drill Size : ø1.2992", 5XD
Cutting Conditions : v_c=393 SFM
f=0.0098 IPR
Cutting Environment : Emulsion



MTL-C Chamfered edges to eliminate break out in cast iron

- **45º corner chamfer on diameter**
  Large thinning angle prevents breakage at the convex R-profile portion, particularly when drilling soft steel and it also reduces breakages caused by adhesion when drilling stainless steel.
- **Improved chipping resistance in cast iron**
  Better edge sharpness at the peripheral edge prevents chipping around the hole openings when drilling cast iron.
- **Minimizes burr and chipping at hole exit**
- **Reduces wear on corner**

MEL Suitable for exotic alloys, stainless steel, mild steel, gray cast iron and low rigidity equipment



- **Excellent cutting edge design for SUS and mild steel (SS, etc.)**
  Large thinning angle solves the convex corner breakage issues specific to mild steel and reduces adhesion breakages with SUS.
- **Improved edge chipping resistance in cast iron**
  Edge sharpness improvements in peripheral areas prevent edge chipping around hole openings in cast iron.

■ Application Examples (MEL)

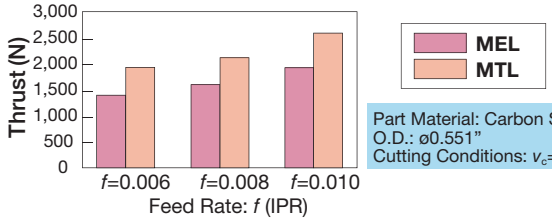
MEL has excellent centering, produces no rifle marks and no cutting edge breakage after 49ft.

Competitor's indexable drill exhibited poor centering and produced rifle marks. The center of the drill broke after 36ft of drilling.

Part Material: 304 Stainless Steel, Drill size: ø0.551" 5XD
Cutting Conditions: v_c=197 SFM, f=0.006", Coolant: Emulsion

■ 25% reduction in cutting force (thrust)

- The MEL features 25% lower thrust than the MTL!

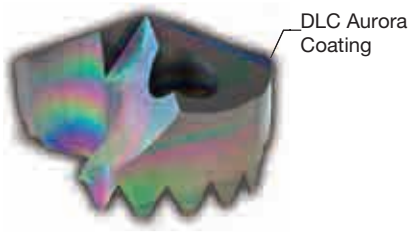


Part Material: Carbon Steel
O.D.: ø0.551"
Cutting Conditions: v_c=262 SFM

Sharper blade type and thinning overlap significantly reduce thrust and improve chip control, allowing stable drilling in low-rigidity setups.

NAL DLC Coated for non-ferrous and aluminum alloys

see next page for details



- **High efficiency drilling of Non-ferrous Materials**
  Very sharp cutting edge combined with DLC Aurora coating creates: Anti-adhesion, low cutting forces, and stable chip evacuation.

SMDT-NAL - DLC Coated for Non-Ferrous & Aluminum Alloy

■ SMDT-NAL - DLC Coating Features & Benefits

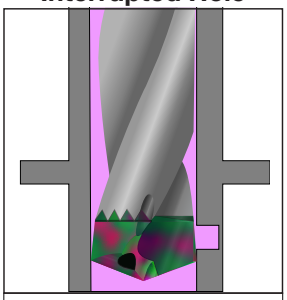
- Low friction coefficient allows for higher penetration rates by increasing the feed rate

$$\frac{\text{Feed Rate}}{\text{Drill Diameter}} = \text{Penetration Rate}$$

- Ultra smooth coating surface allows for stable chip evacuation.
- Aluminum welding resistance achieves excellent surface finish, and precision accuracy.
- High hardness coating(60 GPa) has superior abrasion resistance.

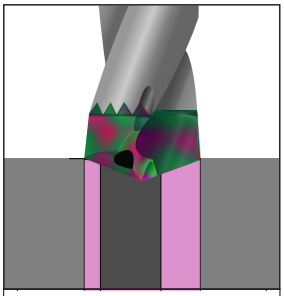
■ Application Examples

Interrupted Hole



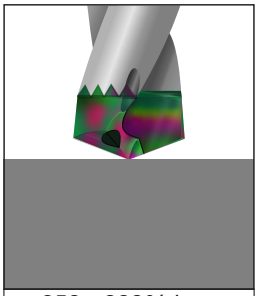
Stable drilling, and stable chip evacuation

Pre-cast Hole



Spot facing with WDX will increase position accuracy

Solid Hole



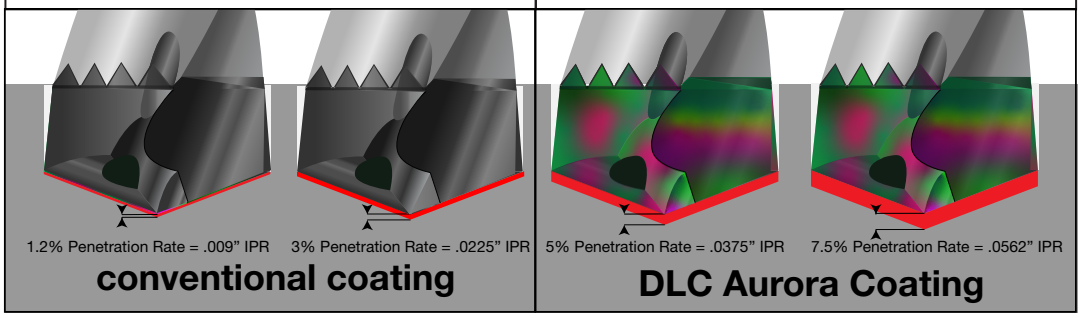
250 - 300% less cutting force than uncoated carbide

*SMDT07500NAL-DL1500 drill shown

■ SMDT-NAL Increased Penetration Rate

- DLC Aurora coating reduces friction by 250%-330%
- Allows for higher feed-rates and increased productivity
- Helps to reduce cost per unit and decrease drilling cycle time

Conventional Coating Max Penetration Rate: 3%	**SMDT-NAL - DLC Aurora Coating Max Penetration Rate: 7.5%**



■ Recommended Cutting Conditions - SMDT-NAL

SMD Tip		SMDT-NAL							
Material		Aluminum Casting		Wrought Aluminum		Aluminum Bronze		Brass	Copper
Drill Diameter (Inch/*mm*)	Speeds Feeds	30 BHN	180 BHN	30 BHN	180 BHN	100-200 BHN	200-250 BHN	100 BHN	60 BHN
		Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max
.4724"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(12)	f (IPR)	.016 - .035	.014 - .036	.016 - .035	.014 - .036	.012 - .028	.010 - .022	.010 - .022	.008 - .016
.5512"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(14)	f (IPR)	.016 - .035	.014 - .036	.016 - .035	.014 - .036	.012 - .028	.010 - .022	.010 - .022	.008 - .016
.6299"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(16)	f (IPR)	.016 - .035	.014 - .036	.016 - .035	.014 - .036	.012 - .028	.010 - .022	.010 - .022	.008 - .016
.7086"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(18)	f (IPR)	.017 - .035	.015 - .037	.017 - .035	.015 - .037	.013 - .029	.011 - .023	.011 - .023	.009 - .017
.7874"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(20)	f (IPR)	.017 - .035	.015 - .037	.017 - .035	.015 - .037	.013 - .029	.011 - .023	.011 - .023	.009 - .017
.8661"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(22)	f (IPR)	.017 - .035	.015 - .037	.017 - .035	.015 - .037	.013 - .029	.011 - .023	.011 - .023	.009 - .017
.9449"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(24)	f (IPR)	.018 - .035	.016 - .038	.018 - .035	.016 - .038	.014 - .030	.012 - .024	.012 - .024	.010 - .018
1.0236"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(26)	f (IPR)	.018 - .035	.016 - .038	.018 - .035	.016 - .038	.014 - .030	.012 - .024	.012 - .024	.010 - .018
1.1024"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(28)	f (IPR)	.018 - .035	.016 - .038	.018 - .035	.016 - .038	.014 - .030	.012 - .024	.012 - .024	.010 - .018
1.1811"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(30)	f (IPR)	.018 - .035	.016 - .038	.018 - .035	.016 - .038	.014 - .030	.012 - .024	.012 - .024	.010 - .018
1.2598"	V_C (SFM)	590-1150	460-860	590-1300	590-1150	300-500	200-400	450-800	260-590
(32)	f (IPR)	.018 - .035	.016 - .038	.018 - .035	.016 - .038	.014 - .030	.012 - .024	.012 - .024	.010 - .018

SMDT Availability - Inch / Metric

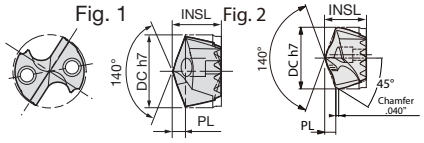
MTL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

• Standard Tip • Super Alloy Tip • Chamfered Edge Tip • DLC Coated

(DC < 31mm)

SMDT-MTL — DEX Coating — Replaceable Head MTL
SMDT-MEL — DEX Coating — Replaceable Head MEL
SMDT-MTL-C — DEX Coating — Replaceable Head MTL-C
SMDT-NAL — Aurora DLC Coat — Replaceable Head NAL



Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	DC mm	DC in.	Tap Size	INSL mm	INSL in.	PL mm	PL in.	Body
SMDT04688MTL-ACX70	●	1	SMDT04688MEL-ACX80	●	1	SMDT04688MTL-C-ACX70	●	2	SMDT04688NAL-DL1500	●	1	11.9	.4688						
SMDT1200MTL-ACX70	●	1	SMDT1200MEL-ACX80	●	1	SMDT1200MTL-C-ACX70	●	2	SMDT1200NAL-DL1500	●	1	12.0	.4724	M14x2.0					
SMDT1210MTL-ACX70	●	1	SMDT1210MEL-ACX80	●	1	SMDT1210MTL-C-ACX70		2	SMDT1210NAL-DL1500		1	12.1	.4764				2.2	.0866	**SMDH047□**
SMDT1220MTL-ACX70	●	1	SMDT1220MEL-ACX80	●	1	SMDT1220MTL-C-ACX70		2	SMDT1220NAL-DL1500		1	12.2	.4803		9.1	.3583			SMDH120□
SMDT1230MTL-ACX70	●	1	SMDT1230MEL-ACX80	●	1	SMDT1230MTL-C-ACX70		2	SMDT1230NAL-DL1500		1	12.3	.4843	9/16-12					
SMDT04844MTL-ACX70	●	1	SMDT04844MEL-ACX80	●	1	SMDT04844MTL-C-ACX70	●	2	SMDT04844NAL-DL1500	●	1	12.3	.4844					.0881	
SMDT1240MTL-ACX70	★	1	SMDT1240MEL-ACX80	★	1	SMDT1240MTL-C-ACX70		2	SMDT1240NAL-DL1500		1	12.4	.4882				2.3	.0906	
SMDT1250MTL-ACX70	●	1	SMDT1250MEL-ACX80	●	1	SMDT1250MTL-C-ACX70	●	2	SMDT1250NAL-DL1500	●	1	12.5	.4921	M14x1.5					
SMDT1260MTL-ACX70	●	1	SMDT1260MEL-ACX80	●	1	SMDT1260MTL-C-ACX70		2	SMDT1260NAL-DL1500		1	12.6	.4960						
SMDT05000MTL-ACX70	●	1	SMDT05000MEL-ACX80	●	1	SMDT05000MTL-C-ACX70	●	2	SMDT05000NAL-DL1500	●	1	12.7	.5000						**SMDH049□**
SMDT1270MTL-ACX70	●	1	SMDT1270MEL-ACX80	●	1	SMDT1270MTL-C-ACX70		2	SMDT1270NAL-DL1500		1	12.7	.5000		9.4	.3701	2.3	.0906	SMDH125□
SMDT1280MTL-ACX70	●	1	SMDT1280MEL-ACX80	★	1	SMDT1280MTL-C-ACX70		2	SMDT1280NAL-DL1500		1	12.8	.5040	M14x1.25					
SMDT1290MTL-ACX70	●	1	SMDT1290MEL-ACX80	★	1	SMDT1290MTL-C-ACX70		2	SMDT1290NAL-DL1500		1	12.9	.5079						
SMDT1300MTL-ACX70	●	1	SMDT1300MEL-ACX80	●	1	SMDT1300MTL-C-ACX70	●	2	SMDT1300NAL-DL1500	●	1	13.0	.5118						
SMDT05156MTL-ACX70	●	1	SMDT05156MEL-ACX80	●	1	SMDT05156MTL-C-ACX70	●	2	SMDT05156NAL-DL1500	●	1	13.1	.5156	9/16-18					
SMDT1310MTL-ACX70	●	1	SMDT1310MEL-ACX80	●	1	SMDT1310MTL-C-ACX70		2	SMDT1310NAL-DL1500		1	13.1	.5157						
SMDT1320MTL-ACX70	★	1	SMDT1320MEL-ACX80	★	1	SMDT1320MTL-C-ACX70		2	SMDT1320NAL-DL1500		1	13.2	.5197		9.7	.3819	2.4	.0945	**SMDH051□**
SMDT1330MTL-ACX70	●	1	SMDT1330MEL-ACX80	★	1	SMDT1330MTL-C-ACX70		2	SMDT1330NAL-DL1500		1	13.3	.5236						SMDH130□
SMDT1340MTL-ACX70	★	1	SMDT1340MEL-ACX80	★	1	SMDT1340MTL-C-ACX70		2	SMDT1340NAL-DL1500		1	13.4	.5276						
SMDT05312MTL-ACX70	●	1	SMDT05312MEL-ACX80	●	1	SMDT05312MTL-C-ACX70	●	2	SMDT05312NAL-DL1500	●	1	13.5	.5312	5/8-11			2.5	.0966	
SMDT1350MTL-ACX70	●	1	SMDT1350MEL-ACX80	●	1	SMDT1350MTL-C-ACX70	●	2	SMDT1350NAL-DL1500		1	13.5	.5315						
SMDT1360MTL-ACX70	★	1	SMDT1360MEL-ACX80	●	1	SMDT1360MTL-C-ACX70		2	SMDT1360NAL-DL1500		1	13.6	.5354						
SMDT1365MTL-ACX70		1	SMDT1365MEL-ACX80		1	SMDT1365MTL-C-ACX70	●	2	SMDT1365NAL-DL1500		1	13.6	.5374						
SMDT1370MTL-ACX70	★	1	SMDT1370MEL-ACX80	★	1	SMDT1370MTL-C-ACX70		2	SMDT1370NAL-DL1500		1	13.7	.5394				2.5	.0984	
SMDT1380MTL-ACX70	●	1	SMDT1380MEL-ACX80	★	1	SMDT1380MTL-C-ACX70		2	SMDT1380NAL-DL1500		1	13.8	.5433						
SMDT05469MTL-ACX70	●	1	SMDT05469MEL-ACX80	●	1	SMDT05469MTL-C-ACX70	●	2	SMDT05469NAL-DL1500	●	1	13.9	.5469						
SMDT1390MTL-ACX70	●	1	SMDT1390MEL-ACX80	★	1	SMDT1390MTL-C-ACX70		2	SMDT1390NAL-DL1500		1	13.9	.5472						**SMDH055□**
SMDT1400MTL-ACX70	●	1	SMDT1400MEL-ACX80	●	1	SMDT1400MTL-C-ACX70	●	2	SMDT1400NAL-DL1500	●	1	14.0	.5512	M16x2.0	10.3	.4055			SMDH140□
SMDT1410MTL-ACX70	●	1	SMDT1410MEL-ACX80	●	1	SMDT1410MTL-C-ACX70		2	SMDT1410NAL-DL1500		1	14.1	.5551						
SMDT1420MTL-ACX70	●	1	SMDT1420MEL-ACX80	●	1	SMDT1420MTL-C-ACX70		2	SMDT1420NAL-DL1500	●	1	14.2	.5591					.1024	
SMDT05625MTL-ACX70	●	1	SMDT05625MEL-ACX80	●	1	SMDT05625MTL-C-ACX70	●	2	SMDT05625NAL-DL1500	●	1	14.3	.5625				2.6	.1023	
SMDT1430MTL-ACX70	★	1	SMDT1430MEL-ACX80	★	1	SMDT1430MTL-C-ACX70		2	SMDT1430NAL-DL1500		1	14.3	.5630						
SMDT1440MTL-ACX70	★	1	SMDT1440MEL-ACX80	★	1	SMDT1440MTL-C-ACX70		2	SMDT1440NAL-DL1500		1	14.4	.5670					.1024	
SMDT1450MTL-ACX70	●	1	SMDT1450MEL-ACX80	●	1	SMDT1450MTL-C-ACX70	●	2	SMDT1450NAL-DL1500	●	1	14.5	.5709	M16x1.5					
SMDT1460MTL-ACX70	★	1	SMDT1460MEL-ACX80	★	1	SMDT1460MTL-C-ACX70		2	SMDT1460NAL-DL1500		1	14.6	.5748					.1063	
SMDT05781MTL-ACX70	●	1	SMDT05781MEL-ACX80	●	1	SMDT05781MTL-C-ACX70	●	2	SMDT05781NAL-DL1500		1	14.7	.5781	5/8-18				.1051	
SMDT1470MTL-ACX70	★	1	SMDT1470MEL-ACX80	★	1	SMDT1470MTL-C-ACX70		2	SMDT1470NAL-DL1500	●	1	14.7	.5787						
SMDT1480MTL-ACX70	●	1	SMDT1480MEL-ACX80	★	1	SMDT1480MTL-C-ACX70		2	SMDT1480NAL-DL1500		1	14.8	.5827				2.7	.1063	
SMDT1490MTL-ACX70	●	1	SMDT1490MEL-ACX80	★	1	SMDT1490MTL-C-ACX70		2	SMDT1490NAL-DL1500		1	14.9	.5866						
SMDT1500MTL-ACX70	●	1	SMDT1500MEL-ACX80	●	1	SMDT1500MTL-C-ACX70	●	2	SMDT1500NAL-DL1500	●	1	15.0	.5906	M16x1.0					**SMDH059□**
SMDT05937MTL-ACX70	●	1	SMDT05937MEL-ACX80	●	1	SMDT05937MTL-C-ACX70	●	2	SMDT05937NAL-DL1500	●	1	15.1	.5937		11.0	.4331		.1080	SMDH150□
SMDT1510MTL-ACX70	★	1	SMDT1510MEL-ACX80	★	1	SMDT1510MTL-C-ACX70		2	SMDT1510NAL-DL1500		1	15.1	.5945					.1063	
SMDT1520MTL-ACX70	●	1	SMDT1520MEL-ACX80	●	1	SMDT1520MTL-C-ACX70		2	SMDT1520NAL-DL1500		1	15.2	.5984						
SMDT1530MTL-ACX70	●	1	SMDT1530MEL-ACX80	★	1	SMDT1530MTL-C-ACX70		2	SMDT1530NAL-DL1500		1	15.3	.6024					.1102	
SMDT1540MTL-ACX70	★	1	SMDT1540MEL-ACX80	★	1	SMDT1540MTL-C-ACX70		2	SMDT1540NAL-DL1500		1	15.4	.6063				2.8		
SMDT06094MTL-ACX70	●	1	SMDT06094MEL-ACX80	●	1	SMDT06094MTL-C-ACX70	●	2	SMDT06094NAL-DL1500	●	1	15.5	.6094	11/16-12				.1109	
SMDT1550MTL-ACX70	●	1	SMDT1550MEL-ACX80	●	1	SMDT1550MTL-C-ACX70	●	2	SMDT1550NAL-DL1500	●	1	15.5	.6102	M18x2.5				.1102	
SMDT1560MTL-ACX70	●	1	SMDT1560MEL-ACX80	●	1	SMDT1560MTL-C-ACX70		2	SMDT1560NAL-DL1500		1	15.6	.6142				2.8	.1102	
SMDT1570MTL-ACX70	●	1	SMDT1570MEL-ACX80	●	1	SMDT1570MTL-C-ACX70		2	SMDT1570NAL-DL1500		1	15.7	.6181						
SMDT1580MTL-ACX70	★	1	SMDT1580MEL-ACX80	★	1	SMDT1580MTL-C-ACX70		2	SMDT1580NAL-DL1500		1	15.8	.6220					.1142	
SMDT06250MTL-ACX70	●	1	SMDT06250MEL-ACX80	●	1	SMDT06250MTL-C-ACX70	●	2	SMDT06250NAL-DL1500	●	1	15.9	.6250	11/16-16				1137	
SMDT1590MTL-ACX70	★	1	SMDT1590MEL-ACX80	★	1	SMDT1590MTL-C-ACX70		2	SMDT1590NAL-DL1500		1	15.9	.6260				2.9		**SMDH063□**
SMDT1600MTL-ACX70	●	1	SMDT1600MEL-ACX80	●	1	SMDT1600MTL-C-ACX70	●	2	SMDT1600NAL-DL1500	●	1	16.0	.6300		11.6	.4567			SMDH160□
SMDT1608MTL-ACX70		1	SMDT1608MEL-ACX80	●	1	SMDT1608MTL-C-ACX70		2	SMDT1608NAL-DL1500		1	16.1	.6331					.1142	
SMDT1610MTL-ACX70	★	1	SMDT1610MEL-ACX80	★	1	SMDT1610MTL-C-ACX70		2	SMDT1610NAL-DL1500		1	16.1	.6339						
SMDT1620MTL-ACX70	★	1	SMDT1620MEL-ACX80	★	1	SMDT1620MTL-C-ACX70		2	SMDT1620NAL-DL1500		1	16.2	.6378						
SMDT06406MTL-ACX70	●	1	SMDT06406MEL-ACX80	●	1	SMDT06406MTL-C-ACX70		2	SMDT06406NAL-DL1500	●	1	16.3	.6406				3.0	.1165	
SMDT1630MTL-ACX70	●	1	SMDT1630MEL-ACX80	★	1	SMDT1630MTL-C-ACX70		2	SMDT1630NAL-DL1500		1	16.3	.6417					.1181	

● = USA Stock Item ★ = Worldwide Warehouse Item Note: Special diameters available upon request

SMDT Availability - Inch / Metric

MTL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Tempered Steel | Hardened Steel Up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

• Standard Tip • Super Alloy Tip • Chamfered Edge Tip • DLC Coated

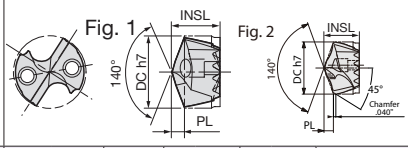
(DC < 31mm)

SMDT-MTL — DEX Coating — Replaceable Head MTL

SMDT-MEL — DEX Coating — Replaceable Head MEL

SMDT-MTL-C — DEX Coating — Replaceable Head MTL-C

SMDT-NAL — Aurora DLC Coat — Replaceable Head NAL



Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	øD mm	øD in.	Tap Size	INSL mm	INSL in.	PL mm	PL in.	Body
SMDT1640MTL-ACX70	★	1	SMDT1640MEL-ACX80	★	1	SMDT1640MTL-C-ACX70		2	SMDT1640NAL-DL1500		1	16.4	.6457		11.6	.4567	3.0	.1181	SMDH063□
SMDT1650MTL-ACX70	●	1	SMDT1650MEL-ACX80	●	1	SMDT1650MTL-C-ACX70	●	2	SMDT1650NAL-DL1500	●	1	16.5	.6496	M18x1.5					SMDH160□
SMDT1660MTL-ACX70	★	1	SMDT1660MEL-ACX80	★	1	SMDT1660MTL-C-ACX70		2	SMDT1660NAL-DL1500		1	16.6	.6535				3.0	.1181	
SMDT06562MTL-ACX70	●	1	SMDT06562MEL-ACX80	●	1	SMDT06562MTL-C-ACX70	●	2	SMDT06562NAL-DL1500	●	1	16.7	.6563	3/4-10					
SMDT1670MTL-ACX70	★	1	SMDT1670MEL-ACX80	★	1	SMDT1670MTL-C-ACX70		2	SMDT1670NAL-DL1500		1	16.7	.6575				3.1	.1220	
SMDT1680MTL-ACX70	●	1	SMDT1680MEL-ACX80	●	1	SMDT1680MTL-C-ACX70		2	SMDT1680NAL-DL1500		1	16.8	.6614						
SMDT1690MTL-ACX70	●	1	SMDT1690MEL-ACX80	★	1	SMDT1690MTL-C-ACX70		2	SMDT1690NAL-DL1500		1	16.9	.6653						
SMDT1700MTL-ACX70	●	1	SMDT1700MEL-ACX80	●	1	SMDT1700MTL-C-ACX70	●	2	SMDT1700NAL-DL1500	●	1	17.0	.6693						SMDH067□
SMDT06719MTL-ACX70	●	1	SMDT06719MEL-ACX80	●	1	SMDT06719MTL-C-ACX70	●	2	SMDT06719NAL-DL1500	●	1	17.1	.6719		12.2	.4803		.1222	SMDH170□
SMDT1710MTL-ACX70	★	1	SMDT1710MEL-ACX80	●	1	SMDT1710MTL-C-ACX70		2	SMDT1710NAL-DL1500		1	17.1	.6732						
SMDT1720MTL-ACX70	★	1	SMDT1720MEL-ACX80	★	1	SMDT1720MTL-C-ACX70		2	SMDT1720NAL-DL1500		1	17.2	.6772					.1220	
SMDT1730MTL-ACX70	★	1	SMDT1730MEL-ACX80	★	1	SMDT1730MTL-C-ACX70		2	SMDT1730NAL-DL1500		1	17.3	.6811						
SMDT1740MTL-ACX70	★	1	SMDT1740MEL-ACX80	★	1	SMDT1740MTL-C-ACX70		2	SMDT1740NAL-DL1500		1	17.4	.6850					.1260	
SMDT06875MTL-ACX70	●	1	SMDT06875MEL-ACX80	●	1	SMDT06875MTL-C-ACX70	●	2	SMDT06875NAL-DL1500	●	1	17.5	.6875	3/4-16			3.2	.1251	
SMDT1750MTL-ACX70	●	1	SMDT1750MEL-ACX80	●	1	SMDT1750MTL-C-ACX70	●	2	SMDT1750NAL-DL1500	●	1	17.5	.6890	M20x2.5				.1260	
SMDT1760MTL-ACX70	●	1	SMDT1760MEL-ACX80	●	1	SMDT1760MTL-C-ACX70	●	2	SMDT1760NAL-DL1500		1	17.6	.6929						
SMDT1770MTL-ACX70	●	1	SMDT1770MEL-ACX80	●	1	SMDT1770MTL-C-ACX70		2	SMDT1770NAL-DL1500		1	17.7	.6969				3.2	.1260	
SMDT1780MTL-ACX70	★	1	SMDT1780MEL-ACX80	●	1	SMDT1780MTL-C-ACX70		2	SMDT1780NAL-DL1500		1	17.8	.7008						
SMDT07031MTL-ACX70	●	1	SMDT07031MEL-ACX80	●	1	SMDT07031MTL-C-ACX70	●	2	SMDT07031NAL-DL1500	●	1	17.9	.7031					.1279	
SMDT1790MTL-ACX70	★	1	SMDT1790MEL-ACX80	★	1	SMDT1790MTL-C-ACX70		2	SMDT1790NAL-DL1500		1	17.9	.7047						
SMDT1800MTL-ACX70	●	1	SMDT1800MEL-ACX80	●	1	SMDT1800MTL-C-ACX70	●	2	SMDT1800NAL-DL1500	●	1	18.0	.7087	M20x2.0	12.9	.5079		.1299	SMDH071□
SMDT1810MTL-ACX70	●	1	SMDT1810MEL-ACX80	★	1	SMDT1810MTL-C-ACX70		2	SMDT1810NAL-DL1500		1	18.1	.7125						SMDH180□
SMDT1820MTL-ACX70	★	1	SMDT1820MEL-ACX80	★	1	SMDT1820MTL-C-ACX70		2	SMDT1820NAL-DL1500		1	18.2	.7165				3.3		
SMDT07187MTL-ACX70	●	1	SMDT07187MEL-ACX80	●	1	SMDT07187MTL-C-ACX70	●	2	SMDT07187NAL-DL1500	●	1	18.3	.7188					.1307	
SMDT1830MTL-ACX70	★	1	SMDT1830MEL-ACX80	★	1	SMDT1830MTL-C-ACX70		2	SMDT1830NAL-DL1500		1	18.3	.7204					.1299	
SMDT1840MTL-ACX70	★	1	SMDT1840MEL-ACX80	★	1	SMDT1840MTL-C-ACX70		2	SMDT1840NAL-DL1500		1	18.4	.7244						
SMDT1850MTL-ACX70	●	1	SMDT1850MEL-ACX80	●	1	SMDT1850MTL-C-ACX70	●	2	SMDT1850NAL-DL1500	●	1	18.5	.7283	M20x1.5			3.4	.1339	
SMDT1860MTL-ACX70	●	1	SMDT1860MEL-ACX80	★	1	SMDT1860MTL-C-ACX70		2	SMDT1860NAL-DL1500		1	18.6	.7323					.1339	
SMDT07344MTL-ACX70	●	1	SMDT07344MEL-ACX80	●	1	SMDT07344MTL-C-ACX70	●	2	SMDT07344NAL-DL1500	●	1	18.7	.7344					.1336	
SMDT1870MTL-ACX70	★	1	SMDT1870MEL-ACX80	★	1	SMDT1870MTL-C-ACX70		2	SMDT1870NAL-DL1500		1	18.7	.7362				3.4		
SMDT1880MTL-ACX70	●	1	SMDT1880MEL-ACX80	★	1	SMDT1880MTL-C-ACX70		2	SMDT1880NAL-DL1500		1	18.8	.7402					.1339	
SMDT1890MTL-ACX70	★	1	SMDT1890MEL-ACX80	★	1	SMDT1890MTL-C-ACX70		2	SMDT1890NAL-DL1500		1	18.9	.7441						
SMDT1900MTL-ACX70	●	1	SMDT1900MEL-ACX80	●	1	SMDT1900MTL-C-ACX70	●	2	SMDT1900NAL-DL1500	●	1	19.0	.7480	M20x1.0				.1378	
SMDT07500MTL-ACX70	●	1	SMDT07500MEL-ACX80	●	1	SMDT07500MTL-C-ACX70	●	2	SMDT07500NAL-DL1500	●	1	19.1	.7500		13.5	.5315		.1364	SMDH075□
SMDT1910MTL-ACX70	★	1	SMDT1910MEL-ACX80	●	1	SMDT1910MTL-C-ACX70		2	SMDT1910NAL-DL1500		1	19.1	.7520						SMDH190□
SMDT1920MTL-ACX70	★	1	SMDT1920MEL-ACX80	★	1	SMDT1920MTL-C-ACX70		2	SMDT1920NAL-DL1500		1	19.2	.7559						
SMDT1925MTL-ACX70	●	1	SMDT1925MEL-ACX80	●	1	SMDT1925MTL-C-ACX70		2	SMDT1925NAL-DL1500		1	19.3	.7579				3.5	.1378	
SMDT1930MTL-ACX70	●	1	SMDT1930MEL-ACX80	★	1	SMDT1930MTL-C-ACX70		2	SMDT1930NAL-DL1500		1	19.3	.7598						
SMDT1940MTL-ACX70	★	1	SMDT1940MEL-ACX80	★	1	SMDT1940MTL-C-ACX70		2	SMDT1940NAL-DL1500		1	19.4	.7638						
SMDT07656MTL-ACX70	●	1	SMDT07656MEL-ACX80	●	1	SMDT07656MTL-C-ACX70	●	2	SMDT07656NAL-DL1500	●	1	19.5	.7656	7/8-9				.1393	
SMDT1950MTL-ACX70	●	1	SMDT1950MEL-ACX80	●	1	SMDT1950MTL-C-ACX70	●	2	SMDT1950NAL-DL1500	●	1	19.5	.7677	M22x2.5				.1378	
SMDT1960MTL-ACX70	★	1	SMDT1960MEL-ACX70	★	1	SMDT1960MTL-C-ACX70		2	SMDT1960NAL-DL1500		1	19.6	.7717						
SMDT1970MTL-ACX70	★	1	SMDT1970MEL-ACX80	★	1	SMDT1970MTL-C-ACX70		2	SMDT1970NAL-DL1500		1	19.7	.7756					.1417	
SMDT1980MTL-ACX70	★	1	SMDT1980MEL-ACX80	★	1	SMDT1980MTL-C-ACX70		2	SMDT1980NAL-DL1500		1	19.8	.7795				3.6		
SMDT07812MTL-ACX70	●	1	SMDT07812MEL-ACX80	●	1	SMDT07812MTL-C-ACX70	●	2	SMDT07812NAL-DL1500	●	1	19.8	.7813					.1421	
SMDT1990MTL-ACX70	★	1	SMDT1990MEL-ACX80	★	1	SMDT1990MTL-C-ACX70		2	SMDT1990NAL-DL1500		1	19.9	.7835						
SMDT2000MTL-ACX70	●	1	SMDT2000MEL-ACX80	●	1	SMDT2000MTL-C-ACX70	●	2	SMDT2000NAL-DL1500	●	1	20.0	.7874					.1417	SMDH079□
SMDT2010MTL-ACX70	★	1	SMDT2010MEL-ACX80	★	1	SMDT2010MTL-C-ACX70		2	SMDT2010NAL-DL1500		1	20.1	.7913		14.1	.5551			SMDH200□
SMDT2020MTL-ACX70	★	1	SMDT2020MEL-ACX80	★	1	SMDT2020MTL-C-ACX70		2	SMDT2020NAL-DL1500		1	20.2	.7952					.1457	
SMDT07969MTL-ACX70	●	1	SMDT07969MEL-ACX80	●	1	SMDT07969MTL-C-ACX70	●	2	SMDT07969NAL-DL1500	●	1	20.2	.7969					.1431	
SMDT2030MTL-ACX70	●	1	SMDT2030MEL-ACX80	★	1	SMDT2030MTL-C0ACX70		2	SMDT2030NAL-DL1500		1	20.3	.7992				3.7		
SMDT2040MTL-ACX70	★	1	SMDT2040MEL-ACX80	★	1	SMDT2040MTL-C-ACX70		2	SMDT2040NAL-DL1500		1	20.4	.8031					.1457	
SMDT2050MTL-ACX70	●	1	SMDT2050MEL-ACX80	●	1	SMDT2050MTL-C-ACX70	●	2	SMDT2050NAL-DL1500	●	1	20.5	.8071	M22x1.5					

● = USA Stock Item ★ = Worldwide Warehouse Item Note: Special diameters available upon request

SMDT Availability - Inch / Metric

MTL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

• Standard Tip • Super Alloy Tip • Chamfered Edge Tip • DLC Coated

(DC < 31mm)

Fig. 1

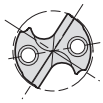
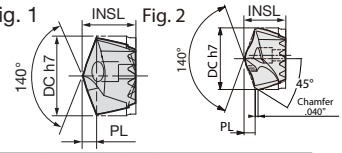


Fig. 2



SMDT-MTL (DEX Coating, Replaceable Head MTL)			SMDT-MEL (DEX Coating, Replaceable Head MEL)			SMDT-MTL-C (DEX Coating, Replaceable Head MTL-C)			SMDT-NAL (Aurora DLC Coat, Replaceable Head NAL)											
Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	øD mm	øD in.	Tap Size	LF mm	LF in.	PL mm	PL in.	Body
SMDT2060MTL-ACX70	★	1	*SMDT2060MEL-ACX80*	★	1	*SMDT2060MTL-C-ACX70*		2	*SMDT2060NAL-DL1500*		1	*20.6*	.8110				*3.7*	.1457	
SMDT08125MTL-ACX70	●	1	SMDT08125MEL-ACX80	●	1	SMDT08125MTL-C-ACX70	●	2	SMDT08125NAL-DL1500	●	1	*20.6*	.8125	7/8-14				.1478	**SMDH083□**
SMDT2070MTL-ACX70	●	1	*SMDT2070MEL-ACX80*	★	1	*SMDT2070MTL-C-ACX70*		2	*SMDT2070NAL-DL1500*		1	*20.7*	.8150		*14.8*	.5827	*3.8*		*SMDH210□*
SMDT2080MTL-ACX70	★	1	*SMDT2080MEL-ACX80*	★	1	*SMDT2080MTL-C-ACX70*		2	*SMDT2080NAL-DL1500*		1	*20.8*	.8189					.1496	
SMDT2090MTL-ACX70	★	1	*SMDT2090MEL-ACX80*	★	1	*SMDT2090MTL-C-ACX70*		2	*SMDT2090NAL-DL1500*		1	*20.9*	.8228						
SMDT2100MTL-ACX70	●	1	*SMDT2100MEL-ACX80*	●	1	*SMDT2100MTL-C-ACX70*	●	2	*SMDT2100NAL-DL1500*	●	1	*21.0*	.8268	M24x3.0				.1496	
SMDT08281MTL-ACX70	●	1	SMDT08281MEL-ACX80	●	1	SMDT08281MTL-C-ACX70	●	2	SMDT08281NAL-DL1500	●	1	*21.0*	.8281				*3.8*	.1506	
SMDT2110MTL-ACX70	●	1	*SMDT2110MEL-ACX80*	★	1	*SMDT2110MTL-C-ACX70*		2	*SMDT2110NAL-DL1500*		1	*21.1*	.8307					.1496	
SMDT2120MTL-ACX70	●	1	*SMDT2120MEL-ACX80*	●	1	*SMDT2120MTL-C-ACX70*		2	*SMDT2120NAL-DL1500*		1	*21.2*	.8346						**SMDH083□**
SMDT2130MTL-ACX70	★	1	*SMDT2130MEL-ACX80*	★	1	*SMDT2130MTL-C-ACX70*		2	*SMDT2130NAL-DL1500*		1	*21.3*	.8386		*14.8*	.5827			*SMDH210□*
SMDT2140MTL-ACX70	★	1	*SMDT2140MEL-ACX80*	★	1	*SMDT2140MTL-C-ACX70*		2	*SMDT2140NAL-DL1500*		1	*21.4*	.8425				*3.9*	.1535	
SMDT08437MTL-ACX70	●	1	SMDT08437MEL-ACX80	●	1	SMDT08437MTL-C-ACX70	●	2	SMDT08437NAL-DL1500	●	1	*21.4*	.8438						
SMDT2150MTL-ACX70	●	1	*SMDT2150MEL-ACX80*	●	1	*SMDT2150MTL-C-ACX70*	●	2	*SMDT2150NAL-DL1500*	●	1	*21.5*	.8465						
SMDT2160MTL-ACX70	★	1	*SMDT2160MEL-ACX80*	★	1	*SMDT2160MTL-C-ACX70*		2	*SMDT2160NAL-DL1500*		1	*21.6*	.8504				*3.9*	.1535	
SMDT2170MTL-ACX70	★	1	*SMDT2170MEL-ACX80*	★	1	*SMDT2170MTL-C-ACX70*		2	*SMDT2170NAL-DL1500*		1	*21.7*	.8543						
SMDT2180MTL-ACX70	★	1	*SMDT2180MEL-ACX80*	★	1	*SMDT2180MTL-C-ACX70*		2	*SMDT2180NAL-DL1500*		1	*21.8*	.8583					.1575	
SMDT08594MTL-ACX70	●	1	SMDT08594MEL-ACX80	●	1	SMDT08594MTL-C-ACX70		2	SMDT08594NAL-DL1500	●	1	*21.8*	.8594					.1564	
SMDT2190MTL-ACX70	★	1	*SMDT2190MEL-ACX80*	★	1	*SMDT2190MTL-C-ACX70*		2	*SMDT2190NAL-DL1500*		1	*21.9*	.8622				*4.0*		
SMDT2200MTL-ACX70	●	1	*SMDT2200MEL-ACX80*	●	1	*SMDT2200MTL-C-ACX70*	●	2	*SMDT2200NAL-DL1500*	●	1	*22.0*	.8661	M24x2.0				.1575	
SMDT2210MTL-ACX70	★	1	*SMDT2210MEL-ACX80*	★	1	*SMDT2210MTL-C-ACX70*		2	*SMDT2210NAL-DL1500*		1	*22.1*	.8701						
SMDT2220MTL-ACX70	★	1	*SMDT2220MEL-ACX80*	★	1	*SMDT2220MTL-C-ACX70*		2	*SMDT2220NAL-DL1500*		1	*22.2*	.8741						**SMDH087□**
SMDT08750MTL-ACX70	●	1	SMDT08750MEL-ACX80	●	1	SMDT08750MTL-C-ACX70	●	2	SMDT08750NAL-DL1500	●	1	*22.2*	.8750	1-8	*15.0*	.5906		.1592	*SMDH220□*
SMDT2230MTL-ACX70	★	1	*SMDT2230MEL-ACX80*	★	1	*SMDT2230MTL-C-ACX70*		2	*SMDT2230NAL-DL1500*		1	*22.3*	.8780						
SMDT2240MTL-ACX70	★	1	*SMDT2240MEL-ACX80*	★	1	*SMDT2240MTL-C-ACX70*		2	*SMDT2240NAL-DL1500*		1	*22.4*	.8819						
SMDT2245MTL-ACX70		1	*SMDT2245MEL-ACX80*	●	1	*SMDT2245MTL-C-ACX70*		2	*SMDT2245NAL-DL1500*		1	*22.5*	.8839					.1614	
SMDT2250MTL-ACX70	●	1	*SMDT2250MEL-ACX80*	●	1	*SMDT2250MTL-C-ACX70*	●	2	*SMDT2250NAL-DL1500*	●	1	*22.5*	.8858	M24x1.5			*4.1*		
SMDT2260MTL-ACX70	★	1	*SMDT2260MEL-ACX80*	★	1	*SMDT2260MTL-C-ACX70*		2	*SMDT2260NAL-DL1500*		1	*22.6*	.8898						
SMDT08906MTL-ACX70	●	1	SMDT08906MEL-ACX80	●	1	SMDT08906MTL-C-ACX70	●	2	SMDT08906NAL-DL1500	●	1	*22.6*	.8906					.1620	
SMDT2270MTL-ACX70	★	1	*SMDT2270MEL-ACX80*	★	1	*SMDT2270MTL-C-ACX70*		2	*SMDT2270NAL-DL1500*		1	*22.7*	.8937					.1614	
SMDT2280MTL-ACX70	★	1	*SMDT2280MEL-ACX80*	★	1	*SMDT2280MTL-C-ACX70*		2	*SMDT2280NAL-DL1500*		1	*22.8*	.8976						
SMDT2290MTL-ACX70	★	1	*SMDT2290MEL-ACX80*	★	1	*SMDT2290MTL-C-ACX70*		2	*SMDT2290NAL-DL1500*		1	*22.9*	.9016					.1654	
SMDT2300MTL-ACX70	●	1	*SMDT2300MEL-ACX80*	●	1	*SMDT2300MTL-C-ACX70*	●	2	*SMDT2300NAL-DL1500*	●	1	*23.0*	.9055						
SMDT09062MTL-ACX70	●	1	SMDT09062MEL-ACX80	●	1	SMDT09062MTL-C-ACX70		2	SMDT09062NAL-DL1500	●	1	*23.0*	.9062	1-12			*4.2*	.1649	
SMDT2310MTL-ACX70	★	1	*SMDT2310MEL-ACX80*	★	1	*SMDT2310MTL-C-ACX70*		2	*SMDT2310NAL-DL1500*		1	*23.1*	.9094						
SMDT2320MTL-ACX70	★	1	*SMDT2320MEL-ACX80*	★	1	*SMDT2320MTL-C-ACX70*		2	*SMDT2320NAL-DL1500*		1	*23.2*	.9134					.1654	
SMDT2330MTL-ACX70	★	1	*SMDT2330MEL-ACX80*	★	1	*SMDT2330MTL-C-ACX70*		2	*SMDT2330NAL-DL1500*		1	*23.3*	.9173						**SMDH091□**
SMDT2340MTL-ACX70	★	1	*SMDT2340MEL-ACX80*	★	1	*SMDT2340MTL-C-ACX70*		2	*SMDT2340NAL-DL1500*		1	*23.4*	.9213		*15.1*	.5945		.1693	*SMDH230□*
SMDT09219MTL-ACX70	●	1	SMDT09219MEL-ACX80	●	1	SMDT09219MTL-C-ACX70	●	2	SMDT09219NAL-DL1500	●	1	*23.4*	.9219					.1677	
SMDT2350MTL-ACX70	●	1	*SMDT2350MEL-ACX80*	●	1	*SMDT2350MTL-C-ACX70*	●	2	*SMDT2350NAL-DL1500*	●	1	*23.5*	.9252	M25x1.5					
SMDT2360MTL-ACX70	★	1	*SMDT2360MEL-ACX80*	★	1	*SMDT2360MTL-C-ACX70*		2	*SMDT2360NAL-DL1500*		1	*23.6*	.9291				*4.3*		
SMDT2370MTL-ACX70	★	1	*SMDT2370MEL-ACX80*	★	1	*SMDT2370MTL-C-ACX70*		2	*SMDT2370NAL-DL1500*		1	*23.7*	.9331					.1693	
SMDT2380MTL-ACX70	★	1	*SMDT2380MEL-ACX80*	★	1	*SMDT2380MTL-C-ACX70*		2	*SMDT2380NAL-DL1500*		1	*23.8*	.9370						
SMDT09375MTL-ACX70	●	1	SMDT09375MEL-ACX80	●	1	SMDT09375MTL-C-ACX70	●	2	SMDT09375NAL-DL1500	●	1	*23.8*	.9375	1-14			*4.3*	.1705	
SMDT2390MTL-ACX70	★	1	*SMDT2390MEL-ACX80*	★	1	*SMDT2390MTL-C-ACX70*		2	*SMDT2390NAL-DL1500*		1	*23.9*	.9409					.1693	
SMDT2400MTL-ACX70	●	1	*SMDT2400MEL-ACX80*	●	1	*SMDT2400MTL-C-ACX70*	●	2	*SMDT2400NAL-DL1500*	●	1	*24.0*	.9449	M27x3.0					
SMDT2410MTL-ACX70	★	1	*SMDT2410MEL-ACX80*	●	1	*SMDT2410MTL-C-ACX70*		2	*SMDT2410NAL-DL1500*		1	*24.1*	.9488					.1732	
SMDT2420MTL-ACX70	★	1	*SMDT2420MEL-ACX80*	★	1	*SMDT2420MTL-C-ACX70*		2	*SMDT2420NAL-DL1500*		1	*24.2*	.9528				*4.4*		
SMDT09531MTL-ACX70	●	1	SMDT09531MEL-ACX80	●	1	SMDT09531MTL-C-ACX70		2	SMDT09531NAL-DL1500	●	1	*24.2*	.9531						**SMDH096□**
SMDT2430MTL-ACX70	★	1	*SMDT2430MEL-ACX80*	★	1	*SMDT2430MTL-C-ACX70*		2	*SMDT2430NAL-DL1500*		1	*24.3*	.9567		*15.4*	.6063		.1734	*SMDH240□*
SMDT2440MTL-ACX70	★	1	*SMDT2440MEL-ACX80*	★	1	*SMDT2440MTL-C-ACX70*		2	*SMDT2440NAL-DL1500*		1	*24.4*	.9606						
SMDT2450MTL-ACX70	●	1	*SMDT2450MEL-ACX80*	●	1	*SMDT2450MTL-C-ACX70*		2	*SMDT2450NAL-DL1500*	●	1	*24.5*	.9646						
SMDT2460MTL-ACX70	★	1	*SMDT2460MEL-ACX80*	★	1	*SMDT2460MTL-C-ACX70*		2	*SMDT2460NAL-DL1500*		1	*24.6*	.9685					.1772	
SMDT09687MTL-ACX70	●	1	SMDT09687MEL-ACX80	●	1	SMDT09687MTL-C-ACX70		2	SMDT09687NAL-DL1500	●	1	*24.6*	.9687				*4.5*	.1762	
SMDT2470MTL-ACX70	★	1	*SMDT2470MEL-ACX80*	★	1	*SMDT2470MTL-C-ACX70*		2	*SMDT2470NAL-DL1500*		1	*24.7*	.9724						
SMDT2480MTL-ACX70	★	1	*SMDT2480MEL-ACX80*	★	1	*SMDT2480MTL-C-ACX70*		2	*SMDT2480NAL-DL1500*		1	*24.8*	.9764					.1772	

● = USA Stock Item ★ = Worldwide Warehouse Item Note: Special diameters available upon request

SMDT Availability - Inch / Metric

MTL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.28% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.28% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

• Standard Tip • Super Alloy Tip • Chamfered Edge Tip • DLC Coated

SMDT-MTL — DEX Coating — Replaceable Head MTL

SMDT-MEL — DEX Coating — Replaceable Head MEL

SMDT-MTL-C — DEX Coating — Replaceable Head MTL-C

SMDT-NAL — Aurora DLC Coat — Replaceable Head NAL

Fig. 1

(DC < 31mm)

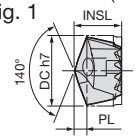
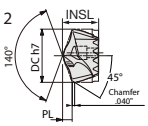


Fig. 2



Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	øD mm	øD in.	Tap Size	INSL mm	INSL in.	PL mm	PL in.	Body
SMDT2490MTL-ACX70	★	1	SMDT2490MEL-ACX80	●	1	SMDT2490MTL-C-ACX70		2	SMDT2490NAL-DL1500		1	24.9	.9803						
SMDT2500MTL-ACX70	●	1	SMDT2500MEL-ACX80	●	1	SMDT2500MTL-C-ACX70	●	2	SMDT2500NAL-DL1500		1	25.0	.9843	M27x2.0			4.5	.1772	
SMDT09844MTL-ACX70	●	1	SMDT09844MEL-ACX80	●	1	SMDT09844MTL-C-ACX70	●	2	SMDT09844NAL-DL1500	●	1	25.0	.9844	$1^{1}/_{8}$-7				.1791	
SMDT2510MTL-ACX70	★	1	SMDT2510MEL-ACX80	★	1	SMDT2510MTL-C-ACX70		2	SMDT2510NAL-DL1500		1	25.1	.9882						
SMDT2520MTL-ACX70	★	1	SMDT2520MEL-ACX80	★	1	SMDT2520MTL-C-ACX70		2	SMDT2520NAL-DL1500		1	25.2	.9921		15.8	.6220			
SMDT2530MTL-ACX70	★	1	SMDT2530MEL-ACX80	★	1	SMDT2530MTL-C-ACX70		2	SMDT2530NAL-DL1500		1	25.3	.9961				4.6	.1811	
SMDT2540MTL-ACX70	★	1	SMDT2540MEL-ACX80	★	1	SMDT2540MTL-C-ACX70		2	SMDT2540NAL-DL1500		1	25.4	1.0000						SMDH100□
SMDT10000MTL-ACX70	●	1	SMDT10000MEL-ACX80	●	1	SMDT10000MTL-C-ACX70	●	2	SMDT10000NAL-DL1500	●	1	25.4	1.0000					.1819	SMDH250□
SMDT2550MTL-ACX70	●	1	SMDT2550MEL-ACX80	●	1	SMDT2550MTL-C-ACX70	●	2	SMDT2550NAL-DL1500	●	1	25.5	1.0039				4.6	.1811	
SMDT2560MTL-ACX70	●	1	SMDT2560MEL-ACX80	★	1	SMDT2560MTL-C-ACX70		2	SMDT2560NAL-DL1500		1	25.6	1.0079						
SMDT2565MTL-ACX70		1	SMDT2565MEL-ACX80	●	1	SMDT2565MTL-C-ACX70		2	SMDT2565NAL-DL1500		1	25.7	1.0098					.1850	
SMDT2570MTL-ACX70	★	1	SMDT2570MEL-ACX80	★	1	SMDT2570MTL-C-ACX70		2	SMDT2570NAL-DL1500		1	25.7	1.0118		15.8	.445	4.7		
SMDT10156MTL-ACX70	●	1	SMDT10156MEL-ACX80	●	1	SMDT10156MTL-C-ACX70	●	2	SMDT10156NAL-DL1500	●	1	25.8	1.0156					.1848	
SMDT2580MTL-ACX70	★	1	SMDT2580MEL-ACX80	★	1	SMDT2580MTL-C-ACX70		2	SMDT2580NAL-DL1500		1	25.8	1.0157					.1850	
SMDT2590MTL-ACX70	★	1	SMDT2590MEL-ACX80	★	1	SMDT2590MTL-C-ACX70		2	SMDT2590NAL-DL1500		1	25.9	1.0197						
SMDT2600MTL-ACX70	●	1	SMDT2600MEL-ACX80	●	1	SMDT2600MTL-C-ACX70	●	2	SMDT2600NAL-DL1500	●	1	26.0	1.0236				4.7	.1850	
SMDT2610MTL-ACX70	★	1	SMDT2610MEL-ACX80	★	1	SMDT2610MTL-C-ACX70		2	SMDT2610NAL-DL1500		1	26.1	1.0276						
SMDT10312MTL-ACX70	●	1	SMDT10312MEL-ACX80	●	1	SMDT10312MTL-C-ACX70	●	2	SMDT10312NAL-DL1500	●	1	26.2	1.0312					.1876	
SMDT2620MTL-ACX70	★	1	SMDT2620MEL-ACX80	★	1	SMDT2620MTL-C-ACX70		2	SMDT2620NAL-DL1500		1	26.2	1.0315						
SMDT2630MTL-ACX70	★	1	SMDT2630MEL-ACX80	★	1	SMDT2630MTL-C-ACX70		2	SMDT2630NAL-DL1500		1	26.3	1.0354					.1890	SMDH104□
SMDT2640MTL-ACX70	★	1	SMDT2640MEL-ACX80	★	1	SMDT2640MTL-C-ACX70		2	SMDT2640NAL-DL1500		1	26.4	1.0393		16.4	.6457	4.8		SMDH260□
SMDT2650MTL-ACX70	●	1	SMDT2650MEL-ACX80	●	1	SMDT2650MTL-C-ACX70	●	2	SMDT2650NAL-DL1500	●	1	26.5	1.0433	M30x3.5					
SMDT10469MTL-ACX70	●	1	SMDT10469MEL-ACX80	●	1	SMDT10469MTL-C-ACX70		2	SMDT10469NAL-DL1500	●	1	26.6	1.0469	$1^{1}/_{8}$-12				.1905	
SMDT2660MTL-ACX70	★	1	SMDT2660MEL-ACX80	★	1	SMDT2660MTL-C-ACX70		2	SMDT2660NAL-DL1500		1	26.6	1.0472					.1890	
SMDT2670MTL-ACX70	★	1	SMDT2670MEL-ACX80	★	1	SMDT2670MTL-C-ACX70		2	SMDT2670NAL-DL1500		1	26.7	1.0512				4.9	.1929	
SMDT2680MTL-ACX70	★	1	SMDT2680MEL-ACX80	★	1	SMDT2680MTL-C-ACX70		2	SMDT2680NAL-DL1500		1	26.8	1.0551						
SMDT2690MTL-ACX70	★	1	SMDT2690MEL-ACX80	★	1	SMDT2690MTL-C-ACX70		2	SMDT2690NAL-DL1500		1	26.9	1.0591					.1929	
SMDT10625MTL-ACX70	●	1	SMDT10625MEL-ACX80	●	1	SMDT10625MTL-C-ACX70	●	2	SMDT10625NAL-DL1500	●	1	27.0	1.0625					.1933	
SMDT2700MTL-ACX70	●	1	SMDT2700MEL-ACX80	●	1	SMDT2700MTL-C-ACX70	●	2	SMDT2700NAL-DL1500	●	1	27.0	1.0630				4.9		
SMDT2710MTL-ACX70	★	1	SMDT2710MEL-ACX80	★	1	SMDT2710MTL-C-ACX70		2	SMDT2710NAL-DL1500		1	27.1	1.0669					.1929	
SMDT2720MTL-ACX70	★	1	SMDT2720MEL-ACX80	★	1	SMDT2720MTL-C-ACX70		2	SMDT2720NAL-DL1500		1	27.2	1.0719						
SMDT2730MTL-ACX70	★	1	SMDT2730MEL-ACX80	★	1	SMDT2730MTL-C-ACX70		2	SMDT2730NAL-DL1500		1	27.3	1.0748					.1969	SMDH107□
SMDT10781MTL-ACX70	●	1	SMDT10781MEL-ACX80	●	1	SMDT10781MTL-C-ACX70		2	SMDT10781NAL-DL1500	●	1	27.4	1.0781		17.1	.6732		.1961	SMDH270□
SMDT2740MTL-ACX70	★	1	SMDT2740MEL-ACX80	★	1	SMDT2740MTL-C-ACX70		2	SMDT2740NAL-DL1500		1	27.4	1.0787				5.0		
SMDT2750MTL-ACX70	●	1	SMDT2750MEL-ACX80	●	1	SMDT2750MTL-C-ACX70	●	2	SMDT2750NAL-DL1500	●	1	27.5	1.0827					.1969	
SMDT2760MTL-ACX70	★	1	SMDT2760MEL-ACX80	★	1	SMDT2760MTL-C-ACX70		2	SMDT2760NAL-DL1500		1	27.6	1.0866						
SMDT2770MTL-ACX70	★	1	SMDT2770MEL-ACX80	★	1	SMDT2770MTL-C-ACX70		2	SMDT2770NAL-DL1500		1	27.7	1.0906						
SMDT10937MTL-ACX70	●	1	SMDT10937MEL-ACX80	●	1	SMDT10937MTL-C-ACX70		2	SMDT10937NAL-DL1500	●	1	27.8	1.0937				5.1	.1990	
SMDT2780MTL-ACX70	★	1	SMDT2780MEL-ACX80	★	1	SMDT2780MTL-C-ACX70		2	SMDT2780NAL-DL1500		1	27.8	1.0945					.2008	
SMDT2790MTL-ACX70	★	1	SMDT2790MEL-ACX80	★	1	SMDT2790MTL-C-ACX70		2	SMDT2790NAL-DL1500		1	27.9	1.0984						
SMDT2800MTL-ACX70	●	1	SMDT2800MEL-ACX80	●	1	SMDT2800MTL-C-ACX70		2	SMDT2800NAL-DL1500	●	1	28.0	1.1024	M30x2				.2008	
SMDT2810MTL-ACX70	★	1	SMDT2810MEL-ACX80	★	1	SMDT2810MTL-C-ACX70		2	SMDT2810NAL-DL1500		1	28.1	1.1063				5.1		
SMDT11094MTL-ACX70	●	1	SMDT11094MEL-ACX80	●	1	SMDT11094MTL-C-ACX70		2	SMDT11094NAL-DL1500	●	1	28.2	1.1094	$1^{1}/_{4}$-7				.2018	
SMDT2820MTL-ACX70	★	1	SMDT2820MEL-ACX80	★	1	SMDT2820MTL-C-ACX70		2	SMDT2820NAL-DL1500		1	28.2	1.1102					.2008	
SMDT2830MTL-ACX70	★	1	SMDT2830MEL-ACX80	★	1	SMDT2830MTL-C-ACX70		2	SMDT2830NAL-DL1500		1	28.3	1.1141						SMDH112□
SMDT2840MTL-ACX70	★	1	SMDT2840MEL-ACX80	★	1	SMDT2840MTL-C-ACX70		2	SMDT2840NAL-DL1500		1	28.4	1.1181		17.7	.6969			SMDH280□
SMDT2850MTL-ACX70	●	1	SMDT2850MEL-ACX80	●	1	SMDT2850MTL-C-ACX70	●	2	SMDT2850NAL-DL1500	●	1	28.5	1.1220						
SMDT11250MTL-ACX70	●	1	SMDT11250MEL-ACX80	●	1	SMDT11250MTL-C-ACX70	●	2	SMDT11250NAL-DL1500	●	1	28.6	1.1250				5.2	.2047	
SMDT2860MTL-ACX70	★	1	SMDT2860MEL-ACX80	★	1	SMDT2860MTL-C-ACX70		2	SMDT2860NAL-DL1500		1	28.6	1.1260						
SMDT2870MTL-ACX70	★	1	SMDT2870MEL-ACX80	★	1	SMDT2870MTL-C-ACX70		2	SMDT2870NAL-DL1500		1	28.7	1.1299						
SMDT2880MTL-ACX70	★	1	SMDT2880MEL-ACX80	★	1	SMDT2880MTL-C-ACX70		2	SMDT2880NAL-DL1500		1	28.8	1.1339						
SMDT2890MTL-ACX70	★	1	SMDT2890MEL-ACX80	●	1	SMDT2890MTL-C-ACX70		2	SMDT2890NAL-DL1500		1	28.9	1.1378					.2087	
SMDT11406MTL-ACX70	●	1	SMDT11406MEL-ACX80	●	1	SMDT11406MTL-C-ACX70		2	SMDT11406NAL-DL1500	●	1	29.0	1.1406					.2075	
SMDT2900MTL-ACX70	●	1	SMDT2900MEL-ACX80	●	1	SMDT2900MTL-C-ACX70		2	SMDT2900NAL-DL1500	●	1	29.0	1.1417		18.3	.7205	5.3		SMDH115□
SMDT2910MTL-ACX70	★	1	SMDT2910MEL-ACX80	★	1	SMDT2910MTL-C-ACX70		2	SMDT2910NAL-DL1500		1	29.1	1.1457					.2087	SMDH290□
SMDT2920MTL-ACX70	★	1	SMDT2920MEL-ACX80	★	1	SMDT2920MTL-C-ACX70		2	SMDT2920NAL-DL1500		1	29.2	1.1497						
SMDT2930MTL-ACX70	★	1	SMDT2930MEL-ACX80	★	1	SMDT2930MTL-C-ACX70		2	SMDT2930NAL-DL1500		1	29.3	1.1536						

● = USA Stock Item ★ = Worldwide Warehouse Item Note: Special diameters available upon request

SMDT Availability - Inch / Metric

MTL: Carbon Steel/Alloy Steel up to 0.26% | Carbon Steel/Alloy Steel from 0.26% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel/Alloy Steel up to 0.26% | Carbon Steel/Alloy Steel from 0.26% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

• Standard Tip • Super Alloy Tip • Chamfered Edge Tip • DLC Coated

SMDT-MTL (DEX Coating, Replaceable Head MTL)			SMDT-MEL (DEX Coating, Replaceable Head MEL)			SMDT-MTL-C (DEX Coating, Replaceable Head MTL-C)			SMDT-NAL (Aurora DLC Coat, Replaceable Head NAL)			øD		Tap	INSL		PL		Body
Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	Drill Tip	Stock	Fig.	mm	in.	Size	mm	in.	mm	in.	
SMDT11562MTL-ACX70	●	1	SMDT11562MEL-ACX80	●	1	SMDT11562MTL-C-ACX70		3	SMDT11562NAL-DL1500	●	1	29.4	1.1562				5.3	.2104	
SMDT2940MTL-ACX70	★	1	SMDT2940MEL-ACX80	★	1	SMDT2940MTL-C-ACX70		3	SMDT2940NAL-DL1500		1	29.4	1.1574						
SMDT2950MTL-ACX70	●	1	SMDT2950MEL-ACX80	●	1	SMDT2950MTL-C-ACX70	●	3	SMDT2950NAL-DL1500	●	1	29.5	1.1614	M33x3.5				.2126	SMDH115□
SMDT2960MTL-ACX70	★	1	SMDT2960MEL-ACX80	★	1	SMDT2960MTL-C-ACX70		3	SMDT2960NAL-DL1500		1	29.6	1.1653		18.3	.7205	5.4		SMDH290□
SMDT2970MTL-ACX70	★	1	SMDT2970MEL-ACX80	★	1	SMDT2970MTL-C-ACX70		3	SMDT2970NAL-DL1500		1	29.7	1.1692						
SMDT11719MTL-ACX70	●	1	SMDT11719MEL-ACX80	●	1	SMDT11719MTL-C-ACX70		3	SMDT11719NAL-DL1500	●	1	29.8	1.1719	1 1/4-12				.2132	
SMDT2980MTL-ACX70	★	1	SMDT2980MEL-ACX80	★	1	SMDT2980MTL-C-ACX70		3	SMDT2980NAL-DL1500		1	29.8	1.1732					.2126	
SMDT2990MTL-ACX70	★	1	SMDT2990MEL-ACX80	★	1	SMDT2990MTL-C-ACX70		3	SMDT2990NAL-DL1500		1	29.9	1.1772				5.4	.2126	
SMDT3000MTL-ACX70	●	1	SMDT3000MEL-ACX80	●	1	SMDT3000MTL-C-ACX70		3	SMDT3000NAL-DL1500	●	1	30.0	1.1811						
SMDT3010MTL-ACX70	●	1	SMDT3010MEL-ACX80	★	1	SMDT3010MTL-C-ACX70		3	SMDT3010NAL-DL1500		1	30.1	1.1850					.2165	
SMDT11875MTL-ACX70	●	1	SMDT11875MEL-ACX80	●	1	SMDT11875MTL-C-ACX70		3	SMDT11875NAL-DL1500	●	1	30.2	1.1875				5.5	.2160	
SMDT3020MTL-ACX70	★	1	SMDT3020MEL-ACX80	★	1	SMDT3020MTL-C-ACX70		3	SMDT3020NAL-DL1500		1	30.2	1.1890						
SMDT3030MTL-ACX70	★	1	SMDT3030MEL-ACX80	★	1	SMDT3030MTL-C-ACX70		3	SMDT3030NAL-DL1500		1	30.3	1.1929		19.0	.7480		.2165	SMDH118□
SMDT3040MTL-ACX70	★	1	SMDT3040MEL-ACX80	★	1	SMDT3040MTL-C-ACX70		3	SMDT3040NAL-DL1500		1	30.4	1.1969						SMDH300□
SMDT3050MTL-ACX70	●	1	SMDT3050MEL-ACX80	●	1	SMDT3050MTL-C-ACX70		3	SMDT3050NAL-DL1500	●	1	30.5	1.2008	M32x1.5					
SMDT3060MTL-ACX70	★	1	SMDT3060MEL-ACX80	★	1	SMDT3060MTL-C-ACX70		3	SMDT3060NAL-DL1500		1	30.6	1.2047				5.6	.2205	
SMDT3070MTL-ACX70	★	1	SMDT3070MEL-ACX80	★	1	SMDT3070MTL-C-ACX70		3	SMDT3070NAL-DL1500		1	30.7	1.2087						
SMDT3080MTL-ACX70	★	1	SMDT3080MEL-ACX80	★	1	SMDT3080MTL-C-ACX70		3	SMDT3080NAL-DL1500		1	30.8	1.2126						
SMDT3100MTL-ACX80	●	2	SMDT3100MEL-ACX80	-	2	SMDT3100MTL-C-ACX80		3	SMDT3100NAL-DL1500		2	31.0	1.2205				5.6	.2205	
SMDT3150MTL-ACX80	●	2	SMDT3150MEL-ACX80	-	2	SMDT3150MTL-C-ACX80		3	SMDT3150NAL-DL1500		2	31.5	1.2402				5.7	.2244	SMDH1250□
SMDT12500MTL-ACX80	●	2	SMDT12500MEL-ACX80	-	2	SMDT12500MTL-C-ACX80		3	SMDT12500NAL-DL1500	●	2	31.8	1.2500			.8268	5.8	.2274	SMDH320□
SMDT3200MTL-ACX80	●	2	SMDT3200MEL-ACX80	-	2	SMDT3200MTL-C-ACX80		3	SMDT3200NAL-DL1500		2	32.0	1.2598	M36x4.0	21.0		5.8	.2283	
SMDT3300MTL-ACX80	●	2	SMDT3300MEL-ACX80	-	2	SMDT3300MTL-C-ACX80		3	SMDT3300NAL-DL1500		2	33.0	1.2992				6.0	.2362	SMDH1319□
SMDT13125MTL-ACX80	●	2	SMDT13125MEL-ACX80	-	2	SMDT13125MTL-C-ACX80		3	SMDT13125NAL-DL1500		2	33.3	1.3125			.8272	6.1	.2380	SMDH335□
SMDT3400MTL-ACX80	★	2	SMDT3400MEL-ACX80	-	2	SMDT3400MTL-C-ACX80		3	SMDT3400NAL-DL1500		2	34.0	1.3386				6.2	.2441	SMDH350□
SMDT3500MTL-ACX80	●	2	SMDT3500MEL-ACX80	-	2	SMDT3500MTL-C-ACX80		3	SMDT3500NAL-DL1500		2	35.0	1.3780	M39x4.0	23.0	.9055	6.4	.2520	
SMDT3600MTL-ACX80	●	2	SMDT3600MEL-ACX80	-	2	SMDT3600MTL-C-ACX80		3	SMDT3600NAL-DL1500		2	36.0	1.4173				6.6	.2598	SMDH365□
SMDT3700MTL-ACX80	★	2	SMDT3700MEL-ACX80	-	2	SMDT3700MTL-C-ACX80		3	SMDT3700NAL-DL1500		2	37.0	1.4567				6.7	.2638	
SMDT3750MTL-ACX80	★	2	SMDT3750MEL-ACX80	-	2	SMDT3750MTL-C-ACX80		3	SMDT3750NAL-DL1500		2	37.5	1.4764	M42x4.5			6.8	.2677	SMDH380□
SMDT3800MTL-ACX80	●	2	SMDT3800MEL-ACX80	-	2	SMDT3800MTL-C-ACX80		3	SMDT3800NAL-DL1500		2	38.0	1.4961		25.0	.9843	6.9	.2717	
SMDT3900MTL-ACX80	●	2	SMDT3900MEL-ACX80	-	2	SMDT3900MTL-C-ACX80		3	SMDT3900NAL-DL1500		2	39.0	1.5354				7.1	.2795	SMDH395□
SMDT4000MTL-ACX80	●	2	SMDT4000MEL-ACX80	-	2	SMDT4000MTL-C-ACX80		3	SMDT4000NAL-DL1500		2	40.0	1.5748				7.3	.2874	
SMDT4050MTL-ACX80	★	2	SMDT4050MEL-ACX80	-	2	SMDT4050MTL-C-ACX80		3	SMDT4050NAL-DL1500		2	40.5	1.5945	M45x4.5			7.4	.2913	SMDH410□
SMDT4100MTL-ACX80	★	2	SMDT4100MEL-ACX80	-	2	SMDT4100MTL-C-ACX80		3	SMDT4100NAL-DL1500		2	41.0	1.6142		27.0	1.0630	7.5	.2953	
SMDT4200MTL-ACX80	★	2	SMDT4200MEL-ACX80	-	2	SMDT4200MTL-C-ACX80		3	SMDT4200NAL-DL1500		2	42.0	1.6535				7.6	.2992	SMDH425□

● = USA Stock Item
★ = Worldwide Warehouse Item
— = Can not be made
Note: Special diameters available upon request

Indexable Head

Fig. 1 (DC < 31mm)

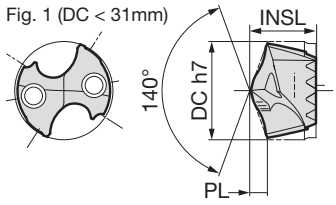


Fig. 2 (DC ≥ 31mm)

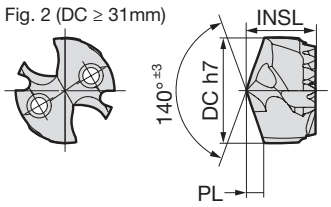
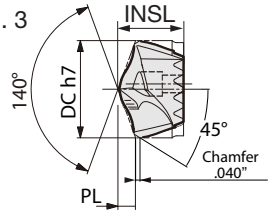


Fig. 3



SMDH Holders Availability - Inch

MTL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MTL | Replaceable Head MEL | Replaceable Head MTL-C | Replaceable Head NAL | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

Fig 1

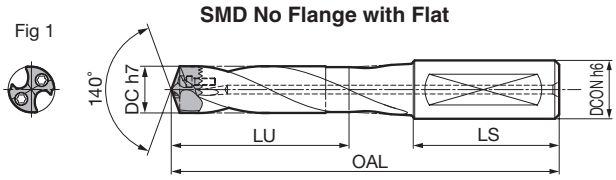
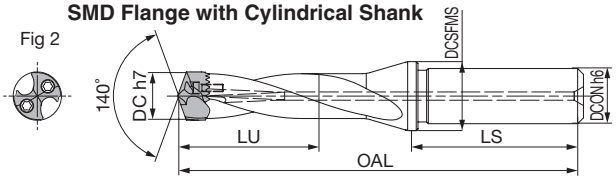


Fig 2



Holder Diameter: ø0.4688" to 0.7283" Dimensions with MTL / MEL / MTL-C / NAL Tips

Parts

Dimensions (inch)

Dia. DC (inch)	Dia. DC (mm)	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
															N·m	
0.4688 - 0.4917	12.00 -12.49	1.5	**SMDH047-1.5D**	●	✓		0.9055	3.5624	1.8740	0.7870	0.6250	MTL MEL MTL-C NAL	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH047M**	●		✓	1.6535	4.2238		—			1			
		3	**SMDH047-3D**	●	✓		1.6535	4.2238		0.7870			2			
		5	**SMDH047L**	●		✓	2.6378	5.1962		—			1			
		5	**SMDH047-5D**	●	✓		2.6378	5.1962		0.7870			2			
		8	**SMDH047-8D**	●	✓		3.8583	6.4718		0.7870			2			
0.4921 - 0.5114	12.50 - 12.99	1.5	**SMDH049-1.5D**	●	✓		0.9449	3.5817	1.8740	0.7870	0.6250	MTL MEL MTL-C NAL	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH049M**	●		✓	1.7323	4.4321		—			1			
		3	**SMDH049-3D**	●	✓		1.7323	4.4321		0.7870			2			
		5	**SMDH049L**	●		✓	2.7165	5.5896		—			1			
		5	**SMDH049-5D**	●	✓		2.7165	5.5896		0.7870			2			
		8	**SMDH049-8D**	●	✓		4.0157	6.6959		0.7870			2			
0.5118 - 0.5311	13.00 - 13.49	1.5	**SMDH051-1.5D**	●	✓		0.9843	3.6286	1.8740	0.7870	0.6250	MTL MEL MTL-C NAL	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH051M**	●		✓	1.7717	4.4357		—			1			
		3	**SMDH051-3D**	●	✓		1.7717	4.4357		0.7870			2			
		5	**SMDH051L**	●		✓	2.8346	5.5931		—			1			
		5	**SMDH051-5D**	●	✓		2.8346	5.5931		0.7870			2			
		8	**SMDH051-8D**	●	✓		4.1732	7.0223		0.7870			2			
0.5315 - 0.5709	13.50 - 14.50	1.5	**SMDH055-1.5D**	●	✓		1.1417	3.7932	2.0000	0.9840	0.7500	MTL MEL MTL-C NAL	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH055M**	●		✓	2.0079	4.7420		—			1			
		3	**SMDH055-3D**	●	✓		2.0079	4.7420		0.9840			2			
		5	**SMDH055L**	●		✓	3.1496	5.9113		—			1			
		5	**SMDH055-5D**	●	✓		3.1496	5.9113		0.9840			2			
		8	**SMDH055D**	●		✓	4.8425	7.5806		—			1			
		8	**SMDH055-8D**	●	✓		4.8425	7.6515		0.9840			2			
		12	**SMDH055-12D**	●	✓		6.6929	9.5806		0.9840			2			
0.5713 - 0.6102	14.51 - 15.50	1.5	**SMDH059-1.5D**	●	✓		1.2205	3.9382	2.0000	0.9840	0.7500	MTL MEL MTL-C NAL	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH059M**	●		✓	2.1260	5.0602		—			1			
		3	**SMDH059-3D**	●	✓		2.1260	5.0602		0.9840			2			
		5	**SMDH059L**	●		✓	3.3465	6.2492		—			1			
		5	**SMDH059-5D**	●	✓		3.3465	6.2492		0.9840			2			
		8	**SMDH059D**	●		✓	5.1575	7.9815		—			1			
		8	**SMDH059-8D**	●	✓		5.1575	8.0130		0.9840			2			
		12	**SMDH059-12D**	●	✓		7.1654	10.072		0.9840			2			
0.6106 - 0.6496	15.51 - 16.50	1.5	**SMDH063-1.5D**	●	✓		1.2598	4.0438	2.0000	0.9840	0.7500	MTL MEL MTL-C NAL	2	BXD02509IP	0.93 to 1.24	TRDR10IP
		3	**SMDH063M**	●		✓	2.2441	5.2721		—			1			
		3	**SMDH063-3D**	●	✓		2.2441	5.2721		0.9840			2			
		5	**SMDH063L**	●		✓	3.5433	6.6461		—			1			
		5	**SMDH063-5D**	●	✓		3.5433	6.6461		0.9840			2			
		8	**SMDH063D**	●		✓	5.5118	8.4217		—			1			
		8	**SMDH063-8D**	●	✓		5.5118	8.4217		0.9840			2			
		12	**SMDH063-12D**	●	✓		7.6378	10.5635		0.9840			2			
0.6500 - 0.6890	16.51 - 17.50	1.5	**SMDH067-1.5D**	●	✓		1.3386	4.1100	2.0000	0.9840	0.7500	MTL MEL MTL-C NAL	2	BXD02509IP	0.93 to 1.24	TRDR10IP
		3	**SMDH067M**	●		✓	2.3622	5.4683		—			1			
		3	**SMDH067-3D**	●	✓		2.3622	5.4683		0.9840			2			
		5	**SMDH067L**	●		✓	3.7402	6.8462		—			1			
		5	**SMDH067-5D**	●	✓		3.7402	6.8462		0.9840			2			
		8	**SMDH067D**	●		✓	5.8268	8.8226		—			1			
		8	**SMDH067-8D**	●	✓		5.8268	8.8226		0.9840			2			
		12	**SMDH067-12D**	●	✓		8.1496	11.0588		0.9840			2			
0.6894 - 0.7283	17.51 - 18.50	1.5	**SMDH071-1.5D**	●	✓		1.4173	4.2156	2.0000	0.9840	0.7500	MTL MEL MTL-C NAL	2	BXD02509IP	0.93 to 1.24	TRDR10IP
		3	**SMDH071M**	●		✓	2.4803	5.6762		—			1			
		3	**SMDH071-3D**	●	✓		2.4803	5.6762		0.9840			2			
		5	**SMDH071L**	●		✓	3.9370	7.0502		—			1			
		5	**SMDH071-5D**	●	✓		3.9370	7.0502		0.9840			2			
		8	**SMDH071D**	●		✓	6.1417	9.0266		—			1			
		8	**SMDH071-8D**	●	✓		6.1417	9.0266		0.9840			2			
		12	**SMDH071-12D**	●	✓		8.6220	11.5463		0.9840			2			

● = USA Stock Item

N·m Recommended Tightening Torque (N·m)

*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5D. The specifications have not changed.

SMDH Holders Availability - Inch

MTL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MTL | Replaceable Head MEL | Replaceable Head MTL-C | Replaceable Head NAL | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

Fig 1

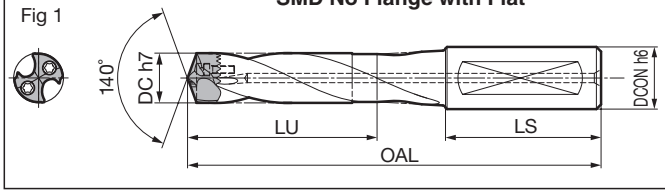
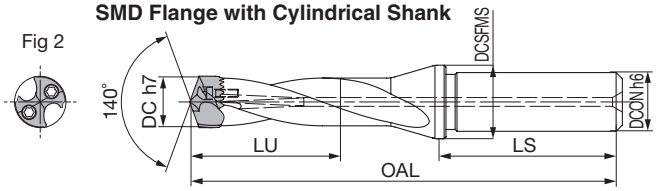


Fig 2



Holder Diameter: ø0.7287" to 1.0157" Dimensions with MTL / MEL / MTL-C / NAL Tips

Parts Dimensions (inch)

Dia. DC (inch)	Dia. DC (mm)	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw	N·m	Wrench
0.7287 - 0.7677	18.51 - 19.50	1.5	**SMDH075-1.5D**	●	✓		1.4567	4.5180	2.2520	1.1810	1.0000	MTL MEL MTL-C NAL	2	BXD03011IP	1.83 to 2.44	TRDR15IP
		3	**SMDH075M**	●		✓	2.6378	6.2818		—			1			
		3	**SMDH075-3D**	●	✓		2.6378	6.2818		1.1810			2			
		5	**SMDH075L**	●		✓	4.1732	7.6716		—			1			
		5	**SMDH075-5D**	●	✓		4.1732	7.6716		1.1810			2			
		8	**SMDH075D**	●		✓	6.4567	10.0180		—			1			
		8	**SMDH075-8D**	●	✓		6.4567	10.0180		1.1810			2			
		12	**SMDH075-12D**	●	✓		9.0945	12.2897		1.1810			2			
0.7681 - 0.8071	19.51 - 20.50	1.5	**SMDH079-1.5D**	●	✓		1.5354	4.6236	2.2520	1.1810	1.0000	MTL MEL MTL-C NAL	2	BXD03011IP	1.83 to 2.44	TRDR15IP
		3	**SMDH079M**	●		✓	2.7559	6.2850		—			1			
		3	**SMDH079-3D**	●	✓		2.7559	6.2850		1.1810			2			
		5	**SMDH079L**	●		✓	4.3701	7.8638		—			1			
		5	**SMDH079-5D**	●	✓		4.3701	7.8638		1.1810			2			
		8	**SMDH079D**	●		✓	6.7717	10.4189		—			1			
		8	**SMDH079-8D**	●	✓		6.7717	10.4189		1.1810			2			
		12	**SMDH079-12D**	●	✓		9.5669	12.7772		1.1810			2			
0.8074 - 0.8465	20.51 - 21.50	1.5	**SMDH083-1.5D**	●	✓		1.6142	4.6898	2.2520	1.1810	1.0000	MTL MEL MTL-C NAL	2	BXD03011IP	1.83 to 2.44	TRDR15IP
		3	**SMDH083M**	●		✓	2.8740	6.2922		—			1			
		3	**SMDH083-3D**	●	✓		2.8740	6.2922		1.1810			2			
		5	**SMDH083L**	●		✓	4.5669	7.8709		—			1			
		5	**SMDH083-5D**	●	✓		4.5669	7.8709		1.1810			2			
		8	**SMDH083D**	●		✓	7.0866	10.6229		—			1			
		8	**SMDH083-8D**	●	✓		7.0866	10.6229		1.1810			2			
		12	**SMDH083-12D**	●	✓		10.0394	13.2686		1.1810			2			
0.8469 - 0.8976	21.51 - 22.80	1.5	**SMDH087-1.5D**	●	✓		1.6929	4.7600	2.2520	1.1810	1.0000	MTL MEL MTL-C NAL	2	BXD03512IP	2.79 to 3.72	TRDR15IP
		3	**SMDH087M**	●		✓	3.0315	6.5041		—			1			
		3	**SMDH087-3D**	●	✓		3.0315	6.5041		1.1810			2			
		5	**SMDH087L**	●		✓	4.8425	8.0828		—			1			
		5	**SMDH087-5D**	●	✓		4.8425	8.0828		1.1810			2			
		8	**SMDH087D**	●		✓	7.5197	10.8269		—			1			
		8	**SMDH087-8D**	●	✓		7.5197	10.8269		1.1810			2			
		12	**SMDH087-12D**	●	✓		10.5512	13.7836		1.1810			2			
0.8980 - 0.9370	22.81 -23.80	1.5	**SMDH091-1.5D**	●	✓		1.7717	4.8026	2.2520	1.1810	1.0000	MTL MEL MTL-C NAL	2	BXD03512IP	2.79 to 3.72	TRDR15IP
		3	**SMDH091M**	●		✓	3.1496	6.4601		—			1			
		3	**SMDH091-3D**	●	✓		3.1496	6.5073		1.1810			2			
		5	**SMDH091L**	●		✓	5.0394	8.4286		—			1			
		5	**SMDH091-5D**	●	✓		5.0394	8.4286		1.1810			2			
		8	**SMDH091D**	●		✓	7.8346	11.1884		—			1			
		8	**SMDH091-8D**	●	✓		7.8346	11.1884		1.1810			2			
		12	**SMDH091-12D**	●	✓		11.0236	14.3301		1.1810			2			
0.9374 - 0.9764	23.81 - 24.80	1.5	**SMDH096-1.5D**	●	✓		1.8110	5.0538	2.2520	1.4570	1.0000	MTL MEL MTL-C NAL	2	BXD03512IP	2.79 to 3.72	TRDR15IP
		3	**SMDH096M**	●		✓	3.2677	6.8688		—			1			
		3	**SMDH096-3D**	●	✓		3.2677	6.8688		1.4570			2			
		5	**SMDH096L**	●		✓	5.2362	8.8767		—			1			
		5	**SMDH096-5D**	●	✓		5.2362	8.8767		1.4570			2			
		8	**SMDH096D**	●		✓	8.1496	11.7861		—			1			
		8	**SMDH096-8D**	●	✓		8.1496	11.7861		1.4570			2			
		12	**SMDH096-12D**	●	✓		11.4961	14.8097		1.4570			2			
0.9768 - 1.0157	24.81 - 25.80	1.5	**SMDH100-1.5D**	●	✓		1.8898	5.0728	2.3740	1.4570	1.2500	MTL MEL MTL-C NAL	2	BXD04014IP	4.14 to 5.12	TRDR20IP
		3	**SMDH100M**	●		✓	3.4252	6.9980		—			1			
		3	**SMDH100-3D**	●	✓		3.4252	6.9980		1.4570			2			
		5	**SMDH100L**	●		✓	5.4331	9.0374		—			1			
		5	**SMDH100-5D**	●	✓		5.4331	9.0374		1.4570			2			
		8	**SMDH100D**	●		✓	8.5039	11.9901		—			1			
		8	**SMDH100-8D**	●	✓		8.5039	11.9901		1.4570			2			
		12	**SMDH100-12D**	●	✓		11.9685	15.4114		1.4570			2			

● = USA Stock Item

N·m Recommended Tightening Torque (N·m)

*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5D. The specifications have not changed.

SMDH Holders Availability - Inch

MTL: Carbon Steel/Alloy Steel up to 0.26% | Carbon Steel/Alloy Steel from 0.26% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel/Alloy Steel up to 0.26% | Carbon Steel/Alloy Steel from 0.26% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MTL | Replaceable Head MEL | Replaceable Head MTL-C | Replaceable Head NAL | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

Fig 1

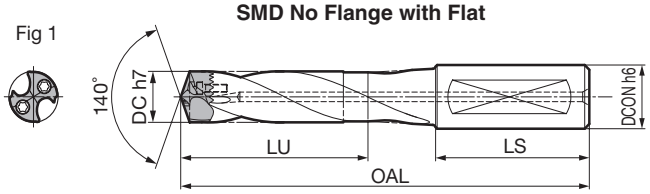
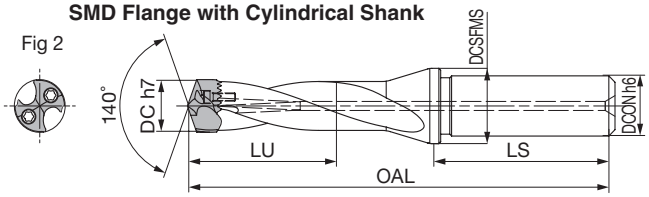


Fig 2



Holder Diameter: ø1.0161" to 1.3188" Dimensions with MTL / MEL / MTL-C / NAL Tips

Parts Dimensions (inch)

Dia. DC (inch)	Dia. DC (mm)	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw	N·m	Wrench
1.0161 - 1.0551	25.81 - 26.80	1.5	**SMDH104-1.5D**	●	✓		1.9685	5.1784	2.3740	1.4570	1.2500	MTL MEL MTL-C NAL	2	BXD04014IP	4.14 to 5.12	TRDR20IP
		3	**SMDH104M**	●		✓	3.5433	7.0760		—			1			
		3	**SMDH104-3D**	●	✓		3.5433	7.0760		1.4570			2			
		5	**SMDH104L**	●		✓	5.6299	9.2414		—			1			
		5	**SMDH104-5D**	●	✓		5.6299	9.2414		1.4570			2			
		8	**SMDH104D**	●		✓	8.8189	12.3910		—			1			
		8	**SMDH104-8D**	●	✓		8.8189	12.3910		1.4570			2			
1.0555 - 1.0945	26.81 - 27.80	1.5	**SMDH107-1.5D**	●	✓		2.0079	5.2053	2.3740	1.4570	1.2500	MTL MEL MTL-C NAL	2	BXD04014IP	4.14 to 5.12	TRDR20IP
		3	**SMDH107M**	●		✓	3.6614	7.0832		—			1			
		3	**SMDH107-3D**	●	✓		3.6614	7.0832		1.4570			2			
		5	**SMDH107L**	●		✓	5.8661	9.4494		—			1			
		5	**SMDH107-5D**	●	✓		5.8661	9.4494		1.4570			2			
		8	**SMDH107D**	●		✓	9.1339	12.7919		—			1			
		8	**SMDH107-8D**	●	✓		9.1339	12.7919		1.4570			2			
1.0949 - 1.1339	27.81 - 28.80	1.5	**SMDH112-1.5D**	●	✓		2.0866	5.2715	2.3740	1.4570	1.2500	MTL MEL MTL-C NAL	2	BXD04515IP	4.98 to 6.64	TRDR25IP
		3	**SMDH112M**	●		✓	3.7795	7.2872		—			1			
		3	**SMDH112-3D**	●	✓		3.7795	7.2872		1.4570			2			
		5	**SMDH112L**	●		✓	6.0630	9.6494		—			1			
		5	**SMDH112-5D**	●	✓		6.0630	9.6494		1.4570			2			
		8	**SMDH112D**	●		✓	9.4488	12.9959		—			1			
		8	**SMDH112-8D**	●	✓		9.4488	12.9959		1.4570			2			
1.1343 - 1.1732	28.81 - 29.80	1.5	**SMDH115-1.5D**	●	✓		2.1654	5.3377	2.3740	1.4570	1.2500	MTL MEL MTL-C NAL	2	BXD04515IP	4.98 to 6.64	TRDR25IP
		3	**SMDH115M**	●		✓	3.8976	7.4952		—			1			
		3	**SMDH115-3D**	●	✓		3.8976	7.4952		1.4570			2			
		5	**SMDH115L**	●		✓	6.2598	9.8574		—			1			
		5	**SMDH115-5D**	●	✓		6.2598	9.8574		1.4570			2			
		8	**SMDH115D**	●		✓	9.7638	13.3968		—			1			
		8	**SMDH115-8D**	●	✓		9.7638	13.3968		1.4570			2			
1.1736 - 1.2126	29.80 - 30.80	1.5	**SMDH118-1.5D**	●	✓		2.2047	5.4433	2.3740	1.4570	1.2500	MTL MEL MTL-C NAL	2	BXD04515IP	4.98 to 6.64	TRDR25IP
		3	**SMDH118M**	●		✓	4.0551	7.5023		—			1			
		3	**SMDH118-3D**	●	✓		4.0551	7.5023		1.4570			2			
		5	**SMDH118L**	●		✓	6.4567	10.2543		—			1			
		5	**SMDH118-5D**	●	✓		6.4567	10.2543		1.4570			2			
		8	**SMDH118D**	●		✓	10.1181	13.7976		—			1			
		8	**SMDH118-8D**	●	✓		10.1181	13.7976		1.4570			2			
1.2129 - 1.2598	30.81 - 32.00	3	**SMDH1250M**	●		✓	4.1732	7.8986	3.0000	—	1.2500	MTL MTL-C NAL	1	BXD04515IP	4.98 to 6.64	TRDR25IP
		3	**SMDH1250-3D**	●	✓		4.1732	7.8986		1.9690			2			
		5	**SMDH1250L**	●		✓	6.6929	10.4773		—			1			
		5	**SMDH1250-5D**	●	✓		6.6929	10.4773		1.9690			2			
1.2602 - 1.3188	32.01 - 33.50	3	**SMDH1319M**	●		✓	4.3701	8.7440	3.0000	—	1.5000	MTL MTL-C	1	BXD04515IP	4.98 to 6.64	TRDR25IP
		3	**SMDH1319-3D**	●	✓		4.3701	8.7440		1.9690			2			
		5	**SMDH1319L**	●		✓	7.0079	11.429		—			1			
		5	**SMDH1319-5D**	●	✓		7.0079	11.4290		1.9690			2			

● = USA Stock Item

N·m Recommended Tightening Torque (N·m)

*The SMDHOOOS Holder Cat. No. has been changed to SMDHOOO-1.5D. The specifications have not changed.

SMDH Holders Availability - *Metric*

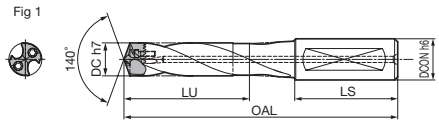
MTL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy

MEL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MTL | Replaceable Head MEL | Replaceable Head MTL-C | Replaceable Head NAL | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

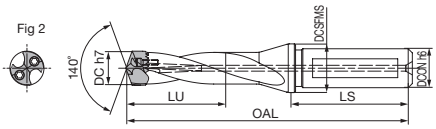
SMD No Flange with Flat

Fig 1



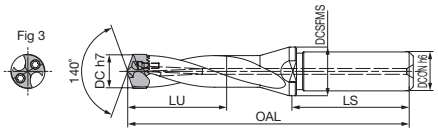
SMD Flanged with Flat

Fig 2



SMD Flange with Cylindrical Shank

Fig 3



Holder *ø12.0 to 15.0mm* Dimensions with MTL / MEL / MTL-C / NAL Tips

Parts Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw	N·m	Wrench
12.0 ≤ D < 12.5	1.5	**SMDH120-1.5D**	★	✓		23	90.5	48	20	16	MTL MEL MTL-C NAL	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	**SMDH120-1.5DF**	★	✓	✓	23	90.5		20			2	BXD02208IPC		
	3	**SMDH120M**	★		✓	42	107.2		—			1	BXD02208IP		
	3	**SMDH120-3D**	★	✓		42	107.2		20			3	BXD02208IPC		
	3	**SMDH120-3DF**	★	✓	✓	42	107.2		20			2	BXD02208IPC		
	5	**SMDH120L**	★		✓	67	132.2		—			1	BXD02208IP		
	5	**SMDH120-5D**	★	✓		67	132.2		20			3	BXD02208IPC		
	5	**SMDH120-5DF**	★	✓	✓	67	132.2		20			2	BXD02208IPC		
	8	**SMDH120-8D**	★	✓		98	164.4		20			3	BXD02208IPC		
	8	**SMDH120-8DF**	★	✓	✓	98	164.4		20			2	BXD02208IPC		
	12	**SMDH120-12D**	★	✓		146	213.3		20			3	BXD02208IPC		
12.5 ≤ D < 13.0	1.5	**SMDH125-1.5D**	★	✓		24	91.0	48	20	16	MTL MEL MTL-C NAL	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	**SMDH125-1.5DF**	★	✓	✓	24	91.0		20			2	BXD02208IPC		
	3	**SMDH125M**	★		✓	44	107.3		—			1	BXD02208IP		
	3	**SMDH125-3D**	★	✓		44	107.3		20			3	BXD02208IPC		
	3	**SMDH125-3DF**	★	✓	✓	44	107.3		20			2	BXD02208IPC		
	5	**SMDH125L**	★		✓	69	132.3		—			1	BXD02208IP		
	5	**SMDH125-5D**	★	✓		69	132.3		20			3	BXD02208IPC		
	5	**SMDH125-5DF**	★	✓	✓	69	132.3		20			2	BXD02208IPC		
	8	**SMDH125-8D**	★	✓		102	170.1		20			3	BXD02208IPC		
	8	**SMDH125-8DF**	★	✓	✓	102	170.1		20			2	BXD02208IPC		
	12	**SMDH125-12D**	★	✓		152	219.5		20			3	BXD02208IPC		
13.0 ≤ D < 13.5	1.5	**SMDH130-1.5D**	★	✓		25	92.2	48	20	16	MTL MEL MTL-C NAL	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	**SMDH130-1.5DF**	★	✓	✓	25	92.2		20			2	BXD02208IPC		
	3	**SMDH130M**	★		✓	45	112.4		—			1	BXD02208IP		
	3	**SMDH130-3D**	★	✓		45	112.4		20			3	BXD02208IPC		
	3	**SMDH130-3DF**	★	✓	✓	45	112.4		20			2	BXD02208IPC		
	5	**SMDH130L**	★		✓	72	142.4		—			1	BXD02208IP		
	5	**SMDH130-5D**	★	✓		72	142.4		20			3	BXD02208IPC		
	5	**SMDH130-5DF**	★	✓	✓	72	142.4		20			2	BXD02208IPC		
	8	**SMDH130-8D**	★	✓		106	178.4		20			3	BXD02208IPC		
	8	**SMDH130-8DF**	★	✓	✓	106	178.4		20			2	BXD02208IPC		
	12	**SMDH130-12D**	★	✓		158	225.7		20			3	BXD02208IPC		
13.5 ≤ D ≤ 14.5	1.5	**SMDH140-1.5D**	★	✓		29	96.3	48	20	16	MTL MEL MTL-C NAL	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	**SMDH140-1.5DF**	★	✓	✓	29	96.3		20			2	BXD02208IPC		
	3	**SMDH140M**	★		✓	51	119.0		—			1	BXD02208IP		
	3	**SMDH140-3D**	★	✓		51	119.0		20			3	BXD02208IPC		
	3	**SMDH140-3DF**	★	✓	✓	51	119.0		20			2	BXD02208IPC		
	5	**SMDH140L**	★		✓	80	149.0		—			1	BXD02208IP		
	5	**SMDH140-5D**	★	✓		80	149.0		20			3	BXD02208IPC		
	5	**SMDH140-5DF**	★	✓	✓	80	149.0		20			2	BXD02208IPC		
	8	**SMDH140D**	★		✓	123	194.0		—			1	BXD02208IP		
	8	**SMDH140-8D**	★	✓		123	194.0		20			3	BXD02208IPC		
	8	**SMDH140-8DF**	★	✓	✓	123	194.0		20			2	BXD02208IPC		
	12	**SMDH140-12D**	★	✓		170	238.5		20			3	BXD02208IPC		
14.5 < D ≤ 15.5	1.5	**SMDH150-1.5D**	★	✓		31	100.0	50	25	20	MTL MEL MTL-C NAL	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	**SMDH150-1.5DF**	★	✓	✓	31	100.0		25			2	BXD02208IPC		
	3	**SMDH150M**	★		✓	54	129.2		—			1	BXD02208IP		
	3	**SMDH150-3D**	★	✓		54	129.2		25			3	BXD02208IPC		
	3	**SMDH150-3DF**	★	✓	✓	54	129.2		25			2	BXD02208IPC		
	5	**SMDH150L**	★		✓	85	159.2		—			1	BXD02208IP		
	5	**SMDH150-5D**	★	✓		85	159.2		25			3	BXD02208IPC		
	5	**SMDH150-5DF**	★	✓	✓	85	159.2		25			2	BXD02208IPC		
	8	**SMDH150D**	★		✓	131	204.2		—			1	BXD02208IP		
	8	**SMDH150-8D**	★	✓		131	204.2		25			3	BXD02208IPC		
	8	**SMDH150-8DF**	★	✓	✓	131	204.2		25			2	BXD02208IPC		
	12	**SMDH150-12D**	★	✓		182	253.0		25			3	BXD02208IPC		

★ = Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

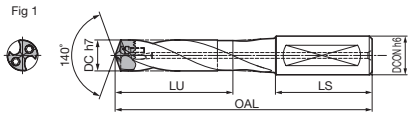
*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5DF. The specifications have not changed.

SMDH Holders Availability - *Metric*

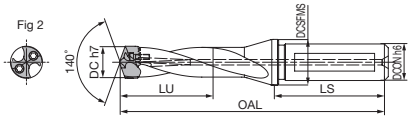
MTL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MTL | Replaceable Head MEL | Replaceable Head MTL-C | Replaceable Head NAL | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

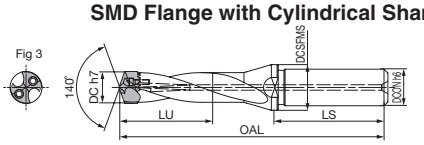
SMD No Flange with Flat — Fig 1



SMD Flange with Flat — Fig 2



SMD Flange with Cylindrical Shank — Fig 3



Holder *ø16.0 to 20.0mm* Dimensions with MTL / MEL / MTL-C / NAL Tips

Parts — Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw	N·m	Wrench
15.5 < D ≤ 16.5	1.5	**SMDH160-1.5D**	★	✓		32	102.7	50	25	20	MTL MEL MTL-C NAL	3	BXD02509IPC	0.93 to 1.24	TRDR10IP
	1.5	**SMDH160-1.5DF**	★	✓	✓	32	102.7		25			2	BXD02509IPC		
	3	**SMDH160M**	★		✓	57	134.4		—			1	BXD02509IP		
	3	**SMDH160-3D**	★	✓		57	134.4		25			3	BXD02509IPC		
	3	**SMDH160-3DF**	★	✓	✓	57	134.4		25			2	BXD02509IPC		
	5	**SMDH160L**	★		✓	90	169.4		—			1	BXD02509IP		
	5	**SMDH160-5D**	★	✓		90	169.4		25			3	BXD02509IPC		
	5	**SMDH160-5DF**	★	✓	✓	90	169.4		25			2	BXD02509IPC		
	8	**SMDH160D**	★		✓	140	214.4		—			1	BXD02509IP		
	8	**SMDH160-8D**	★	✓		140	214.4		25			3	BXD02509IPC		
	8	**SMDH160-8DF**	★	✓	✓	140	214.4		25			2	BXD02509IPC		
	12	**SMDH160-12D**	★	✓		194	265.5		25			3	BXD02509IPC		
16.5 < D ≤ 17.5	1.5	**SMDH170-1.5D**	★	✓		34	104.4	50	25	20	MTL MEL MTL-C NAL	3	BXD02509IPC	0.93 to 1.24	TRDR10IP
	1.5	**SMDH170-1.5DF**	★	✓	✓	34	104.4		25			2	BXD02509IPC		
	3	**SMDH170M**	★		✓	60	139.6		—			1	BXD02509IP		
	3	**SMDH170-3D**	★	✓		60	139.6		25			3	BXD02509IPC		
	3	**SMDH170-3DF**	★	✓	✓	60	139.6		25			2	BXD02509IPC		
	5	**SMDH170L**	★		✓	95	174.6		—			1	BXD02509IP		
	5	**SMDH170-5D**	★	✓		95	174.6		25			3	BXD02509IPC		
	5	**SMDH170-5DF**	★	✓	✓	95	174.6		25			2	BXD02509IPC		
	8	**SMDH170D**	★		✓	148	224.6		—			1	BXD02509IPC		
	8	**SMDH170-8D**	★	✓		148	224.6		25			3	BXD02509IP		
	8	**SMDH170-8DF**	★	✓	✓	148	224.6		25			2	BXD02509IPC		
	12	**SMDH170-12D**	★	✓		207	278.1		25			3	BXD02509IPC		
17.5 < D ≤ 18.5	1.5	**SMDH180-1.5D**	★	✓		36	107.1	50	25	20	MTL MEL MTL-C NAL	3	BXD02509IPC	0.93 to 1.24	TRDR10IP
	1.5	**SMDH180-1.5DF**	★	✓	✓	36	107.1		25			2	BXD02509IPC		
	3	**SMDH180M**	★		✓	63	144.8		—			1	BXD02509IP		
	3	**SMDH180-3D**	★	✓		63	144.8		25			3	BXD02509IPC		
	3	**SMDH180-3DF**	★	✓	✓	63	144.8		25			2	BXD02509IPC		
	5	**SMDH180L**	★		✓	100	179.8		—			1	BXD02509IP		
	5	**SMDH180-5D**	★	✓		100	179.8		25			3	BXD02509IPC		
	5	**SMDH180-5DF**	★	✓	✓	100	179.8		25			2	BXD02509IPC		
	8	**SMDH180D**	★		✓	156	229.8		—			1	BXD02509IP		
	8	**SMDH180-8D**	★	✓		156	229.8		25			3	BXD02509IPC		
	8	**SMDH180-8DF**	★	✓	✓	156	229.8		25			2	BXD02509IPC		
	12	**SMDH180-12D**	★	✓		219	290.5		25			3	BXD02509IPC		
18.5 < D ≤ 19.5	1.5	**SMDH190-1.5D**	★	✓		37	114.8	56	30	25	MTL MEL MTL-C NAL	3	BXD03011IPC	1.83 to 2.44	TRDR15IP
	1.5	**SMDH190-1.5DF**	★	✓	✓	37	114.8		30			2	BXD03011IPC		
	3	**SMDH190M**	★		✓	67	160.0		—			1	BXD03011IP		
	3	**SMDH190-3D**	★	✓		67	160.0		30			3	BXD03011IPC		
	3	**SMDH190-3DF**	★	✓	✓	67	160.0		30			2	BXD03011IPC		
	5	**SMDH190L**	★		✓	106	195.0		—			1	BXD03011IP		
	5	**SMDH190-5D**	★	✓		106	195.0		30			3	BXD03011IPC		
	5	**SMDH190-5DF**	★	✓	✓	106	195.0		30			2	BXD03011IPC		
	8	**SMDH190D**	★		✓	164	255.0		—			1	BXD03011IP		
	8	**SMDH190-8D**	★	✓		164	255.0		30			3	BXD03011IPC		
	8	**SMDH190-8DF**	★	✓	✓	164	255.0		30			2	BXD03011IPC		
	12	**SMDH190-12D**	★	✓		231	309.1		30			3	BXD03011IPC		
19.5 < D ≤ 20.5	1.5	**SMDH200-1.5D**	★	✓		39	117.4	56	30	25	MTL MEL MTL-C NAL	3	BXD03011IPC	1.83 to 2.44	TRDR15IP
	1.5	**SMDH200-1.5DF**	★	✓	✓	39	117.4		30			2	BXD03011IPC		
	3	**SMDH200M**	★		✓	70	160.1		—			1	BXD03011IP		
	3	**SMDH200-3D**	★	✓		70	160.1		30			3	BXD03011IPC		
	3	**SMDH200-3DF**	★	✓	✓	70	160.1		30			2	BXD03011IPC		
	5	**SMDH200L**	★		✓	111	200.1		—			1	BXD03011IP		
	5	**SMDH200-5D**	★	✓		111	200.1		30			3	BXD03011IPC		
	5	**SMDH200-5DF**	★	✓	✓	111	200.1		30			2	BXD03011IPC		
	8	**SMDH200D**	★		✓	172	265.1		—			1	BXD03011IP		
	8	**SMDH200-8D**	★	✓		172	265.1		30			3	BXD03011IPC		
	8	**SMDH200-8DF**	★	✓	✓	172	265.1		30			2	BXD03011IPC		
	12	**SMDH200-12D**	★	✓		243	321.4		30			3	BXD03011IPC		

★ = Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

*The SMDHOOOS Holder Cat. No. has been changed to SMDHOOO-1.5DF. The specifications have not changed.

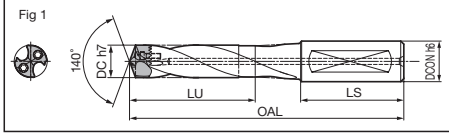
SMDH Holders Availability - *Metric*

MTL: Carbon Steel Alloy Steel up to 0.25% | Carbon Steel Alloy Steel from 0.25% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.25% | Carbon Steel Alloy Steel from 0.25% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MTL | Replaceable Head MEL | Replaceable Head MTL-C | Replaceable Head NAL | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

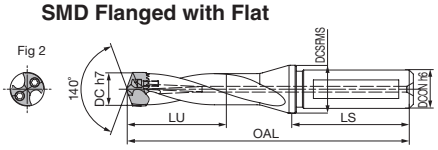
SMD No Flange with Flat

Fig 1



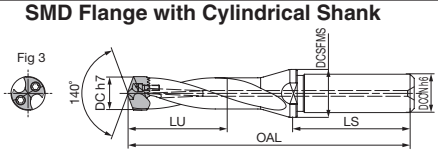
SMD Flanged with Flat

Fig 2



SMD Flange with Cylindrical Shank

Fig 3



Holder *ø21.0 to 25.0mm* Dimensions with MTL / MEL / MTL-C / NAL Tips Parts

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
														N·m	
20.5 < D ≤ 21.5	1.5	***SMDH210-1.5D***	★	✓		*41*	*119.1*	56	*30*	25	MTL MEL MTL-C NAL	3	BXD03011IPC	1.83 to 2.44	TRDR15IP
	1.5	***SMDH210-1.5DF***	★	✓	✓	*41*	*119.1*		*30*			2	BXD03011IPC		
	3	***SMDH210M***	★		✓	*73*	*160.3*		—			1	BXD03011IP		
	3	***SMDH210-3D***	★	✓		*73*	*160.3*		*30*			3	BXD03011IPC		
	3	***SMDH210-3DF***	★	✓	✓	*73*	*160.3*		*30*			2	BXD03011IPC		
	5	***SMDH210L***	★		✓	*116*	*200.3*		—			1	BXD03011IP		
	5	***SMDH210-5D***	★	✓		*116*	*200.3*		*30*			3	BXD03011IPC		
	5	***SMDH210-5DF***	★	✓	✓	*116*	*200.3*		*30*			2	BXD03011IPC		
	8	***SMDH210D***	★		✓	*180*	*270.3*		—			1	BXD03011IP		
	8	***SMDH210-8D***	★	✓		*180*	*270.3*		*30*			3	BXD03011IPC		
	8	***SMDH210-8DF***	★	✓	✓	*180*	*270.3*		*30*			2	BXD03011IPC		
	12	***SMDH210-12D***	★	✓		*255*	*333.9*		*30*			3	BXD03011IPC		
21.5 < D ≤ 22.8	1.5	***SMDH220-1.5D***	★	✓		*43*	*120.9*	56	*30*	25	MTL MEL MTL-C NAL	3	BXD03512IPC	2.79 to 3.72	TRDR15IP
	1.5	***SMDH220-1.5DF***	★	✓	✓	*43*	*120.9*		*30*			2	BXD03512IPC		
	3	***SMDH220M***	★		✓	*77*	*165.1*		—			1	BXD03512IP		
	3	***SMDH220-3D***	★	✓		*77*	*165.1*		*30*			3	BXD03512IPC		
	3	***SMDH220-3DF***	★	✓	✓	*77*	*165.1*		*30*			2	BXD03512IPC		
	5	***SMDH220L***	★		✓	*123*	*205.1*		—			1	BXD03512IP		
	5	***SMDH220-5D***	★	✓		*123*	*205.1*		*30*			3	BXD03512IPC		
	5	***SMDH220-5DF***	★	✓	✓	*123*	*205.1*		*30*			2	BXD03512IPC		
	8	***SMDH220D***	★		✓	*191*	*275.1*		—			1	BXD03512IP		
	8	***SMDH220-8D***	★	✓		*191*	*275.1*		*30*			3	BXD03512IPC		
	8	***SMDH220-8DF***	★	✓	✓	*191*	*275.1*		*30*			2	BXD03512IPC		
	12	***SMDH220-12D***	★	✓		*268*	*347.0*		*30*			3	BXD03512IPC		
22.8 < D ≤ 23.8	1.5	***SMDH230-1.5D***	★	✓		*45*	*122.0*	56	*30*	25	MTL MEL MTL-C NAL	3	BXD03512IPC	2.79 to 3.72	TRDR15IP
	1.5	***SMDH230-1.5DF***	★	✓	✓	*45*	*122.0*		*30*			2	BXD03512IPC		
	3	***SMDH230M***	★		✓	*80*	*164.7*		—			1	BXD03512IP		
	3	***SMDH230-3D***	★	✓		*80*	*164.7*		*30*			3	BXD03512IPC		
	3	***SMDH230-3DF***	★	✓	✓	*80*	*164.7*		*30*			2	BXD03512IPC		
	5	***SMDH230L***	★		✓	*128*	*214.7*		—			1	BXD03512IP		
	5	***SMDH230-5D***	★	✓		*128*	*214.7*		*30*			3	BXD03512IPC		
	5	***SMDH230-5DF***	★	✓	✓	*128*	*214.7*		*30*			2	BXD03512IPC		
	8	***SMDH230D***	★		✓	*199*	*284.7*		—			1	BXD03512IP		
	8	***SMDH230-8D***	★	✓		*199*	*284.7*		*30*			3	BXD03512IPC		
	8	***SMDH230-8DF***	★	✓	✓	*199*	*284.7*		*30*			2	BXD03512IPC		
	12	***SMDH230-12D***	★	✓		*280*	*359.0*		*30*			3	BXD03512IPC		
23.8 < D ≤ 24.8	1.5	***SMDH240-1.5D***	★	✓		*46*	*128.4*	60	*37*	32	MTL MEL MTL-C NAL	3	BXD03512IPC	2.79 to 3.72	TRDR15IP
	1.5	***SMDH240-1.5DF***	★	✓	✓	*46*	*128.4*		*37*			2	BXD03512IPC		
	3	***SMDH240M***	★		✓	*83*	*174.6*		—			1	BXD03512IP		
	3	***SMDH240-3D***	★	✓		*83*	*174.6*		*37*			3	BXD03512IPC		
	3	***SMDH240-3DF***	★	✓	✓	*83*	*174.6*		*37*			2	BXD03512IPC		
	5	***SMDH240L***	★		✓	*133*	*224.6*		—			1	BXD03512IP		
	5	***SMDH240-5D***	★	✓		*133*	*224.6*		*37*			3	BXD03512IPC		
	5	***SMDH240-5DF***	★	✓	✓	*133*	*224.6*		*37*			2	BXD03512IPC		
	8	***SMDH240D***	★		✓	*207*	*299.6*		—			1	BXD03512IP		
	8	***SMDH240-8D***	★	✓		*207*	*299.6*		*37*			3	BXD03512IPC		
	8	***SMDH240-8DF***	★	✓	✓	*207*	*299.6*		*37*			2	BXD03512IPC		
	12	***SMDH240-12D***	★	✓		*292*	*376.1*		*37*			3	BXD03512IPC		
24.8 < D ≤ 25.8	1.5	***SMDH250-1.5D***	★	✓		*48*	*128.8*	60	*37*	32	MTL MEL MTL-C NAL	3	BXD04014IPC	4.14 to 5.52	TRDR20IP
	1.5	***SMDH250-1.5DF***	★	✓	✓	*48*	*128.8*		*37*			2	BXD04014IPC		
	3	***SMDH250M***	★		✓	*87*	*174.5*		—			1	BXD04014IP		
	3	***SMDH250-3D***	★	✓		*87*	*174.5*		*37*			3	BXD04014IPC		
	3	***SMDH250-3DF***	★	✓	✓	*87*	*174.5*		*37*			2	BXD04014IPC		
	5	***SMDH250L***	★		✓	*138*	*229.5*		—			1	BXD04014IP		
	5	***SMDH250-5D***	★	✓		*138*	*229.5*		*37*			3	BXD04014IPC		
	5	***SMDH250-5DF***	★	✓	✓	*138*	*229.5*		*37*			2	BXD04014IPC		
	8	***SMDH250D***	★		✓	*216*	*304.5*		—			1	BXD04014IP		
	8	***SMDH250-8D***	★	✓		*216*	*304.5*		*37*			3	BXD04014IPC		
	8	***SMDH250-8DF***	★	✓	✓	*216*	*304.5*		*37*			2	BXD04014IPC		
	12	***SMDH250-12D***	★	✓		*304*	*388.3*		*37*			3	BXD04014IPC		

★ = Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5DF. The specifications have not changed.

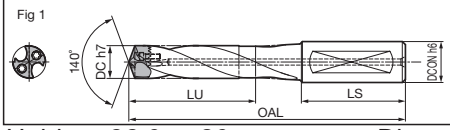
SMDH Holders Availability - *Metric*

MTL: Carbon Steel Alloy Steel up to 0.26% | Carbon Steel Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.26% | Carbon Steel Alloy Steel from 0.26% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MTL | Replaceable Head MEL | Replaceable Head MTL-C | Replaceable Head NAL | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

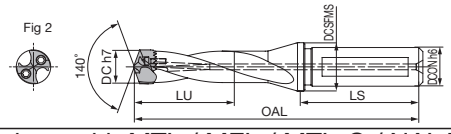
SMD No Flange with Flat

Fig 1



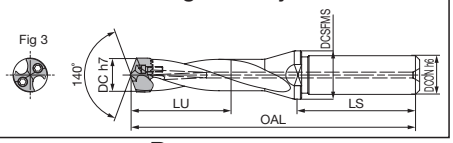
SMD Flange with Flat

Fig 2



SMD Flange with Cylindrical Shank

Fig 3



Holder *ø26.0 to 30mm* — Dimensions with MTL / MEL / MTL-C / NAL Tips — Parts

Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw	N·m	Wrench
25.8 < D ≤ 26.8	1.5	***SMDH260-1.5D***	★	✓		*50*	*131.5*	*60*	*37*	*32*	MTL MEL MTL-C NAL	3	BXD04014IPC	4.14 to 5.52	TRDR20IP
	1.5	***SMDH260-1.5DF***	★	✓	✓	*50*	*131.5*		*37*			2	BXD04014IPC		
	3	***SMDH260M***	★		✓	*90*	*179.7*		—			1	BXD04014IP		
	3	***SMDH260-3D***	★	✓		*90*	*179.7*		*37*			3	BXD04014IPC		
	3	***SMDH260-3DF***	★	✓	✓	*90*	*179.7*		*37*			2	BXD04014IPC		
	5	***SMDH260L***	★		✓	*143*	*234.7*		—			1	BXD04014IP		
	5	***SMDH260-5D***	★	✓		*143*	*234.7*		*37*			3	BXD04014IPC		
	5	***SMDH260-5DF***	★	✓	✓	*143*	*234.7*		*37*			2	BXD04014IPC		
	8	***SMDH260D***	★		✓	*224*	*314.7*		—			1	BXD04014IP		
	8	***SMDH260-8D***	★	✓		*224*	*314.7*		*37*			3	BXD04014IPC		
	8	***SMDH260-8DF***	★	✓	✓	*224*	*314.7*		*37*			2	BXD04014IPC		
	12	***SMDH260-12D***	★	✓		*316*	*400.8*		*37*			3	BXD04014IPC		
26.8 < D ≤ 27.8	1.5	***SMDH270-1.5D***	★	✓		*51*	*132.2*	*60*	*37*	*32*	MTL MEL MTL-C NAL	3	BXD04014IPC	4.14 to 5.52	TRDR20IP
	1.5	***SMDH270-1.5DF***	★	✓	✓	*51*	*132.2*		*37*			2	BXD04014IPC		
	3	***SMDH270M***	★		✓	*93*	*179.9*		—			1	BXD04014IP		
	3	***SMDH270-3D***	★	✓		*93*	*179.9*		*37*			3	BXD04014IPC		
	3	***SMDH270-3DF***	★	✓	✓	*93*	*179.9*		*37*			2	BXD04014IPC		
	5	***SMDH270L***	★		✓	*149*	*239.9*		—			1	BXD04014IP		
	5	***SMDH270-5D***	★	✓		*149*	*239.9*		*37*			3	BXD04014IPC		
	5	***SMDH270-5DF***	★	✓	✓	*149*	*239.9*		*37*			2	BXD04014IPC		
	8	***SMDH270D***	★		✓	*232*	*324.9*		—			1	BXD04014IP		
	8	***SMDH270-8D***	★	✓		*232*	*324.9*		*37*			3	BXD04014IPC		
	8	***SMDH270-8DF***	★	✓	✓	*232*	*324.9*		*37*			2	BXD04014IPC		
	12	***SMDH270-12D***	★	✓		*328*	*413.3*		*37*			3	BXD04014IPC		
27.8 < D ≤ 28.8	1.5	***SMDH280-1.5D***	★	✓		*53*	*133.9*	*60*	*37*	*32*	MTL MEL MTL-C NAL	3	BXD04515IPC	4.98 to 6.64	TRDR25IP
	1.5	***SMDH280-1.5DF***	★	✓	✓	*53*	*133.9*		*37*			2	BXD04515IPC		
	3	***SMDH280M***	★		✓	*96*	*185.1*		—			1	BXD04515IP		
	3	***SMDH280-3D***	★	✓		*96*	*185.1*		*37*			3	BXD04515IPC		
	3	***SMDH280-3DF***	★	✓	✓	*96*	*185.1*		*37*			2	BXD04515IPC		
	5	***SMDH280L***	★		✓	*154*	*245.1*		—			1	BXD04515IP		
	5	***SMDH280-5D***	★	✓		*154*	*245.1*		*37*			3	BXD04515IPC		
	5	***SMDH280-5DF***	★	✓	✓	*154*	*245.1*		*37*			2	BXD04515IPC		
	8	***SMDH280D***	★		✓	*240*	*330.1*		—			1	BXD04515IP		
	8	***SMDH280-8D***	★	✓		*240*	*330.1*		*37*			3	BXD04515IPC		
	8	***SMDH280-8DF***	★	✓	✓	*240*	*330.1*		*37*			2	BXD04515IPC		
	12	***SMDH280-12D***	★	✓		*341*	*425.8*		*37*			3	BXD04515IPC		
28.8 < D ≤ 29.8	1.5	***SMDH290-1.5D***	★	✓		*55*	*135.6*	*60*	*37*	*32*	MTL MEL MTL-C NAL	3	BXD04515IPC	4.98 to 6.64	TRDR25IP
	1.5	***SMDH290-1.5DF***	★	✓	✓	*55*	*135.6*		*37*			2	BXD04515IPC		
	3	***SMDH290M***	★		✓	*99*	*190.3*		—			1	BXD04515IP		
	3	***SMDH290-3D***	★	✓		*99*	*190.3*		*37*			3	BXD04515IPC		
	3	***SMDH290-3DF***	★	✓	✓	*99*	*190.3*		*37*			2	BXD04515IPC		
	5	***SMDH290L***	★		✓	*159*	*250.3*		—			1	BXD04515IP		
	5	***SMDH290-5D***	★	✓		*159*	*250.3*		*37*			3	BXD04515IPC		
	5	***SMDH290-5DF***	★	✓	✓	*159*	*250.3*		*37*			2	BXD04515IPC		
	8	***SMDH290D***	★		✓	*248*	*340.3*		—			1	BXD04515IP		
	8	***SMDH290-8D***	★	✓		*248*	*340.3*		*37*			3	BXD04515IPC		
	8	***SMDH290-8DF***	★	✓	✓	*248*	*340.3*		*37*			2	BXD04515IPC		
	12	***SMDH290-12D***	★	✓		*353*	*438.4*		*37*			3	BXD04515IPC		
29.8 < D ≤ 30.8	1.5	***SMDH300-1.5D***	★	✓		*56*	*138.3*	*60*	*37*	*32*	MTL MEL MTL-C NAL	3	BXD04515IPC	4.98 to 6.64	TRDR25IP
	1.5	***SMDH300-1.5DF***	★	✓	✓	*56*	*138.3*		*37*			2	BXD04515IPC		
	3	***SMDH300M***	★		✓	*103*	*190.5*		—			1	BXD04515IP		
	3	***SMDH300-3D***	★	✓		*103*	*190.5*		*37*			3	BXD04515IPC		
	3	***SMDH300-3DF***	★	✓	✓	*103*	*190.5*		*37*			2	BXD04515IPC		
	5	***SMDH300L***	★		✓	*164*	*260.5*		—			1	BXD04515IP		
	5	***SMDH300-5D***	★	✓		*164*	*260.5*		*37*			3	BXD04515IPC		
	5	***SMDH300-5DF***	★	✓	✓	*164*	*260.5*		*37*			2	BXD04515IPC		
	8	***SMDH300D***	★		✓	*257*	*350.5*		—			1	BXD04515IP		
	8	***SMDH300-8D***	★	✓		*257*	*350.5*		*37*			3	BXD04515IPC		
	8	***SMDH300-8DF***	★	✓	✓	*257*	*350.5*		*37*			2	BXD04515IPC		
	12	***SMDH300-12D***	★	✓		*365*	*450.8*		*37*			3	BXD04515IPC		

★ = Worldwide Warehouse Item

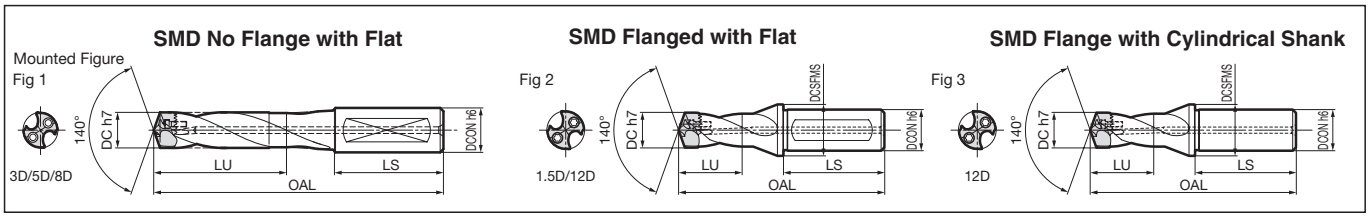
N·m Recommended Tightening Torque (N·m)

*The SMDHOOOS Holder Cat. No. has been changed to SMDHOOO-1.5DF. The specifications have not changed.

SMDH Holders Availability - *Metric*

MTL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Tempered Steel | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron
NAL: Aluminum Alloy | Non-Ferrous Materials | Copper Alloy
MEL: Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Heat-resistant Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MTL | Replaceable Head MEL | Replaceable Head MTL-C | Replaceable Head NAL | Coolant Hole | 3D | 5D | 8D | Indexable



Holder *ø32.0 to 42.5mm* Dimensions with MTL / MEL / MTL-C / NAL Tips Parts Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
														N·m	
30.8 < D ≤ 32.0	3	***SMDH320M***	★		✓	*106*	*200.7*	*60*	—	*32*	MTL	1	BXD04515IP	4.98 to 6.64	TRDR25IP
	5	***SMDH320L***	★		✓	*170*	*265.8*				MTL-C	1			
	8	***SMDH320D***	★		✓	*266*	*360.8*				NAL	1			
32.0 < D ≤ 33.5	3	***SMDH335M***	★		✓	*111*	*205.9*	*60*	—	*32*	MTL	1	BXD04515IP	4.98 to 6.64	TRDR25IP
	5	***SMDH335L***	★		✓	*178*	*274.1*				MTL-C	1			
	8	***SMDH335D***	★		✓	*279*	*376.1*					1			
33.5 < D ≤ 35.0	3	***SMDH350M***	★		✓	*116*	*221.2*	*70*	—	*40*	MTL	1	BX0515	7.2	HD040
	5	***SMDH350L***	★		✓	*186*	*296.4*				MTL-C	1			
	8	***SMDH350D***	★		✓	*291*	*401.4*					1			
35.0 < D ≤ 36.5	3	***SMDH365M***	★		✓	*121*	*226.4*	*70*	—	*40*	MTL	1	BX0515	7.2	HD040
	5	***SMDH365L***	★		✓	*194*	*301.6*				MTL-C	1			
	8	***SMDH365D***	★		✓	*303*	*411.6*					1			
36.5 < D ≤ 38.0	3	***SMDH380M***	★		✓	*125*	*231.7*	*70*	—	*40*	MTL	1	BX0515	7.2	HD040
	5	***SMDH380L***	★		✓	*201*	*311.9*				MTL-C	1			
	8	***SMDH380D***	★		✓	*315*	*426.9*					1			
38.0 < D ≤ 39.5	3	***SMDH395M***	★		✓	*130*	*237.0*	*70*	—	*40*	MTL	1	BX0515	7.2	HD040
	5	***SMDH395L***	★		✓	*209*	*322.2*				MTL-C	1			
	8	***SMDH395D***	★		✓	*328*	*437.2*					1			
39.5 < D ≤ 41.0	3	***SMDH410M***	★		✓	*135*	*252.2*	*70*	—	*40*	MTL	1	BX0515	7.2	HD040
	5	***SMDH410L***	★		✓	*217*	*332.5*				MTL-C	1			
	8	***SMDH410D***	★		✓	*340*	*457.5*					1			
41.0 < D ≤ 42.5	3	***SMDH425M***	★		✓	*140*	*257.5*	*70*	—	*40*	MTL	1	BX0515	7.2	HD040
	5	***SMDH425L***	★		✓	*225*	*342.7*				MTL-C	1			
	8	***SMDH425D***	★		✓	*352*	*467.7*					1			

★ = Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5DF. The specifications have not changed.

MFS Ideal for drilling and burr control on non-flat surfaces

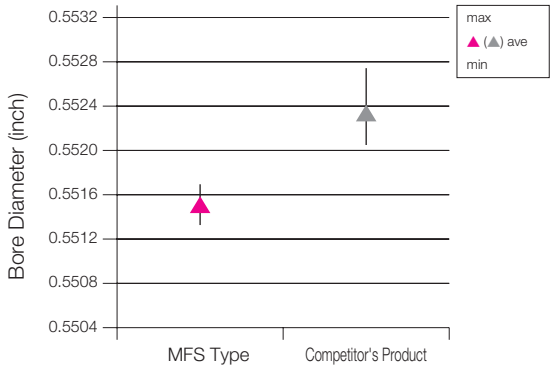
Suited to various types of drilling thanks to a point angle of 180°
Can be used for high-efficiency spot facing, drilling on non-horizontal surfaces such as inclined and cylindrical surfaces, and interrupted drilling. Also reduces burrs at the hole exit.

Improves machining stability
Achieves high rigidity by employing RS THINNING, which ensures thick web at the bottom.

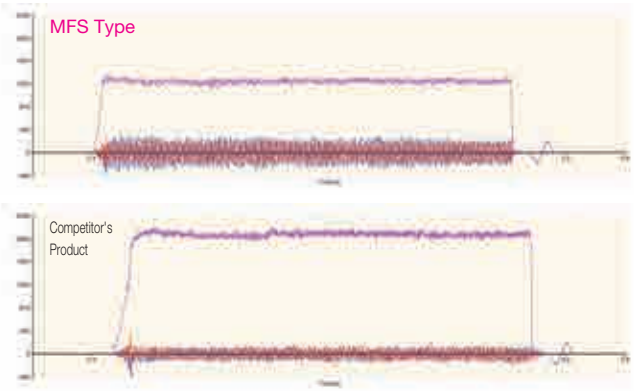
* See next page for true MFS Tip shape (slightly less than 180 degrees)

■ Performance

Comparison of Hole Diameter Accuracy

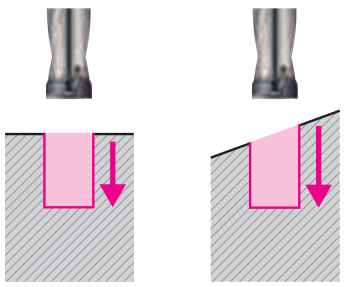
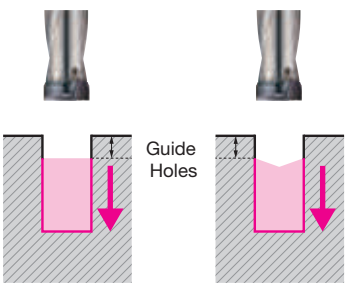
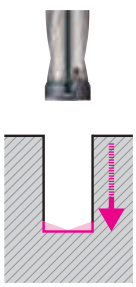


Comparison of Cutting Force



Tool	: SMDH 140S + SMDT 1400MFS
Part Material	: Carbon Steel
Cutting Conditions	: v_C=328 SFM, f =0.006 IPR, Hole depth 0.827", Wet

■ Precautions when Using MFS Heads

Application	No guide hole (final hole only)	With guide hole	Flat finishing of hole bottom
	 Flat surface / Non-flat surface	 Guide Holes	
1.5D holder	○	○ (guide hole not needed)	○
3D to 12D holders	×	×	○

■ Recommended Speeds & Feeds - 1.5XD

Speed: v (SFM) / Feed: f (IPR)

Drill Dia.		Soft Steel (up to 250HB)	General Steel (250 to 320HB)	Hardened Steel (45HRC)	Stainless Steel (up to 200HB)	Gray Cast Iron	Ductile Cast Iron	Aluminum Alloy
Drill Dia. ΦDc (Inch)	Speeds / Feeds	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max
~0.6299	V_C (SFM)	200-400	230-400	130-300	165-265	165-300	165-265	655-855
	f (IPR)	0.006-0.014	0.006-0.012	0.004-0.008	0.004-0.008	0.008-0.012	0.008-0.012	0.014-0.022
~0.7874	V_C (SFM)	260-400	230-400	130-300	200-300	200-330	165-300	655-855
	f (IPR)	0.006-0.014	0.006-0.014	0.006-0.010	0.006-0.010	0.008-0.014	0.008-0.014	0.014-0.024
~1.212	V_C (SFM)	260-400	230-400	130-300	200-300	200-330	165-300	655-855
	f (IPR)	0.008-0.014	0.006-0.014	0.006-0.010	0.006-0.010	0.008-0.016	0.010-0.014	0.014-0.024

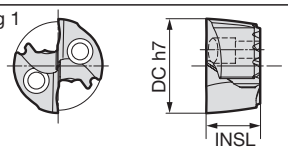
Note:
1. The recommended hole depth is 2 x drill diameter. The depth is measured from the highest point of the hole on drilling in inclined surfaces.
2. The recommended cutting conditions are those for drilling on flat horizontal surfaces.
3. Adjust the feed rate according to the inclination angle when drilling on an inclined surface.
4. Set the feed rate at 70% or lower when the inclination angle is 30° or less.
5. Set the feed rate at 50% or lower when the inclination angle is larger than 30°.
6. This product is a drilling tool. Do not use it for traversing or helical milling.

SMDT-MFS - 180° Flat Edge Tips

MFS | Carbon Steel Alloy Steel up to 0.35% | Carbon Steel Alloy Steel from 0.35% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Replaceable Head MFS | Coolant Hole | Indexable | 1.5D | 3D | 5D | 8D | 12D

Indexable Head Fig 1



Dimensions (inch/ *mm*)

Cutting Edge Indexable Head MFS Diameter ø0.4688" to 0.9252"

Drill Tip	Stock	øD mm	øD in.	INSL mm	INSL in.	Body
SMDT04688MFS-ACX70	●	15/32	0.4688	7.1	0.2795	**SMDH047**□
SMDT1200MFS-ACX70	●	*12.0*	0.4724			*SMDH120*□
SMDT04844MFS-ACX70	●	31/64	0.4844			
SMDT1250MFS-ACX70	●	*12.5*	0.4921	7.2	0.2835	**SMDH049**□
SMDT05000MFS-ACX70	●	1/2	0.5000			*SMDH125*□
SMDT1300MFS-ACX70	●	*13.0*	0.5118	7.5	0.2953	**SMDH051**□
SMDT05156MFS-ACX70	●	33/64	0.5156			*SMDH130*□
SMDT05312MFS-ACX70	●	17/32	0.5312			
SMDT1350MFS-ACX70	●	*13.5*	0.5315	7.9	0.3110	**SMDH055**□
SMDT05469MFS-ACX70	●	35/64	0.5469			*SMDH140*□
SMDT1400MFS-ACX70	●	*14.0*	0.5512			
SMDT05625MFS-ACX70	●	9/16	0.5625			
SMDT1450MFS-ACX70	●	*14.5*	0.5709			
SMDT05781MFS-ACX70	●	37/64	0.5781	8.3	0.3268	**SMDH059**□
SMDT1500MFS-ACX70	●	*15.0*	0.5906			*SMDH150*□
SMDT05938MFS-ACX70	●	19/32	0.5938			
SMDT06094MFS-ACX70	●	39/64	0.6094			
SMDT1550MFS-ACX70	●	*15.5*	0.6102			
SMDT06250MFS-ACX70	●	5/8	0.6250	8.8	0.3465	**SMDH063**□
SMDT1600MFS-ACX70	●	*16.0*	0.6300			*SMDH160*□
SMDT06406MFS-ACX70	●	41/64	0.6406			
SMDT1650MFS-ACX70	●	*16.5*	0.6496			
SMDT06563MFS-ACX70	●	21/32	0.6563	9.3	0.3661	**SMDH067**□
SMDT1700MFS-ACX70	●	*17.0*	0.6693			*SMDH170*□
SMDT06719MFS-ACX70	●	43/64	0.6719			
SMDT06875MFS-ACX70	●	11/16	0.6875			
SMDT1750MFS-ACX70	●	*17.5*	0.6890			
SMDT07031MFS-ACX70	●	45/64	0.7031	9.8	0.3858	**SMDH071**□
SMDT1800MFS-ACX70	●	*18.0*	0.7087			*SMDH180*□
SMDT07188MFS-ACX70	●	23/32	0.7188			
SMDT1850MFS-ACX70	●	*18.5*	0.7283			
SMDT07344MFS-ACX70	●	47/64	0.7344	10.2	0.4016	**SMDH075**□
SMDT1900MFS-ACX70	●	*19.0*	0.7480			*SMDH190*□
SMDT07500MFS-ACX70	●	3/4	0.7500			
SMDT07656MFS-ACX70	●	49/64	0.7656			
SMDT1950MFS-ACX70	●	*19.5*	0.7677			
SMDT07813MFS-ACX70	●	25/32	0.7813	10.7	0.4213	**SMDH079**□
SMDT2000MFS-ACX70	●	*20.0*	0.7874			*SMDH200*□
SMDT07969MFS-ACX70	●	51/64	0.7969			
SMDT2050MFS-ACX70	●	*20.5*	0.8071			
SMDT08125MFS-ACX70	●	13/16	0.8125	11.2	0.4409	**SMDH083**□
SMDT2100MFS-ACX70	●	*21.0*	0.8268			*SMDH210*□
SMDT08281MFS-ACX70	●	53/64	0.8281			
SMDT08438MFS-ACX70	●	27/32	0.8438			
SMDT2150MFS-ACX70	●	*21.5*	0.8465			
SMDT08594MFS-ACX70	●	55/64	0.8594	11.2	0.4409	**SMDH087**□
SMDT2200MFS-ACX70	●	*22.0*	0.8661			*SMDH220*□
SMDT08750MFS-ACX70	●	7/8	0.8750			
SMDT2250MFS-ACX70	●	*22.5*	0.8858			
SMDT08906MFS-ACX70	●	57/64	0.8906			
SMDT2300MFS-ACX70	●	*23.0*	0.9055	11.2	0.4409	**SMDH091**□
SMDT09062MFS-ACX70	●	29/32	0.9062			*SMDH230*□
SMDT09219MFS-ACX70	●	59/64	0.9219			
SMDT2350MFS-ACX70	●	*23.5*	0.9252			

Cutting Edge Indexable Head MFS Diameter ø0.9375" to 1.1875"

Drill Tip	Stock	øD mm	øD in.	INSL mm	INSL in.	Body
SMDT09375MFS-ACX70	●	15/16	0.9375	11.3	0.4449	**SMDH096**□
SMDT2400MFS-ACX70	●	*24.0*	0.9449			*SMDH240*□
SMDT09531MFS-ACX70	●	61/64	0.9531			
SMDT2450MFS-ACX70	●	*24.5*	0.9646			
SMDT09687MFS-ACX70	●	31/32	0.9688			
SMDT2500MFS-ACX70	●	*25.0*	0.9843	11.7	0.4606	**SMDH100**□
SMDT09844MFS-ACX70	●	63/64	0.9844			*SMDH250*□
SMDT10000MFS-ACX70	●	1	1.0000			
SMDT2550MFS-ACX70	●	*25.5*	1.0039			
SMDT10156MFS-ACX70	●	1-1/64	1.0156			
SMDT2600MFS-ACX70	●	*26.0*	1.0236	12.2	0.4803	**SMDH104**□
SMDT10312MFS-ACX70	●	1-1/32	1.0312			*SMDH260*□
SMDT2650MFS-ACX70	●	*26.5*	1.0433			
SMDT10469MFS-ACX70	●	1-3/64	1.0469			
SMDT10625MFS-ACX70	●	1-1/16	1.0625	12.7	0.5000	**SMDH107**□
SMDT2700MFS-ACX70	●	*27.0*	1.0630			*SMDH270*□
SMDT10781MFS-ACX70	●	1-5/64	1.0781			
SMDT2750MFS-ACX70	●	*27.5*	1.0827			
SMDT10937MFS-ACX70	●	1-3/32	1.0937			
SMDT2800MFS-ACX70	●	*28.0*	1.1024	13.2	0.5197	**SMDH112**□
SMDT11094MFS-ACX70	●	1-7/64	1.1094			*SMDH280*□
SMDT2850MFS-ACX70	●	*28.5*	1.1220			
SMDT11250MFS-ACX70	●	1-1/8	1.1250			
SMDT11406MFS-ACX70	●	1-9/64	1.1406	13.6	0.5345	**SMDH115**□
SMDT2900MFS-ACX70	●	*29.0*	1.1417			*SMDH290*□
SMDT11562MFS-ACX70	●	1-5/32	1.1562			
SMDT2950MFS-ACX70	●	*29.5*	1.1614			
SMDT11719MFS-ACX70	●	1-11/64	1.1719			
SMDT3000MFS-ACX70	●	*30.0*	1.1811	14.1	0.5551	**SMDH118**□
SMDT11875MFS-ACX70	●	1-3/16	1.1875			*SMDH300*□

● = USA Stock Item

Shape of Hole Base with MFS

The machined hole bottom is not completely flat.
Contact Sumitomo Hardmetal for more details.

SMDT-MFS - 180° Flat Edge - Inch Holders

MFS | Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MFS | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

Fig 1

SMD No Flange with Flat

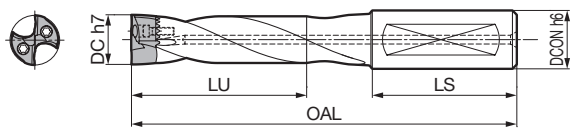
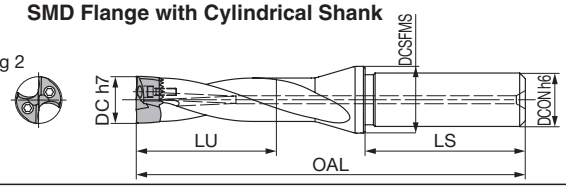


Fig 2

SMD Flange with Cylindrical Shank



Holder Diameter: ø0.4688" to 0.7283" Dimensions with MFS Tip

Parts

Dimensions (inch)

Dia. DC (inch)	Dia. DC (mm)	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Fig	Cap Screw	N·m	Wrench
0.4688 - 0.4917	*12.00 -12.49*	1.5	**SMDH047-1.5D**	●	✓		0.8268	3.4836	1.8740	0.7870	0.6250	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH047M**	●		✓	1.5748	4.1450		—		1			
		3	**SMDH047-3D**	●	✓		1.5748	4.1450		0.7870		2			
		5	**SMDH047L**	●		✓	2.5591	5.1175		—		1			
		5	**SMDH047-5D**	●	✓		2.5591	5.1175		0.7870		2			
		8	**SMDH047-8D**	●	✓		3.7795	6.3931		0.7870		2			
0.4921 - 0.5114	*12.50 - 12.99*	1.5	**SMDH049-1.5D**	●	✓		0.8661	3.4951	1.8740	0.7870	0.6250	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH049M**	●		✓	1.6142	4.3455		—		1			
		3	**SMDH049-3D**	●	✓		1.6142	4.3455		0.7870		2			
		5	**SMDH049L**	●		✓	2.6378	5.5029		—		1			
		5	**SMDH049-5D**	●	✓		2.6378	5.5029		0.7870		2			
		8	**SMDH049-8D**	●	✓		3.9370	6.6092		0.7870		2			
0.5118 - 0.5311	*13.00 - 13.49*	1.5	**SMDH051-1.5D**	●	✓		0.9055	3.5420	1.8740	0.7870	0.6250	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH051M**	●		✓	1.6929	4.3490		—		1			
		3	**SMDH051-3D**	●	✓		1.6929	4.3490		0.7870		2			
		5	**SMDH051L**	●		✓	2.7559	5.5065		—		1			
		5	**SMDH051-5D**	●	✓		2.7559	5.5065		0.7870		2			
		8	**SMDH051-8D**	●	✓		4.0945	6.9357		0.7870		2			
0.5315 - 0.5709	*13.50 - 14.50*	1.5	**SMDH055-1.5D**	●	✓		1.0236	3.6987	2.0000	0.9840	0.7500	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH055M**	●		✓	1.8898	4.6476		—		1			
		3	**SMDH055-3D**	●	✓		1.8898	4.6476		0.9840		2			
		5	**SMDH055L**	●		✓	3.0315	5.8168		—		1			
		5	**SMDH055-5D**	●	✓		3.0315	5.8168		0.9840		2			
		8	**SMDH055D**	●		✓	4.7638	7.5570		—		1			
		8	**SMDH055-8D**	●	✓		4.7638	7.5570		0.9840		2			
		12	**SMDH055-12D**	●	✓		6.6142	9.4861		0.9840		2			
0.5713 - 0.6102	*14.51 - 15.50*	1.5	**SMDH059-1.5D**	●	✓		1.1024	3.8319	2.0000	0.9840	0.7500	2	BXD02208IP	0.75 to 1.00	TRDR08IP
		3	**SMDH059M**	●		✓	2.0079	4.9539		—		1			
		3	**SMDH059-3D**	●	✓		2.0079	4.9539		0.9840		2			
		5	**SMDH059L**	●		✓	3.2283	6.1429		—		1			
		5	**SMDH059-5D**	●	✓		3.2283	6.1429		0.9840		2			
		8	**SMDH059D**	●		✓	5.0787	7.9067		—		1			
		8	**SMDH059-8D**	●	✓		5.0787	7.9067		0.9840		2			
		12	**SMDH059-12D**	●	✓		7.0866	9.9657		0.9840		2			
0.6106 - 0.6496	*15.51 - 16.50*	1.5	**SMDH063-1.5D**	●	✓		1.1417	3.9335	2.0000	0.9840	0.7500	2	BXD02509IP	0.93 to 1.24	TRDR10IP
		3	**SMDH063M**	●		✓	2.1260	5.1619		—		1			
		3	**SMDH063-3D**	●	✓		2.1260	5.1619		0.9840		2			
		5	**SMDH063L**	●		✓	3.4252	6.5359		—		1			
		5	**SMDH063-5D**	●	✓		3.4252	6.5359		0.9840		2			
		8	**SMDH063D**	●		✓	5.3937	8.3115		—		1			
		8	**SMDH063-8D**	●	✓		5.3937	8.3115		0.9840		2			
		12	**SMDH063-12D**	●	✓		7.5591	10.4532		0.9840		2			
0.6500 - 0.6890	*16.51 - 17.50*	1.5	**SMDH067-1.5D**	●	✓		1.2205	3.9958	2.0000	0.9840	0.7500	2	BXD02509IP	0.93 to 1.24	TRDR10IP
		3	**SMDH067M**	●		✓	2.2441	5.3541		—		1			
		3	**SMDH067-3D**	●	✓		2.2441	5.3541		0.9840		2			
		5	**SMDH067L**	●		✓	3.6260	6.7320		—		1			
		5	**SMDH067-5D**	●	✓		3.6260	6.7320		0.9840		2			
		8	**SMDH067D**	●		✓	5.7087	8.7084		—		1			
		8	**SMDH067-8D**	●	✓		5.7087	8.7084		0.9840		2			
		12	**SMDH067-12D**	●	✓		8.0315	10.9446		0.9840		2			
0.6894 - 0.7283	*17.51 - 18.50*	1.5	**SMDH071-1.5D**	●	✓		1.2598	4.0935	2.0000	0.9840	0.7500	2	BXD02509IP	0.93 to 1.24	TRDR10IP
		3	**SMDH071M**	●		✓	2.3622	5.5542		—		1			
		3	**SMDH071-3D**	●	✓		2.3622	5.5542		0.9840		2			
		5	**SMDH071L**	●		✓	3.8189	6.9282		—		1			
		5	**SMDH071-5D**	●	✓		3.8189	6.9282		0.9840		2			
		8	**SMDH071D**	●		✓	6.0236	8.9046		—		1			
		8	**SMDH071-8D**	●	✓		6.0236	8.9046		0.9840		2			
		12	**SMDH071-12D**	●	✓		8.5039	11.4242		0.9840		2			

● = USA Stock Item

N·m Recommended Tightening Torque (N·m)

*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5DF. The specifications have not changed.

SMDT-MFS - 180° Flat Edge - Inch Holders

MFS | Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MFS | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

Fig 1 **SMD No Flange with Flat**

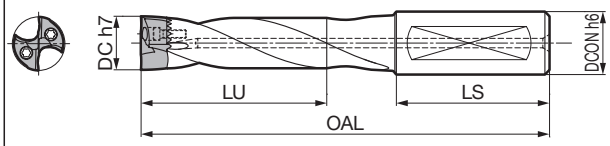
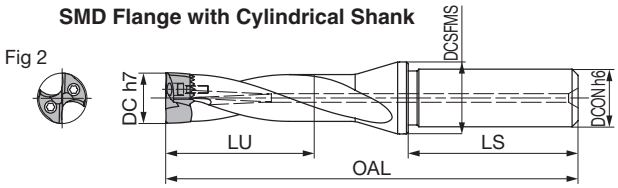


Fig 2 **SMD Flange with Cylindrical Shank**



Holder Diameter: ø0.7287" to 1.0157" Dimensions with MFS Tip

Parts

Dimensions (inch)

Dia. DC (inch)	Dia. DC (mm)	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Fig	Cap Screw		Wrench
														N·m	
0.7287 - 0.7677	18.51 - 19.50	1.5	**SMDH075-1.5D**	●	✓		1.3386	4.3881	2.2520	1.1810	1.0000	2	BXD03011IP	1.83 to 2.44	TRDR15IP
		3	**SMDH075M**	●		✓	2.4803	6.1519		—		1			
		3	**SMDH075-3D**	●	✓		2.4803	6.1519		1.1810		2			
		5	**SMDH075L**	●		✓	4.0157	7.5416		—		1			
		5	**SMDH075-5D**	●	✓		4.0157	7.5416		1.1810		2			
		8	**SMDH075D**	●		✓	6.3386	9.8881		—		1			
		8	**SMDH075-8D**	●	✓		6.3386	9.8881		1.1810		2			
		12	**SMDH075-12D**	●	✓		8.9764	12.1598		1.1810		2			
0.7681 - 0.8071	19.51 - 20.50	1.5	**SMDH079-1.5D**	●	✓		1.3780	4.4898	2.2520	1.1810	1.0000	2	BXD03011IP	1.83 to 2.44	TRDR15IP
		3	**SMDH079M**	●		✓	2.5984	6.1512		—		1			
		3	**SMDH079-3D**	●	✓		2.5984	6.1512		1.1810		2			
		5	**SMDH079L**	●		✓	4.2126	7.7299		—		1			
		5	**SMDH079-5D**	●	✓		4.2126	7.7299		1.1810		2			
		8	**SMDH079D**	●		✓	6.6535	10.2850		—		1			
		8	**SMDH079-8D**	●	✓		6.6535	10.2850		1.1810		2			
		12	**SMDH079-12D**	●	✓		9.4488	12.6433		1.1810		2			
0.8075 - 0.8465	20.51 - 21.50	1.5	**SMDH083-1.5D**	●	✓		1.4567	4.5481	2.2520	1.1810	1.0000	2	BXD03011IP	1.83 to 2.44	TRDR15IP
		3	**SMDH083M**	●		✓	2.7165	6.1505		—		1			
		3	**SMDH083-3D**	●	✓		2.7165	6.1505		1.1810		2			
		5	**SMDH083L**	●		✓	4.4094	7.7292		—		1			
		5	**SMDH083-5D**	●	✓		4.4094	7.7292		1.1810		2			
		8	**SMDH083D**	●		✓	6.9685	10.4812		—		1			
		8	**SMDH083-8D**	●	✓		6.9685	10.4812		1.1810		2			
		12	**SMDH083-12D**	●	✓		9.9213	13.1268		1.1810		2			
0.8469 - 0.8976	21.51 - 22.80	1.5	**SMDH087-1.5D**	●	✓		1.5354	4.6104	2.2520	1.1810	1.0000	2	BXD03512IP	2.79 to 3.72	TRDR15IP
		3	**SMDH087M**	●		✓	2.8740	6.3545		—		1			
		3	**SMDH087-3D**	●	✓		2.8740	6.3545		1.1810		2			
		5	**SMDH087L**	●		✓	4.6850	7.9332		—		1			
		5	**SMDH087-5D**	●	✓		4.6850	7.9332		1.1810		2			
		8	**SMDH087D**	●		✓	7.3622	10.6773		—		1			
		8	**SMDH087-8D**	●	✓		7.3622	10.6773		1.1810		2			
		12	**SMDH087-12D**	●	✓		10.3937	13.6340		1.1810		2			
0.8980 - 0.9370	22.81 -23.80	1.5	**SMDH091-1.5D**	●	✓		1.5748	4.6490	2.2520	1.1810	1.0000	2	BXD03512IP	2.79 to 3.72	TRDR15IP
		3	**SMDH091M**	●		✓	2.9921	6.3538		—		1			
		3	**SMDH091-3D**	●	✓		2.9921	6.3538		1.1810		2			
		5	**SMDH091L**	●		✓	4.8819	8.2750		—		1			
		5	**SMDH091-5D**	●	✓		4.8819	8.2750		1.1810		2			
		8	**SMDH091D**	●		✓	7.6772	11.0349		—		1			
		8	**SMDH091-8D**	●	✓		7.6772	11.0349		1.1810		2			
		12	**SMDH091-12D**	●	✓		10.8661	14.1766		1.1810		2			
0.9374 - 0.9764	23.81 - 24.80	1.5	**SMDH096-1.5D**	●	✓		1.6535	4.8924	2.2520	1.4570	1.0000	2	BXD03512IP	2.79 to 3.72	TRDR15IP
		3	**SMDH096M**	●		✓	3.1102	6.7074		—		1			
		3	**SMDH096-3D**	●	✓		3.1102	6.7074		1.4570		2			
		5	**SMDH096L**	●		✓	5.0787	8.7153		—		1			
		5	**SMDH096-5D**	●	✓		5.0787	8.7153		1.4570		2			
		8	**SMDH096D**	●		✓	5.0787	8.7153		—		1			
		8	**SMDH096-8D**	●	✓		5.0787	8.7153		1.4570		2			
		12	**SMDH096-12D**	●	✓		11.3386	14.6483		1.4570		2			
0.9768 - 1.0157	24.81 - 25.80	1.5	**SMDH100-1.5D**	●	✓		1.6929	4.9114	2.3740	1.4570	1.2500	2	BXD04014IP	4.14 to 5.12	TRDR20IP
		3	**SMDH100M**	●		✓	3.2283	6.8366		—		1			
			SMDH100-3D	●	✓		3.2283	6.8366		1.4570		2			
		5	**SMDH100L**	●		✓	5.2756	8.8760		—		1			
			SMDH100-5D	●	✓		5.2756	8.8760		1.4570		2			
		8	**SMDH100D**	●		✓	8.3071	11.8287		—		1			
			SMDH100-8D	●	✓		8.3071	11.8287		1.4570		2			
		12	**SMDH100-12D**	●	✓		11.8110	15.2500		1.4570		2			

● = USA Stock Item

N·m Recommended Tightening Torque (N·m)

*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5DF. The specifications have not changed.

SMDT-MFS - 180° Flat Edge Tips - Inch Holders

MFS | Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Aurora DLC Coat | Replaceable Head MFS | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

Fig 1 **SMD No Flange with Flat**

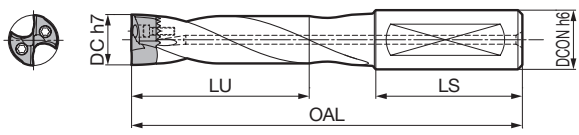
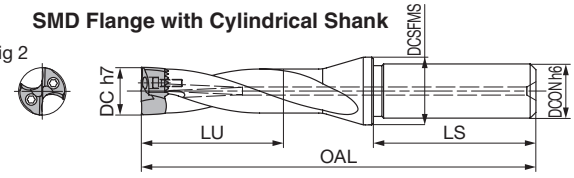


Fig 2 **SMD Flange with Cylindrical Shank**



Holder Diameter: ø1.0161" to 1.2125" Dimensions with MFS Tip

Parts

Dimensions (inch)

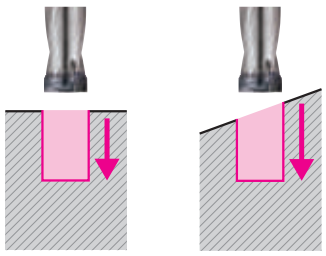
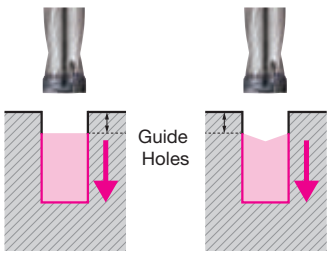
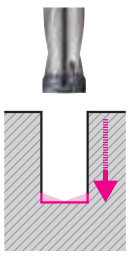
Dia. DC (inch)	Dia. DC (mm)	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Fig	Cap Screw		Wrench
														N·m	
1.0161 - 1.0551	*25.81 - 26.80*	1.5	**SMDH104-1.5D**	●	✓		1.7717	5.0131	2.3740	1.4570	1.2500	2	BXD04014IP	4.14 to 5.12	TRDR20IP
		3	**SMDH104M**	●		✓	3.3465	6.9107		—		1			
		3	**SMDH104-3D**	●	✓		3.3465	6.9107		1.4570		2			
		5	**SMDH104L**	●		✓	5.4724	9.0760		—		1			
		5	**SMDH104-5D**	●	✓		5.4724	9.0760		1.4570		2			
		8	**SMDH104D**	●		✓	8.6220	12.2257		—		1			
		8	**SMDH104-8D**	●	✓		8.6220	12.2257		1.4570		2			
1.0555 - 1.0945	*26.81 - 27.80*	1.5	**SMDH107-1.5D**	●	✓		1.8110	5.0320	2.3740	1.4570	1.2500	2	BXD04014IP	4.14 to 5.12	TRDR20IP
		3	**SMDH107M**	●		✓	3.4646	6.9100		—		1			
		3	**SMDH107-3D**	●	✓		3.4646	6.9100		1.4570		2			
		5	**SMDH107L**	●		✓	5.6693	9.2761		—		1			
		5	**SMDH107-5D**	●	✓		5.6693	9.2761		1.4570		2			
		8	**SMDH107D**	●		✓	8.9370	12.6186		—		1			
		8	**SMDH107-8D**	●	✓		8.9370	12.6186		1.4570		2			
1.0949 - 1.1339	*27.81 - 28.80*	1.5	**SMDH112-1.5D**	●	✓		1.8898	5.0943	2.3740	1.4570	1.2500	2	BXD04515IP	4.98 to 6.64	TRDR25IP
		3	**SMDH112M**	●		✓	3.5827	7.1101		—		1			
		3	**SMDH112-3D**	●	✓		3.5827	7.1101		1.4570		2			
		5	**SMDH112L**	●		✓	5.8661	9.4723		—		1			
		5	**SMDH112-5D**	●	✓		5.8661	9.4723		1.4570		2			
		8	**SMDH112D**	●		✓	9.2520	12.8187		—		1			
		8	**SMDH112-8D**	●	✓		9.2520	12.8187		1.4570		2			
1.1343 - 1.1732	*28.81 - 29.80*	1.5	**SMDH115-1.5D**	●	✓		1.9291	5.1527	2.3740	1.4570	1.2500	2	BXD04515IP	4.98 to 6.64	TRDR25IP
		3	**SMDH115M**	●		✓	3.7008	7.3101		—		1			
		3	**SMDH115-3D**	●	✓		3.7008	7.3101		1.4570		2			
		5	**SMDH115L**	●		✓	6.0630	9.6723		—		1			
		5	**SMDH115-5D**	●	✓		6.0630	9.6723		1.4570		2			
		8	**SMDH115D**	●		✓	9.5669	13.2117		—		1			
		8	**SMDH115-8D**	●	✓		9.5669	13.2117		1.4570		2			
1.1736 - 1.2125	*29.80 - 30.80*	1.5	**SMDH118-1.5D**	●	✓		2.0079	5.2504	2.3740	1.4570	1.2500	2	BXD04515IP	4.98 to 6.64	TRDR25IP
		3	**SMDH118M**	●		✓	3.8189	7.3094		—		1			
		3	**SMDH118-3D**	●	✓		3.8189	7.3094		1.4570		2			
		5	**SMDH118L**	●		✓	6.2598	10.0614		—		1			
		5	**SMDH118-5D**	●	✓		6.2598	10.0614		1.4570		2			
		8	**SMDH118D**	●		✓	9.8819	13.6047		—		1			
		8	**SMDH118-8D**	●	✓		9.8819	13.6047		1.4570		2			

● = USA Stock Item

N·m Recommended Tightening Torque (N·m)

*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5DF. The specifications have not changed.

Precautions when Using MFS Type Heads

Application	No guide hole (final hole only)	With guide hole	Flat finishing of hole bottom
	 Flat surface / Non-flat surface	 Guide Holes	
1.5D holder	○	○ (guide hole not needed)	○
3D to 12D holders	×	×	○

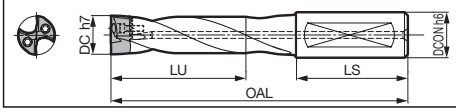
SMDT-MFS - 80° Flat Edge Tips - *Metric Holders*

MFS | Carbon Steel/Alloy Steel up to 0.25% | Carbon Steel/Alloy Steel from 0.25% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Replaceable Head MFS | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

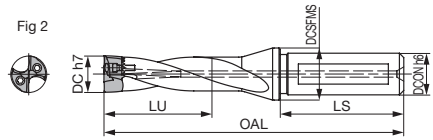
SMD No Flange with Flat

Fig 1



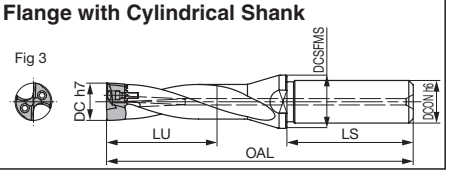
SMD Flanged with Flat

Fig 2



SMD Flange with Cylindrical Shank

Fig 3



Holder *ø12.0 to 15.0mm* Dimensions with MFS Tip — Parts — Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Fig	Cap Screw	N·m	Wrench
12.0 ≤ D < 12.5	1.5	***SMDH120-1.5D***	★	✓		*21*	*88.5*	*48*	*20*	*16*	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	***SMDH120-1.5DF***	★	✓	✓	*21*	*88.5*		*20*		2	BXD02208IPC		
	3	***SMDH120M***	★		✓	*40*	*105.2*		—		1	BXD02208IP		
	3	***SMDH120-3D***	★	✓		*40*	*105.2*		*20*		3	BXD02208IPC		
	3	***SMDH120-3DF***	★	✓	✓	*40*	*105.2*		*20*		2	BXD02208IPC		
	5	***SMDH120L***	★		✓	*65*	*130.2*		—		1	BXD02208IP		
	5	***SMDH120-5D***	★	✓		*65*	*130.2*		*20*		3	BXD02208IPC		
	5	***SMDH120-5DF***	★	✓	✓	*65*	*130.2*		*20*		2	BXD02208IPC		
	8	***SMDH120-8D***	★	✓		*96*	*162.4*		*20*		3	BXD02208IPC		
	8	***SMDH120-8DF***	★	✓	✓	*96*	*162.4*		*20*		2	BXD02208IPC		
	12	***SMDH120-12D***	★	✓		*144*	*211.3*		*20*		3	BXD02208IPC		
12.5 ≤ D < 13.0	1.5	***SMDH125-1.5D***	★	✓		*22*	*88.8*	*48*	*20*	*16*	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	***SMDH125-1.5DF***	★	✓	✓	*22*	*88.8*		*20*		2	BXD02208IPC		
	3	***SMDH125M***	★		✓	*41*	*105.1*		—		1	BXD02208IP		
	3	***SMDH125-3D***	★	✓		*41*	*105.1*		*20*		3	BXD02208IPC		
	3	***SMDH125-3DF***	★	✓	✓	*41*	*105.1*		*20*		2	BXD02208IPC		
	5	***SMDH125L***	★		✓	*67*	*130.1*		—		1	BXD02208IP		
	5	***SMDH125-5D***	★	✓		*67*	*130.1*		*20*		3	BXD02208IPC		
	5	***SMDH125-5DF***	★	✓	✓	*67*	*130.1*		*20*		2	BXD02208IPC		
	8	***SMDH125-8D***	★	✓		*100*	*167.9*		*20*		3	BXD02208IPC		
	8	***SMDH125-8DF***	★	✓	✓	*100*	*167.9*		*20*		2	BXD02208IPC		
	12	***SMDH125-12D***	★	✓		*150*	*217.3*		*20*		3	BXD02208IPC		
13.0 ≤ D < 13.5	1.5	***SMDH130-1.5D***	★	✓		*23*	*90.0*	*48*	*20*	*16*	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	***SMDH130-1.5DF***	★	✓	✓	*23*	*90.0*		*20*		2	BXD02208IPC		
	3	***SMDH130M***	★		✓	*43*	*110.2*		—		1	BXD02208IP		
	3	***SMDH130-3D***	★	✓		*43*	*110.2*		*20*		3	BXD02208IPC		
	3	***SMDH130-3DF***	★	✓	✓	*43*	*110.2*		*20*		2	BXD02208IPC		
	5	***SMDH130L***	★		✓	*70*	*140.2*		—		1	BXD02208IP		
	5	***SMDH130-5D***	★	✓		*70*	*140.2*		*20*		3	BXD02208IPC		
	5	***SMDH130-5DF***	★	✓	✓	*70*	*140.2*		*20*		2	BXD02208IPC		
	8	***SMDH130-8D***	★	✓		*104*	*176.2*		*20*		3	BXD02208IPC		
	8	***SMDH130-8DF***	★	✓	✓	*104*	*176.2*		*20*		2	BXD02208IPC		
	12	***SMDH130-12D***	★	✓		*156*	*223.5*		*20*		3	BXD02208IPC		
13.5 ≤ D ≤ 14.5	1.5	***SMDH140-1.5D***	★	✓		*26*	*93.9*	*48*	*20*	*16*	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	***SMDH140-1.5DF***	★	✓	✓	*26*	*93.9*		*20*		2	BXD02208IPC		
	3	***SMDH140M***	★		✓	*48*	*116.6*		—		1	BXD02208IP		
	3	***SMDH140-3D***	★	✓		*48*	*116.6*		*20*		3	BXD02208IPC		
	3	***SMDH140-3DF***	★	✓	✓	*48*	*116.6*		*20*		2	BXD02208IPC		
	5	***SMDH140L***	★		✓	*77*	*146.6*		—		1	BXD02208IP		
	5	***SMDH140-5D***	★	✓		*77*	*146.6*		*20*		3	BXD02208IPC		
	5	***SMDH140-5DF***	★	✓	✓	*77*	*146.6*		*20*		2	BXD02208IPC		
	8	***SMDH140D***	★		✓	*121*	*191.6*		—		1	BXD02208IP		
	8	***SMDH140-8D***	★	✓		*121*	*191.6*		*20*		3	BXD02208IPC		
	8	***SMDH140-8DF***	★	✓	✓	*121*	*191.6*		*20*		2	BXD02208IPC		
	12	***SMDH140-12D***	★	✓		*168*	*236.1*		*20*		3	BXD02208IPC		
14.5 < D ≤ 15.5	1.5	***SMDH150-1.5D***	★	✓		*28*	*97.3*	*50*	*25*	*20*	3	BXD02208IPC	0.75 to 1.00	TRDR08IP
	1.5	***SMDH150-1.5DF***	★	✓	✓	*28*	*97.3*		*25*		2	BXD02208IPC		
	3	***SMDH150M***	★		✓	*51*	*126.6*		—		1	BXD02208IP		
	3	***SMDH150-3D***	★	✓		*51*	*126.6*		*25*		3	BXD02208IPC		
	3	***SMDH150-3DF***	★	✓	✓	*51*	*126.6*		*25*		2	BXD02208IPC		
	5	***SMDH150L***	★		✓	*82*	*156.6*		—		1	BXD02208IP		
	5	***SMDH150-5D***	★	✓		*82*	*156.6*		*25*		3	BXD02208IPC		
	5	***SMDH150-5DF***	★	✓	✓	*82*	*156.6*		*25*		2	BXD02208IPC		
	8	***SMDH150D***	★		✓	*129*	*201.6*		—		1	BXD02208IP		
	8	***SMDH150-8D***	★	✓		*129*	*201.6*		*25*		3	BXD02208IPC		
	8	***SMDH150-8DF***	★	✓	✓	*129*	*201.6*		*25*		2	BXD02208IPC		
	12	***SMDH150-12D***	★	✓		*180*	*250.4*		*25*		3	BXD02208IPC		

★ = Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

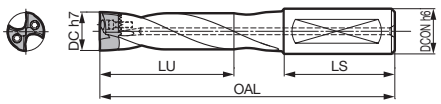
*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5DF. The specifications have not changed.

SMDT-MFS - 180° Flat Edge Tips - *Metric Holders*

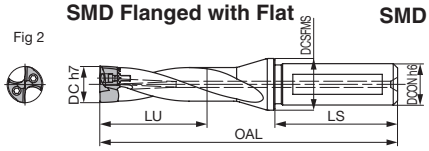
MFS | Carbon Steel Alloy Steel up to 0.25% | Carbon Steel Alloy Steel from 0.25% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Replaceable Head MFS | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

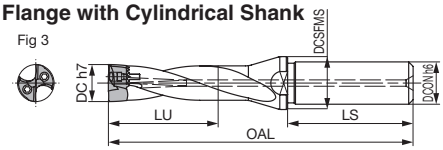
SMD No Flange with Flat — Fig 1



SMD Flanged with Flat — Fig 2



SMD Flange with Cylindrical Shank — Fig 3



Holder *ø16.0 to 20.0mm* Dimensions with MFS Tip

Parts Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Fig	Cap Screw	N·m	Wrench
15.5 < D ≤ 16.5	1.5	***SMDH160-1.5D***	★	✓		*29*	*99.9*	*50*	*25*	*20*	3	BXD02509IPC	0.93 to 1.24	TRDR10IP
	1.5	***SMDH160-1.5DF***	★	✓	✓	*29*	*99.9*		*25*		2	BXD02509IPC		
	3	***SMDH160M***	★		✓	*54*	*131.6*		—		1	BXD02509IP		
	3	***SMDH160-3D***	★	✓		*54*	*131.6*		*25*		3	BXD02509IPC		
	3	***SMDH160-3DF***	★	✓	✓	*54*	*131.6*		*25*		2	BXD02509IPC		
	5	***SMDH160L***	★		✓	*87*	*166.6*		—		1	BXD02509IP		
	5	***SMDH160-5D***	★	✓		*87*	*166.6*		*25*		3	BXD02509IPC		
	5	***SMDH160-5DF***	★	✓	✓	*87*	*166.6*		*25*		2	BXD02509IPC		
	8	***SMDH160D***	★		✓	*137*	*211.6*		—		1	BXD02509IP		
	8	***SMDH160-8D***	★	✓		*137*	*211.6*		*25*		3	BXD02509IPC		
	8	***SMDH160-8DF***	★	✓	✓	*137*	*211.6*		*25*		2	BXD02509IPC		
	12	***SMDH160-12D***	★	✓		*192*	*262.7*		*25*		3	BXD02509IPC		
16.5 < D ≤ 17.5	1.5	***SMDH170-1.5D***	★	✓		*31*	*101.4*	*50*	*25*	*20*	3	BXD02509IPC	0.93 to 1.24	TRDR10IP
	1.5	***SMDH170-1.5DF***	★	✓	✓	*31*	*101.4*		*25*		2	BXD02509IPC		
	3	***SMDH170M***	★		✓	*57*	*136.6*		—		1	BXD02509IP		
	3	***SMDH170-3D***	★	✓		*57*	*136.6*		*25*		3	BXD02509IPC		
	3	***SMDH170-3DF***	★	✓	✓	*57*	*136.6*		*25*		2	BXD02509IPC		
	5	***SMDH170L***	★		✓	*92*	*171.6*		—		1	BXD02509IP		
	5	***SMDH170-5D***	★	✓		*92*	*171.6*		*25*		3	BXD02509IPC		
	5	***SMDH170-5DF***	★	✓	✓	*92*	*171.6*		*25*		2	BXD02509IPC		
	8	***SMDH170D***	★		✓	*145*	*221.6*		—		1	BXD02509IPC		
	8	***SMDH170-8D***	★	✓		*145*	*221.6*		*25*		3	BXD02509IP		
	8	***SMDH170-8DF***	★	✓	✓	*145*	*221.6*		*25*		2	BXD02509IPC		
	12	***SMDH170-12D***	★	✓		*204*	*275.1*		*25*		3	BXD02509IPC		
17.5 < D ≤ 18.5	1.5	***SMDH180-1.5D***	★	✓		*32*	*104.0*	*50*	*25*	*20*	3	BXD02509IPC	0.93 to 1.24	TRDR10IP
	1.5	***SMDH180-1.5DF***	★	✓	✓	*32*	*104.0*		*25*		2	BXD02509IPC		
	3	***SMDH180M***	★		✓	*60*	*141.7*		—		1	BXD02509IP		
	3	***SMDH180-3D***	★	✓		*60*	*141.7*		*25*		3	BXD02509IPC		
	3	***SMDH180-3DF***	★	✓	✓	*60*	*141.7*		*25*		2	BXD02509IPC		
	5	***SMDH180L***	★		✓	*97*	*176.7*		—		1	BXD02509IP		
	5	***SMDH180-5D***	★	✓		*97*	*176.7*		*25*		3	BXD02509IPC		
	5	***SMDH180-5DF***	★	✓	✓	*97*	*176.7*		*25*		2	BXD02509IPC		
	8	***SMDH180D***	★		✓	*153*	*226.7*		—		1	BXD02509IP		
	8	***SMDH180-8D***	★	✓		*153*	*226.7*		*25*		3	BXD02509IPC		
	8	***SMDH180-8DF***	★	✓	✓	*153*	*226.7*		*25*		2	BXD02509IPC		
	12	***SMDH180-12D***	★	✓		*216*	*287.4*		*25*		3	BXD02509IPC		
18.5 < D ≤ 19.5	1.5	***SMDH190-1.5D***	★	✓		*34*	*111.4*	*56*	*30*	*25*	3	BXD03011IPC	1.83 to 2.44	TRDR15IP
	1.5	***SMDH190-1.5DF***	★	✓	✓	*34*	*111.4*		*30*		2	BXD03011IPC		
	3	***SMDH190M***	★		✓	*63*	*156.6*		—		1	BXD03011IP		
	3	***SMDH190-3D***	★	✓		*63*	*156.6*		*30*		3	BXD03011IPC		
	3	***SMDH190-3DF***	★	✓	✓	*63*	*156.6*		*30*		2	BXD03011IPC		
	5	***SMDH190L***	★		✓	*102*	*191.6*		—		1	BXD03011IP		
	5	***SMDH190-5D***	★	✓		*102*	*191.6*		*30*		3	BXD03011IPC		
	5	***SMDH190-5DF***	★	✓	✓	*102*	*191.6*		*30*		2	BXD03011IPC		
	8	***SMDH190D***	★		✓	*102*	*191.6*		—		1	BXD03011IP		
	8	***SMDH190-8D***	★	✓		*161*	*251.6*		*30*		3	BXD03011IPC		
	8	***SMDH190-8DF***	★	✓	✓	*161*	*251.6*		*30*		2	BXD03011IPC		
	12	***SMDH190-12D***	★	✓		*228*	*305.7*		*30*		3	BXD03011IPC		
19.5 < D ≤ 20.5	1.5	***SMDH200-1.5D***	★	✓		*35*	*114.0*	*56*	*30*	*25*	3	BXD03011IPC	1.83 to 2.44	TRDR15IP
	1.5	***SMDH200-1.5DF***	★	✓	✓	*35*	*114.0*		*30*		2	BXD03011IPC		
	3	***SMDH200M***	★		✓	*66*	*156.7*		—		1	BXD03011IP		
	3	***SMDH200-3D***	★	✓		*66*	*156.7*		*30*		3	BXD03011IPC		
	3	***SMDH200-3DF***	★	✓	✓	*66*	*156.7*		*30*		2	BXD03011IPC		
	5	***SMDH200L***	★		✓	*107*	*196.7*		—		1	BXD03011IP		
	5	***SMDH200-5D***	★	✓		*107*	*196.7*		*30*		3	BXD03011IPC		
	5	***SMDH200-5DF***	★	✓	✓	*107*	*196.7*		*30*		2	BXD03011IPC		
	8	***SMDH200D***	★		✓	*169*	*261.7*		—		1	BXD03011IP		
	8	***SMDH200-8D***	★	✓		*169*	*261.7*		*30*		3	BXD03011IPC		
	8	***SMDH200-8DF***	★	✓	✓	*169*	*261.7*		*30*		2	BXD03011IPC		
	12	***SMDH200-12D***	★	✓		*240*	*318.0*		*30*		3	BXD03011IPC		

★ = Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

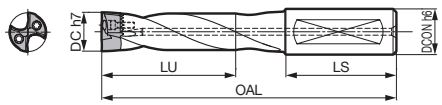
*The SMDHOOOS Holder Cat. No. has been changed to SMDHOOO-1.5DF. The specifications have not changed.

SMDT-MFS - 180° Flat Edge Tips - *Metric Holders*

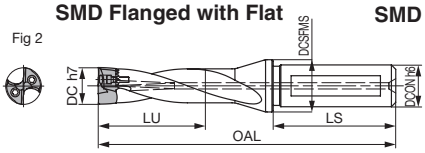
MFS | Carbon Steel Alloy Steel up to 0.28% | Carbon Steel Alloy Steel from 0.29% | Hardened Steel up to 42HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Replaceable Head MFS | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

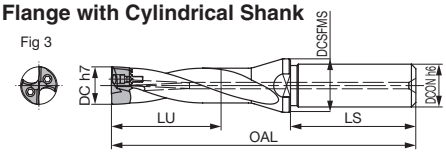
SMD No Flange with Flat — Fig 1



SMD Flanged with Flat — Fig 2



SMD Flange with Cylindrical Shank — Fig 3



Holder *ø21.0 to 25.0mm* — Dimensions with MFS Tip — Parts — Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Fig	Cap Screw	N·m	Wrench
20.5 < D ≤ 21.5	1.5	***SMDH210-1.5D***	★	✓		*37*	*115.5*	*56*	*30*	*25*	3	BXD03011IPC	1.83 to 2.44	TRDR15IP
	1.5	***SMDH210-1.5DF***	★	✓	✓	*37*	*115.5*		*30*		2	BXD03011IPC		
	3	***SMDH210M***	★		✓	*69*	*156.7*		—		1	BXD03011IP		
	3	***SMDH210-3D***	★	✓		*69*	*156.7*		*30*		3	BXD03011IPC		
	3	***SMDH210-3DF***	★	✓	✓	*69*	*156.7*		*30*		2	BXD03011IPC		
	5	***SMDH210L***	★		✓	*112*	*196.7*		—		1	BXD03011IP		
	5	***SMDH210-5D***	★	✓		*112*	*196.7*		*30*		3	BXD03011IPC		
	5	***SMDH210-5DF***	★	✓	✓	*112*	*196.7*		*30*		2	BXD03011IPC		
	8	***SMDH210D***	★		✓	*177*	*266.7*		—		1	BXD03011IP		
	8	***SMDH210-8D***	★	✓		*177*	*266.7*		*30*		3	BXD03011IPC		
	8	***SMDH210-8DF***	★	✓	✓	*177*	*266.7*		*30*		2	BXD03011IPC		
	12	***SMDH210-12D***	★	✓		*252*	*330.3*		*30*		3	BXD03011IPC		
21.5 < D ≤ 22.8	1.5	***SMDH220-1.5D***	★	✓		*39*	*117.1*	*56*	*30*	*25*	3	BXD03512IPC	2.79 to 3.72	TRDR15IP
	1.5	***SMDH220-1.5DF***	★	✓	✓	*39*	*117.1*		*30*		2	BXD03512IPC		
	3	***SMDH220M***	★		✓	*73*	*161.3*		—		1	BXD03512IP		
	3	***SMDH220-3D***	★	✓		*73*	*161.3*		*30*		3	BXD03512IPC		
	3	***SMDH220-3DF***	★	✓	✓	*73*	*161.3*		*30*		2	BXD03512IPC		
	5	***SMDH220L***	★		✓	*119*	*201.3*		—		1	BXD03512IP		
	5	***SMDH220-5D***	★	✓		*119*	*201.3*		*30*		3	BXD03512IPC		
	5	***SMDH220-5DF***	★	✓	✓	*119*	*201.3*		*30*		2	BXD03512IPC		
	8	***SMDH220D***	★		✓	*187*	*271.3*		—		1	BXD03512IP		
	8	***SMDH220-8D***	★	✓		*187*	*271.3*		*30*		3	BXD03512IPC		
	8	***SMDH220-8DF***	★	✓	✓	*187*	*271.3*		*30*		2	BXD03512IPC		
	12	***SMDH220-12D***	★	✓		*264*	*343.2*		*30*		3	BXD03512IPC		
22.8 < D ≤ 23.8	1.5	***SMDH230-1.5D***	★	✓		*40*	*118.0*	*56*	*30*	*25*	3	BXD03512IPC	2.79 to 3.72	TRDR15IP
	1.5	***SMDH230-1.5DF***	★	✓	✓	*40*	*118.0*		*30*		2	BXD03512IPC		
	3	***SMDH230M***	★		✓	*76*	*160.7*		—		1	BXD03512IP		
	3	***SMDH230-3D***	★	✓		*76*	*160.7*		*30*		3	BXD03512IPC		
	3	***SMDH230-3DF***	★	✓	✓	*76*	*160.7*		*30*		2	BXD03512IPC		
	5	***SMDH230L***	★		✓	*124*	*210.7*		—		1	BXD03512IP		
	5	***SMDH230-5D***	★	✓		*124*	*210.7*		*30*		3	BXD03512IPC		
	5	***SMDH230-5DF***	★	✓	✓	*124*	*210.7*		*30*		2	BXD03512IPC		
	8	***SMDH230D***	★		✓	*195*	*280.7*		—		1	BXD03512IP		
	8	***SMDH230-8D***	★	✓		*195*	*280.7*		*30*		3	BXD03512IPC		
	8	***SMDH230-8DF***	★	✓	✓	*195*	*280.7*		*30*		2	BXD03512IPC		
	12	***SMDH230-12D***	★	✓		*276*	*355.0*		*30*		3	BXD03512IPC		
23.8 < D ≤ 24.8	1.5	***SMDH240-1.5D***	★	✓		*42*	*124.3*	*60*	*37*	*32*	3	BXD03512IPC	2.79 to 3.72	TRDR15IP
	1.5	***SMDH240-1.5DF***	★	✓	✓	*42*	*124.3*		*37*		2	BXD03512IPC		
	3	***SMDH240M***	★		✓	*79*	*170.5*		—		1	BXD03512IP		
	3	***SMDH240-3D***	★	✓		*79*	*170.5*		*37*		3	BXD03512IPC		
	3	***SMDH240-3DF***	★	✓	✓	*79*	*170.5*		*37*		2	BXD03512IPC		
	5	***SMDH240L***	★		✓	*129*	*220.5*		—		1	BXD03512IP		
	5	***SMDH240-5D***	★	✓		*129*	*220.5*		*37*		3	BXD03512IPC		
	5	***SMDH240-5DF***	★	✓	✓	*129*	*220.5*		*37*		2	BXD03512IPC		
	8	***SMDH240D***	★		✓	*203*	*295.5*		—		1	BXD03512IP		
	8	***SMDH240-8D***	★	✓		*203*	*295.5*		*37*		3	BXD03512IPC		
	8	***SMDH240-8DF***	★	✓	✓	*203*	*295.5*		*37*		2	BXD03512IPC		
	12	***SMDH240-12D***	★	✓		*288*	*372.0*		*37*		3	BXD03512IPC		
24.8 < D ≤ 25.8	1.5	***SMDH250-1.5D***	★	✓		*43*	*124.7*	*60*	*37*	*32*	3	BXD04014IPC	4.14 to 5.52	TRDR20IP
	1.5	***SMDH250-1.5DF***	★	✓	✓	*43*	*124.7*		*37*		2	BXD04014IPC		
	3	***SMDH250M***	★		✓	*82*	*170.4*		—		1	BXD04014IP		
	3	***SMDH250-3D***	★	✓		*82*	*170.4*		*37*		3	BXD04014IPC		
	3	***SMDH250-3DF***	★	✓	✓	*82*	*170.4*		*37*		2	BXD04014IPC		
	5	***SMDH250L***	★		✓	*134*	*225.4*		—		1	BXD04014IP		
	5	***SMDH250-5D***	★	✓		*134*	*225.4*		*37*		3	BXD04014IPC		
	5	***SMDH250-5DF***	★	✓	✓	*134*	*225.4*		*37*		2	BXD04014IPC		
	8	***SMDH250D***	★		✓	*211*	*300.4*		—		1	BXD04014IP		
	8	***SMDH250-8D***	★	✓		*211*	*300.4*		*37*		3	BXD04014IPC		
	8	***SMDH250-8DF***	★	✓	✓	*211*	*300.4*		*37*		2	BXD04014IPC		
	12	***SMDH250-12D***	★	✓		*300*	*384.2*		*37*		3	BXD04014IPC		

★ = Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

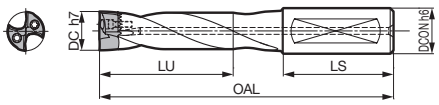
*The SMDH○○○S Holder Cat. No. has been changed to SMDH○○○-1.5DF. The specifications have not changed.

SMDT-MFS - 180° Flat Edge Tips - *Metric Holders*

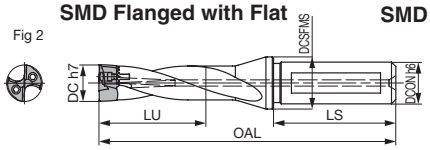
MFS | Carbon Steel Alloy Steel up to 0.55% | Carbon Steel Alloy Steel from 0.25% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

DEX Coating | Replaceable Head MFS | Coolant Hole | 1.5D | 3D | 5D | 8D | 12D | Indexable

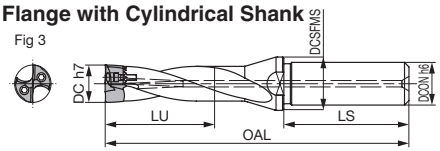
SMD No Flange with Flat — Fig 1



SMD Flanged with Flat — Fig 2



SMD Flange with Cylindrical Shank — Fig 3



Holder *ø26.0 to 30mm* — Dimensions with MFS Tip — Parts — Dimensions (*mm*)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Flange	Flat on Shank	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Fig	Cap Screw	N·m	Wrench
25.8 < D ≤ 26.8	1.5	***SMDH260-1.5D***	★	✓		*45*	*127.3*	*60*	*37*	*32*	3	BXD04014IPC	4.14 to 5.52	TRDR20IP
	1.5	***SMDH260-1.5DF***	★	✓	✓	*45*	*127.3*		*37*		2	BXD04014IPC		
	3	***SMDH260M***	★		✓	*85*	*175.5*		—		1	BXD04014IP		
	3	***SMDH260-3D***	★	✓		*85*	*175.5*		*37*		3	BXD04014IPC		
	3	***SMDH260-3DF***	★	✓	✓	*85*	*175.5*		*37*		2	BXD04014IPC		
	5	***SMDH260L***	★		✓	*139*	*230.5*		—		1	BXD04014IP		
	5	***SMDH260-5D***	★	✓		*139*	*230.5*		*37*		3	BXD04014IPC		
	5	***SMDH260-5DF***	★	✓	✓	*139*	*230.5*		*37*		2	BXD04014IPC		
	8	***SMDH260D***	★		✓	*219*	*310.5*		—		1	BXD04014IP		
	8	***SMDH260-8D***	★	✓		*219*	*310.5*		*37*		3	BXD04014IPC		
	8	***SMDH260-8DF***	★	✓	✓	*219*	*310.5*		*37*		2	BXD04014IPC		
	12	***SMDH260-12D***	★	✓		*312*	*396.6*		*37*		3	BXD04014IPC		
26.8 < D ≤ 27.8	1.5	***SMDH270-1.5D***	★	✓		*46*	*127.8*	*60*	*37*	*32*	3	BXD04014IPC	4.14 to 5.52	TRDR20IP
	1.5	***SMDH270-1.5DF***	★	✓	✓	*46*	*127.8*		*37*		2	BXD04014IPC		
	3	***SMDH270M***	★		✓	*88*	*175.5*		—		1	BXD04014IP		
	3	***SMDH270-3D***	★	✓		*88*	*175.5*		*37*		3	BXD04014IPC		
	3	***SMDH270-3DF***	★	✓	✓	*88*	*175.5*		*37*		2	BXD04014IPC		
	5	***SMDH270L***	★		✓	*144*	*235.5*		—		1	BXD04014IP		
	5	***SMDH270-5D***	★	✓		*144*	*235.5*		*37*		3	BXD04014IPC		
	5	***SMDH270-5DF***	★	✓	✓	*144*	*235.5*		*37*		2	BXD04014IPC		
	8	***SMDH270D***	★		✓	*227*	*320.5*		—		1	BXD04014IP		
	8	***SMDH270-8D***	★	✓		*227*	*320.5*		*37*		3	BXD04014IPC		
	8	***SMDH270-8DF***	★	✓	✓	*227*	*320.5*		*37*		2	BXD04014IPC		
	12	***SMDH270-12D***	★	✓		*324*	*408.9*		*37*		3	BXD04014IPC		
27.8 < D ≤ 28.8	1.5	***SMDH280-1.5D***	★	✓		*48*	*129.4*	*60*	*37*	*32*	3	BXD04515IPC	4.98 to 6.64	TRDR25IP
	1.5	***SMDH280-1.5DF***	★	✓	✓	*48*	*129.4*		*37*		2	BXD04515IPC		
	3	***SMDH280M***	★		✓	*91*	*180.6*		—		1	BXD04515IP		
	3	***SMDH280-3D***	★	✓		*91*	*180.6*		*37*		3	BXD04515IPC		
	3	***SMDH280-3DF***	★	✓	✓	*91*	*180.6*		*37*		2	BXD04515IPC		
	5	***SMDH280L***	★		✓	*149*	*240.6*		—		1	BXD04515IP		
	5	***SMDH280-5D***	★	✓		*149*	*240.6*		*37*		3	BXD04515IPC		
	5	***SMDH280-5DF***	★	✓	✓	*149*	*240.6*		*37*		2	BXD04515IPC		
	8	***SMDH280D***	★		✓	*235*	*325.6*		—		1	BXD04515IP		
	8	***SMDH280-8D***	★	✓		*235*	*325.6*		*37*		3	BXD04515IPC		
	8	***SMDH280-8DF***	★	✓	✓	*235*	*325.6*		*37*		2	BXD04515IPC		
	12	***SMDH280-12D***	★	✓		*336*	*421.3*		*37*		3	BXD04515IPC		
28.8 < D ≤ 29.8	1.5	***SMDH290-1.5D***	★	✓		*49*	*130.8*	*60*	*37*	*32*	3	BXD04515IPC	4.98 to 6.64	TRDR25IP
	1.5	***SMDH290-1.5DF***	★	✓	✓	*49*	*130.8*		*37*		2	BXD04515IPC		
	3	***SMDH290M***	★		✓	*94*	*185.4*		—		1	BXD04515IP		
	3	***SMDH290-3D***	★	✓		*94*	*185.4*		*37*		3	BXD04515IPC		
	3	***SMDH290-3DF***	★	✓	✓	*94*	*185.4*		*37*		2	BXD04515IPC		
	5	***SMDH290L***	★		✓	*154*	*245.4*		—		1	BXD04515IP		
	5	***SMDH290-5D***	★	✓		*154*	*245.4*		*37*		3	BXD04515IPC		
	5	***SMDH290-5DF***	★	✓	✓	*154*	*245.4*		*37*		2	BXD04515IPC		
	8	***SMDH290D***	★		✓	*243*	*335.4*		—		1	BXD04515IP		
	8	***SMDH290-8D***	★	✓		*243*	*335.4*		*37*		3	BXD04515IPC		
	8	***SMDH290-8DF***	★	✓	✓	*243*	*335.4*		*37*		2	BXD04515IPC		
	12	***SMDH290-12D***	★	✓		*348*	*433.5*		*37*		3	BXD04515IPC		
29.8 < D ≤ 30.8	1.5	***SMDH300-1.5D***	★	✓		*51*	*133.4*	*60*	*37*	*32*	3	BXD04515IPC	4.98 to 6.64	TRDR25IP
	1.5	***SMDH300-1.5DF***	★	✓	✓	*51*	*133.4*		*37*		2	BXD04515IPC		
	3	***SMDH300M***	★		✓	*97*	*185.6*		—		1	BXD04515IP		
	3	***SMDH300-3D***	★	✓		*97*	*185.6*		*37*		3	BXD04515IPC		
	3	***SMDH300-3DF***	★	✓	✓	*97*	*185.6*		*37*		2	BXD04515IPC		
	5	***SMDH300L***	★		✓	*159*	*255.6*		—		1	BXD04515IP		
	5	***SMDH300-5D***	★	✓		*159*	*255.6*		*37*		3	BXD04515IPC		
	5	***SMDH300-5DF***	★	✓	✓	*159*	*255.6*		*37*		2	BXD04515IPC		
	8	***SMDH300D***	★		✓	*251*	*345.6*		—		1	BXD04515IP		
	8	***SMDH300-8D***	★	✓		*251*	*345.6*		*37*		3	BXD04515IPC		
	8	***SMDH300-8DF***	★	✓	✓	*251*	*345.6*		*37*		2	BXD04515IPC		
	12	***SMDH300-12D***	★	✓		*360*	*445.9*		*37*		3	BXD04515IPC		

★ = Worldwide Warehouse Item

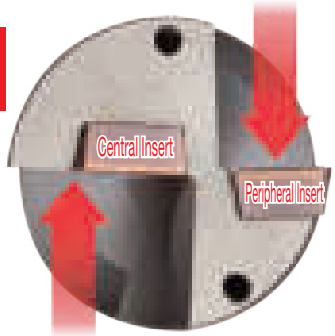
N·m Recommended Tightening Torque (N·m)

*The SMDHOOOS Holder Cat. No. has been changed to SMDHOOO-1.5DF. The specifications have not changed.

■ General Features

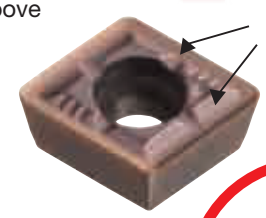
The SumiDrill WDX Indexable Drill has excellent cutting balance that provides stable hole drilling on a wide range of part materials from general steel to stainless steel and aluminum alloy. Available in three original chipbreaker styles, the inserts feature improved chip control and reduced cutting force for use in low-rigidity contexts.

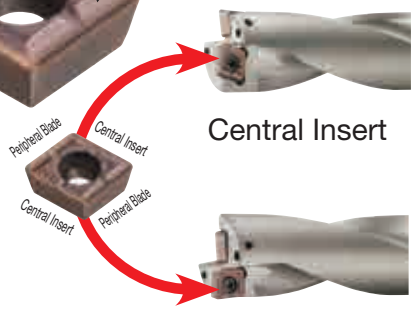
Design
Cutting force of central insert ≈ that peripheral blade



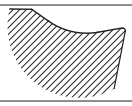
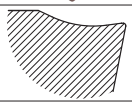
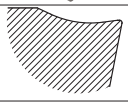
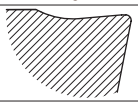
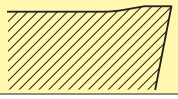
■ Features and Applications

- Balanced Design
  Cutting force during drilling is balanced between the central insert and peripheral insert. The relative position of each insert is optimized to provide stable drilling.
- Excellent Chip Control
  The chip evacuation direction can be controlled with the chip control groove at the center of the breaker, enabling good chip control.
- Versatile Tool for a Variety of Machining Applications
  Select among three types of breakers for different applications, allowing optimal drilling for a variety of work materials and conditions. Suitable for a wide range of applications including hole expansion, spot facing, external turning, and internal boring.
- Economical Four-Cornered Insert
  The insert has an extremely economical design where a single insert type can be used for the central insert or peripheral insert, with two corners for each position - a total of four usable corners.
- WDXT-M, along with ACM300, a grade for stainless steel with a strong edge, establishes stable tool life and excellent wear resistance.





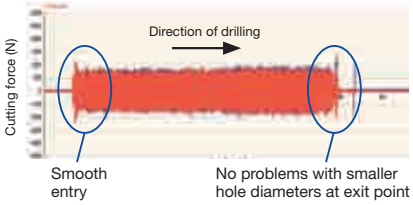
■ WDX Chipbreaker Selection Guide

Type	L Chipbreaker	G Chipbreaker		H Chipbreaker	New M Chipbreaker
Features	For Low Feed with Chip Evacuation	General-Purpose	For Non-Ferrous Material	Strong Edged	Stainless Steel Machining
Appearance					
Cross Section					

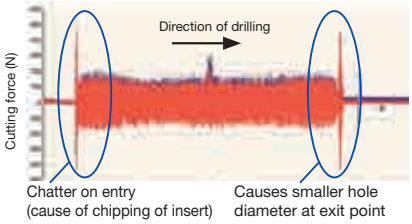
■ Performance

- Balanced Design (Comparison of Horizontal Component Values)
  Balance is maintained at the through hole entry and exit points, and drilling is stable.

WDX



Conventional and Competitor's Products



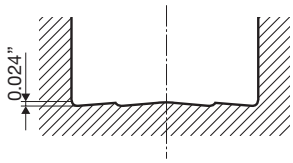
- Improved chip control
  Drill: WDX 200D3S25 (ø20.0)
  Part Mterial: 304 Stainless Steel
  Cutting Conditions: v_c=427 SFM, f=0.0024 IPR
  H=1.98", Wet

WDX

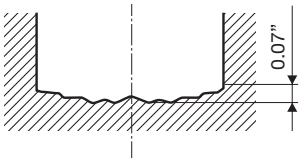
Conventional and Competitor's Products

- Finishing is easy because the hole bottom is almost flat.

Bottom of hole after drilling with WDX200D3S25



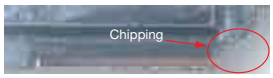
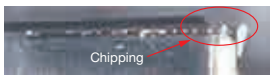
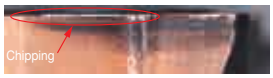
Bottom of hole after drilling with conventional tool (ø20)



For High-speed Drilling of Steel and Cast Iron ACP100

■ Features

Provides excellent wear resistance and high reliability thanks to our stress control coating technology. The ultra-fine crystal grain film of the Super FF Coat is achieved through our proprietary technology.

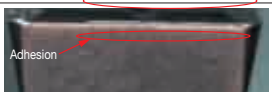
		ACP100	Competitor's Product
Peripheral Insert	Rake Face		
Peripheral Insert	Flank		
Central Insert	Rake Face		
Central Insert	Flank		

Holder: WDX 250D3S25
Insert: WDXT 063006-G (ACP100)
Part Material: Carbon Steel
Cutting Conditions: v_C=656 SFM, f=0.0047 IPR,
H=1.97" (through hole), Wet

For Drilling of Non-ferrous Metals AURORA Coat DL1500

■ Features

New DL1500 insert grade for drilling non-ferrous metal offers greatly improved adhesion resistance compared to conventional tools.
Ideal for drilling holes in copper alloys as well as aluminum alloys.

		DL1500	ACK300
Peripheral Insert	Rake Face		
Peripheral Insert	Flank		
Central Insert	Rake Face		
Central Insert	Flank		

Holder: WDX 250D3S25
Insert: WDXT 073506-G (DL1500)
Part Material: Aluminum Alloy Die Casting Parts For Engines
Cutting Conditions: v_C=492 SFM, f=0.0039 IPR,
H=1.97" (through hole), Wet

Drills for Deep Hole Drilling L/D = 5 (Availability: *ø13.0 to ø55.0 mm*)

■ Features

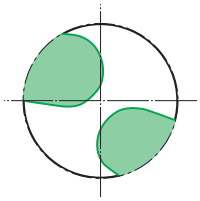
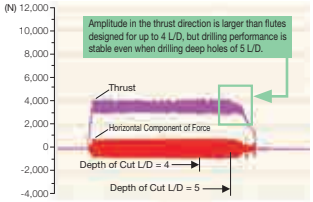
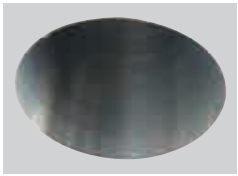
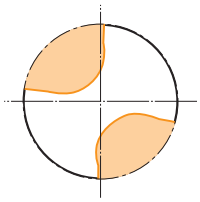
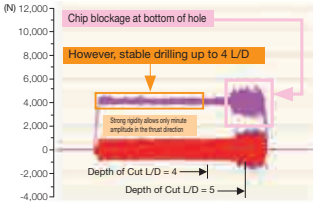
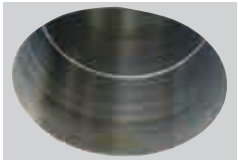
The SumiDrill WDX for 5D drilling features a specially designed flute shape and enlarged coolant hole for excellent chip evacuation even during deep hole drilling.

Large coolant hole

Coolant supply guide

Special Flute Shape for L/D=5

■ Performance

Tool Holder Features	Figure	Cutting Force	Machined Surface (Exit)
WDX260D5S32 **Special Flute Shape for L/D=5** * Designed with emphasis on chip evacuation Expanded flute design improves chip evacuation for stable drilling performance even with holes up to 5 L/D.			Good machined surface down to end of hole 
Other Tool **Flute Shape for L/D=4** * Designed with emphasis on drill rigidity Flute design enables greater rigidity of the drill, achieving stable drilling of shallow holes up to 4 L/D.			Poor machined surface due to chip blockage at bottom of hole (near 5 L/D) 

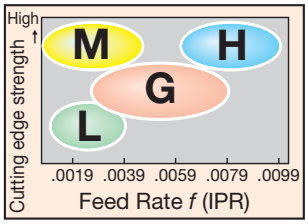
Part Material: 304 Stainless Steel, Insert: WDXT 073506-G
Cutting Conditions: v_C=492 SFM, f=0.002 IPR, H =5.118" (through hole), Wet

Insert Selection Guide - Wide Selection of Inserts for WDX Series

5 Grades

Part Material \ Grade	ACP100	ACP300	ACM300	ACK300	DL1500
P Steel (High-Speed Drilling)	○				
P Steel (General Drilling)		○			
M Stainless Steel		○	○		
K Cast Iron (High-Speed Drilling)	○				
K Cast Iron (General Drilling)				○	
N Non-Ferrous Metals					○

4 Types of Chipbreakers



11 Combinations are possible!

ACP100	ACP300	ACM300	ACK300	DL1500
P K L	P L		P K L	
P K G	P M G		P K G	N G
P K H	P H		K H	
		M M		

2nd Recommendation (P)

P Steel — For Low Feed with Chip Evacuation — L ACP300
- For drilling various types of Steel
- High speed and low feed is recommended if there are issues with chip control
- Decrease the feed if vibration occurs due to burnt chips

P Steel — General-Purpose — G ACP100
- For drilling of general steel and alloy steel, when prone to significantly large flank wear

P Steel — For Low Feed with Chip Evacuation — L ACP100
- For low-feed conditions

P Steel — Strong Edged — H ACP300
- For drilling with interruptions (entry/through) due to slanted entry, reduce the feed rate in the interrupted area (around f = 0.0019 IPR)
- For insufficient cutting edge strength due to drilling of hardened steel (heat treated)

P Steel — Improved chip control (low carbon steel, etc.)

P Steel — Insufficient wear resistance

P Steel — Initial chipping measures (interruption, high hardness, etc.)

1st Recommendation (P M K N)

General-Purpose — G
- P Steel — For general steel & alloy steel drilling — ACP300
- K Cast Iron — For cast iron drilling — ACK300
- N Non-Ferrous — For non-ferrous metal drilling — DL1500

M Stainless Steel — For stainless steel drilling — ACM300
Stainless Steel — M — New

K Cast Iron — Insufficient wear resistance (high-speed drilling)

K Cast Iron — Initial chipping measures (interruption, high feed, etc.)

M — Lack of chip evacuation (extension)

2nd Recommendation (M K)

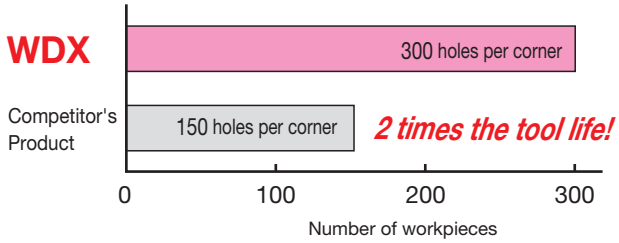
K Cast Iron — General-purpose — G ACP100
- When heavy flank wear occurs in cast iron drilling
- To limit wear in high-speed, low to medium feed conditions

K Cast Iron — Strong Edged — H ACK300
- When interrupted drilling is performed due to slanted entry, etc. as with steel drilling
- For insufficient cutting edge strength due to high-feed drilling

M — General-Purpose — G ACP300
- When chips extend and clog

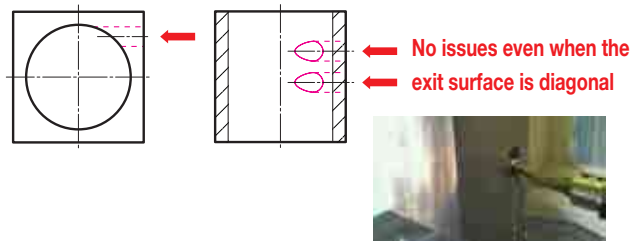
*ACP100 is the first recommendation for steel with a hardness of 200HB or greater, or for high-speed drilling of steel.

■ Application Examples



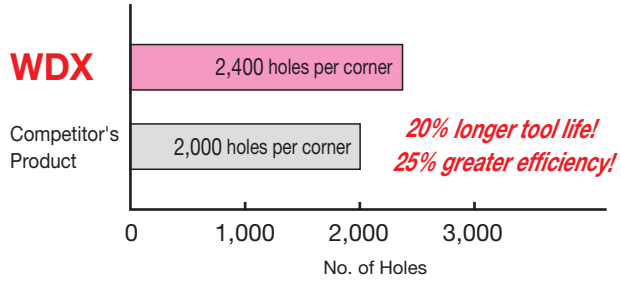
Part Material : Ductile Cast Iron Machine component
Tool : WDX 205D3S25
Insert : WDXT 063006-G (ACK300)
Cutting Conditions : v_c=400 SFM, f =0.006 IPR, H =1.3" , through, Wet

·Significant increase in tool life: twice that of conventional tools.
·Stable cutting with minimal cutting force.



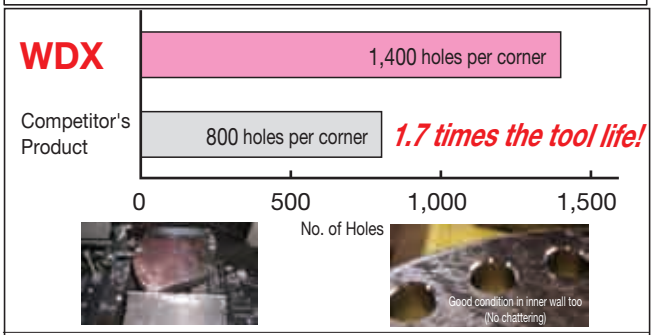
Part Material : Carbon Steel Plate
Tool : WDX 430D3S40, Insert : WDXT 125012-H (ACP300)
Cutting Conditions : v_c=446 SFM, f =0.0.006 IPR, H =2.36"+1.97" (semicircle area), through, Wet

·Enables stable drilling even in unstable cutting conditions (interrupted cutting at deepest point).
·Quieter cutting than conventional tools.



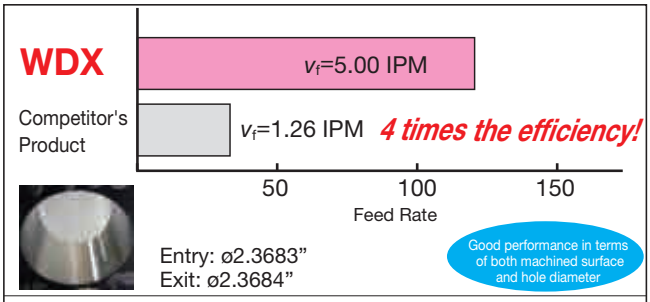
Part Material : 4140 Steel Machine component
Tool : WDX 200D3S25, Insert : WDXT 063006-G (ACP300)
Cutting Conditions : v_c=515 SFM, f =0.008" , H =0.748" , through, Wet
(competitor's product : v_c=515 SFM, f =0.006" , H =0.748" , through, Wet)

Good chip control even in high-efficiency conditions. Good stability with low vibration during cutting. 25% greater efficiency and 20% longer tool life.



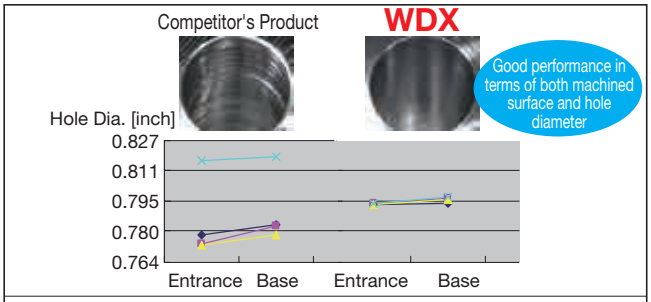
Part Material : Carbon Steel Plate
Tool : WDX 145D3S20, Insert : WDXT 042004-L (ACP300)
Cutting Conditions: v_C=673 SFM, f =0.0165" , H =0.591" , through, Wet

·Significant increase in tool life - 1.7 times longer.
·Good performance with no chatter on the machined surface, even with low-rigidity clamps.



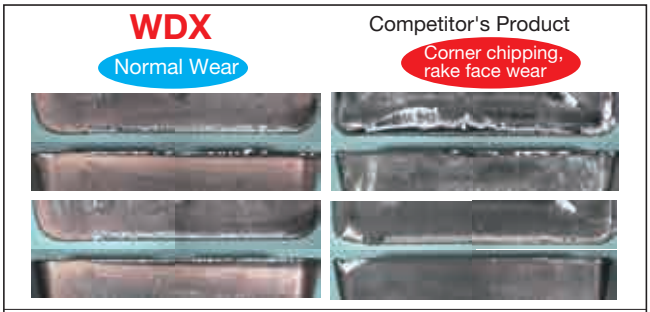
Part Material : Medium Carbo Steel Plate
Tool : WDX 600D3S40
Insert : WDXT 186012-G (ACP300)
Cutting Conditions: v_C=492 SFM, f =0.006 IPR, H =2.36" , through, Wet
(conventional tool :v_C=98 SFM, f =0.008 IPR, H =2.36" , through, Wet)

·Achieves steady machining even at large diameters!
·Achieves 4 times the efficiency of conventional tools!



Part Material : Alloy Steel Machine component
Tool : WDX 200D5S25
Insert : WDXT 063006-G (ACP300)
Cutting Conditions: v_C=607 SFM, f =0.005 IPR, H =3.425" , through, Wet

·Good machined surface!
·Consistent bore diameter



Part Material : Carbon Steel Tractor links
Tool : WDX 205D5S25
Insert : WDXT 063006-G (ACP300)
Cutting Conditions: v_C=328 SFM, f =0.0043 IPR, H =2.36" , through, Wet

·Achieves steady machining even at L/D=5
·Reduces insert chipping and wear for stable tool life

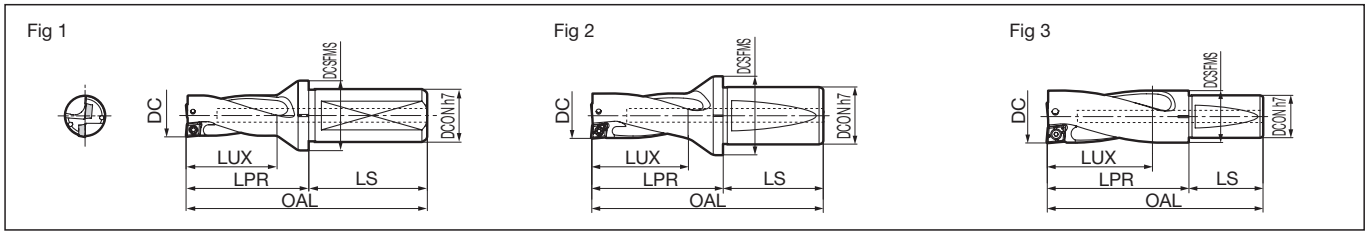
Part Material : Alloy Steel Bearing for wind power generator
Tool : WDX330D5S40
Insert : WDXT094008-L (ACP300)
Cutting Conditions: v_C=479 SFM, f =0.004 IPR, H =0.622" , through, Wet

·Eliminates defects in workpieces caused by insert chipping!

WDX - Inch 2D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 2D | Indexable



Holder Diameter ø0.5625" to 2.6250"

Dimensions (inch)

Dia. DC	Stock	Cat.No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Applicable Insert	Coolant Connection	Fig
0.5625	•	WDX0562D2S075	1.2420	1.8330	3.8330	2.0000	1.1020	0.7500	WDXT042004	1/8 NPT	1
0.5937	•	WDX0594D2S075	1.3060	1.8960	3.8960						1
0.6250	•	WDX0625D2S100	1.3680	1.9590	4.4590	2.5000	1.2600	1.0000	WDXT052504	1/4 NPT	1
0.6562	•	WDX0656D2S100	1.4300	2.0210	4.5210						1
0.6875	•	WDX0687D2S100	1.4920	2.0830	4.5830						1
0.7500	•	WDX0750D2S100	1.6180	2.2090	4.7090	2.5000	1.2990	1.0000	WDXT063006		1
0.7870	•	WDX0787D2S100	1.6920	2.2830	4.7830						1
0.8125	•	WDX0812D2S100	1.7430	2.3340	4.8340						1
0.8750	•	WDX0875D2S100	1.8680	2.4590	4.9590						1
0.9375	•	WDX0937D2S125	1.9930	2.7020	5.2020	2.5000	1.6140	1.2500	WDXT073506		2
1.0000	•	WDX1000D2S125	2.1180	2.8270	5.3270						2
1.0625	•	WDX1062D2S125	2.2430	2.9520	5.9520	3.0000	1.6140	1.2500			2
1.1250	•	WDX1125D2S125	2.3680	3.0770	6.0770						2
1.1875	•	WDX1187D2S125	2.5320	3.3590	6.3590	3.0000	1.9680	1.2500	WDXT094008		2
1.2500	•	WDX1250D2S125	2.6570	3.4840	6.4840						2
1.3125	•	WDX1312D2S150	2.7820	3.7270	6.7270	3.0000	2.1260	1.5000			2
1.3750	•	WDX1375D2S150	2.9070	3.8520	6.8520						2
1.4375	•	WDX1437D2S150	3.0320	3.9770	6.9770						2
1.5000	•	WDX1500D2S150	3.1570	4.1020	7.1020	3.0000	1.9490	1.5000	WDXT125012		2
1.5625	•	WDX1562D2S150	3.2810	4.2260	7.2260						2
1.6250	•	WDX1625D2S150	3.4070	4.3520	7.3520	3.0000	1.9490	1.5000			2
1.6875	•	WDX1687D2S150	3.5330	4.4780	7.4780						3
1.7500	•	WDX1750D2S150	3.6570	4.6020	7.6020						3
1.8125	•	WDX1812D2S150	3.7830	4.7280	7.7280	3.0000	1.9490	1.5000	WDXT156012		3
1.8750	•	WDX1875D2S150	3.9070	4.8520	7.8520						3
1.9375	•	WDX1937D2S150	4.0330	4.9780	7.9780						3
2.0000	•	WDX2000D2S150	4.1570	5.1020	8.1020						3
2.1250	•	WDX2125D2S150	4.4070	5.3520	8.3520						3
2.2500	•	WDX2250D2S150	4.8150	6.0750	9.0750	3.0000	2.1730	1.5000	WDXT186012		3
2.3750	•	WDX2375D2S150	5.0670	6.3270	9.3270		2.2950				3
2.5000	•	WDX2500D2S150	5.3150	6.5750	9.5750		2.4210				3
2.6250	•	WDX2625D2S150	5.5670	6.8270	9.8270		2.5470				3

Identification Code - Inch

WDX 05625 D2 S075

- 05625: Dia. DC (ø0.5625")
- D2: Flute Length L/D (2D)
- S075: Shank Dia. DCON (ø0.750")

Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX0562D2S075 to WDX0594D2S075	BFTX01604N	0.3	TRX06	-
WDX0625D2S100 to WDX0687D2S100	BFTX0204N	0.5	TRX06	-
WDX0750D2S100 to WDX0875D2S100	BFTY02206	1.0	-	TRD07
WDX0937D2S125 to WDX1125D2S125	BFTX02506N	1.5	-	TRD08
WDX1187D2S125 to WDX1437D2S150	BFTX03584	3.5	-	TRD15
WDX1500D2S150 to WDX1750D2S150	BFTX0511N	5.0	-	TRD20
WDX1812D2S150 to WDX2625D2S150	BFTX0615N	5.0	-	TRD25

•: USA Stocked Item

N·m Recommended Tightening Torque (N·m)

WDX - Metric 2D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 2D | Indexable

Fig 1

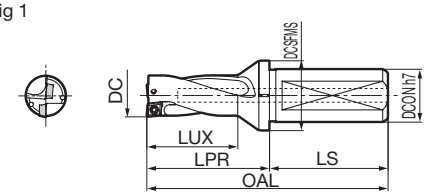


Fig 2

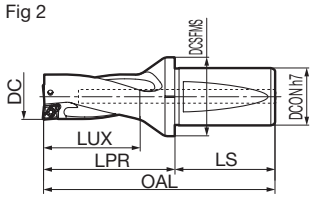
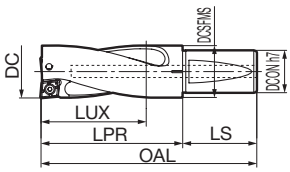


Fig 3



Holder Diameter ø13.0 to 45.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Radial Offset (Max)	Applicable Insert	Fig
13.0	★	WDX130D2S20	29	44	88	44	28.0	20	0.35	WDXT 042004	1
13.5	★	WDX135D2S20	30	45	89				0.30		1
14.0	★	WDX140D2S20	31	46	90				0.25		1
14.5	★	WDX145D2S20	32	47	91				0.20		1
15.0	★	WDX150D2S20	33	48	92				0.15		1
15.5	★	WDX155D2S20	34	49	93	44	30.0	20	0.40	WDXT 052504	1
16.0	★	WDX160D2S20	35	50	94						1
16.5	★	WDX165D2S20	36	51	95				0.35		1
17.0	★	WDX170D2S20	37	52	96				0.30		1
17.5	★	WDX175D2S25	38	53	109	56	32.0	25	0.25		1
18.0	★	WDX180D2S25	39	54	110				0.20		1
18.5	★	WDX185D2S25	40	55	111	56	33.0	25	0.50	WDXT 063006	1
19.0	★	WDX190D2S25	41	56	112				0.45		1
19.5	★	WDX195D2S25	42	57	113				0.40		1
20.0	★	WDX200D2S25	43	58	114				0.30		1
20.5	★	WDX205D2S25	44	59	115						1
21.0	★	WDX210D2S25	45	60	116				0.20		1
21.5	★	WDX215D2S25	46	61	117				0.15		1
22.0	★	WDX220D2S25	47	62	118				0.10		1
22.5	★	WDX225D2S25	48	63	119				0.05		1
23.0	★	WDX230D2S25	49	67	123	56	37.0	25	0.70	WDXT 073506	1
23.5	★	WDX235D2S25	50	68	124						1
24.0	★	WDX240D2S25	51	69	125				0.60		1
24.5	★	WDX245D2S25	52	70	126				0.50		1
25.0	★	WDX250D2S25	53	71	127						1
25.5	★	WDX255D2S32	54	74	134	60	41.0	32	0.45		2
26.0	★	WDX260D2S32	55	75	135				0.40		2
26.5	★	WDX265D2S32	56	76	136				0.35		2
27.0	★	WDX270D2S32	57	77	137				0.25		2
27.5	★	WDX275D2S32	58	78	138				0.20		2
28.0	★	WDX280D2S32	59	79	139				0.15		2
28.5	★	WDX285D2S32	60	80	140				0.10		2
29.0	★	WDX290D2S32	62	83	143	60	50.0	32	1.00	WDXT 094008	2
29.5	★	WDX295D2S32	63	84	144				0.95		2
30.0*	★	WDX300D2S32	64	88	148		54.0		0.90		2
31.0*	★	WDX310D2S32	66	90	150				0.80		2
32.0*	★	WDX320D2S32	68	92	152				0.70		2
30.0*	★	WDX300D2S40	64	88	158	70	54.0	40	0.90		2
31.0*	★	WDX310D2S40	66	90	160				0.80		2
32.0*	★	WDX320D2S40	68	92	162				0.70		2
33.0	★	WDX330D2S40	70	94	164				0.55		2
34.0	★	WDX340D2S40	72	96	166				0.45		2
35.0	★	WDX350D2S40	74	98	168				0.35		2
36.0	★	WDX360D2S40	76	100	170				0.20		2
37.0	★	WDX370D2S40	79	109	179	70	49.5	40	1.00	WDXT 125012	2
38.0	★	WDX380D2S40	81	111	181						2
39.0	★	WDX390D2S40	83	113	183				0.90		2
40.0	★	WDX400D2S40	85	115	185				0.80		2
41.0	★	WDX410D2S40	87	117	187				0.70		2
42.0	★	WDX420D2S40	89	119	189				0.60		2
43.0	★	WDX430D2S40	91	121	191				0.50		2
44.0	★	WDX440D2S40	93	123	193						2
45.0	★	WDX450D2S40	95	125	195				0.40		2

*Diameters ø30, ø31, ø32 are available with shank diameters of ø32 and ø40.

Holder Diameter ø46.0 to 68.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Radial Offset (Max)	Applicable Insert	Fig
46.0	★	WDX460D2S40	97	127	197	70	49.5	40	1.50	WDXT 156012	2
47.0	★	WDX470D2S40	99	129	199				1.40		2
48.0	★	WDX480D2S40	101	131	201				1.30		2
49.0	★	WDX490D2S40	103	133	203				1.20		2
50.0	★	WDX500D2S40	105	135	205				1.10		2
51.0	★	WDX510D2S40	107	137	207				1.00		3
52.0	★	WDX520D2S40	109	139	209		50.5		0.90		3
53.0	★	WDX530D2S40	111	141	211		51.5		0.80		3
54.0	★	WDX540D2S40	113	143	213		52.5		0.60		3
55.0	★	WDX550D2S40	115	145	215		53.5		0.50		3
56.0	★	WDX560D2S40	120	152	222	70	54.0	40	2.00	WDXT 186012	3
57.0	★	WDX570D2S40	122	154	224		55.0		1.80		3
58.0	★	WDX580D2S40	124	156	226		56.0		1.70		3
59.0	★	WDX590D2S40	126	158	228		57.0		1.60		3
60.0	★	WDX600D2S40	128	160	230		58.0		1.50		3
61.0	★	WDX610D2S40	130	162	232		59.0		1.40		3
62.0	★	WDX620D2S40	132	164	234		60.0		1.30		3
63.0	★	WDX630D2S40	134	166	236		61.0		1.20		3
64.0	★	WDX640D2S40	136	168	238		62.0		1.00		3
65.0	★	WDX650D2S40	138	170	240		63.0		0.90		3
66.0	★	WDX660D2S40	140	172	242		64.0		0.70		3
67.0	★	WDX670D2S40	142	174	244		65.0		0.60		3
68.0	★	WDX680D2S40	144	176	246		66.0		0.50		3

*Diameters ø30, ø31, ø32 are in stock with shank diameters of ø32 and ø40.

Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX130D2S20 to WDX150D2S20	BFTX01604N	0.3	TRX06	-
WDX155D2S20 to WDX180D2S25	BFTX0204N	0.5	TRX06	-
WDX185D2S25 to WDX225D2S25	BFTY02206	1.0	-	TRD07
WDX230D2S25 to WDX285D2S32	BFTX02506N	1.5	-	TRD08
WDX290D2S32 to WDX360D2S40	BFTX03584	3.5	-	TRD15
WDX370D2S40 to WDX450D2S40	BFTX0511N	5.0	-	TRD20
WDX460D2S40 to WDX680D2S40	BFTX0615N	5.0	-	TRD25

Identification Code - Metric

WDX 200 D2 S25

- 200: Dia. DC (ø20.0)
- D2: Flute Length L/D (2D)
- S25: Shank Dia. DCON (ø25.0)

★: Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

WDX - Inserts 2D (Internal Coolant Supply)

■ Insert Availability

Dimensions (inch/ *mm*)

Grade		Coated Carbide				
Process	High-speed/Light	P K				N
	General-purpose		P M	M S	S	
	Roughing		P M		K	

Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Width W1	Thickness S	Nose Radius RE1	Nose Radius RE2	Applicable Holder (Inch / *Metric*)	Fig
WDXT042004-L	●	●		●		.1654 *(4.2)*	.0788 *(2.0)*	.0157 *(0.4)*	.0157 *(0.4)*	WDX0562D2S075 to WDX0594D2S075 *WDX130D2S20 to WDX150D2S20*	1
WDXT042004-G	●	●		●	●						2
WDXT042004-H	●	●		●							3
WDXT042004-M			●						.0314 *(.8)*		4
WDXT052504-L	●	●		●		.1969 *(5.0)*	.0984 *(2.5)*	.0157 *(0.4)*	.0157 *(0.4)*	WDX0625D2S100 to WDX0687D2S100 *WDX155D2S20 to WDX180D2S25*	1
WDXT052504-G	●	●		●	●						2
WDXT052504-H	●	●		●							3
WDXT052504-M			●						.0394 *(1.0)*		4
WDXT063006-L	●	●		●		.2362 *(6.0)*	.1181 *(3.0)*	.0236 *(0.6)*	.0236 *(0.6)*	WDX0750D2S100 to WDX0875D2S100 *WDX185D2S25 to WDX225D2S25*	1
WDXT063006-G	●	●		●	●						2
WDXT063006-H	●	●		●							3
WDXT063006-M			●						.0551 *(1.4)*		4
WDXT073506-L	●	●		●		.2953 *(7.5)*	.1378 *(3.5)*	.0236 *(0.6)*	.0236 *(0.6)*	WDX0937D2S125 to WDX1125D2S125 *WDX230D2S25 to WDX285D2S32*	1
WDXT073506-G	●	●		●	●						2
WDXT073506-H	●	●		●							3
WDXT073506-M			●						.0629 *(1.6)*		4
WDXT094008-L	●	●		●		.3780 *(9.6)*	.1575 *(4.0)*	.0315 *(0.8)*	.0315 *(0.8)*	WDX1187D2S125 to WDX1437D2S150 *WDX290D2S32 to WDX360D2S40*	1
WDXT094008-G	●	●		●	●						2
WDXT094008-H	●	●		●							3
WDXT094008-M			●						.0944 *(2.4)*		4
WDXT125012-L	●	●		●		.4882 *(12.4)*	.1969 *(5.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX1500D2S150 to WDX1750D2S150 *WDX370D2S40 to WDX450D2S40*	1
WDXT125012-G	●	●		●	●						2
WDXT125012-H	●	●		●							3
WDXT125012-M			●						.1259 *(3.2)*		4
WDXT156012-L	●	●		●		.5984 *(15.2)*	.2362 *(6.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX1812D2S150 to WDX2125D2S150 *WDX460D2S40 to WDX550D2S40*	1
WDXT156012-G	●	●		●	●						2
WDXT156012-H	●	●		●							3
WDXT186012-L	●	●		●		.7087 *(18.0)*	.2362 *(6.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX2250D2S150 to WDX2625D2S150 *WDX560D2S40 to WDX680D2S40*	1
WDXT186012-G	●	●		●							2
WDXT186012-H	●	●		●							3

Fig 1 For low feed with chip evacuation

L

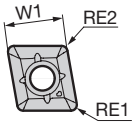


Fig 2 General-purpose

G

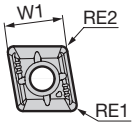


Fig 3 Strong Edged

H

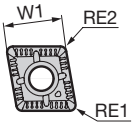
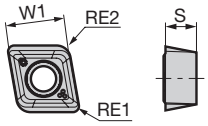


Fig 4 For stainless steel machining

M



WDXT 06 30 06 -G

Width across Flats (6.0) — Thickness x 10 (3.0) — Nose Radius x 10 (0.6) — Breaker Type

●: USA stocked item

■ Recommended Cutting Conditions

	Part Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (Cutting Speed) (SFM)	*f* (feed rate) (IPR) (Min. - Max.) ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
P	Steel, Carbon Steel	A529	<190	G	ACP300	450 - 780	.002 - .006	.003 - .008	.005 - .010	.006 - .012
		1015 Steel		L	ACP300	450 - 750	.002 - .004	.002 - .005	.003 - .006	N/A
		1045 Steel	190 ~ 250	G	ACP300	400 - 700	.003 - .009	.004 - .010	.005 - .010	.006 - .012
		1045 Steel Hardened		G	ACP100	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
		1075 Steel	250 ~ 350	G	ACP100	350 - 550	.003 - .007	.003 - .008	.004 - .009	.004 - .010
		1075 Steel Hardened		G	ACP100	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
	Low-alloy Steel	4140,4340	180 ~ 275	L	ACP300	350 - 700	.002 - .007	.003 - .008	.005 - .010	.006 - .010
		4140,4340 Hardened		G	ACP100	350 - 650	.002 - .004	.002 - .005	.003 - .006	N/A
		4140,4340 Hardened	275 ~ 350	G	ACP100	300 - 500	.002 - .006	.003 - .007	.004 - .008	.006 - .009
		4140,4340 Hardened		G	ACP100	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
	High-alloy Steel	D2,L6,M2	200 ~ 325	G	ACP100	350 - 650	.003 - .006	.003 - .008	.006 - .010	.006 - .012
		D2,L6,M2 (Sintered)		G	ACP100	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
M	Stainless Steel	304, 316 (Austenitic)	160	M	ACM300	450 - 700	.003 - .007	.003 - .008	.005 - .010	.006 - .012
		304, 316 (Austenitic)	280	M	ACM300	400 - 550	.002 - .006	.003 - .006	.004 - .008	.006 - .010
		403/Others (Martensitic/Ferritic)	160	M	ACM300	450 - 700	.003 - .007	.003 - .008	.004 - .010	.006 - .012
		403 / Others (Martensitic (hardened))	240	M	ACM300	400 - 600	.002 - .006	.003 - .006	.004 - .008	.006 - .010
K	Cast Iron			H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .014	.006 - .017
	Ductile Cast Iron			H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .014	.006 - .017
S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200 ~ 375	G	ACP300	80 - 250	.002 - .005	.003 - .007	.003 - .008	.003 - .010
N	Aluminum Alloy			G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
	Copper Alloy			G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate (*f*) to 75% of the figures in the table above.

WDX - Inch 3D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 3D | Indexable

Fig 1

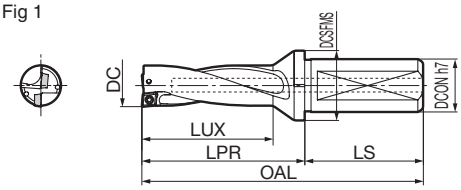


Fig 2

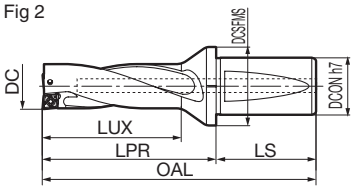
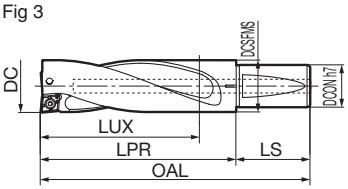


Fig 3



Holder Diameter ø0.5625" to 2.6250"

Dimensions (inch)

Dia. DC	Stock	Cat.No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Applicable Insert	Coolant Connection	Fig
0.5625	•	WDX0562D3S075	1.8040	2.3950	4.3950	2.0000	1.1020	0.7500	WDXT042004	1/8 NPT	1
0.5937	•	WDX0594D3S075	1.9000	2.4910	4.4910						1
0.6250	•	WDX0625D3S100	1.9930	2.5840	5.0840	2.5000	1.2600	1.0000	WDXT052504	1/4 NPT	1
0.6562	•	WDX0656D3S100	2.0860	2.6770	5.1770						1
0.6875	•	WDX0687D3S100	2.1790	2.7700	5.2700						1
0.7500	•	WDX0750D3S100	2.3680	2.9590	5.4590	2.5000	1.2990	1.0000	WDXT063006		1
0.7870	•	WDX0787D3S100	2.4790	3.0700	5.5700						1
0.8125	•	WDX0812D3S100	2.5560	3.1460	5.6460						1
0.8750	•	WDX0875D3S100	2.7430	3.3340	5.8340						2
0.9375	•	WDX0937D3S125	2.9310	3.6390	6.1390	2.5000	1.6140	1.2500	WDXT073506		2
1.0000	•	WDX1000D3S125	3.1180	3.8270	6.3270						2
1.0625	•	WDX1062D3S125	3.3060	4.0140	7.0140	3.0000	1.6140	1.2500			2
1.1250	•	WDX1125D3S125	3.4930	4.2020	7.2020						2
1.1875	•	WDX1187D3S125	3.7200	4.5470	7.5470	3.0000	1.9680	1.2500	WDXT094008		2
1.2500	•	WDX1250D3S125	3.9070	4.7340	7.7340						2
1.3125	•	WDX1312D3S150	4.0950	5.0400	8.0400	3.0000	2.1260	1.5000			2
1.3750	•	WDX1375D3S150	4.2820	5.2270	8.2270						2
1.4375	•	WDX1437D3S150	4.4700	5.4150	8.4150						2
1.5000	•	WDX1500D3S150	4.6970	5.8780	8.8780	3.0000	1.9490	1.5000	WDXT125012		2
1.5625	•	WDX1562D3S150	4.8830	6.0640	9.0640						2
1.6250	•	WDX1625D3S150	5.0720	6.2530	9.2530	3.0000	1.9490	1.5000			3
1.6875	•	WDX1687D3S150	5.2610	6.4420	9.4420						3
1.7500	•	WDX1750D3S150	5.4470	6.6280	9.6280						3
1.8125	•	WDX1812D3S150	5.6360	6.8170	9.8170	3.0000	1.9490	1.5000	WDXT156012		3
1.8750	•	WDX1875D3S150	5.8820	7.0030	10.0030						3
1.9375	•	WDX1937D3S150	6.0110	7.1920	10.1920						3
2.0000	•	WDX2000D3S150	6.1970	7.3780	10.3780						3
2.1250	•	WDX2125D3S150	6.5720	7.7530	10.7530						3
2.2500	•	WDX2250D3S150	7.0670	8.3270	11.3270	3.0000	2.1730	1.5000	WDXT186012		3
2.3750	•	WDX2375D3S150	7.4410	8.7010	11.7010		2.2950				3
2.5000	•	WDX2500D3S150	7.8150	9.0750	12.0750		2.4210				3
2.6250	•	WDX2625D3S150	8.1890	9.4490	12.4490		2.5470				3

Identification Code - Inch

WDX 05625 D3 S075

- 05625: Dia. DC (ø0.5625")
- D3: Flute Length L/D (3D)
- S075: Shank Dia. DCON (ø0.750")

Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX0562D3S075 to WDX0594D3S075	BFTX01604N	0.3	TRX06	-
WDX0625D3S100 to WDX0687D3S100	BFTX0204N	0.5	TRX06	-
WDX0750D3S100 to WDX0875D3S100	BFTY02206	1.0	-	TRD07
WDX0937D3S125 to WDX1125D3S125	BFTX02506N	1.5	-	TRD08
WDX1187D3S125 to WDX1437D3S150	BFTX03584	3.5	-	TRD15
WDX1500D3S150 to WDX1750D3S150	BFTX0511N	5.0	-	TRD20
WDX1812D3S150 to WDX2625D3S150	BFTX0615N	5.0	-	TRD25

•: USA Stocked Item

N·m Recommended Tightening Torque (N·m)

WDX - Metric 3D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 3D | Indexable

Fig 1

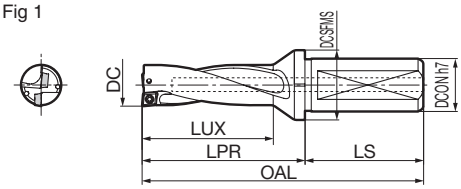


Fig 2

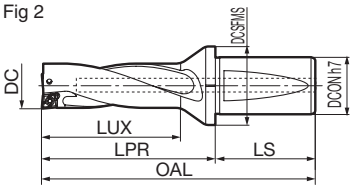
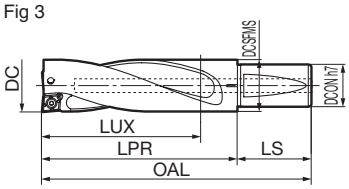


Fig 3



Holder Diameter ø13.0 to 45.0mm

Dimensions (mm)

Dia. DC	Stock	Cat.No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Radial Offset (Max)	Applicable Insert	Fig
13.0	★	**WDX130D3S20**	42.0	57.0	101.0	44	28.0	20	0.35	WDXT 042004	1
13.5	★	**WDX135D3S20**	43.5	58.5	102.5				0.30		1
14.0	★	**WDX140D3S20**	45.0	60.0	104.0				0.25		1
14.5	★	**WDX145D3S20**	46.5	61.5	105.5				0.20		1
15.0	★	**WDX150D3S20**	48.0	63.0	107.0				0.15		1
15.5	★	**WDX155D3S20**	49.5	64.5	108.5	44	30.0	20	0.40	WDXT 052504	1
16.0	★	**WDX160D3S20**	51.0	66.0	110.0						1
16.5	★	**WDX165D3S20**	52.5	67.5	111.5				0.35		1
17.0	★	**WDX170D3S20**	54.0	69.0	113.0				0.30		1
17.5	★	**WDX175D3S25**	55.5	70.5	126.5	56	32.0	25	0.25		1
18.0	★	**WDX180D3S25**	57.0	72.0	128.0				0.20		1
18.5	★	**WDX185D3S25**	58.5	73.5	129.5	56	33.0	25	0.50	WDXT 063006	1
19.0	★	**WDX190D3S25**	60.0	75.0	131.0				0.45		1
19.5	★	**WDX195D3S25**	61.5	76.5	132.5				0.40		1
20.0	★	**WDX200D3S25**	63.0	78.0	134.0				0.30		1
20.5	★	**WDX205D3S25**	64.5	79.5	135.5						1
21.0	★	**WDX210D3S25**	66.0	81.0	137.0				0.20		1
21.5	★	**WDX215D3S25**	67.5	82.5	138.5				0.15		1
22.0	★	**WDX220D3S25**	69.0	84.0	140.0				0.10		1
22.5	★	**WDX225D3S25**	70.5	85.5	141.5				0.05		1
23.0	★	**WDX230D3S25**	72.0	90.0	146.0	56	37.0	25	0.70		1
23.5	★	**WDX235D3S25**	73.5	91.5	147.5						1
24.0	★	**WDX240D3S25**	75.0	93.0	149.0				0.60		1
24.5	★	**WDX245D3S25**	76.5	94.5	150.5				0.50		1
25.0	★	**WDX250D3S25**	78.0	96.0	152.0						1
25.5	★	**WDX255D3S32**	79.5	99.5	159.5	60	41.0	32	0.45	WDXT 073506	2
26.0	★	**WDX260D3S32**	81.0	101.0	161.0				0.40		2
26.5	★	**WDX265D3S32**	82.5	102.5	162.5				0.35		2
27.0	★	**WDX270D3S32**	84.0	104.0	164.0				0.25		2
27.5	★	**WDX275D3S32**	85.5	105.5	165.5				0.20		2
28.0	★	**WDX280D3S32**	87.0	107.0	167.0				0.15		2
28.5	★	**WDX285D3S32**	88.5	108.5	168.5				0.10		2
29.0	★	**WDX290D3S32**	91.0	112.0	172.0	60	50.0	32	1.00		2
29.5	★	**WDX295D3S32**	92.5	113.5	173.5				0.95		2
30.0*	★	**WDX300D3S32**	94.0	118.0	178.0		54.0		0.90		2
31.0*	★	**WDX310D3S32**	97.0	121.0	181.0				0.80		2
32.0*	★	**WDX320D3S32**	100.0	124.0	184.0				0.70		2
30.0*	★	**WDX300D3S40**	94.0	118.0	188.0	70	54.0	40	0.90	WDXT 094008	2
31.0*	★	**WDX310D3S40**	97.0	121.0	191.0				0.80		2
32.0*	★	**WDX320D3S40**	100.0	124.0	194.0				0.70		2
33.0	★	**WDX330D3S40**	103.0	127.0	197.0				0.55		2
34.0	★	**WDX340D3S40**	106.0	130.0	200.0				0.45		2
35.0	★	**WDX350D3S40**	109.0	133.0	203.0				0.35		2
36.0	★	**WDX360D3S40**	112.0	136.0	206.0				0.20		2
37.0	★	**WDX370D3S40**	116.0	146.0	216.0	70	49.5	40	1.00	WDXT 125012	2
38.0	★	**WDX380D3S40**	119.0	149.0	219.0						2
39.0	★	**WDX390D3S40**	122.0	152.0	222.0				0.90		2
40.0	★	**WDX400D3S40**	125.0	155.0	225.0				0.80		2
41.0	★	**WDX410D3S40**	128.0	158.0	228.0				0.70		2
42.0	★	**WDX420D3S40**	131.0	161.0	231.0				0.60		2
43.0	★	**WDX430D3S40**	134.0	164.0	234.0				0.50		2
44.0	★	**WDX440D3S40**	137.0	167.0	237.0						2
45.0	★	**WDX450D3S40**	140.0	170.0	240.0				0.40		2

*Diameters ø30, ø31, ø32 are in stock with shank diameters of ø32 and ø40.

Holder Diameter ø46.0 to 68.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Radial Offset (Max)	Applicable Insert	Fig
46.0	★	**WDX460D3S40**	143.0	173.0	243.0	70	49.5	40	1.50	WDXT 156012	2
47.0	★	**WDX470D3S40**	146.0	176.0	246.0				1.40		2
48.0	★	**WDX480D3S40**	149.0	179.0	249.0				1.30		2
49.0	★	**WDX490D3S40**	152.0	182.0	252.0				1.20		2
50.0	★	**WDX500D3S40**	155.0	185.0	255.0				1.10		2
51.0	★	**WDX510D3S40**	158.0	188.0	258.0				1.00		3
52.0	★	**WDX520D3S40**	161.0	191.0	261.0		50.5		0.90		3
53.0	★	**WDX530D3S40**	164.0	194.0	264.0		51.5		0.80		3
54.0	★	**WDX540D3S40**	167.0	197.0	267.0		52.5		0.60		3
55.0	★	**WDX550D3S40**	170.0	200.0	270.0		53.5		0.50		3
56.0	★	**WDX560D3S40**	176.0	208.0	278.0	70	54.0	40	2.00	WDXT 186012	3
57.0	★	**WDX570D3S40**	179.0	211.0	281.0		55.0		1.80		3
58.0	★	**WDX580D3S40**	182.0	214.0	284.0		56.0		1.70		3
59.0	★	**WDX590D3S40**	185.0	217.0	287.0		57.0		1.60		3
60.0	★	**WDX600D3S40**	188.0	220.0	290.0		58.0		1.50		3
61.0	★	**WDX610D3S40**	191.0	223.0	293.0		59.0		1.40		3
62.0	★	**WDX620D3S40**	194.0	226.0	296.0		60.0		1.30		3
63.0	★	**WDX630D3S40**	197.0	229.0	299.0		61.0		1.20		3
64.0	★	**WDX640D3S40**	200.0	232.0	302.0		62.0		1.00		3
65.0	★	**WDX650D3S40**	203.0	235.0	305.0		63.0		0.90		3
66.0	★	**WDX660D3S40**	206.0	238.0	308.0		64.0		0.70		3
67.0	★	**WDX670D3S40**	209.0	241.0	311.0		65.0		0.60		3
68.0	★	**WDX680D3S40**	212.0	244.0	314.0		66.0		0.50		3

*Diameters ø30, ø31, ø32 are in stock with shank diameters of ø32 and ø40.

Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX130D3S20 to WDX150D3S20	BFTX01604N	0.3	TRX06	-
WDX155D3S20 to WDX180D3S25	BFTX0204N	0.5	TRX06	-
WDX185D3S25 to WDX225D3S25	BFTY02206	1.0	-	TRD07
WDX230D3S25 to WDX285D3S32	BFTX02506N	1.5	-	TRD08
WDX290D3S32 to WDX360D3S40	BFTX03584	3.5	-	TRD15
WDX370D3S40 to WDX450D3S40	BFTX0511N	5.0	-	TRD20
WDX460D3S40 to WDX680D3S40	BFTX0615N	5.0	-	TRD25

Identification Code - Metric

WDX 200 D3 S25

- 200: Dia. DC (ø20.0)
- D3: Flute Length L/D (3D)
- S25: Shank Dia. DCON (ø25.0)

★: Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

WDX - Inserts 3D (Internal Coolant Supply)

■ Insert Availability

Dimensions (inch/ *mm*)

Grade		Coated Carbide				
Process	High-speed/Light	P K				N
	General-purpose		P M	M S	S	
	Roughing		P M		K	

Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Width W1	Thickness S	Nose Radius RE1	Nose Radius RE2	Applicable Holder (Inch / *Metric*)	Fig
WDXT042004-L	•	•		•		.1654 *(4.2)*	.0788 *(2.0)*	.0157 *(0.4)*	.0157 *(0.4)*	WDX0562D3S075 to WDX0594D3S075 *WDX130D3S20 to WDX150D3S20*	1
WDXT042004-G	•	•		•	•						2
WDXT042004-H	•	•		•							3
WDXT042004-M			•						.0314 *(.8)*		4
WDXT052504-L	•	•		•		.1969 *(5.0)*	.0984 *(2.5)*	.0157 *(0.4)*	.0157 *(0.4)*	WDX0625D3S100 to WDX0687D3S100 *WDX155D3S20 to WDX180D3S25*	1
WDXT052504-G	•	•		•	•						2
WDXT052504-H	•	•		•							3
WDXT052504-M			•						.0394 *(1.0)*		4
WDXT063006-L	•	•		•		.2362 *(6.0)*	.1181 *(3.0)*	.0236 *(0.6)*	.0236 *(0.6)*	WDX0750D3S100 to WDX0875D3S100 *WDX185D3S25 to WDX225D3S25*	1
WDXT063006-G	•	•		•	•						2
WDXT063006-H	•	•		•							3
WDXT063006-M			•						.0551 *(1.4)*		4
WDXT073506-L	•	•		•		.2953 *(7.5)*	.1378 *(3.5)*	.0236 *(0.6)*	.0236 *(0.6)*	WDX0937D3S125 to WDX1125D3S125 *WDX230D3S25 to WDX285D3S32*	1
WDXT073506-G	•	•		•	•						2
WDXT073506-H	•	•		•							3
WDXT073506-M			•						.0629 *(1.6)*		4
WDXT094008-L	•	•		•		.3780 *(9.6)*	.1575 *(4.0)*	.0315 *(0.8)*	.0315 *(0.8)*	WDX1187D3S125 to WDX1437D3S150 *WDX290D3S32 to WDX360D3S40*	1
WDXT094008-G	•	•		•	•						2
WDXT094008-H	•	•		•							3
WDXT094008-M			•						.0944 *(2.4)*		4
WDXT125012-L	•	•		•		.4882 *(12.4)*	.1969 *(5.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX1500D3S150 to WDX1750D3S150 *WDX370D3S40 to WDX450D3S40*	1
WDXT125012-G	•	•		•	•						2
WDXT125012-H	•	•		•							3
WDXT125012-M			•						.1259 *(3.2)*		4
WDXT156012-L	•	•		•		.5984 *(15.2)*	.2362 *(6.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX1812D3S150 to WDX2125D3S150 *WDX460D3S40 to WDX550D3S40*	1
WDXT156012-G	•	•		•	•						2
WDXT156012-H	•	•		•							3
WDXT186012-L	•	•		•		.7087 *(18.0)*	.2362 *(6.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX2250D3S150 to WDX2625D3S150 *WDX560D3S40 to WDX680D3S40*	1
WDXT186012-G	•	•		•							2
WDXT186012-H	•	•		•							3

Fig 1 For low feed with chip evacuation

L

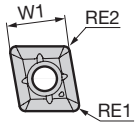


Fig 2 General-purpose

G

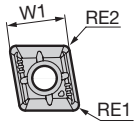


Fig 3 Strong Edged

H

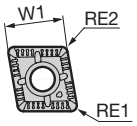
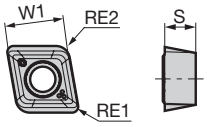


Fig 4 For stainless steel machining

M



WDXT 06 30 06 -G

- Width across Flats (6.0)
- Thickness x 10 (3.0)
- Nose Radius x 10 (0.6)
- Breaker Type

• USA stocked item

■ Recommended Cutting Conditions

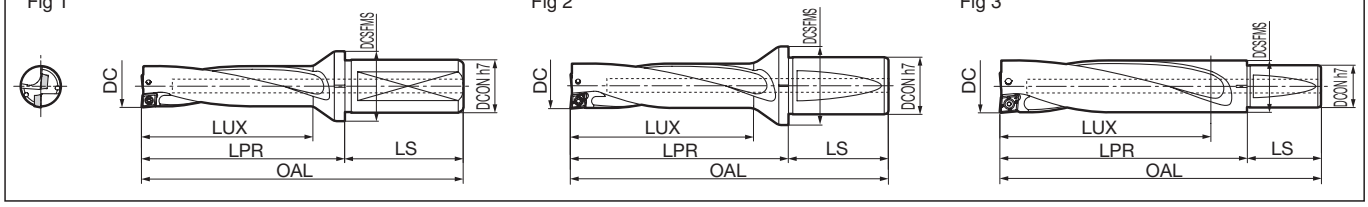
	Part Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (Cutting Speed) (SFM)	*f* (feed rate) (IPR) (Min. - Max.) ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
P	Steel, Carbon Steel	A529	<190	G	ACP300	450 - 780	.002 - .006	.003 - .008	.005 - .010	.006 - .012
		1015 Steel		L	ACP300	450 - 750	.002 - .004	.002 - .005	.003 - .006	N/A
		1045 Steel	190 ~ 250	G	ACP300	400 - 700	.003 - .009	.004 - .010	.005 - .010	.006 - .012
		1045 Steel Hardened		G	ACP100	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
		1075 Steel	250 ~ 350	G	ACP100	350 - 550	.003 - .007	.003 - .008	.004 - .009	.004 - .010
		1075 Steel Hardened		G	ACP100	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
	Low-alloy Steel	4140,4340	180 ~ 275	L	ACP300	350 - 700	.002 - .007	.003 - .008	.005 - .010	.006 - .010
		4140,4340 Hardened		G	ACP100	350 - 650	.002 - .004	.002 - .005	.003 - .006	N/A
		4140,4340 Hardened	275 ~ 350	G	ACP100	300 - 500	.002 - .006	.003 - .007	.004 - .008	.006 - .009
		4140,4340 Hardened		G	ACP100	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
	High-alloy Steel	D2,L6,M2	200 ~ 325	G	ACP100	350 - 650	.003 - .006	.003 - .008	.006 - .010	.006 - .012
		D2,L6,M2 (Sintered)		G	ACP100	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
M	Stainless Steel	304, 316 (Austenitic)	160	M	ACM300	450 - 700	.003 - .007	.003 - .008	.005 - .010	.006 - .012
		304, 316 (Austenitic)	280	M	ACM300	400 - 550	.002 - .006	.003 - .006	.004 - .008	.006 - .010
		403/Others (Martensitic/Ferritic)	160	M	ACM300	450 - 700	.003 - .007	.003 - .008	.004 - .010	.006 - .012
		403 / Others (Martensitic (hardened))	240	M	ACM300	400 - 600	.002 - .006	.003 - .006	.004 - .008	.006 - .010
K	Cast Iron			H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .014	.006 - .017
	Ductile Cast Iron			H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .014	.006 - .017
S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200 ~ 375	G	ACP300	80 - 250	.002 - .005	.003 - .007	.003 - .008	.003 - .010
N	Aluminum Alloy			G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
	Copper Alloy			G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate *(f)* to 75% of the figures in the table above.

WDX - Inch 4D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 4D | Indexable



Holder Diameter ø0.5625" to 2.5000"

Dimensions (inch)

Dia. DC	Stock	Cat.No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Applicable Insert	Coolant Connection	Fig
0.5625	•	WDX0562D4S075	2.3660	2.9570	4.9570	2.0000	1.1020	0.7500	WDXT042004	1/8 NPT	1
0.5937	•	WDX0594D4S075	2.4940	3.0850	5.0850						1
0.6250	•	WDX0625D4S100	2.6180	3.2090	5.7090	2.5000	1.2600	1.0000	WDXT052504	1/4 NPT	1
0.6562	•	WDX0656D4S100	2.7420	3.3330	5.8330						1
0.6875	•	WDX0687D4S100	2.8660	3.4570	5.9570						1
0.7500	•	WDX0750D4S100	3.1180	3.7090	6.2090	2.5000	1.2990	1.0000	WDXT063006		1
0.7870	•	WDX0787D4S100	3.2660	3.8570	6.3570						1
0.8125	•	WDX0812D4S100	3.3680	3.9590	6.4590						1
0.8750	•	WDX0875D4S100	3.6180	4.2090	6.7090						2
0.9375	•	WDX0937D4S125	3.8680	4.5770	7.0770	2.5000	1.6140	1.2500	WDXT073506		2
1.0000	•	WDX1000D4S125	4.1180	4.8270	7.3270						2
1.0625	•	WDX1062D4S125	4.3680	5.0770	8.0770	3.0000	1.6140	1.2500			2
1.1250	•	WDX1125D4S125	4.6180	5.3270	8.3270						2
1.1875	•	WDX1187D4S125	4.9070	5.7340	8.7340	3.0000	1.9680	1.2500	WDXT094008		2
1.2500	•	WDX1250D4S125	5.1570	5.9840	8.9840						2
1.3125	•	WDX1312D4S150	5.4070	6.3520	9.3520	3.0000	2.1260	1.5000			2
1.3750	•	WDX1375D4S150	5.6570	6.6020	9.6020						2
1.4375	•	WDX1437D4S150	5.9070	6.8520	9.8520						2
1.5000	•	WDX1500D4S150	6.1970	7.3780	10.3780	3.0000	1.9490	1.5000	WDXT125012		2
1.5625	•	WDX1562D4S150	6.4450	7.6260	10.6260						2
1.6250	•	WDX1625D4S150	6.6970	7.8780	10.8780	3.0000	1.9490	1.5000			3
1.6875	•	WDX1687D4S150	6.9490	8.1300	11.1300						3
1.7500	•	WDX1750D4S150	7.1970	8.3780	11.3780						3
1.8125	•	WDX1812D4S150	7.4490	8.6300	11.6300	3.0000	1.9490	1.5000	WDXT156012		3
1.8750	•	WDX1875D4S150	7.6970	8.8780	11.8780						3
1.9375	•	WDX1937D4S150	7.9490	9.1300	12.1300						3
2.0000	•	WDX2000D4S150	8.1970	9.3780	12.3780						3
2.1250	•	WDX2125D4S150	8.6970	9.8780	12.8780						3
2.2500	•	WDX2250D4S150	9.3150	10.5750	13.5750	3.0000	2.1730	1.5000	WDXT186012		3
2.3750	•	WDX2375D4S150	9.8150	11.0750	14.0750		2.2950				3
2.5000	•	WDX2500D4S150	10.3150	11.5750	14.5750		2.4210				3

•: USA Stocked Item

Identification Code - Inch

WDX 05625 D4 S075

- 05625: Dia. DC (ø0.5625")
- D4: Flute Length L/D (4D)
- S075: Shank Dia. DCON (ø0.750")

Parts

Applicable Holder	Flat Screw	N·m	Wrench	Wrench
WDX0562D4S075 to WDX0594D4S075	BFTX01604N	0.3	TRX06	-
WDX0625D4S100 to WDX0687D4S100	BFTX0204N	0.5	TRX06	-
WDX0750D4S100 to WDX0875D4S100	BFTY02206	1.0	-	TRD07
WDX0937D4S125 to WDX1125D4S125	BFTX02506N	1.5	-	TRD08
WDX1187D4S125 to WDX1437D4S150	BFTX03584	3.5	-	TRD15
WDX1500D4S150 to WDX1750D4S150	BFTX0511N	5.0	-	TRD20
WDX1812D4S150 to WDX2625D4S150	BFTX0615N	5.0	-	TRD25

N·m Recommended Tightening Torque (N·m)

WDX - Metric 4D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 4D | Indexable

Fig 1

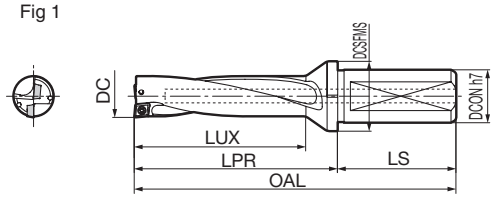


Fig 2

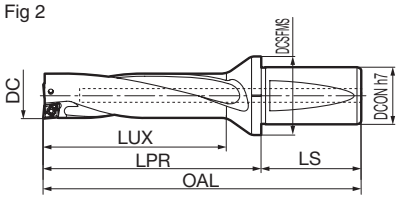
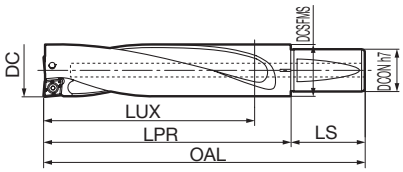


Fig 3



Holder Diameter *ø13.0 to 45.0mm*

Dimensions (*mm*)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Radial Offset (Max)	Applicable Insert	Fig
13.0	★	**WDX130D4S20**	55	70	114	44	28.0	20	0.35	WDXT 042004	1
13.5	★	**WDX135D4S20**	57	72	116				0.30		1
14.0	★	**WDX140D4S20**	59	74	118				0.25		1
14.5	★	**WDX145D4S20**	61	76	120				0.20		1
15.0	★	**WDX150D4S20**	63	78	122				0.15		1
15.5	★	**WDX155D4S20**	65	80	124	44	30.0	20	0.40	WDXT 052504	1
16.0	★	**WDX160D4S20**	67	82	126						1
16.5	★	**WDX165D4S20**	69	84	128				0.35		1
17.0	★	**WDX170D4S20**	71	86	130				0.30		1
17.5	★	**WDX175D4S25**	73	88	144	56	32.0	25	0.25		1
18.0	★	**WDX180D4S25**	75	90	146				0.20		1
18.5	★	**WDX185D4S25**	77	92	148	56	33.0	25	0.50	WDXT 063006	1
19.0	★	**WDX190D4S25**	79	94	150				0.45		1
19.5	★	**WDX195D4S25**	81	96	152				0.40		1
20.0	★	**WDX200D4S25**	83	98	154				0.30		1
20.5	★	**WDX205D4S25**	85	100	156						1
21.0	★	**WDX210D4S25**	87	102	158				0.20		1
21.5	★	**WDX215D4S25**	89	104	160				0.15		1
22.0	★	**WDX220D4S25**	91	106	162				0.10		1
22.5	★	**WDX225D4S25**	93	108	164				0.05		1
23.0	★	**WDX230D4S25**	95	113	169	56	37.0	25	0.70		1
23.5	★	**WDX235D4S25**	97	115	171						1
24.0	★	**WDX240D4S25**	99	117	173				0.60		1
24.5	★	**WDX245D4S25**	101	119	175				0.50		1
25.0	★	**WDX250D4S25**	103	121	177						1
25.5	★	**WDX255D4S32**	105	125	185	60	41.0	32	0.45	WDXT 073506	2
26.0	★	**WDX260D4S32**	107	127	187				0.40		2
26.5	★	**WDX265D4S32**	109	129	189				0.35		2
27.0	★	**WDX270D4S32**	111	131	191				0.25		2
27.5	★	**WDX275D4S32**	113	133	193				0.20		2
28.0	★	**WDX280D4S32**	115	135	195				0.15		2
28.5	★	**WDX285D4S32**	117	137	197				0.10		2
29.0	★	**WDX290D4S32**	120	141	201	60	50.0	32	1.00		2
29.5	★	**WDX295D4S32**	122	143	203				0.95		2
30.0*	★	**WDX300D4S32**	124	148	208		54.0		0.90		2
31.0*	★	**WDX310D4S32**	128	152	212				0.80		2
32.0*	★	**WDX320D4S32**	132	156	216				0.70		2
30.0*	★	**WDX300D4S40**	124	148	218	70	54.0	40	0.90	WDXT 094008	2
31.0*	★	**WDX310D4S40**	128	152	222				0.80		2
32.0*	★	**WDX320D4S40**	132	156	226				0.70		2
33.0	★	**WDX330D4S40**	136	160	230				0.55		2
34.0	★	**WDX340D4S40**	140	164	234				0.45		2
35.0	★	**WDX350D4S40**	144	168	238				0.35		2
36.0	★	**WDX360D4S40**	148	172	242				0.20		2
37.0	★	**WDX370D4S40**	153	183	253	70	49.5	40	1.00	WDXT 125012	2
38.0	★	**WDX380D4S40**	157	187	257						2
39.0	★	**WDX390D4S40**	161	191	261				0.90		2
40.0	★	**WDX400D4S40**	165	195	265				0.80		2
41.0	★	**WDX410D4S40**	169	199	269				0.70		2
42.0	★	**WDX420D4S40**	173	203	273				0.60		2
43.0	★	**WDX430D4S40**	177	207	277				0.50		2
44.0	★	**WDX440D4S40**	181	211	281						2
45.0	★	**WDX450D4S40**	185	215	285				0.40		2

*Diameters *ø30, ø31, ø32* are in stock with shank diameters of *ø32 and ø40*.

★: Worldwide Warehouse Item

Holder Diameter *ø46.0 to 63.0mm*

Dimensions (*mm*)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Radial Offset (Max)	Applicable Insert	Fig
46.0	★	**WDX460D4S40**	189	219	289	70	49.5	40	1.50	WDXT 156012	2
47.0	★	**WDX470D4S40**	193	223	293				1.40		2
48.0	★	**WDX480D4S40**	197	227	297				1.30		2
49.0	★	**WDX490D4S40**	201	231	301				1.20		2
50.0	★	**WDX500D4S40**	205	235	305				1.10		2
51.0	★	**WDX510D4S40**	209	239	309				1.00		3
52.0	★	**WDX520D4S40**	213	243	313		50.5		0.90		3
53.0	★	**WDX530D4S40**	217	247	317		51.5		0.80		3
54.0	★	**WDX540D4S40**	221	251	321		52.5		0.60		3
55.0	★	**WDX550D4S40**	225	255	325		53.5		0.50		3
56.0	★	**WDX560D4S40**	232	264	334	70	54.0	40	2.00	WDXT 186012	3
57.0	★	**WDX570D4S40**	236	268	338		55.0		1.80		3
58.0	★	**WDX580D4S40**	240	272	342		56.0		1.70		3
59.0	★	**WDX590D4S40**	244	276	346		57.0		1.60		3
60.0	★	**WDX600D4S40**	248	280	350		58.0		1.50		3
61.0	★	**WDX610D4S40**	252	284	354		59.0		1.40		3
62.0	★	**WDX620D4S40**	256	288	358		60.0		1.30		3
63.0	★	**WDX630D4S40**	260	292	362		61.0		1.20		3

*Diameters *ø30, ø31, ø32* are in stock with shank diameters of *ø32 and ø40*.

Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX130D4S20 to WDX150D4S20	BFTX01604N	0.3	TRX06	-
WDX155D4S20 to WDX180D4S25	BFTX0204N	0.5	TRX06	-
WDX185D4S25 to WDX225D4S25	BFTY02206	1.0	-	TRD07
WDX230D4S25 to WDX285D4S32	BFTX02506N	1.5	-	TRD08
WDX290D4S32 to WDX360D4S40	BFTX03584	3.5	-	TRD15
WDX370D4S40 to WDX450D4S40	BFTX0511N	5.0	-	TRD20
WDX460D4S40 to WDX680D4S40	BFTX0615N	5.0	-	TRD25

Identification Code - Metric

WDX 200 D4 S25

Dia. DC (ø20.0) — Flute Length L/D (4D) — Shank Dia. DCON (ø25.0)

N·m Recommended Tightening Torque (N·m)

WDX - Inserts 4D (Internal Coolant Supply)

■ Insert Availability

Dimensions (inch/ *mm*)

Grade		Coated Carbide				
Process	High-speed/Light	P K				N
	General-purpose		P M	M S	S	
	Roughing		P M		K	

Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Width W1	Thickness S	Nose Radius RE1	Nose Radius RE2	Applicable Holder (Inch / *Metric*)	Fig
WDXT042004-L	●	●		●		.1654 *(4.2)*	.0788 *(2.0)*	.0157 *(0.4)*	.0157 *(0.4)*	WDX0562D4S075 to WDX0594D4S075 *WDX130D4S20 to WDX150D4S20*	1
WDXT042004-G	●	●		●	●						2
WDXT042004-H	●	●		●							3
WDXT042004-M			●						.0314 *(.8)*		4
WDXT052504-L	●	●		●		.1969 *(5.0)*	.0984 *(2.5)*	.0157 *(0.4)*	.0157 *(0.4)*	WDX0625D4S100 to WDX0687D4S100 *WDX155D4S20 to WDX180D4S25*	1
WDXT052504-G	●	●		●	●						2
WDXT052504-H	●	●		●							3
WDXT052504-M			●						.0394 *(1.0)*		4
WDXT063006-L	●	●		●		.2362 *(6.0)*	.1181 *(3.0)*	.0236 *(0.6)*	.0236 *(0.6)*	WDX0750D4S100 to WDX0875D4S100 *WDX185D4S25 to WDX225D4S25*	1
WDXT063006-G	●	●		●	●						2
WDXT063006-H	●	●		●							3
WDXT063006-M			●						.0551 *(1.4)*		4
WDXT073506-L	●	●		●		.2953 *(7.5)*	.1378 *(3.5)*	.0236 *(0.6)*	.0236 *(0.6)*	WDX0937D4S125 to WDX1125D4S125 *WDX230D4S25 to WDX285D4S32*	1
WDXT073506-G	●	●		●	●						2
WDXT073506-H	●	●		●							3
WDXT073506-M			●						.0629 *(1.6)*		4
WDXT094008-L	●	●		●		.3780 *(9.6)*	.1575 *(4.0)*	.0315 *(0.8)*	.0315 *(0.8)*	WDX1187D4S125 to WDX1437D4S150 *WDX290D4S32 to WDX360D4S40*	1
WDXT094008-G	●	●		●	●						2
WDXT094008-H	●	●		●							3
WDXT094008-M			●						.0944 *(2.4)*		4
WDXT125012-L	●	●		●		.4882 *(12.4)*	.1969 *(5.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX1500D4S150 to WDX1750D4S150 *WDX370D4S40 to WDX450D4S40*	1
WDXT125012-G	●	●		●	●						2
WDXT125012-H	●	●		●							3
WDXT125012-M			●						.1259 *(3.2)*		4
WDXT156012-L	●	●		●		.5984 *(15.2)*	.2362 *(6.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX1812D4S150 to WDX2125D4S150 *WDX460D4S40 to WDX550D4S40*	1
WDXT156012-G	●	●		●	●						2
WDXT156012-H	●	●		●							3
WDXT186012-L	●	●		●		.7087 *(18.0)*	.2362 *(6.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX2250D4S150 to WDX2625D4S150 *WDX560D4S40 to WDX680D4S40*	1
WDXT186012-G	●	●		●							2
WDXT186012-H	●	●		●							3

Fig 1 For low feed with chip evacuation

L

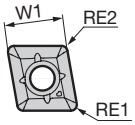


Fig 2 General-purpose

G

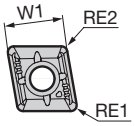


Fig 3 Strong Edged

H

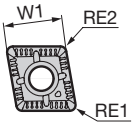
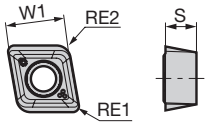


Fig 4 For stainless steel machining

M



WDXT 06 30 06 -G

Width across Flats (6.0) — Thickness x 10 (3.0) — Nose Radius x 10 (0.6) — Breaker Type

● USA stocked item

■ Recommended Cutting Conditions

	Part Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (Cutting Speed) (SFM)	*f* (feed rate) (IPR) (Min. - Max.) ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
P	Steel, Carbon Steel	A529	<190	G	ACP300	450 - 780	.002 - .006	.003 - .008	.005 - .010	.006 - .012
		1015 Steel		L	ACP300	450 - 750	.002 - .004	.002 - .005	.003 - .006	N/A
		1045 Steel	190 ~ 250	G	ACP300	400 - 700	.003 - .009	.004 - .010	.005 - .010	.006 - .012
		1045 Steel Hardened		G	ACP100	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
		1075 Steel	250 ~ 350	G	ACP100	350 - 550	.003 - .007	.003 - .008	.004 - .009	.004 - .010
		1075 Steel Hardened		G	ACP100	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
	Low-alloy Steel	4140,4340	180 ~ 275	L	ACP300	350 - 700	.002 - .007	.003 - .008	.005 - .010	.006 - .010
		4140,4340 Hardened		G	ACP100	350 - 650	.002 - .004	.002 - .005	.003 - .006	N/A
		4140,4340 Hardened	275 ~ 350	G	ACP100	300 - 500	.002 - .006	.003 - .007	.004 - .008	.006 - .009
		4140,4340 Hardened		G	ACP100	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
	High-alloy Steel	D2,L6,M2	200 ~ 325	G	ACP100	350 - 650	.003 - .006	.003 - .008	.006 - .010	.006 - .012
		D2,L6,M2 (Sintered)		G	ACP100	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
M	Stainless Steel	304, 316 (Austenitic)	160	M	ACM300	450 - 700	.003 - .007	.003 - .008	.005 - .010	.006 - .012
		304, 316 (Austenitic)	280	M	ACM300	400 - 550	.002 - .006	.003 - .006	.004 - .008	.006 - .010
		403/Others (Martensitic/Ferritic)	160	M	ACM300	450 - 700	.003 - .007	.003 - .008	.004 - .010	.006 - .012
		403 / Others (Martensitic (hardened))	240	M	ACM300	400 - 600	.002 - .006	.003 - .006	.004 - .008	.006 - .010
K	Cast Iron			H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .014	.006 - .017
	Ductile Cast Iron			H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .014	.006 - .017
S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200 ~ 375	G	ACP300	80 - 250	.002 - .005	.003 - .007	.003 - .008	.003 - .010
N	Aluminum Alloy			G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
	Copper Alloy			G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate (*f*) to 75% of the figures in the table above.

WDX - Inch 5D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 5D | Indexable

Fig 1

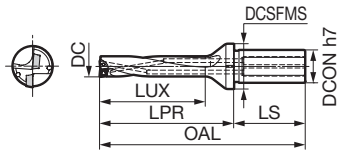


Fig 2

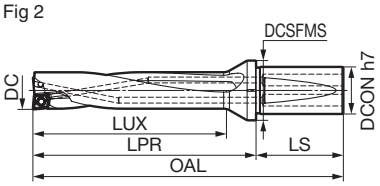
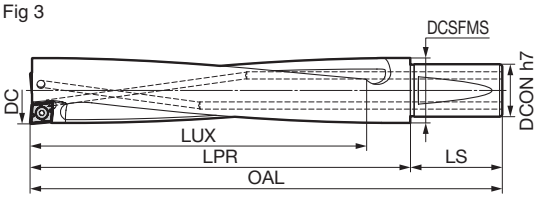


Fig 3



Holder Diameter ø0.5625" to 2.1250"

Dimensions (*inch*)

Dia. DC	Stock	Cat.No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Applicable Insert	Fig
0.5625	•	**WDX0562D5S075**	2.9280	3.5190	5.5190	2.0000	1.1020	.7500	WDXT042004	1
0.5937	•	**WDX0594D5S075**	3.0880	3.6790	5.6790					1
0.6250	•	**WDX0625D5S100**	3.2430	3.8340	6.3340	2.5000	1.2600	1.0000	WDXT052504	1
0.6562	•	**WDX0656D5S100**	3.3980	3.9890	6.4890					1
0.6875	•	**WDX0687D5S100**	3.5530	4.1440	6.6440					1
0.7500	•	**WDX0750D5S100**	3.8680	4.4590	6.9590	2.5000	1.2990	1.0000	WDXT063006	1
0.7870	•	**WDX0787D5S100**	4.0530	4.6440	7.1440					1
0.8125	•	**WDX0812D5S100**	4.1780	4.7690	7.2690					1
0.8750	•	**WDX0875D5S100**	4.4930	5.0840	7.5840					2
0.9375	•	**WDX0937D5S125**	4.8030	5.5120	8.0120	2.5000	1.6140	1.2500	WDXT073506	2
1.0000	•	**WDX1000D5S125**	5.1180	5.8270	8.3270					2
1.0625	•	**WDX1062D5S125**	5.4280	6.1370	9.1370	3.0000	1.6140	1.2500		2
1.1250	•	**WDX1125D5S125**	5.7430	6.4520	9.4520					2
1.1875	•	**WDX1187D5S125**	6.0930	6.9200	9.9200	3.0000	1.9680	1.2500	WDXT094008	2
1.2500	•	**WDX1250D5S125**	6.4080	7.2350	10.2350					2
1.3125	•	**WDX1312D5S150**	6.7180	7.6630	10.6630	3.0000	2.1260	1.5000		2
1.3750	•	**WDX1375D5S150**	7.0330	7.9780	10.9780					2
1.4375	•	**WDX1437D5S150**	7.3430	8.2880	11.2880					2
1.5000	•	**WDX1500D5S150**	7.6970	8.8780	11.8780	3.0000	1.9490	1.5000	WDXT125012	2
1.5625	•	**WDX1562D5S150**	8.0070	9.1880	12.1880					2
1.6250	•	**WDX1625D5S150**	8.3220	9.5030	12.5030	3.0000	1.9490	1.5000		3
1.6875	•	**WDX1687D5S150**	8.6320	9.8130	12.8130					3
1.7500	•	**WDX1750D5S150**	8.9470	10.1280	13.1280					3
1.8125		**WDX1812D5S150**	9.2570	10.4380	13.4380	3.0000	1.9490	1.5000	WDXT156012	3
1.8750	•	**WDX1875D5S150**	9.5720	10.7530	13.7530					3
1.9375		**WDX1937D5S150**	9.8820	11.0630	14.0630					3
2.0000	•	**WDX2000D5S150**	10.1970	11.3780	14.3780					3
2.1250	•	**WDX2125D5S150**	10.8220	12.0030	15.0030					3

•: USA Stocked Item *5XD WDX Drills have 2 coolant holes in the back of the drill and no single thread port

Identification Code - Inch

WDX 05625 D5 S075

- 05625: Dia. DC (ø0.5625")
- D5: Flute Length L/D (5D)
- S075: Shank Dia. DCON (ø0.750")

Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX0562D5S075 to WDX0594D5S075	BFTX01604N	0.3	TRX06	-
WDX0625D5S100 to WDX0687D5S100	BFTX0204N	0.5	TRX06	-
WDX0750D5S100 to WDX0875D5S100	BFTY02206	1.0	-	TRD07
WDX0937D5S125 to WDX1125D5S125	BFTX02506N	1.5	-	TRD08
WDX1187D5S125 to WDX1437D5S150	BFTX03584	3.5	-	TRD15
WDX1500D5S150 to WDX1750D5S150	BFTX0511N	5.0	-	TRD20
WDX1812D5S150 to WDX2625D5S150	BFTX0615N	5.0	-	TRD25

WDX - Metric 5D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Cast Iron | Ductile Cast Iron | Aluminum Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 5D | Indexable

Fig 1

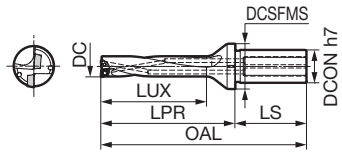


Fig 2

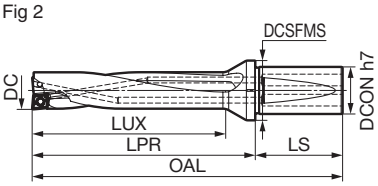
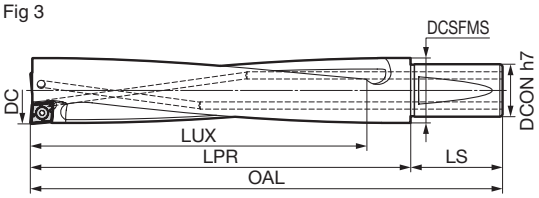


Fig 3



Holder Diameter *ø13.0 to 45.0mm*

Dimensions (*mm*)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Radial Offset (Max)	Applicable Insert	Fig
13.0	★	**WDX130D5S20**	68.0	83.0	127.0	44	28.0	20.0	0.35	WDXT 042004	1
13.5	★	**WDX135D5S20**	70.5	85.5	129.5				0.30		1
14.0	★	**WDX140D5S20**	73.0	88.0	132.0				0.25		1
14.5	★	**WDX145D5S20**	75.5	90.5	134.5				0.20		1
15.0	★	**WDX150D5S20**	78.0	93.0	137.0				0.15		1
15.5	★	**WDX155D5S20**	80.5	95.5	139.5	44	30.0	20.0	0.40	WDXT 052504	1
16.0	★	**WDX160D5S20**	83.0	98.0	142.0						1
16.5	★	**WDX165D5S20**	85.5	100.5	144.5				0.35		1
17.0	★	**WDX170D5S20**	88.0	103.0	147.0				0.30		1
17.5	★	**WDX175D5S25**	90.5	105.5	161.5	56	32.0	25.0	0.25		1
18.0	★	**WDX180D5S25**	93.0	108.0	164.0				0.20		1
18.5	★	**WDX185D5S25**	95.5	110.5	166.5	56	33.0	25.0	0.50	WDXT 063006	1
19.0	★	**WDX190D5S25**	98.0	113.0	169.0				0.45		1
19.5	★	**WDX195D5S25**	100.5	115.5	171.5				0.40		1
20.0	★	**WDX200D5S25**	103.0	118.0	174.0				0.30		1
20.5	★	**WDX205D5S25**	105.5	120.5	176.5						1
21.0	★	**WDX210D5S25**	108.0	123.0	179.0				0.20		1
21.5	★	**WDX215D5S25**	110.5	125.5	181.5				0.15		1
22.0	★	**WDX220D5S25**	113.0	128.0	184.0				0.10		1
22.5	★	**WDX225D5S25**	115.5	130.5	186.5				0.05		1
23.0	★	**WDX230D5S25**	118.0	136.0	192.0	56	37.0	25.0	0.70	WDXT 073506	1
23.5	★	**WDX235D5S25**	120.5	138.5	194.5						1
24.0	★	**WDX240D5S25**	123.0	141.0	197.0				0.60		1
24.5	★	**WDX245D5S25**	125.5	143.5	199.5				0.50		1
25.0	★	**WDX250D5S25**	128.0	146.0	202.0						1
26.0	★	**WDX260D5S32**	133.0	153.0	213.0	60	41.0	32.0	0.40		2
27.0	★	**WDX270D5S32**	138.0	158.0	218.0				0.25		2
28.0	★	**WDX280D5S32**	143.0	163.0	223.0				0.15		2
29.0	★	**WDX290D5S32**	149.0	170.0	230.0	60	50.0	32.0	1.00	WDXT 094008	2
30.0	★	**WDX300D5S32**	154.0	178.0	238.0		54.0		0.90		2
31.0	★	**WDX310D5S32**	159.0	183.0	243.0				0.80		2
32.0	★	**WDX320D5S32**	164.0	188.0	248.0				0.70		2
30.0	★	**WDX300D5S40**	154.0	178.0	248.0	70	54.0	40.0	0.90		2
31.0	★	**WDX310D5S40**	159.0	183.0	253.0				0.80		2
32.0	★	**WDX320D5S40**	164.0	188.0	258.0				0.70		2
33.0	★	**WDX330D5S40**	169.0	193.0	263.0				0.55		2
34.0	★	**WDX340D5S40**	174.0	198.0	268.0				0.45		2

*Diameters *ø30, ø31, ø32* are in stock with shank diameters of *ø32 and ø40.*

Holder Diameter *ø46.0 to 55.0mm*

Dimensions (*mm*)

Dia. DC	Stock	Cat. No.	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange DCSFMS	Shank Dia. DCON	Radial Offset (Max)	Applicable Insert	Fig
35.0	★	**WDX350D5S40**	179.0	203.0	273.0	70	54.0	40.0	0.35	WDXT 094008	2
36.0	★	**WDX360D5S40**	184.0	208.0	278.0				0.20		2
37.0	★	**WDX370D5S40**	190.0	220.0	290.0	70	49.5	40.0	1.00	WDXT 125012	2
38.0	★	**WDX380D5S40**	195.0	225.0	295.0						2
39.0	★	**WDX390D5S40**	200.0	230.0	300.0				0.90		2
40.0	★	**WDX400D5S40**	205.0	235.0	305.0				0.80		2
41.0	★	**WDX410D5S40**	210.0	240.0	310.0				0.70		2
42.0	★	**WDX420D5S40**	215.0	245.0	315.0				0.60		2
43.0	★	**WDX430D5S40**	220.0	250.0	320.0				0.50		2
44.0	★	**WDX440D5S40**	225.0	255.0	325.0						2
45.0	★	**WDX450D5S40**	230.0	260.0	330.0				0.40		2
46.0	★	**WDX460D5S40**	235.0	265.0	335.0				1.50	WDXT 156012	2
47.0	★	**WDX470D5S40**	240.0	270.0	340.0				1.40		2
48.0	★	**WDX480D5S40**	245.0	275.0	345.0				1.30		2
49.0	★	**WDX490D5S40**	250.0	280.0	350.0				1.20		2
50.0	★	**WDX500D5S40**	255.0	285.0	355.0				1.10		2
51.0	★	**WDX510D5S40**	260.0	290.0	360.0				1.00		3
52.0	★	**WDX520D5S40**	265.0	295.0	365.0		50.5		0.90		3
53.0	★	**WDX530D5S40**	270.0	300.0	370.0		51.5		0.80		3
54.0	★	**WDX540D5S40**	275.0	305.0	375.0		52.5		0.60		3
55.0	★	**WDX550D5S40**	280.0	310.0	380.0		53.5		0.50		3

*5XD WDX Drills have 2 coolant holes in the back of the drill and no single thread port

Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX130D5S20 to WDX150D5S20	BFTX01604N	0.3	TRX06	-
WDX155D5S20 to WDX180D5S25	BFTX0204N	0.5	TRX06	-
WDX185D5S25 to WDX225D5S25	BFTY02206	1.0	-	TRD07
WDX230D5S25 to WDX285D5S32	BFTX02506N	1.5	-	TRD08
WDX290D5S32 to WDX360D5S40	BFTX03584	3.5	-	TRD15
WDX370D5S40 to WDX450D5S40	BFTX0511N	5.0	-	TRD20
WDX460D5S40 to WDX680D5S40	BFTX0615N	5.0	-	TRD25

Identification Code - Metric

WDX 200 D5 S25

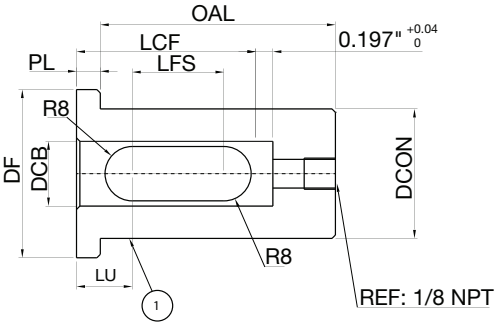
Dia. DC (ø20.0) — Flute Length L/D (5D) — Shank Dia. DCON (ø25.0)

★: Worldwide Warehouse Item

Coolant Adapter Sleeve Diameter *ø13.0 to 45.0mm*

Dimensions (inch)

Cat. No.	Stock	Sleeve ID DCB	Sleeve Dia. DF	Sleeve Dia. DCON	Sleeve ID L LCF	Overall Length OAL	Flange L PL	L to Slot LU	Slot L LFS
SLV075	●	0.750"	1.949"	1.500"	2.000"	3.000"	0.280"	0.650"	1.060"
SLV1000	●	1.000"	1.949"	1.500"	2.500"	3.000"	0.280"	0.650"	1.060"
SLV1250	●	1.250"	1.949"	1.500"	2.500"	3.000"	0.280"	0.650"	1.060"
SLV1250L	●	1.250"	1.949"	1.500"	3.000"	3.000"	0.780"	1.150"	1.800"
SLV1500	●	1.500"	2.500"	2.000"	3.000"	3.000"	0.780"	1.150"	1.800"
SLV20M	●	*20mm*	1.949"	1.500"	2.000"	3.000"	0.280"	0.650"	1.060"
SLV25M	●	*25mm*	1.949"	1.500"	2.500"	3.000"	0.280"	0.650"	1.060"
SLV32M	●	*32mm*	1.949"	1.500"	2.500"	3.000"	0.280"	0.650"	1.060"
SLV40M	●	*40mm*	2.500"	2.000"	3.000"	3.000"	0.780"	1.150"	1.800"



N·m Recommended Tightening Torque (N·m)

WDX - Inserts 5D (Internal Coolant Supply)

■ Insert Availability

Dimensions (inch/ *mm*)

Grade		Coated Carbide				
Process	High-speed/Light	P K				N
	General-purpose		P M	M S	S	
	Roughing		P M		K	

Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Width W1	Thickness S	Nose Radius RE1	Nose Radius RE2	Applicable Holder (Inch / *Metric*)	Fig
WDXT042004-L	•	•		•		.1654 *(4.2)*	.0788 *(2.0)*	.0157 *(0.4)*	.0157 *(0.4)*	WDX0562D5S075 to WDX0594D5S075 *WDX130D5S20 to WDX150D5S20*	1
WDXT042004-G	•	•		•	•						2
WDXT042004-H	•	•		•							3
WDXT042004-M			•						.0314 *(.8)*		4
WDXT052504-L	•	•		•		.1969 *(5.0)*	.0984 *(2.5)*	.0157 *(0.4)*	.0157 *(0.4)*	WDX0625D5S100 to WDX0687D5S100 *WDX155D5S20 to WDX180D5S25*	1
WDXT052504-G	•	•		•	•						2
WDXT052504-H	•	•		•							3
WDXT052504-M			•						.0394 *(1.0)*		4
WDXT063006-L	•	•		•		.2362 *(6.0)*	.1181 *(3.0)*	.0236 *(0.6)*	.0236 *(0.6)*	WDX0750D5S100 to WDX0875D5S100 *WDX185D5S25 to WDX225D5S25*	1
WDXT063006-G	•	•		•	•						2
WDXT063006-H	•	•		•							3
WDXT063006-M			•						.0551 *(1.4)*		4
WDXT073506-L	•	•		•		.2953 *(7.5)*	.1378 *(3.5)*	.0236 *(0.6)*	.0236 *(0.6)*	WDX0937D5S125 to WDX1125D5S125 *WDX230D5S25 to WDX285D5S32*	1
WDXT073506-G	•	•		•	•						2
WDXT073506-H	•	•		•							3
WDXT073506-M			•						.0629 *(1.6)*		4
WDXT094008-L	•	•		•		.3780 *(9.6)*	.1575 *(4.0)*	.0315 *(0.8)*	.0315 *(0.8)*	WDX1187D5S125 to WDX1437D5S150 *WDX290D5S32 to WDX360D5S40*	1
WDXT094008-G	•	•		•	•						2
WDXT094008-H	•	•		•							3
WDXT094008-M			•						.0944 *(2.4)*		4
WDXT125012-L	•	•		•		.4882 *(12.4)*	.1969 *(5.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX1500D5S150 to WDX1750D5S150 *WDX370D5S40 to WDX450D5S40*	1
WDXT125012-G	•	•		•	•						2
WDXT125012-H	•	•		•							3
WDXT125012-M			•						.1259 *(3.2)*		4
WDXT156012-L	•	•		•		.5984 *(15.2)*	.2362 *(6.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX1812D5S150 to WDX2125D5S150 *WDX460D5S40 to WDX550D5S40*	1
WDXT156012-G	•	•		•	•						2
WDXT156012-H	•	•		•							3
WDXT186012-L	•	•		•		.7087 *(18.0)*	.2362 *(6.0)*	.0472 *(1.2)*	.0472 *(1.2)*	WDX2250D5S150 to WDX2625D5S150 *WDX560D5S40 to WDX680D5S40*	1
WDXT186012-G	•	•		•							2
WDXT186012-H	•	•		•							3

Fig 1 For low feed with chip evacuation

L

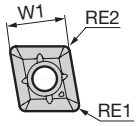


Fig 2 General-purpose

G

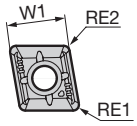


Fig 3 Strong Edged

H

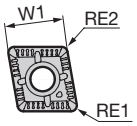
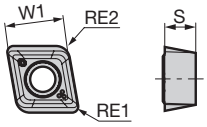


Fig 4 For stainless steel machining

M



WDXT 06 30 06 -G

Width across Flats (6.0) — Thickness x 10 (3.0) — Nose Radius x 10 (0.6) — Breaker Type

• USA stocked item

■ Recommended Cutting Conditions

	Part Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (Cutting Speed) (SFM)	*f* (feed rate) (IPR) (Min. - Max.) ø0.562 - ø1.00	ø1.062 - ø1.50	ø1.56 - ø2.125	ø2.25 - ø2.625
P	Steel, Carbon Steel	A529	<190	G	ACP300	450 - 780	.002 - .006	.003 - .008	.005 - .010	.006 - .012
		1015 Steel		L	ACP300	450 - 750	.002 - .004	.002 - .005	.003 - .006	N/A
		1045 Steel	190 ~ 250	G	ACP300	400 - 700	.003 - .009	.004 - .010	.005 - .010	.006 - .012
		1045 Steel Hardened		G	ACP100	400 - 700	.002 - .004	.002 - .005	.003 - .006	N/A
		1075 Steel	250 ~ 350	G	ACP100	350 - 550	.003 - .007	.003 - .008	.004 - .009	.004 - .010
		1075 Steel Hardened		G	ACP100	350 - 525	.002 - .004	.002 - .004	.003 - .005	N/A
	Low-alloy Steel	4140,4340	180 ~ 275	L	ACP300	350 - 700	.002 - .007	.003 - .008	.005 - .010	.006 - .010
		4140,4340 Hardened		G	ACP100	350 - 650	.002 - .004	.002 - .005	.003 - .006	N/A
		4140,4340 Hardened	275 ~ 350	G	ACP100	300 - 500	.002 - .006	.003 - .007	.004 - .008	.006 - .009
		4140,4340 Hardened		G	ACP100	300 - 500	.002 - .003	.002 - .004	.003 - .005	N/A
	High-alloy Steel	D2,L6,M2	200 ~ 325	G	ACP100	350 - 650	.003 - .006	.003 - .008	.006 - .010	.006 - .012
		D2,L6,M2 (Sintered)		G	ACP100	300 - 450	.002 - .004	.003 - .005	.003- .006	N/A
M	Stainless Steel	304, 316 (Austenitic)	160	M	ACM300	450 - 700	.003 - .007	.003 - .008	.005 - .010	.006 - .012
		304, 316 (Austenitic)	280	M	ACM300	400 - 550	.002 - .006	.003 - .006	.004 - .008	.006 - .010
		403/Others (Martensitic/Ferritic)	160	M	ACM300	450 - 700	.003 - .007	.003 - .008	.004 - .010	.006 - .012
		403 / Others (Martensitic (hardened))	240	M	ACM300	400 - 600	.002 - .006	.003 - .006	.004 - .008	.006 - .010
K	Cast Iron			H	ACK300	400 - 650	.004 - .008	.004 - .012	.006 - .014	.006 - .017
	Ductile Cast Iron			H	ACK300	300 - 500	.004 - .008	.004 - .012	.006 - .014	.006 - .017
S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200 ~ 375	G	ACP300	80 - 250	.002 - .005	.003 - .007	.003 - .008	.003 - .010
N	Aluminum Alloy			G	DL1500	650 - 1200	.003 - .006	.003 - .007	.004 - .008	.005 - .010
	Copper Alloy			G	DL1500	600 - 900	.003 - .006	.003 - .007	.004 - .008	.005 - .010

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate (*f*) to 75% of the figures in the table above.

■ Lathe Machining Guidelines

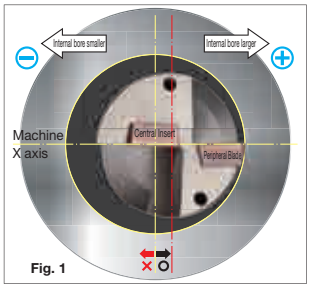


Fig. 1

Fig. 2

■ Drill Mounting

- Set the drill so that the peripheral insert is parallel to the X axis of the machine. (Fig.1)
- Press the end of the flange of the drill tightly against the face of the holder when tightening the bolt.

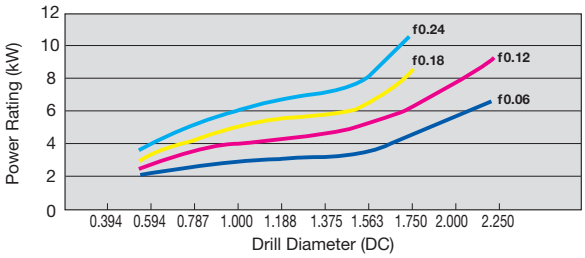
■ Adjusting work diameter (offset)

- The work diameter is adjustable by moving the machine X axis.
- Make the adjustment by moving in the positive direction of the X axis (enlarging the bore diameter). Moving the X axis in the negative direction (to reduce the bore diameter) is not recommended as the holder may interfere with the hole. (See Fig. 1)
- The maximum allowable adjustment (offset) differs depending on the drill diameter.

■ Other notes

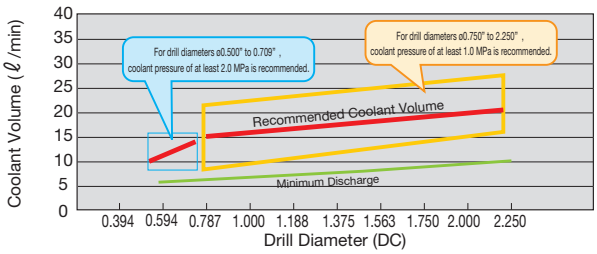
- When the drill is mounted on a lathe, the center of the central insert is designed to be 0.15 to 0.2 mm below the centre of the spindle.
- If the spindle deviates so far off centre that the centre of the central insert lies above the spindle centre, the central insert will break.
- Set the depth of cut for turning or internal boring work to 1/5 or less of the drill diameter (max. 5 mm or less). (Example: Set depth of cut to 4 mm or less for a drill diameter of ø20 mm)
- Install a cover to prevent injury from possible chip fly-out (see disc-shaped chip in Figure 2) when through boring on a lathe. If your equipment has no cover, attach a cover or similar part for your safety.

■ Typical Power Ratings



<CAUTIONS>
- Power ratings are subject to change based on conditions such as work material and cutting speed, and should only be used for reference.
- Cutting Conditions (Reference)
  Work Material: S50C (230HB)
  Cutting Speed: v_C=492 SFM

■ Typical Coolant Volume



<CAUTIONS>
- Coolant volume is a factor that affects drilling performance, particularly with respect to chip evacuation and lubricity.
  This is particularly important for chip evacuation and lubricity.
- Coolant pressure should be set higher for small drills. (ø18.0 mm or smaller)
- Coolant volume is usually adjusted by changing the coolant pressure provided on most CNC machines.
- This table provides guideline values only. More coolant may be required depending on the machine, coolant and work material.

■ Precautions for Attaching and Removing Inserts

- Before mounting the insert, remove all traces of foreign matter on the insert seat using air or other means.
- When using the wrench, align it to the axis of the screw and press while turning. (See Fig. 3)
  If the wrench is not aligned with the screw, the insert will be insufficiently clamped
  and the tip of the wrench and/or the Torx hole of the screw may become deformed.
- Do not allow clearance between the insert seat and drill when mounting the insert (Fig. 4, Part A).
  Figure 4 shows a properly mounted insert.

* It is normal for the outer sides of the central insert to have clearance because it is clamped at its center and pushed to the rear.

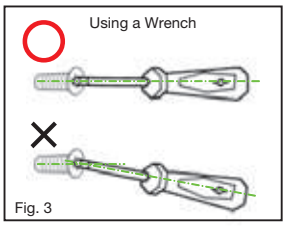


Fig. 3

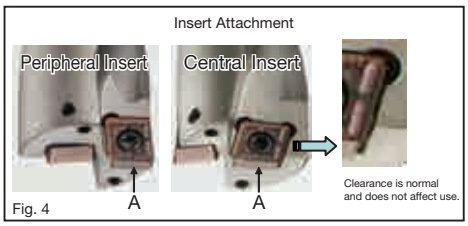


Fig. 4

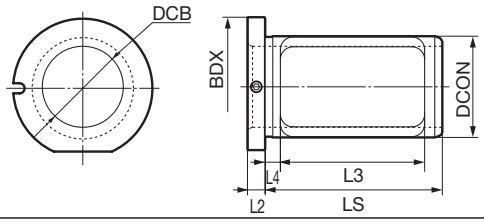
■ Troubleshooting

Problem	Symptom	Cause	Countermeasures
Too much variation in hole diameter	Drilled hole diameter is larger than desired	· Deflection of the holder due to high thrust force	· Decrease the feed rate to decrease the thrust force. · Make an adjustment on the X axis.
	Drilled hole diameter is smaller than desired	· The cutting edge backs off and does not enter the workpiece	· Increase the feed rate. · Make an adjustment on the X axis.
	Pronounced difference in hole diameter at entrance and bottom	· Packing of chips	· Increase the feed rate to improve chip evacuation. · Use an L breaker for chip control.
Poor quality machined hole surface	Poor machined surface from entrance to bottom of hole	· High cutting force · Low rigidity of workpiece	· Decrease the feed rate. · Review tooling to improve rigidity.
	Poor machined surface at bottom of hole	· Machined surfaces damaged by chips	· Increase the feed rate to improve chip evacuation. · Use an L type breaker for chip control.
Insert is broken	Breakage on central insert (centre)	· Improper adjustment of centre height · Insert is not strong enough	· Check the centre height again. · If the drill is being used on a lathe, try flipping the drill 180°. · Use a strong edge chipbreaker (H).
	Breakage on peripheral insert	· High cutting load in cutting edge	· Decrease the feed rate to decrease cutting load. · Use a strong edge chipbreaker (H).

Eccentric Sleeve for WDX

Indexable

Fig 1



Body (WAS)

Parts

Dimensions (*mm*)

Cat. No.	Stock	Shank Dia. DCB	Shank Dia. DCON	Diameter BDX	Shank LS	Length L2	Length L3	Length L4	Diameter Adjustment Range	Fig	Screw	Wrench
WAS2025-48	★	*20*	*25*	*33*	*43*	*5*	*32*	*5*	+0.3 to -0.2	1	BT0306	LH015
WAS2532-60	★	*25*	*32*	*42*	*60*	*7*	*46*	*6*	+0.3 to -0.3	1	BT0406	LH020
WAS3240-70	★	*32*	*40*	*55*	*70*	*7*	*57*	*6*	+0.3 to -0.3	1	BT0408	LH020
WAS4050-85	★	*40*	*50*	*60*	*70*	*7*	*54*	*6*	+0.3 to -0.3	1	BT0408	LH020

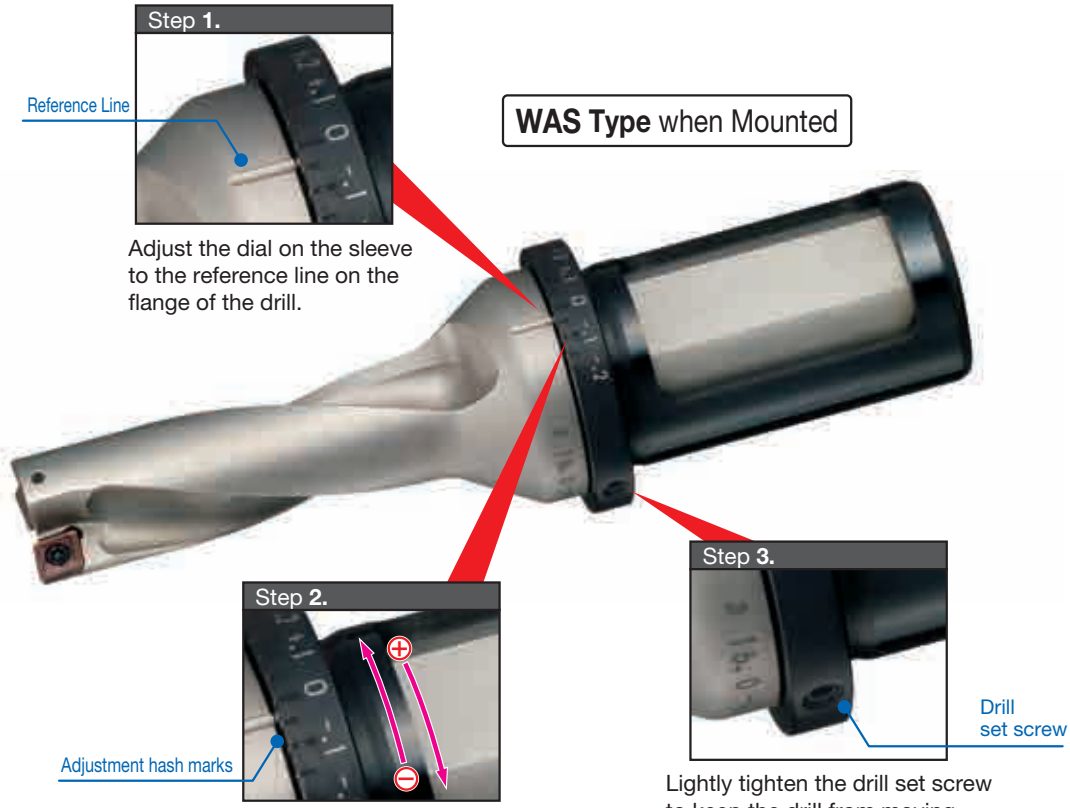
Diameter Adjustment Range indicates the range in which the diameter can be adjusted.
The dedicated Eccentric Sleeve WAS Type for the SumiDrill WDX Type provides ±0.3 mm of adjustment when drilling holes.

★: Worldwide Warehouse Item

Cautions for Use

1. The dial is for reference purposes. Always measure the actual work diameter and adjust accordingly.
2. Not usable with collet chuck type holders.
   Use a side-locking type holder.
3. Use this product under high rigidity conditions.
   This product is not recommended for deep hole drilling such as 5D and low rigidity conditions.

Directions (Adjusting the Work Diameter)



WDX - Inch 4D Side Port (Internal Coolant Supply)

■ General Features

Sumitomo Electric Carbide, Inc. is now offering WDX-L Indexable Drill with side port coolant. Due to not all spindles being coolant-thru, the WDX-L allows for customers to use coolant through the side port.

■ Features and Applications

- Diameters available in 0.5625" to 2.5000"
- WDX-L uses WDXT inserts (same as WDX style)
- Available in 4XD

Fig. 1

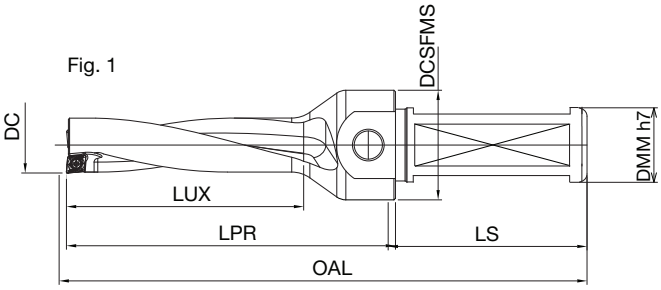
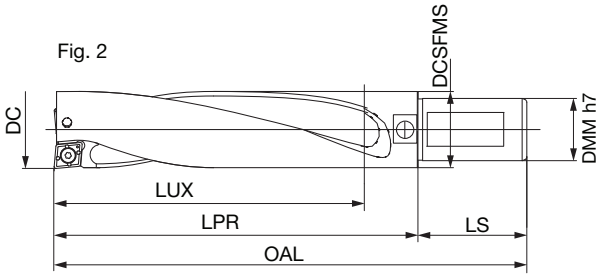


Fig. 2



Catalog Number	Stock	DC	OAL	LPR	LUX	DCSFMS	LS	Screw	Wrench	Applicable Insert	Pipe Plug	Coolant Connection	Fig.
WDX0562D4S100-L	•	0.5625	5.350	3.350	2.366	1.000	2.000	BFTX01604N	TRX06	WDXT042004	XP02	1/8 NPT	1
WDX0594D4S100-L	•	0.5937	5.478	3.478	2.494	1.000	2.000	BFTX01604N	TRX06	WDXT042004			
WDX0625D4S100-L	•	0.6250	6.181	3.681	2.618	1.000	2.500	BFTX0204N	TRX06	WDXT052504	XP04	1/4 NPT	
WDX0656D4S100-L	•	0.6562	6.305	3.805	2.742	1.000	2.500	BFTX0204N	TRX06	WDXT052504			
WDX0687D4S100-L	•	0.6875	6.429	3.929	2.866	1.000	2.500	BFTX0204N	TRX06	WDXT052504			
WDX0750D4S100-L	•	0.7500	6.681	4.181	3.118	1.000	2.500	BFTY02206	TRD07	WDXT063006			
WDX0787D4S100-L	•	0.7870	6.829	4.329	3.266	1.000	2.500	BFTY02206	TRD07	WDXT063006			
WDX0812D4S100-L	•	0.8125	6.931	4.431	3.368	1.000	2.500	BFTY02206	TRD07	WDXT063006			
WDX0875D4S100-L	•	0.8750	7.181	4.681	3.618	1.000	2.500	BFTY02206	TRD07	WDXT063006			
WDX0937D4S125-L	•	0.9375	7.549	5.049	3.868	1.250	2.500	BFTX02506N	TRD08	WDXT073506			
WDX1000D4S125-L	•	1.0000	7.799	5.299	4.118	1.250	2.500	BFTX02506N	TRD08	WDXT073506			
WDX1062D4S125-L	•	1.0625	8.549	5.549	4.368	1.250	3.000	BFTX02506N	TRD08	WDXT073506			
WDX1125D4S125-L	•	1.1250	8.799	5.799	4.618	1.250	3.000	BFTX02506N	TRD08	WDXT073506			
WDX1187D4S125-L	•	1.1875	9.206	6.206	4.907	1.250	3.000	BFTX03584	TRX15	WDXT094008			
WDX1250D4S125-L	•	1.2500	9.456	6.456	5.157	1.250	3.000	BFTX03584	TRX15	WDXT094008			
WDX1312D4S150-L	•	1.3125	9.824	6.824	5.407	1.500	3.000	BFTX03584	TRX15	WDXT094008			
WDX1375D4S150-L	•	1.3750	10.074	7.074	5.657	1.500	3.000	BFTX03584	TRX15	WDXT094008			
WDX1437D4S150-L	•	1.4375	10.324	7.324	5.907	1.500	3.000	BFTX03584	TRX15	WDXT094008			
WDX1500D4S150-L	•	1.500	10.850	7.850	6.197	1.500	3.000	BFTX0511N	TRD20	WDXT125012			
WDX1562D4S150-L		1.5625	11.098	8.098	6.445	1.500	3.000	BFTX0511N	TRD20	WDXT125012			
WDX1625D4S150-L	•	1.6250	11.350	8.350	6.697	1.500	3.000	BFTX0511N	TRD20	WDXT125012			
WDX1687D4S150-L	•	1.6875	11.602	8.602	6.949	1.500	3.000	BFTX0511N	TRD20	WDXT125012			2
WDX1750D4S150-L	•	1.7500	11.850	8.850	7.197	1.500	3.000	BFTX0511N	TRD20	WDXT125012			
WDX1812D4S150-L		1.8125	12.102	9.102	7.449	1.500	3.000	BFTX0615N	TRD25	WDXT156012			
WDX1875D4S150-L	•	1.8750	12.350	9.350	7.697	1.500	3.000	BFTX0615N	TRD25	WDXT156012			
WDX1937D4S150-L		1.9375	12.602	9.602	7.949	1.500	3.000	BFTX0615N	TRD25	WDXT156012			
WDX2000D4S150-L	•	2.0000	12.850	9.850	8.197	1.500	3.000	BFTX0615N	TRD25	WDXT156012			
WDX2125D4S150-L	•	2.1250	13.350	10.350	8.697	1.500	3.000	BFTX0615N	TRD25	WDXT156012			
WDX2250D4S150-L	•	2.2500	14.047	11.047	9.315	1.500	3.000	BFTX0615N	TRD25	WDXT186012			
WDX2375D4S150-L		2.3750	14.547	11.547	9.815	1.500	3.000	BFTX0615N	TRD25	WDXT186012			
WDX2500D4S150-L	•	2.5000	15.047	12.047	10.315	1.500	3.000	BFTX0615N	TRD25	WDXT186012			

•: USA Stocked Item

Identification Code - Inch

WDX 0562 D4 S100 - L

- 0562: Dia. DC (ø0.562)
- D4: Flute Length L/D (4D)
- S100: Shank Dia. DCON (ø100.0)
- L: Side Port Coolant

PDL / PCT

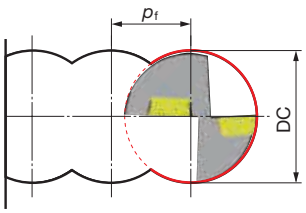
■ General Features

Cutting feed in the Z axis direction, where tool rigidity is high, allow high-efficiency, stable roughing for aeronautic components and dies with long tool overhang, where machining efficiency in long neck machining and packeting is hard to increase.

■ Features

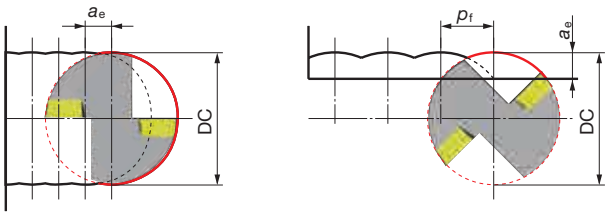
- The flat cutting edge design produces near-flat bottom profiles to reduce depth of cut variation during finishing.
- All sizes come with oil holes for supplying coolant internally to improve chip evacuation performance.
- Durable body with special surface treatment offers improved tool life and reliability.
- Utilizing SumiDrill WDX inserts for handling a wide range of work materials, from steel to non-ferrous metals and exotic alloys.

- The PDL has a central insert, enabling radial depth of cut beyond the tool's radius, pick feed cutting, drilling, pocketing, etc.

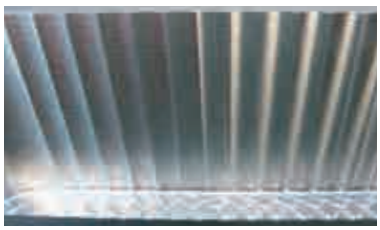


Keep the value of p_f for PDL tools to less than 70% of the tool diameter (DC).

- Although the PCT has limited radial depth of cut, the tool has a high effective number of teeth enabling it to perform high feed cutting. (Medium finishing of corners, hole expansion, deep groove processing, etc.)

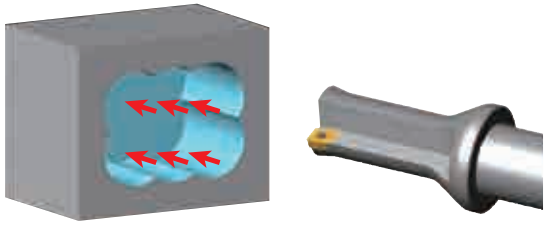


Keep the value of p_f for PCT tools to less than 50% of the tool diameter (DC).
For a_e, refer to the dimension under "a_e max" in the stock/dimensions table titled "Holders Max. Depth of Cut: 3D/5D".



■ Application Examples

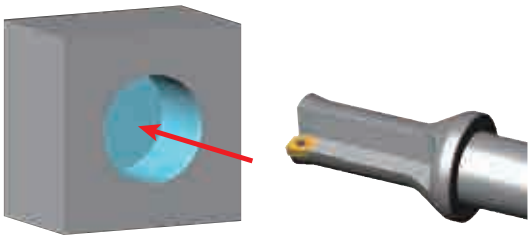
Pocketing PDL Part Material: Titanium alloy



Tool : PDL400D2S40 (ø40)
Insert : WDXT125012-G
Grade : ACK300

Cutting Speed : v_c=131 SFM
Feed Rate : f=0.0027 IPR
(v_f=0.878 IPM)
Depth of Cut : a_e (p_l)=0.984"

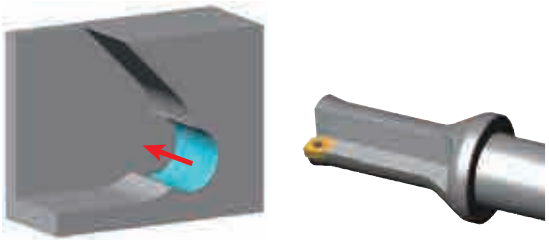
Drilling PDL Part Material: 316 Stainless



Tool : PDL200D3S25 (ø20)
Insert : WDXT063006-G
Grade : ACP300

Cutting Speed : v_c=591 SFM
Feed Rate : f=0.0039 IPR
(v_f=11.26 IPM)
Depth of Cut : a_e (p_l)=0.787"

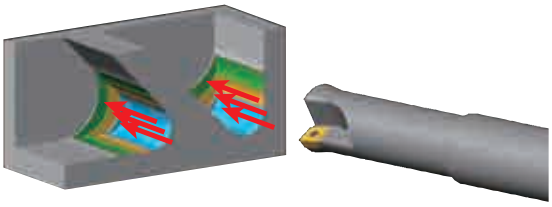
Corner Fillet Removal PDL Part Material: 316 Stainless



Tool : PDL250D2S25 (ø25)
Insert : WDXT073506-G
Grade : ACP300

Cutting Speed : v_c=459
Feed Rate : f=0.0039 IPR
(v_f=7.008 IPM)
Depth of Cut : a_e(p_l)=0.590"

Corner Finishing PCT Part Material: Titanium alloy

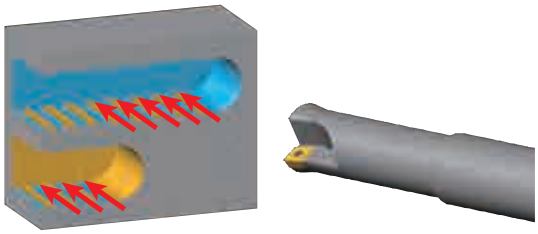


Tool :
PCT320D3S32 (ø32)
PCT250D3S25 (ø25)
PCT200D3S20 (ø20)
Grade : ACK300

Insert :
WDXT094008-G
WDXT073506-G
WDXT063006-G

Cutting Speed : v_c=164 SFM
Feed Rate : f_z=0.0016 ipt
(v_f=3.15 to 14.99 IPM)
Depth of Cut : a_e (p_l)=0.125 to 0.256"

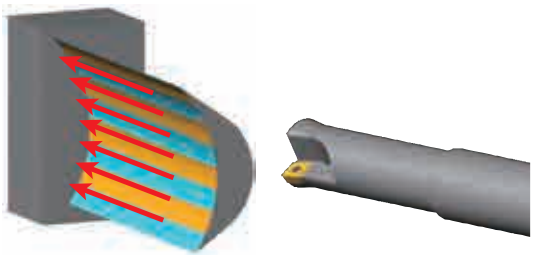
Groove Processing PCT Part Material: Titanium alloy



Tool : PCT320D5S32 (ø32)
Insert : WDXT094008-G
Grade : ACK300

Cutting Speed : v_c=131 SFM
Feed Rate : f_z=0.0014 ipt
(v_f=2.205 IPM)
Depth of Cut : a_e (p_l)=0.197"

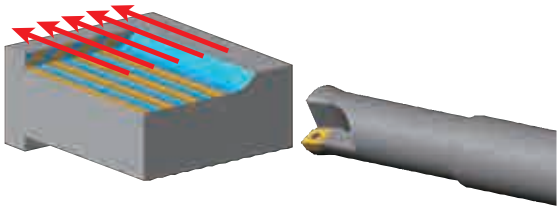
Contouring PCT Part Material: Stainless Steel



Tool : PCT250D5S25 (ø25)
Insert : WDXT073506-G
Grade : ACP300

Cutting Speed : v_c 492 SFM
Feed Rate : f_z=0.002 ipt
(v_f=15.039 IPM)
Depth of Cut : a_e=0.118"

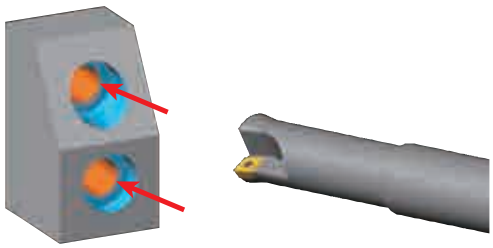
Shoulder Plunging PCT Part Material: 304 Stainless



Tool : PCT320D3S32 (ø32)
Insert : WDXT094008-G
Grade : ACP300

Cutting Speed : v_c=591 SFM
Feed Rate : f_z=0.003 ipt
(v_f=21.14 IPM)
Depth of Cut : a_e=0.276
p_l=0.197

Counterboring PCT Part Material: Cr-Mo Steel



Tool : PCT200D5S20 (ø20)
Insert : WDXT063006-G
Grade : ACP300

Cutting Speed : v_c=492 SFM
Feed Rate : f_z=0.003 ipt
(v_f=28.19 IPM)
Depth of Cut : a_e=0.138"

PDL - 2D / 3D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 2D | 3D | Indexable

Fig 1

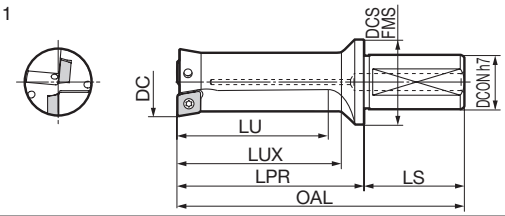
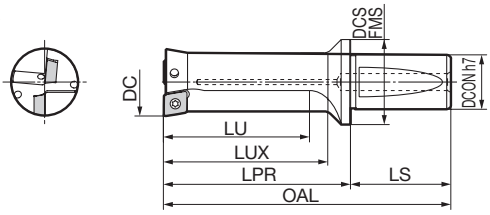


Fig 2



Holder Depth of Cut For 2D Diameter ø16.0 to 40.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Effective Length LU	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Applicable Insert	Fig
16.0	★	**PDL160D2S20**	32	35	50	94	44	28	20	WDXT052504	1
20.0	★	**PDL200D2S25**	40	43	58	114	56	33	25	WDXT063006	1
25.0	★	**PDL250D2S25**	50	53	71	127	56	37	25	WDXT073506	1
32.0	★	**PDL320D2S40**	64	68	92	162	70	54	40	WDXT094008	2
40.0	★	**PDL400D2S40**	80	85	115	185	70	54	40	WDXT125012	2

Holder Depth of Cut For 3D Diameter ø16.0 to 40.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	Effective Length LU	Neck Length LUX	Overhang Length LPR	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Applicable Insert	Fig
16.0	★	**PDL160D3S20**	48	51	66	110	44	28	20	WDXT052504	1
20.0	★	**PDL200D3S25**	60	63	78	134	56	33	25	WDXT063006	1
25.0	★	**PDL250D3S25**	75	78	96	152	56	37	25	WDXT073506	1
32.0	★	**PDL320D3S40**	96	100	124	194	70	54	40	WDXT094008	2
40.0	★	**PDL400D3S40**	120	125	155	225	70	54	40	WDXT125012	2

■ Insert Availability

Dimensions (inch/ mm)

Grade		Coated Carbide				
Process	High-speed/Light	PK				N
	General-purpose		PM	MS	S	
	Roughing		PM		K	

●: USA Stocked Item
★: Worldwide Warehouse Item

Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Width W1	Thickness S	Nose Radius RE1	Nose Radius RE2	Applicable Holder (Inch / *Metric*)	Fig
WDXT052504-L	●	●		●		.1969 (5.0)	.0984 (2.5)	.0157 (0.4)	.0157 (0.4)	PDL160D2S20 / PDL160D3S20	1
WDXT052504-G	●	●		●	●						2
WDXT052504-H	●	●		●							3
WDXT052504-M			●						.0394 (1.0)		4
WDXT063006-L	●	●		●		.2362 (6.0)	.1181 (3.0)	.0236 (0.6)	.0236 (0.6)	PDL200D2S25 / PDL200D3S25	1
WDXT063006-G	●	●		●	●						2
WDXT063006-H	●	●		●							3
WDXT063006-M			●						.0551 (1.4)		4
WDXT073506-L	●	●		●		.2953 (7.5)	.1378 (3.5)	.0236 (0.6)	.0236 (0.6)	PDL250D2S25 / PDL250D3S25	1
WDXT073506-G	●	●		●	●						2
WDXT073506-H	●	●		●							3
WDXT073506-M			●						.0629 (1.6)		4
WDXT094008-L	●	●		●		.3780 (9.6)	.1575 (4.0)	.0315 (0.8)	.0315 (0.8)	PDL320D2S40 / PDL320D3S40	1
WDXT094008-G	●	●		●	●						2
WDXT094008-H	●	●		●							3
WDXT094008-M			●						.0944 (2.4)		4
WDXT125012-L	●	●		●		.4882 (12.4)	.1969 (5.0)	.0472 (1.2)	.0472 (1.2)	PDL400D2S40 / PDL400D3S40	1
WDXT125012-G	●	●		●	●						2
WDXT125012-H	●	●		●							3
WDXT125012-M			●						.1259 (3.2)		4

Fig 1 For low feed with chip evacuation

L

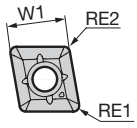


Fig 2 General-purpose

G

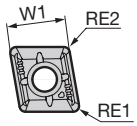


Fig 3 Strong Edged

H

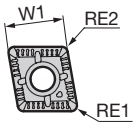
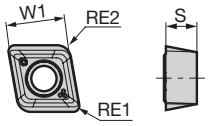


Fig 4 For stainless steel machining

M



Identification Code

PDL 250 D2 S25

Dia. DC (ø25.0) | Flute Length (L/D) (2D) | Shank Dia. DCON (ø25.0)

WDXT 07 35 06 -G

Width across Flats (7.5) | Thickness x 10 (3.5) | Nose Radius x 10 (0.6) | Breaker Type

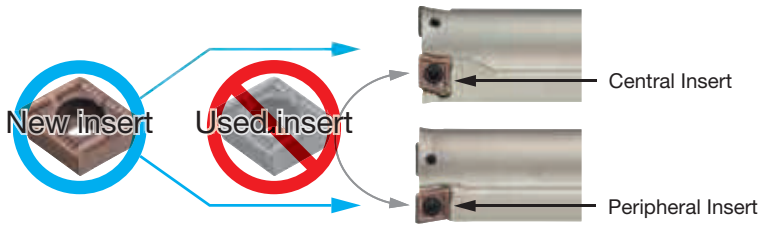
Parts

Recommended Tightening Torque (N·m)

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
PDL160D2S20 / PDL160D3S20	BFTX0204N	0.5	TRX06	-
PDL200D2S25 / PDL200D3S25	BFTY02206	1.0	-	TRD07
PDL250D2S25 / PDL250D3S25	BFTX02506N	1.5	-	TRD08
PDL320D2S40 / PDL320D3S40	BFTX03584	3.5	-	TRD15
PDL400D2S40 / PDL400D3S40	BFTX0511N	5.0	-	TRD20

PDL - 2D / 3D (Internal Coolant Supply)

● Precautions for Mounting Inserts



PDL Type: Inserts can be used on either the central or peripheral position and both corners are used.
Used peripheral inserts cannot be used as central insert and similarly,
used central inserts cannot be used as peripheral insert.

Recommended Cutting Conditions (for 2D) (PDL)

		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (cutting speed) (m/min)	f (feed rate) (mm/rev) (Min. - Max.) ø16.0	ø20.0, ø25.0	ø32.0	ø40.0
2D	P	Steel, Carbon Steel	SS400	125	G	ACP300	120 - 240	0.05 - 0.10	0.05 - 0.10	0.05 - 0.11	0.05 - 0.12
			S15C	125	L	ACP300	130 - 220	0.04 - 0.12	0.04 - 0.12	0.04 - 0.13	0.05 - 0.15
			S45C	190	G	ACP300	100 - 200	0.08 - 0.24	0.08 - 0.24	0.08 - 0.26	0.09 - 0.29
			S45C Hardened	250	G	ACP100	100 - 240	0.05 - 0.14	0.05 - 0.14	0.05 - 0.14	0.05 - 0.17
			S75C	270	G	ACP100	120 - 240	0.06 - 0.17	0.06 - 0.17	0.06 - 0.17	0.07 - 0.19
			S75C Hardened	300	G	ACP100	85 - 210	0.05 - 0.14	0.05 - 0.14	0.05 - 0.14	0.05 - 0.15
		Low-alloy Steel	SCM,SNCM	180	L	ACP300	100 - 180	0.05 - 0.14	0.05 - 0.14	0.05 - 0.16	0.06 - 0.17
			SCM, SNCM Hardened	275	G	ACP100	100 - 240	0.06 - 0.14	0.06 - 0.14	0.06 - 0.14	0.07 - 0.16
			SCM, SNCM Hardened	300	G	ACP100	90 - 210	0.06 - 0.14	0.06 - 0.14	0.06 - 0.14	0.07 - 0.16
			SCM, SNCM Hardened	350	G	ACP100	75 - 165	0.06 - 0.14	0.06 - 0.14	0.06 - 0.14	0.07 - 0.16
		High-alloy Steel	SKD,SKT,SKH	200	G	ACP100	120 - 240	0.08 - 0.17	0.08 - 0.17	0.08 - 0.18	0.09 - 0.21
			SKD, SKT, SKH (Sintered)	325	G	ACP100	100 - 180	0.06 - 0.15	0.06 - 0.15	0.06 - 0.15	0.07 - 0.16
	M	Stainless Steel	SUS403/Others (Martensitic/Ferritic)	200	M	ACM300	100 - 180	0.06 - 0.13	0.06 - 0.13	0.06 - 0.14	0.07 - 0.15
			SUS403/Others (Martensitic (hardened))	240	M	ACM300	90 - 150	0.06 - 0.13	0.06 - 0.13	0.06 - 0.14	0.07 - 0.15
			SUS304, SUS316 (Austenitic)	180	M	ACM300	100 - 180	0.06 - 0.13	0.06 - 0.13	0.06 - 0.14	0.07 - 0.15
	K	Cast Iron			H	ACK300	120 - 200	0.09 - 0.32	0.10 - 0.36	0.11 - 0.39	0.12 - 0.44
		Ductile Cast Iron			H	ACK300	90 -150	0.09 - 0.32	0.10 - 0.36	0.11 - 0.39	0.12 - 0.44
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200	G	ACP300	25 - 70	0.06 - 0.18	0.06 - 0.18	0.06 - 0.19	0.07 - 0.22
	N	Aluminum Alloy			G	DL1500	200 - 320	0.06 - 0.17	0.06 - 0.17	0.06 - 0.18	0.07 - 0.20
		Copper Alloy			G	DL1500	180 - 280	0.06 - 0.17	0.06 - 0.17	0.06 - 0.18	0.07 - 0.20

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate (f) to 75% of the figures in the table above.

Recommended Cutting Conditions (for 3D) (PDL)

		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_c (cutting speed) (m/min)	f (feed rate) (mm/rev) (Min. - Max.) ø16.0	ø20.0, ø25.0	ø32.0	ø40.0
3D	P	Steel, Carbon Steel	SS400	125	G	ACP300	120 - 240	0.05 - 0.10	0.05 - 0.10	0.05 - 0.11	0.05 - 0.12
			S15C	125	L	ACP300	130 - 220	0.04 - 0.10	0.04 - 0.10	0.04 - 0.11	0.05 - 0.12
			S45C	190	G	ACP300	100 - 200	0.08 - 0.20	0.08 - 0.20	0.08 - 0.22	0.09 - 0.24
			S45C Hardened	250	G	ACP100	100 - 240	0.05 - 0.11	0.05 - 0.11	0.05 - 0.12	0.05 - 0.14
			S75C	270	G	ACP100	120 - 240	0.06 - 0.14	0.06 - 0.14	0.06 - 0.14	0.07 - 0.17
			S75C Hardened	300	G	ACP100	85 - 210	0.05 - 0.11	0.05 - 0.11	0.05 - 0.11	0.05 - 0.14
		Low-alloy Steel	SCM,SNCM	180	L	ACP300	100 - 180	0.05 - 0.12	0.05 - 0.12	0.05 - 0.13	0.06 - 0.15
			SCM, SNCM Hardened	275	G	ACP100	100 - 240	0.06 - 0.11	0.06 - 0.11	0.06 - 0.11	0.07 - 0.12
			SCM, SNCM Hardened	300	G	ACP100	90 - 210	0.06 - 0.11	0.06 - 0.11	0.06 - 0.11	0.07 - 0.12
			SCM, SNCM Hardened	350	G	ACP100	75 - 165	0.06 - 0.11	0.06 - 0.11	0.06 - 0.11	0.07 - 0.12
		High-alloy Steel	SKD,SKT,SKH	200	G	ACP100	120 - 240	0.08 - 0.14	0.08 - 0.15	0.08 - 0.16	0.09 - 0.18
			SKD, SKT, SKH (Sintered)	325	G	ACP100	100 - 180	0.06 - 0.11	0.06 - 0.11	0.06 - 0.11	0.07 - 0.12
	M	Stainless Steel	SUS403/Others (Martensitic/Ferritic)	200	M	ACM300	100 -180	0.05 - 0.11	0.05 - 0.11	0.06 - 0.12	0.06 - 0.14
			SUS403/Others (Martensitic (hardened))	240	M	ACM300	90 -150	0.05 - 0.11	0.05 - 0.11	0.06 - 0.12	0.06 - 0.14
			SUS304, SUS316 (Austenitic)	180	M	ACM300	100 -180	0.05 - 0.11	0.05 - 0.11	0.06 - 0.12	0.06 - 0.14
	K	Cast Iron			H	ACK300	120 - 200	0.09 - 0.27	0.10 - 0.30	0.11 - 0.32	0.12 - 0.36
		Ductile Cast Iron			H	ACK300	90 -150	0.09 - 0.27	0.10 - 0.30	0.11 - 0.32	0.12 - 0.36
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200	G	ACP300	25 - 70	0.06 - 0.15	0.06 - 0.15	0.06 - 0.16	0.07 - 0.18
	N	Aluminum Alloy			G	DL1500	200 - 320	0.06 - 0.17	0.06 - 0.17	0.06 - 0.18	0.07 - 0.20
		Copper Alloy			G	DL1500	180 - 280	0.06 - 0.17	0.06 - 0.17	0.06 - 0.18	0.07 - 0.20

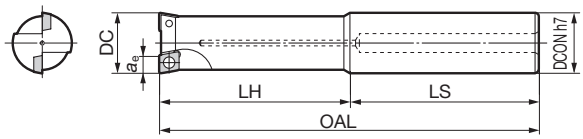
For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate (f) to 75% of the figures in the table above.

PCT - 3D / 5D (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28% | Carbon Steel/ Alloy Steel from 0.29% | Hardened Steel up to 45HRC | Stainless Steel | Ti Alloy | Cast Iron | Ductile Cast Iron | Aluminum Alloy | Copper Alloy

CVD Coat | PVD Coat | Aurora DLC Coat | Coolant Hole | 3D | 5D | Indexable

Fig 1



Holder Depth of Cut For 3D Diameter ø16.0 to 40.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	a_e max	Flute Length LH	Overall Length OAL	Shank LS	Shank Dia. DCON	Number of Teeth	Applicable Insert	Fig
16.0	★	**PCT160D3S16**	4.0	53	123	70	16	2	WDXT052504	1
20.0	★	**PCT200D3S20**	5.0	65	145	80	20	2	WDXT063006	1
25.0	★	**PCT250D3S25**	6.5	80	160	80	25	2	WDXT073506	1
32.0	★	**PCT320D3S32**	8.5	101	191	90	32	2	WDXT094008	1
40.0	★	**PCT400D3S42**	11.0	125	225	100	42	3	WDXT125012	1

Holder Depth of Cut For 5D Diameter ø16.0 to 40.0mm

Dimensions (mm)

Dia. DC	Stock	Cat. No.	a_e max	Flute Length LH	Overall Length OAL	Shank LS	Shank Dia. DCON	Number of Teeth	Applicable Insert	Fig
16.0	★	**PCT160D5S16**	4.0	85	155	70	16	2	WDXT052504	1
20.0	★	**PCT200D5S20**	5.0	105	185	80	20	2	WDXT063006	1
25.0	★	**PCT250D5S25**	6.5	130	210	80	25	2	WDXT073506	1
32.0	★	**PCT320D5S32**	8.5	165	255	90	32	2	WDXT094008	1
40.0	★	**PCT400D5S42**	11.0	205	305	100	42	3	WDXT125012	1

■ Insert Availability

Dimensions (inch/ mm)

Grade		Coated Carbide				
Process	High-speed/Light	P K				N
	General-purpose		P M	M S	S	
	Roughing		P M		K	

●: USA Stocked Item
★: Worldwide Warehouse Item

Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Width W1	Thickness S	Nose Radius RE1	Nose Radius RE2	Applicable Holder (Inch / *Metric*)	Fig
WDXT052504-L	●	●		●		.1969 (5.0)	.0984 (2.5)	.0157 (0.4)	.0157 (0.4)	PCT160D3S16 / PCT160D5S16	1
WDXT052504-G	●	●		●	●						2
WDXT052504-H	●	●		●							3
WDXT052504-M			●						.0394 (1.0)		4
WDXT063006-L	●	●		●		.2362 (6.0)	.1181 (3.0)	.0236 (0.6)	.0236 (0.6)	PCT200D3S20 / PCT200D5S20	1
WDXT063006-G	●	●		●	●						2
WDXT063006-H	●	●		●							3
WDXT063006-M			●						.0551 (1.4)		4
WDXT073506-L	●	●		●		.2953 (7.5)	.1378 (3.5)	.0236 (0.6)	.0236 (0.6)	PCT250D3S25 / PCT250D5S25	1
WDXT073506-G	●	●		●	●						2
WDXT073506-H	●	●		●							3
WDXT073506-M			●						.0629 (1.6)		4
WDXT094008-L	●	●		●		.3780 (9.6)	.1575 (4.0)	.0315 (0.8)	.0315 (0.8)	PCT320D3S32 / PCT320D5S32	1
WDXT094008-G	●	●		●	●						2
WDXT094008-H	●	●		●							3
WDXT094008-M			●						.0944 (2.4)		4
WDXT125012-L	●	●		●		.4882 (12.4)	.1969 (5.0)	.0472 (1.2)	.0472 (1.2)	PCT400D3S42 / PCT400D5S42	1
WDXT125012-G	●	●		●	●						2
WDXT125012-H	●	●		●							3
WDXT125012-M			●						.1259 (3.2)		4

Fig 1 For low feed with chip evacuation

L

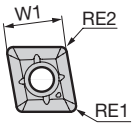


Fig 2 General-purpose

G

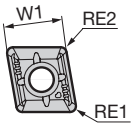


Fig 3 Strong Edged

H

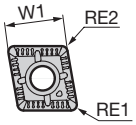
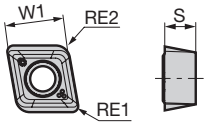


Fig 4 For stainless steel machining

M



Identification Code

PCT 250 D3 S25

- Dia. DC (ø25.0)
- Flute Length (L/D) (3D)
- Shank Dia. DCON (ø25.0)

WDXT 07 35 06 -G

- Width across Flats (7.5)
- Thickness x 10 (3.5)
- Nose Radius x 10 (0.6)
- Breaker Type

Parts

Recommended Tightening Torque (N·m)

Applicable Holder	Flat Screw	N·m	Wrench	Wrench
PCT160D3S16 / PCT160D5S16	BFTX0204N	0.5	TRX06	-
PCT200D3S20 / PCT200D5S20	BFTY02206	1.0	-	TRD07
PCT250D3S25 / PCT250D5S25	BFTX02506N	1.5	-	TRD08
PCT320D3S32 / PCT320D5S32	BFTX03584	3.5	-	TRD15
PCT400D3S42 / PCT400D5S42	BFTX0511N	5.0	-	TRD20

PCT- 3D / 5D (Internal Coolant Supply)

Recommended Cutting Conditions (for 3D) (PCT)

		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_C (cutting speed) (m/min)	f_z (feed rate) (mm/rev) (Min. - Max.) ø16.0	ø20.0, ø25.0	ø32.0	ø40.0
3D	P	Steel, Carbon Steel	SS400	125	G	ACP300	120 -240	0.05 - 0.10	0.05 - 0.10	0.05 - 0.10	0.05 - 0.10
			S15C	125	L	ACP300	130 -220	0.04 - 0.09	0.04 - 0.09	0.04 - 0.09	0.05 - 0.10
			S45C	190	G	ACP300	100 -200	0.08 - 0.17	0.08 - 0.17	0.08 - 0.18	0.09 - 0.21
			S45C Hardened	250	G	ACP100	100 - 240	0.05 - 0.10	0.05 - 0.10	0.05 - 0.11	0.05 - 0.11
			S75C	270	G	ACP100	120 - 240	0.06 - 0.11	0.06 - 0.11	0.06 - 0.13	0.07 - 0.14
			S75C Hardened	300	G	ACP100	85 - 210	0.05 - 0.09	0.05 - 0.09	0.05 - 0.10	0.05 - 0.11
		Low-alloy Steel	SCM,SNCM	180	L	ACP300	100 - 180	0.05 - 0.10	0.05 - 0.10	0.05 - 0.11	0.06 - 0.12
			SCM, SNCM Hardened	275	G	ACP100	100 - 240	0.05 - 0.10	0.05 - 0.10	0.05 - 0.10	0.05 - 0.11
			SCM, SNCM Hardened	300	G	ACP100	90 - 210	0.05 - 0.10	0.05 - 0.10	0.05 - 0.10	0.05 - 0.11
			SCM, SNCM Hardened	350	G	ACP100	75 - 165	0.05 - 0.10	0.05 - 0.10	0.05 - 0.10	0.05 - 0.11
		High-alloy Steel	SKD,SKT,SKH	200	G	ACP100	120 - 240	0.06 - 0.13	0.07 - 0.14	0.07 - 0.15	0.08 - 0.16
			SKD, SKT, SKH (Sintered)	325	G	ACP100	100 - 180	0.05 - 0.10	0.05 - 0.10	0.05 - 0.10	0.05 - 0.11
	M	Stainless Steel	SUS403/Others (Martensitic/Ferritic)	200	M	ACM300	100 - 180	0.06 - 0.13	0.06 - 0.13	0.06 - 0.14	0.07 - 0.15
			SUS403/Others (Martensitic (hardened))	240	M	ACM300	90 - 150	0.06 - 0.13	0.06 - 0.13	0.06 - 0.14	0.07 - 0.15
			SUS304, SUS316 (Austenitic)	180	M	ACM300	100 - 180	0.06 - 0.13	0.06 - 0.13	0.06 - 0.14	0.07 - 0.15
	K	Cast Iron			H	ACK300	120 - 200	0.09 - 0.23	0.10 - 0.26	0.11 - 0.28	0.12 - 0.31
		Ductile Cast Iron			H	ACK300	90 - 150	0.09 - 0.23	0.10 - 0.26	0.11 - 0.28	0.12 - 0.31
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200	G	ACP300	25 - 70	0.06 - 0.13	0.06 - 0.13	0.06 - 0.14	0.07 - 0.15
	N	Aluminum Alloy			G	DL1500	200 - 320	0.05 - 0.15	0.05 - 0.15	0.06 - 0.16	0.06 - 0.18
		Copper Alloy			G	DL1500	180 - 280	0.05 - 0.15	0.05 - 0.15	0.06 - 0.16	0.06 - 0.18

For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate (f_z) to 75% of the figures in the table above.

Recommended Cutting Conditions (for 5D) (PCT)

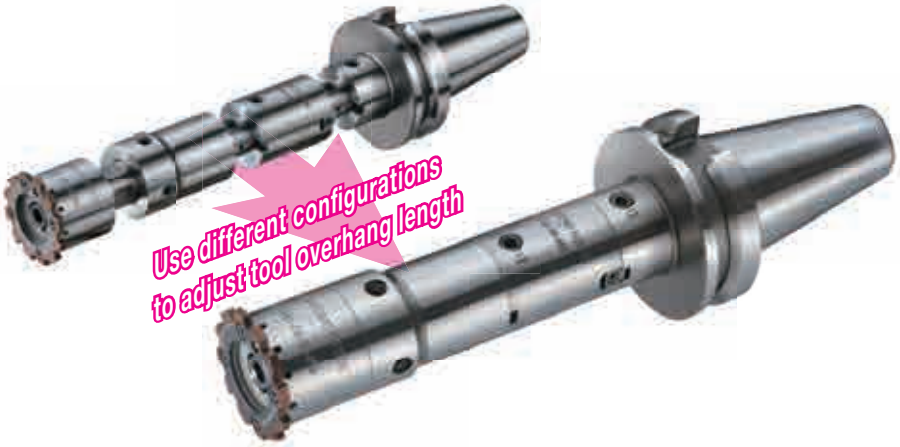
		Work Material		Workpiece Hardness HB	Recommended Chipbreaker	Recommended Insert Grade	v_C (cutting speed) (m/min)	f_z (feed rate) (mm/rev) (Min. - Max.) ø16.0	ø20.0, ø25.0	ø32.0	ø40.0
5D	P	Steel, Carbon Steel	SS400	125	G	ACP300	120 - 240	0.05 - 0.09	0.05 - 0.09	0.05 - 0.09	0.05 - 0.09
			S15C	125	L	ACP300	130 - 220	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.05 - 0.09
			S45C	190	G	ACP300	100 - 200	0.07 - 0.15	0.07 - 0.15	0.08 - 0.17	0.09 - 0.19
			S45C Hardened	250	G	ACP100	100 - 240	0.04 - 0.08	0.04 - 0.08	0.05 - 0.09	0.05 - 0.11
			S75C	270	G	ACP100	120 - 240	0.05 - 0.11	0.05 - 0.11	0.06 - 0.11	0.07 - 0.13
			S75C Hardened	300	G	ACP100	85 - 210	0.04 - 0.08	0.04 - 0.08	0.05 - 0.09	0.05 - 0.10
		Low-alloy Steel	SCM,SNCM	180	L	ACP300	100 - 180	0.05 - 0.09	0.05 - 0.09	0.05 - 0.10	0.05 - 0.11
			SCM, SNCM Hardened	275	G	ACP100	100 - 240	0.04 - 0.09	0.04 - 0.09	0.04 - 0.09	0.05 - 0.10
			SCM, SNCM Hardened	300	G	ACP100	90 - 210	0.04 - 0.09	0.04 - 0.09	0.04 - 0.09	0.05 - 0.10
			SCM, SNCM Hardened	350	G	ACP100	75 - 165	0.04 - 0.09	0.04 - 0.09	0.04 - 0.09	0.05 - 0.10
		High-alloy Steel	SKD,SKT,SKH	200	G	ACP100	120 - 240	0.05 - 0.12	0.06 - 0.12	0.06 - 0.13	0.07 - 0.14
			SKD, SKT, SKH (Sintered)	325	G	ACP100	100 - 180	0.04 - 0.09	0.04 - 0.09	0.04 - 0.09	0.04 - 0.09
	M	Stainless Steel	SUS403/Others (Martensitic/Ferritic)	200	M	ACM300	100 -180	0.05 - 0.11	0.05 - 0.11	0.06 - 0.12	0.06 - 0.14
			SUS403/Others (Martensitic (hardened))	240	M	ACM300	90 -150	0.05 - 0.11	0.05 - 0.11	0.06 - 0.12	0.06 - 0.14
			SUS304, SUS316 (Austenitic)	180	M	ACM300	100 -180	0.05 - 0.11	0.05 - 0.11	0.06 - 0.12	0.06 - 0.14
	K	Cast Iron			H	ACK300	120 - 200	0.08 - 0.21	0.09 - 0.23	0.09 - 0.25	0.11 - 0.28
		Ductile Cast Iron			H	ACK300	90 - 150	0.08 - 0.21	0.09 - 0.23	0.09 - 0.25	0.11 - 0.28
	S	Exotic Alloy (Heat-Resistant Alloy, Super Alloy, Titanium Alloy, etc.)		200	G	ACP300	25 - 70	0.05 - 0.11	0.05 - 0.11	0.06 - 0.12	0.06 - 0.14
	N	Aluminum Alloy			G	DL1500	200 - 320	0.05 - 0.15	0.05 - 0.15	0.06 - 0.16	0.06 - 0.18
		Copper Alloy			G	DL1500	180 - 280	0.05 - 0.15	0.05 - 0.15	0.06 - 0.16	0.06 - 0.18

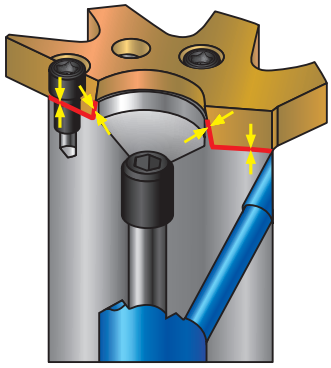
For the P and K grades for which ACP300 and ACK300 inserts are the first recommendation, ACP100 inserts are the second recommendation.
In this case, it is recommended to set the cutting speed (V_c) to 130% and the feed rate (f_z) to 75% of the figures in the table above.

MEMO

■ Features

- Achieves high efficiency through high speed and high feed capabilities! (v_c=164 to 1,640 SFM, f=0.016" to 0.047" IPR)
- Compatible with a wide range of cutting conditions, allowing management of cutting conditions and coolant supply
- Designed with minimal cutting edge length, eliminating galling and blemishes for improved quality and reliability
- Adoption of indexable cutting edge design improves reliability of quality and tool life, eliminating variability in tool life among reground inserts
- Cutting edge diameters from *ø7.6 to ø140.6 mm* available
- Easy insert replacement
- Flexible tool overhang lengths possible by combining the modular extension/arbor and shank with insert runout adjustment mechanism





A taper supports the insert on two faces (based on the HSK standard) for repeatability within 4 µm using random inserts

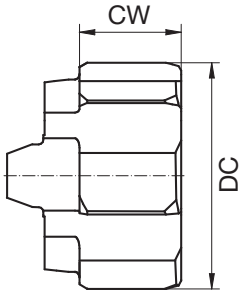
■ Application Examples

Workpiece	Cylinder barrel	Connection rod	Sliding yoke	Front axle	Special holder with guide pads Control valve
Part Material	Cast Iron	Forged Carbon Steel	Structural Steel	Forged 1020 Steel	Forged Carbon Steel
Holder Cat. No. Insert Cat. No.	**SRD19-12-115** SRG17.0H7-A01-T1212R1	**SRD36-25-170** SRG29.0H7-A01-F0512R1	**SRD19-12-115** SRG16.02Q+3-3-C01-F0512R1	**SRD29-20-240** SRL28.0H7-B01-F0512R1	Special holder with guide pads SRL14.0H7-B01-F0512R1
Max. Work Dia. (mm)	ø17.0	ø29.0	ø16.02	ø28.0	ø14.0
Hole Dia. Tolerance	H7	H7	H7	H7	H7
Surface Roughness (µm)	Rz10.0	Ra0.8	Ra3.2	Ra3.2	Ra1.6
Circularity (µm)	5	2	–	5	5
Cylindricity (µm)	5	4	–	5	5
Number of Teeth	6	8	6	8	6
v_c (m/min)	148	120	150	60	100
n (min^{-1})	2,772	1,318	2,982	682	2,230
f_z (mm/t)	0.20	0.15	0.10	0.075	0.10
v_f (m/min)	3,326	1,582	1,789	409	1,368
a_p (mm)	0.10	0.15	0.15	0.15	0.15
Wet / Dry	Wet	Wet	Wet	Wet	Wet
Tool life, etc.	*57.9m*	*30.52m*	–	*15.8m*	–

SR Small & Medium	SR Small		SR Medium	
ø7.600 - 13.100mm ø35.601 - 140.600mm	ø7.600 - 13.100mm	ø7.600 - 13.100mm	ø35.601 - 140.600mm	ø35.601 - 140.600mm
Compensating Collet Chuck J151, J157	Schunk "Tendo Zero" Compensation Hydro Chuck J152, J158	Compensating Hydro Chuck J151	System Holders Beta-Module J161	Adapter (with Integrated Compensation Device) J159
Floating Chuck for Lathes J136, J142			(Optional) Extensions Beta-Module J160	
Collets J153	Reducers for Hydro-Compensation Chuck "Schunk" J153	Reducers for Hydro-Compensation Chuck J153	(Optional) Reducers Beta-Module J160	
Seal Disk for Collet Nut J153			Shanks (with Integrated Compensation Device) J160	
SR Small Holders J150	SR Medium Holders J156		Insert Holders J159	
SR Small Insert J150	SR Medium Insert J154 & J155		SR Medium Insert J154 & J155	

Insert for SR Reamer - Small

- SRSG General-Purpose Straight Flutes: Stop and Through Holes
- SRSL Left Hand Helical Flutes: Through Holes



Small Insert SRSG / SRSL

Made to Order Items

Dia. DC Range (mm)	Holder Cat. No.				CW	No. of Teeth
	Stock	Straight Fluted Inserts	Stock	Left Hand Helical Fluted Inserts		
ø7.600 to ø8.100		SRSG08□□□		SRSL08□□□	4.5	4
ø8.101 to ø9.600		SRSG10□□□		SRSL10□□□	4.5	6
ø9.601to ø11.100		SRSG11□□□		SRSL11□□□	4.5	6
ø11.101 to ø13.100		SRSG13□□□		SRSL13□□□	4.5	6

*See below for DC tolerance.

SR Reamer - Small Insert Identification

Specifying Inserts Using Workpiece Hole Diameter Tolerance

The actual desired reamer diameter will be on the upper limit side of the median work tolerance, and will differ depending on diameter/ tolerance range/grade. Contact Sumitomo Engineering Dept. for more details.

SR S G 18.2 + 20 - 10 - A01 - F05 12R 1
(1) (2) (3) (4) (5) (6) (7) (8)

(1) SR Reamer	(5) Tolerance (μm) +/- or standard
(2) Small	(6) Approach Angle Code
(3) G = Straight, L = Lefthand helix	(7) Grade Symbol
(4) Workpiece Bore Diameter (mm)	(8) Coating Code

Specifying Inserts Using Desired Reamer Diameter

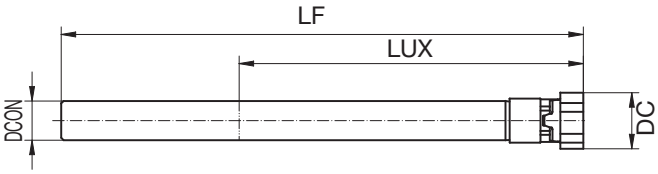
By adding a "Q" after the diameter, it is possible to specify exact desired reamer dimensions. Uncoated types are available within ±2μ, thin-coated layer types are available within ±3μ and thick-coated layer types are available within ±4μ.

SR S L 18.2 Q + 3 - 3 - A01 - F05 12R 1
(1) (2) (3) (4) (5) (6) (7) (8)

(1) SR Reamer	(5) Tolerance (μm) +/-(6)
(2) Small	Approach Angle Code
(3) G = Straight, L = Lefthand helix	(7) Grade Symbol
(4) Median Desired Cutting Edge Diameter (mm)	(8) Coating Code

Small Holder

- Single insert screw improves insert replacement efficiency
- Capable of high-torque (high-load) machining



Steel Shank Insert Holder SRSD / SRSB

Dimensions (mm)

Dia. DC Range	Holder Cat. No.				Shank Dia. DCON	Overall Length LF	Usable Length LUX	Insert Screws		N·m
	SRSD (Through Hole)		SRSB (Stop Hole)							
	Stock	Cat. No.	Stock	Cat. No.				SRSD	SRSB	
ø7.600 to ø8.100	★	SRSD08-06-086	★	SRSB08-06-086	6	86	50	C00-90-51	C00-90-51	0.6
ø8.101 to ø9.600	★	SRSD10-06-096	★	SRSB10-06-096	6	96	60	C00-90-52	C00-90-52	0.9
ø9.601to ø11.100	★	SRSD11-08-106	★	SRSB11-08-106	8	106	70	C00-90-53	C00-90-53B	1.4
ø11.101 to ø13.100	★	SRSD13-08-120	★	SRSB13-08-120	8	120	84	C00-90-54	C00-90-54B	2.0

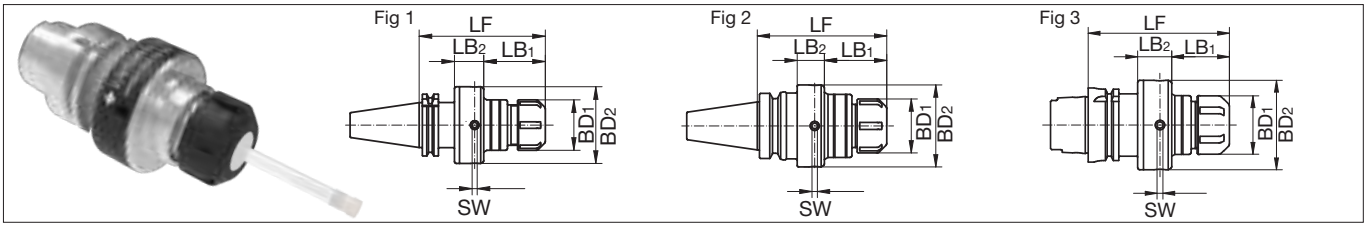
Carbide Shank Insert Holder SRSD/ SRSB

Dimensions (mm)

Dia. DC Range	Holder Cat. No.				Shank Dia. DCON	Overall Length LF	Usable Length LUX	Insert Screws		N·m
	SRSD (Through Hole)		SRSB (Stop Hole)							
	Stock	Cat. No.	Stock	Cat. No.				SRSD	SRSB	
ø7.600 to ø8.100	★	SRSD08-06-102HM	★	SRSB08-06-102HM	6	102	66	C00-90-51	C00-90-51	0.6
ø8.101 to ø9.600	★	SRSD10-06-116HM	★	SRSB10-06-116HM	6	116	80	C00-90-52	C00-90-52	0.9
ø9.601to ø11.100	★	SRSD11-08-126HM	★	SRSB11-08-126HM	8	126	90	C00-90-53	C00-90-53B	1.4
ø11.101 to ø13.100	★	SRSD13-08-150HM	★	SRSB13-08-150HM	8	150	114	C00-90-54	C00-90-54B	2.0

★: Worldwide Warehouse Item

Compensation Collet Chuck (ø7.600 to ø13.100)



DIN 69871-AD

Dimensions (*mm*)

Cat. No.	Stock	Size	Type	Dia. Range	BD2	BD1	Gage Length LF	LB1	LB2	Adjustment screw SW	Weight (kg)	Fig
AND60-40A-32-120	★	**SK40**	ER32	*3.0 to 20.0*	*76*	*50*	*120*	*56*	*29*	*5*	2.2	1
AND60-50A-32-120	★	**SK50**	ER32	*3.0 to 20.0*	*76*	*50*	*120*	*61*	*24*	*5*	4.1	1

MAS-BT JIS 6339-AD

Dimensions (*mm*)

Cat. No.	Stock	Size	Type	Dia. Range	BD2	BD1	Gage Length LF	LB1	LB2	Adjustment screw SW	Weight (kg)	Fig
ANT60-40A-32-120	★	**BT40**	ER32	*3.0 to 20.0*	*76*	*50*	*120*	*54*	*29*	*5*	2.2	2
ANT60-50A-32-120	★	**BT50**	ER32	*3.0 to 20.0*	*76*	*50*	*120*	*58*	*24*	*5*	4.5	2

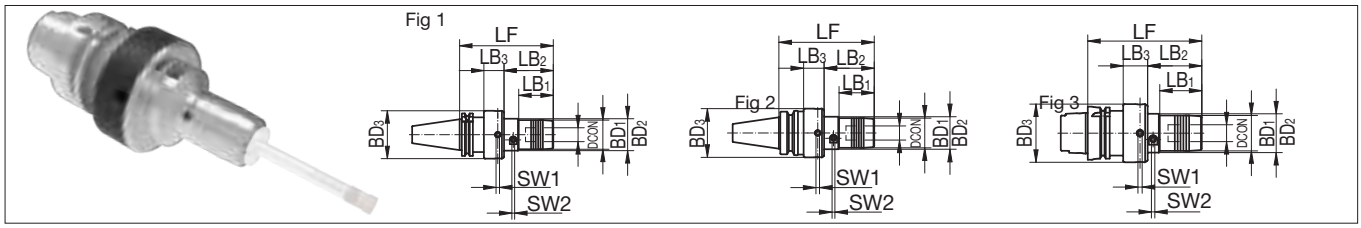
*Adjustment Screw "SW" C00 03 44 (4x) for all compensation collet chucks

DIN 69893-HSK-A

Dimensions (*mm*)

Cat. No.	Stock	Size	Type	Dia. Range	BD2	BD1	Gage Length LF	LB1	LB2	Adjustment Screw SW	Weight (kg)	Fig
ANH60-63A-32-120	★	**HSK63**	ER32	*3.0 to 20.0*	*76*	*50*	*120*	*49*	*29*	*5*	2	3
ANH60-100A-32-120	★	**HSK100**	ER32	*3.0 to 20.0*	*76*	*50*	*120*	*67*	*24*	*5*	3.4	3

Compensation Hydraulic Chuck (ø7.600 to ø13.100)



DIN 69871-AD

Dimensions (*mm*)

Cat. No.	Stock	Size	DC	DCON	DMM	LF	LH	LUX	Tx	Weight (kg)	Fig
204266Z	★	CAT40	*42*	*20*	*50*	*81*	*34*	*62*	15IP	1.4	1
204246Z	★	CAT50	*42*	*20*	*50*	*81*	*34*	*62*	15IP	3.3	1

MAS-BT JIS 6339-AD/B

Dimensions (*mm*)

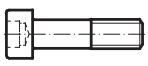
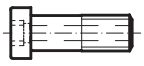
Cat. No.	Stock	Size	DC	DCON	DMM	LF	LH	LUX	Tx	Weight (kg)	Fig
205636Z	★	BT30	*42*	*20*	*45*	*90*	*48*	*63*	15IP	1.5	2
204443Z	★	BT40	*32*	*12*	*45*	*90*	*45*	*63*	15IP	1.4	2
204455Z	★	BT50	*32*	*12*	*45*	*90*	*34*	*52*	15IP	4	2

DIN 69893-HSK-A

Dimensions (*mm*)

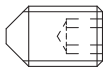
Cat. No.	Stock	Size	DC	DCON	DMM	LF	LH	LUX	Tx	Weight (kg)	Fig
204054Z	★	HSK63	*42*	*12*	*50*	*90*	*48*	*64*	15IP	1.3	3
204064Z	★	HSK100	*42*	*12*	*50*	*105*	*59*	*76*	15IP	2.8	3

Spare Parts for Small Holders

Dia. DC Range	Insert Screws	
	SRSD	**SRSB**
		
ø7.600 to ø8.100	C00-9051	C00-90-51
ø8.101 to ø9.600	C00-90-52	C00-90-52
ø9.601to ø11.100	C00-90-53	C00-90-53B
ø11.101 to ø13.100	C00-90-54	C00-90-54B

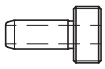
★: Worldwide Warehouse Item

Spare Parts

Diameter DCON	
12	C00-03-44
20	C00-03-44
32	C00-03-45

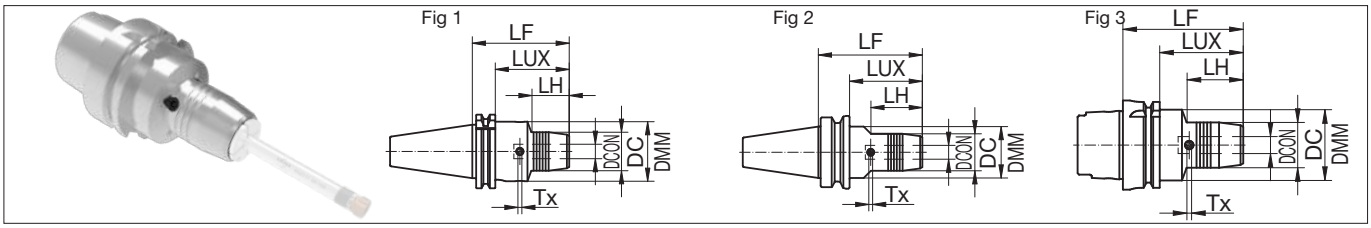
Adjustment Screw (SW1) for Compensation Hydraulic Chucks

Coolant Tubes

Taper Size	
HSK40	H00-40-01
HSK63	H00-63-01
HSK100	H00-100-01

For the HSK arbor.

Schunk "TENDOzero" Compensating Hydraulic Chuck (*ø7.600 to ø13.100mm*)



DIN 69871-AD

Dimensions (*mm*)

Cat. No.	Stock	Size	DC	DCON	DMM	LF	LH	LUX	Tx	Weight (kg)	Fig
1447893	★	CAT40	*42*	*20*	*50*	*63.5*	*25*	*44.4*	15IP	1.4	1
1447946	★	CAT50	*42*	*20*	*50*	*81*	*34*	*62*	15IP	3.3	1

MAS-BT JIS /DIN 7388-2

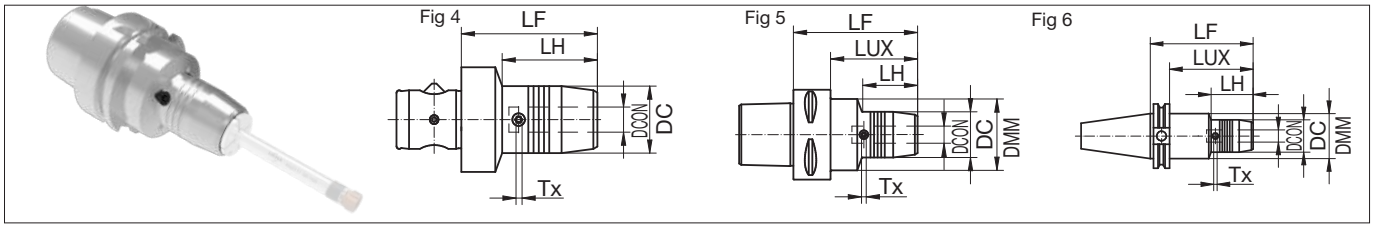
Dimensions (*mm*)

Cat. No.	Stock	Size	DC	DCON	DMM	LF	LH	LUX	Tx	Weight (kg)	Fig
205636Z	★	BT30	*42*	*16*	*45*	*90*	*48*	*63*	15IP	1.5	2
204443Z	★	BT40	*32*	*12*	*45*	*90*	*45*	*63*	15IP	1.4	2
204455Z	★	BT50	*32*	*12*	*45*	*90*	*34*	*52*	15IP	4	2

DIN 69893-HSK-A

Dimensions (*mm*)

Cat. No.	Stock	Size	DC	DCON	DMM	LF	LH	LUX	Tx	Weight (kg)	Fig
204054Z	★	HSK63	*42*	*12*	*50*	*90*	*48*	*64*	15IP	1.3	3
204064Z	★	HSK100	*42*	*12*	*50*	*105*	*59*	*76*	15IP	2.8	3



ABS-H

Dimensions (*mm*)

Cat. No.	Stock	Size	DC	DCON	DMM	LF	LH	LUX	Tx	Weight (kg)	Fig
204576Z	★	ABS50	*42*	*20*	—	*75*	*58*	—	15IP	0.9	4

DIN 26623-1-PSC (Polygon Shank)

Dimensions (*mm*)

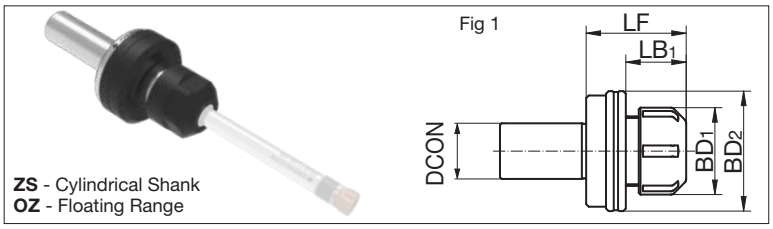
Cat. No.	Stock	Size	DC	DCON	DMM	LF	LH	LUX	Tx	Weight (kg)	Fig
201846Z	★	PSC50	*42*	*20*	*50*	*90*	*52*	-	15IP	1.05	5
201856Z	★	PSC63	*42*	*20*	*63*	*97*	*55*	-	15IP	1.6	5

ASME B5.50-CAT-AD/B

Dimensions (*mm*)

Cat. No.	Stock	Size	DC	DCON	DMM	LF	LH	LUX	Tx	Weight (kg)	Fig
203664Z	★	CAT40	*32*	*12*	*45*	*102*	*42*	*83*	15IP	2.0	6
204664Z	★	CAT50	*32*	*12*	*70*	*102*	*42*	*83*	15IP	2.7	6

Floating Chuck for Lathes (ø7.600 to ø13.100)



ZS - Cylindrical Shank
OZ - Floating Range

Cylindrical Shaft DIN 1835-A

Dimensions (*mm*)

Cat. No.	Stock	Collet	DCON	Diameter Range	BD2	BD1	LF	OZ	Weight (kg)	Fig
PZ60-16-16-044	★	ER16	ZS 16	*3.0 to 10.0*	*42*	*28*	*44*	±1	0.3	1
PZ60-16-20-044	★		ZS 20	*3.0 to 10.0*	*42*	*28*	*44*	±1	0.3	1

★: Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

Small SR - Accessories

Fig 1

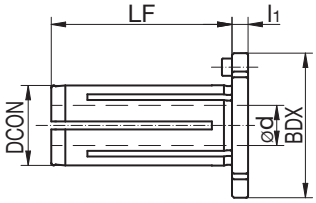
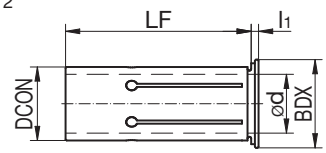


Fig 2



Reducers for Hydro Compensation Chuck

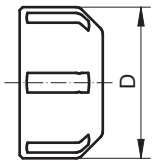
Dimensions (*mm*)

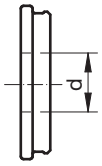
Cat. No.	Stock	Diameter BDX	Cap Dia. ød	DCON	Shoulder Length LF	l_1	Fig
67-12-06	★	*22*	*6*	*12*	*49*	*4*	1
67-12-08	★	*22*	*8*	*12*	*49*	*4*	1

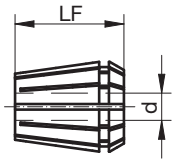
Reducers for Hydro Compensation Chuck "Schunk"

Dimensions (*mm*)

Cat. No.	Stock	Diameter BDX	Cap Dia. ød	DCON	Shoulder Length LF	l_1	Fig
0207913	★	*16.5*	*6*	*12*	*45*	*2*	2
0207915	★	*16.5*	*8*	*12*	*45*	*2*	2
0207923	★	*24.0*	*6*	*20*	*50.5*	*2*	2
0207925	★	*24.0*	*8*	*20*	*50.5*	*2*	2







Collet Nut for Seal Disk

Dimensions (*mm*)

Cat. No.	Size	øD	Thread
20.107.210	ER16	*28*	M22 x 1.5
20.107.310	ER20	*34*	M25 x 1.5
20.107.410	ER25	*42*	M32 x 1.5
20.107.510	ER32	*50*	M40 x 1.5

Seal Disc for Collet Nut

Dimensions (*mm*)

Cat. No.	Size	Diameter Range
20.107.21-□□□	ER16	*3.0 to 10.0*
20.107.31-□□□	ER20	*3.0 to 13.0*
20.107.41-□□□	ER25	*3.0 to 16.0*
20.107.51-□□□	ER32	*3.0 to 20.0*

□□□ = ød
Example 1: ER25, d=12 ⇨ 20.107.41-120;
Use ø12 to ø16mm for 20.107.41-□□□,
ø12 to ø20mm for 20.107.51-□□□
and ø12 to ø26mm for 20.107.61-□□□.
Stocked in increments of 1mm.

Collet

Dimensions (*mm*)

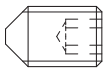
Cat. No.	Type	Diameter Range	LF
62-16-□□	ER16	*3.0 to 10.0*	*27.5*
62-20-□□	ER20	*3.0 to 13.0*	*31.5*
62-25-□□	ER25	*3.0 to 16.0*	*35*
62-32-□□	ER32	*3.0 to 20.0*	*40*

□□ = ød
Example 1: ER25, d=12 ⇨ 62-25-12
Use ø12 to ø16mm for 62-25-□□
ø12 to ø20mm for 62-32-□□
and ø12 to ø26mm for 62-40-□□.
Stocked in increments of 1mm.

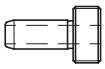
Collet Nut Wrench

Cat. No.	Size
00-05-13	ER16
00-05-12	ER20
00-05-05	ER25
00-05-02	ER32

Spare Parts

Adjustment screw for "TENDOzero" hydraulic chuck	 9954676

Coolant Tubes

Taper Size	
HSK63	H00-63-01
HSK100	H00-100-01

For the HSK arbor.

Run-Out Indicating Insert

Cat No.	System Size	Stock
SRSC08-06-02	SRS_08	★
SRSC10-06-02	SRS_10	★
SRSC11-06-03	SRS_11	★
SRSC13-06-03	SRS_13	★

Torque Wrench

Wrench Cat. No.	Torx Size	N·m	System Size	Stock
G00-40-15	T6	**0.6**	SRS_08	★
G00-40-14	T7	**0.9**	SRS_10	★
G00-40-16	T9	**1.4**	SRS_11	★
G00-40-17	T10	**2.0**	SRS_13	★

★: Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

Insert for SR Reamer

● SRG General-Purpose Straight Flute: Stop and Through Holes

Fig 1

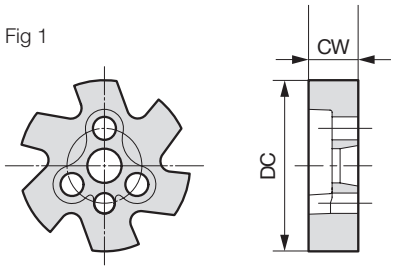
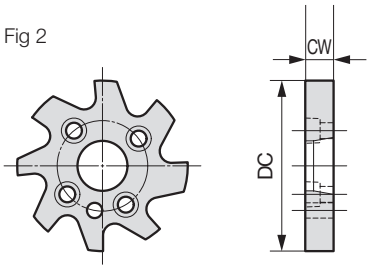
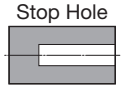


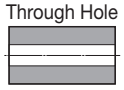
Fig 2



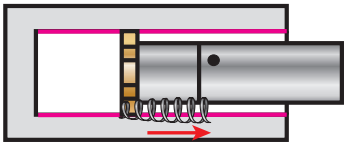
Stop Hole



Through Hole

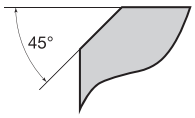


Conceptual Image of Chip Evacuation



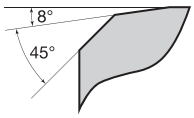
Chips Evacuated Toward Front

A01 Type



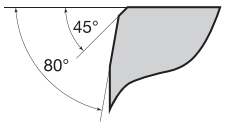
Standard Type

C01 Type



Good Surface Roughness

S02 Type



Good Straightness

★: Worldwide Warehouse Item

SR Reamer Insert Identification

Specifying Inserts Using Workpiece Hole Diameter Tolerance

The actual desired reamer diameter will be on the upper limit side of the median work tolerance, and will differ depending on diameter/tolerance range/grade. Contact Sumitomo Engineering Department for more details.

SR G 18.2 + 20 - 10 - A01 - F05 12R 1
(1) (2) (3) (4) (5) (6) (7)

(1) SR Reamer	(5) Approach Angle Code
(2) G = Straight, L = Lefthand helix	(6) Grade Symbol
(3) Workpiece Bore Diameter (mm)	(7) Coating Code
(4) Tolerance (μm) +/- or standard (e.g. H7)	

Specifying Inserts Using Desired Reamer Diameter

By adding a "Q" after the diameter, it is possible to specify exact desired reamer dimensions. Uncoated types are available within ±2μ, thin-coated layer types are available within ±3μ and thick-coated layer types are available within ±4μ.

SR L 18.2 Q + 3 - 3 - A01 - F05 12R 1
① ② ③ ④ ⑤ ⑥ ⑦

(1) SR Reamer	(5) Approach Angle Code
(2) G = Straight, L = Lefthand helix	(6) Grade Symbol
(3) Median Desired Cutting Edge Diameter (mm)	(7) Coating Code
(4) Tolerance (μm) +/-	

Insert for SR Reamer

● SRL Chip Evacuation Emphasized Left-hand Flute: For Through Holes

Fig 1

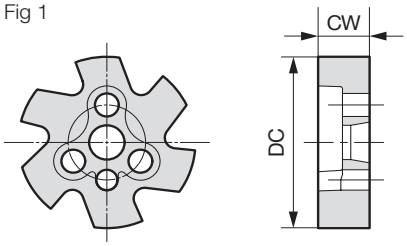
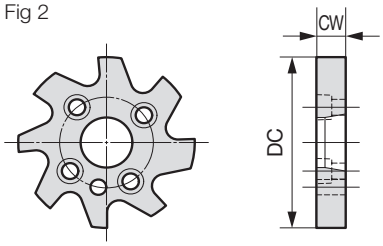
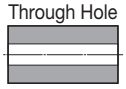


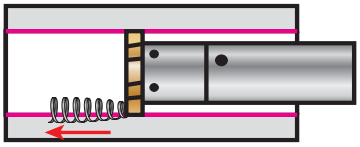
Fig 2



Through Hole

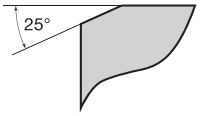


Conceptual Image of Chip Evacuation



Chips Evacuated Toward Back

B01 Type



For Steel Through Holes

Made-to-order items

Dimensions (*mm*)

Cutting Diameter DC	CW	Number of Teeth
ø11.900 to ø15.600	*4.3*	*6*
ø15.601 to ø18.600		
ø18.601 to ø23.600		
ø23.601 to ø28.600	*4.3*	*8*
ø28.601 to ø35.600		
ø35.601 to ø43.600		
ø43.601 to ø51.600	*4.3*	*10*
ø51.601 to ø60.600		
ø60.601 to ø80.600	*4.3*	*12*
ø80.601 to ø100.600		
ø100.601 to ø120.600	*5.3*	
ø120.601 to ø140.600		

SRG (Special) and SRL (Special) are made-to-order items.
* Cermet grades (T1200A and T1212R1) are only available up to *ø100.600 mm.*

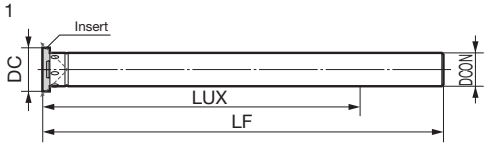
Recommended Cutting Conditions

ISO	Part Material	Insert	Grade	Grade	Depth of Cut (a_p) (*mm/radius*)			Cutting Speed v_C (*m/min*)	Feed Rate f_Z (*mm/t*)
					Below ø20	*ø20 to ø35*	*ø35 and above*		
P	Carbon Steel	SRG	F0512R1	Micro-grained Carbide + PVD	*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*80 to 220*	*0.10 to 0.25*
		SRL			*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*100 to 220*	*0.15 to 0.35*
		SRG	T1200A	Cermet	*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*120 to 250*	*0.10 to 0.25*
		SRL			*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*120 to 250*	*0.15 to 0.35*
	Alloy Steel	SRG	F0512R1	Micro-grained Carbide + PVD	*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*60 to 180*	*0.06 to 0.20*
		SRL			*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*60 to 180*	*0.10 to 0.22*
		SRG	T1200A	Cermet	*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*70 to 200*	*0.08 to 0.20*
		SRL			*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*70 to 200*	*0.12 to 0.25*
	Die Steel	SRG	F0512R1	Micro-grained Carbide + PVD	*0.05 to 0.10*	*0.08 to 0.15*	*0.10 to 0.20*	*15 to 60*	*0.06 to 0.20*
	Tool Steels	SRG	F0512R1	Micro-grained Carbide + PVD	*0.05 to 0.10*	*0.08 to 0.15*	*0.10 to 0.20*	*15 to 30*	*0.04 to 0.15*
M	Stainless Steel	SRG	F0512R1	Micro-grained Carbide + PVD	*0.05 to 0.10*	*0.08 to 0.15*	*0.08 to 0.20*	*15 to 60*	*0.06 to 0.20*
K	Cast Iron	SRG	F0514R2	Coated Carbide	*0.05 to 0.18*	*0.08 to 0.20*	*0.10 to 0.25*	*80 to 250*	*0.10 to 0.30*
	Ductile Cast Iron	SRG	F0514R2	Coated Carbide	*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*80 to 250*	*0.10 to 0.30*
N	Non-ferrous Alloys	SRG	F0510C	Micro-grained Carbide + DLC	*0.05 to 0.12*	*0.08 to 0.15*	*0.10 to 0.25*	*250 to 500*	*0.10 to 0.30*

★: Worldwide Warehouse Item

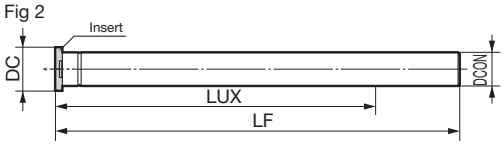
● SRD (Through Hole)

Fig 1



● SRB (Stop Hole)

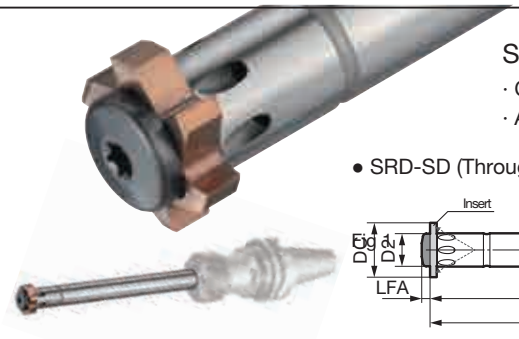
Fig 2



Holder (*ø11.900 to 35.600mm*)

Dimensions (*mm*)

	Dia. DC Range	Holder Cat. No. SRD Stock	SRD Cat. No.	SRD Fig	SRB Stock	SRB Cat. No.	SRB Fig	Carbide Shank SRD Stock	Carbide Shank SRD Cat. No.	Carbide Shank SRD Fig	Carbide Shank SRB Stock	Carbide Shank SRB Cat. No.	Carbide Shank SRB Fig	Shank Dia. DCON	Overall Length LF	Usable Length LUX	Group No.	N·m
Short	*ø11.900 to ø15.600*	★	**SRD16-10-100**	1	★	**SRB16-10-100**	2		—	1		—	2	*10*	*100*	*60*	(1)	**0.9**
	ø15.601 to ø18.600	★	**SRD19-12-115**	1	★	**SRB19-12-115**	2		—	1		—	2	*12*	*115*	*70*	(1)	**0.9**
	ø18.601 to ø23.600	★	**SRD24-16-128**	1	★	**SRB24-16-128**	2		—	1		—	2	*16*	*128*	*80*	(2)	**1.5**
	ø23.601 to ø28.600	★	**SRD29-20-145**	1	★	**SRB29-20-145**	2		—	1		—	2	*20*	*145*	*95*	(2)	**1.5**
	ø28.601 to ø35.600	★	**SRD36-25-170**	1	★	**SRB36-25-170**	2		—	1		—	2	*25*	*170*	*110*	(2)	**1.5**
Long	*ø11.900 to ø15.600*	★	**SRD16-10-160**	1	★	**SRB16-10-160**	2	★	**SRD16-10-160HM**	1	★	**SRB16-10-160HM**	2	*10*	*160*	*120*	(1)	**0.9**
	ø15.601 to ø18.600	★	**SRD19-12-185**	1	★	**SRB19-12-185**	2	★	**SRB19-12-185HM**	1	★	**SRB19-12-185HM**	2	*12*	*185*	*140*	(1)	**0.9**
	ø18.601 to ø23.600	★	**SRD24-16-208**	1	★	**SRB24-16-208**	2	★	**SRB24-16-208HM**	1	★	**SRB24-16-208HM**	2	*16*	*208*	*160*	(2)	**1.5**
	ø23.601 to ø28.600	★	**SRD29-20-240**	1	★	**SRB29-20-240**	2	★	**SRB29-20-240HM**	1	★	**SRB29-20-240HM**	2	*20*	*240*	*190*	(2)	**1.5**
	ø28.601 to ø35.600	★	**SRD36-25-274**	1	★	**SRB36-25-274**	2	★	**SRB36-25-274HM**	1	★	**SRB36-25-274HM**	2	*25*	*274*	*214*	(2)	**1.5**

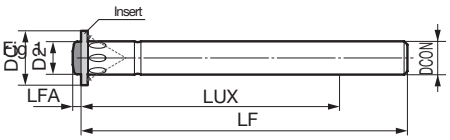


SD (Center Bolt Clamp)

· Can be clamped using one center bolt to improve work efficiency
· Applicable to high-torque (high-load) machining

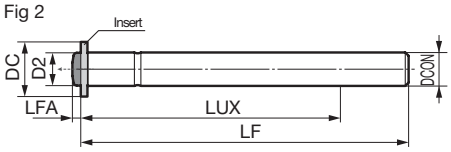
● SRD-SD (Through Hole)

Fig 1



● SRB-SD (Stop Hole)

Fig 2



Steel Shank Holder SRD-SD/SRB-SD (Center Bolt Clamp)

Dimensions (*mm*)

	Dia. DC Range	Holder Cat. No. SRD (Through Hole) Stock	SRD Cat. No.	SRD Fig	SRB (Stop Hole) Stock	SRB Cat. No.	SRB Fig	Shank Dia. DCON	Overall Length LF	Usable Length LUX	Bolt D2	Bolt LFA	Group No. SRD	Group No. SRB	N·m
Short	***ø11.900 to ø15.600***	★	**SRD16-10-100SD**	1	★	**SRB16-10-100SD**	2	*10*	*100*	*60*	*9.8*	*2.5*	(3)	(3)	**4.0**
	ø15.601 to ø18.600	★	**SRD19-12-115SD**	1	★	**SRB19-12-115SD**	2	*12*	*115*	*70*	*11.8*	*3.0*	(4)	(7)	**6.0**
	ø18.601 to ø23.600	★	**SRD24-16-128SD**	1	★	**SRB24-16-128SD**	2	*16*	*128*	*80*	*15.8*	*4.0*	(5)	(8)	**16.0**
	ø23.601 to ø28.600	★	**SRD29-20-145SD**	1	★	**SRB29-20-145SD**	2	*20*	*145*	*95*	*15.8*	*4.0*	(5)	(8)	**16.0**
	ø28.601 to ø35.600	★	**SRD36-25-170SD**	1	★	**SRB36-25-170SD**	2	*25*	*170*	*110*	*24.5*	*4.0*	(6)	(9)	**18.0**
Long	***ø11.900 to ø15.600***	★	**SRD16-10-160SD**	1	★	**SRB16-10-160SD**	2	*10*	*160*	*120*	*9.8*	*2.5*	(3)	(3)	**4.0**
	ø15.601 to ø18.600	★	**SRD19-12-185SD**	1	★	**SRB19-12-185SD**	2	*12*	*185*	*140*	*11.8*	*3.0*	(4)	(7)	**6.0**
	ø18.601 to ø23.600	★	**SRD24-16-208SD**	1	★	**SRB24-16-208SD**	2	*16*	*208*	*160*	*15.8*	*4.0*	(5)	(8)	**16.0**
	ø23.601 to ø28.600	★	**SRD29-20-240SD**	1	★	**SRB29-20-240SD**	2	*20*	*240*	*190*	*15.8*	*4.0*	(5)	(8)	**16.0**
	ø28.601 to ø35.600	★	**SRD36-25-274SD**	1	★	**SRB36-25-274SD**	2	*25*	*274*	*214*	*24.5*	*4.0*	(6)	(9)	**18.0**

Carbide Shank Holder SRD-SD/SRB-SD (Center Bolt Clamp)

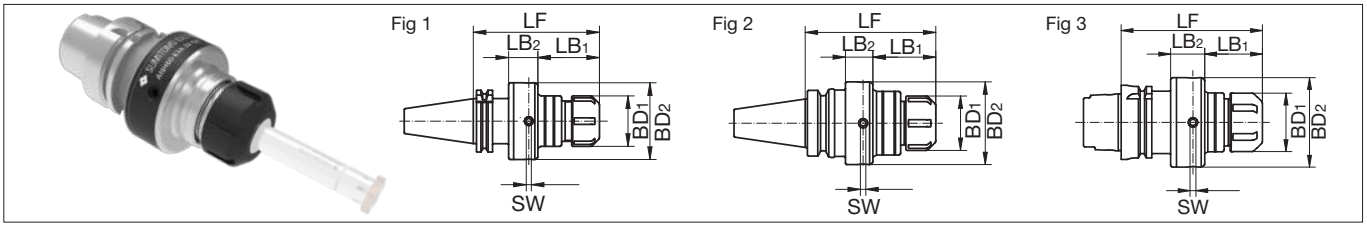
Dimensions (*mm*)

	Dia. DC Range	Holder Cat. No. SRD (Through Hole) Stock	SRD Cat. No.	SRD Fig	SRB (Stop Hole) Stock	SRB Cat. No.	SRB Fig	Shank Dia. DCON	Overall Length LF	Usable Length LUX	Bolt D2	Bolt LFA	Group No. SRD	Group No. SRB	N·m
Long	***ø11.900 to ø15.600***	★	**SRD16-10-160HMSD**	1	★	**SRB16-10-160HMSD**	2	*10*	*160*	*120*	*9.8*	*2.5*	(3)	(3)	**4.0**
	ø15.601 to ø18.600	★	**SRD19-12-185HMSD**	1	★	**SRB19-12-185HMSD**	2	*12*	*185*	*140*	*11.8*	*3.0*	(4)	(7)	**6.0**
	ø18.601 to ø23.600	★	**SRD24-16-208HMSD**	1	★	**SRB24-16-208HMSD**	2	*16*	*208*	*160*	*15.8*	*4.0*	(5)	(8)	**16.0**
	ø23.601 to ø28.600	★	**SRD29-20-240HMSD**	1	★	**SRB29-20-240HMSD**	2	*20*	*240*	*190*	*15.8*	*4.0*	(5)	(8)	**16.0**
	ø28.601 to ø35.600	★	**SRD36-25-274HMSD**	1	★	**SRB36-25-274HMSD**	2	*25*	*274*	*214*	*24.5*	*4.0*	(6)	(9)	**18.0**

★: Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

Compensation Collet Chuck



DIN 69871-AD

Dimensions (*mm*)

Cat. No.	Stock	Size	Type	Diameter Range	BD1	BD2	LF	LB1	LB2	SW	Weight (kg)	Fig
AND60-40A-32-120	★	SK 40	ER32	*3.0 to 20.0*	*50*	*76*	*120*	*56*	*29*	*5*	2.2	1
AND60-40A-40-135	★	SK 40	ER40	*3.0 to 30.0*	*63*	*76*	*135*	*68*	*32*	*5*	2.2	1
AND60-50A-32-120	★	SK 50	ER32	*3.0 to 20.0*	*50*	*76*	*120*	*61*	*24*	*5*	4.1	1
AND60-50A-40-135	★	SK 50	ER40	*3.0 to 30.0*	*63*	*76*	*135*	*76*	*24*	*5*	4.2	1

MAS-BT JIS 6339-AD

Dimensions (*mm*)

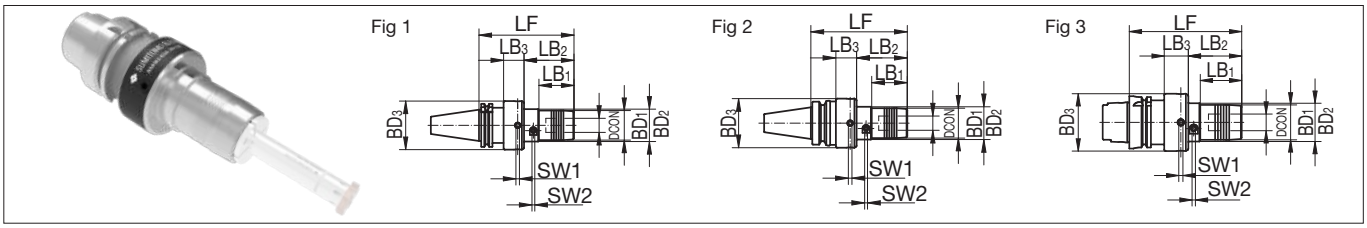
Cat. No.	Stock	Size	Type	Diameter Range	BD1	BD2	LF	LB1	LB2	SW	Weight (kg)	Fig
ANT60-40A-32-120	★	BT 40	ER32	*3.0 to 20.0*	*50*	*76*	*120*	*54*	*29*	*5*	2.2	2
ANT60-40A-40-135	★	BT 40	ER40	*3.0 to 30.0*	*63*	*75*	*135*	*66*	*32*	*5*	2.3	2
ANT60-50A-40-120	★	BT 50	ER32	*3.0 to 30.0*	*50*	*76*	*120*	*58*	*24*	*5*	4.5	2
ANT60-50A-40-135	★	BT 50	ER40	*3.0 to 30.0*	*63*	*76*	*135*	*73*	*24*	*5*	4.5	2

DIN 69893-HSK-A

Dimensions (*mm*)

Cat. No.	Stock	Size	Type	Diameter Range	BD1	BD2	LF	LB1	LB2	SW	Weight (kg)	Fig
ANH60-63A-32-120	★	HSK 63	ER32	*3.0 to 20.0*	*50*	*76*	*120*	*49*	*29*	*5*	2	3
ANH60-63A-40-135	★	HSK 63	ER40	*3.0 to 30.0*	*63*	*76*	*135*	*64*	*29*	*5*	1.9	3
ANH60-100A-32-120	★	HSK 100	ER32	*3.0 to 20.0*	*50*	*76*	*120*	*67*	*24*	*5*	3.4	3
ANH60-100A-40-135	★	HSK 100	ER40	*3.0 to 30.0*	*63*	*76*	*135*	*82*	*24*	*5*	3.3	3

Compensation Hydro Chuck



DIN 69871-AD

Dimensions (*mm*)

Cat. No.	Stock	Size	DCON	BD1	BD2	BD3	LF	LB1	LB2	LB3	SW1	SW2	Weight (kg)	Fig
AND65-40A-20-135	★	SK 40	*20*	*42*	*46*	*69*	*135*	*50*	*71*	*29*	*5*	*4*	2.5	1
AND65-40A-32-180	★	SK 40	*32*	*62*	*-*	*88*	*180*	*111*	*-*	*34*	*6*	*6*	3.8	1
AND65-50A-20-160	★	SK 50	*20*	*42*	*46*	*69*	*160*	*70*	*92*	*34*	*5*	*4*	5	1
AND65-50A-32-180	★	SK 50	*32*	*62*	*-*	*88*	*180*	*111*	*-*	*34*	*6*	*6*	6.4	1

MAS-BT JIS 6339-AD

Dimensions (*mm*)

Cat. No.	Stock	Size	DCON	BD1	BD2	BD3	LF	LB1	LB2	LB3	SW1	SW2	Weight (kg)	Fig
ANT65-40A-20-135	★	BT 40	*20*	*42*	*46*	*69*	*135*	*50*	*71*	*29*	*5*	*4*	2.5	2
ANT65-40A-32-180	★	BT 40	*32*	*62*	*-*	*88*	*180*	*111*	*-*	*34*	*6*	*6*	3.9	2
ANT65-50A-20-135	★	BT 50	*20*	*42*	*46*	*69*	*135*	*50*	*73*	*24*	*5*	*4*	4.8	2
ANT65-50A-32-180	★	BT 50	*32*	*62*	*-*	*88*	*180*	*116*	*-*	*26*	*6*	*6*	6.5	2

DIN 69893-HSK-A

Dimensions (*mm*)

Cat. No.	Stock	Size	DCON	BD1	BD2	BD3	LF	LB1	LB2	LB3	SW1	SW2	Weight (kg)	Fig
ANH65-63A-20-135	★	HSK 63	*20*	*42*	*46*	*69*	*135*	*50*	*64*	*29*	*5*	*4*	2.2	3
ANH65-63A-32-180	★	HSK 63	*32*	*62*	*-*	*88*	*180*	*104*	*-*	*34*	*6*	*6*	4.2	3
ANH65-100A-20-135	★	HSK 100	*20*	*42*	*46*	*69*	*135*	*50*	*82*	*24*	*5*	*4*	3.4	3
ANH65-100A-32-180	★	HSK 100	*32*	*62*	*-*	*88*	*165*	*110*	*-*	*26*	*6*	*6*	4.9	3

Adjustment Screws

Dia. DCON	
12	C00-03-44
20	C00-03-44
32	C00-03-45

Coolant Tubes

Taper Size	
HSK40	H00-40-01
HSK63	H00-63-01
HSK100	H00-100-01

For the HSK arbor.

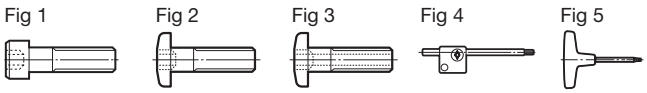
Torque Wrench

All in stock.

Wrench Cat. No.	Applicable Holder Cat. No.	Torx Size	N·m
G00-40-11	SR□ 16 / SR□ 19	T6	**0.9**
G00-40-12	SR□ 24 - SR□ 61	T8	**1.5**
G00-40-13	SR□ 81 / SR□ 141	T15	**3.5**

D,B,KG,A

★: Worldwide Warehouse Item

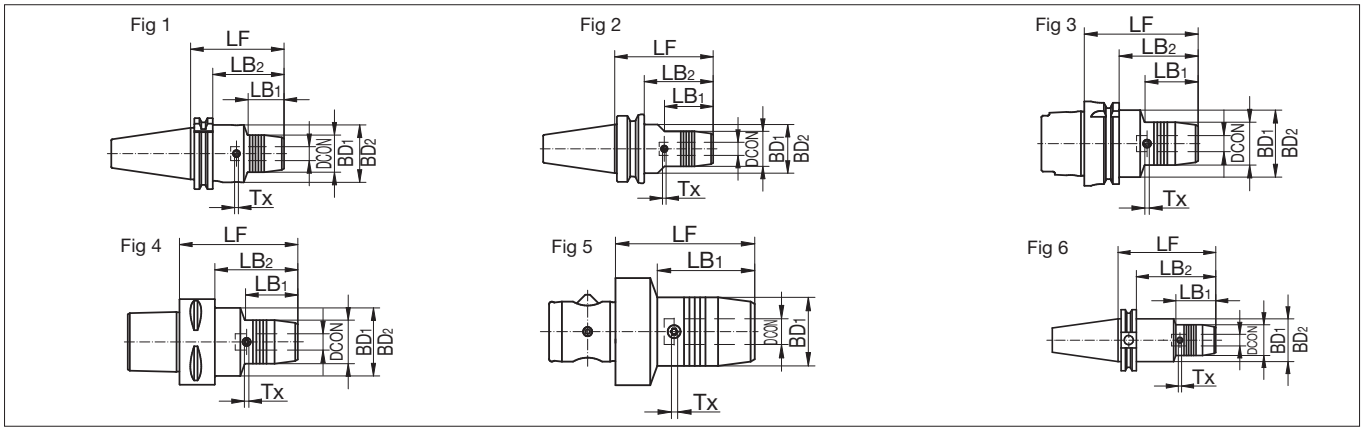


Cap Screws and Wrenches

Group No.	Cat. No. Cap Screw	Fig	Wrench	Fig	Torx Size	N·m
(1)	**C00-90-00**	1	**G00-20-01**	4	T 6	**0.9**
(2)	**C00-90-01**		**G00-20-02**		T 8	**1.5**
(3)	**C00-90-22**	2	**G00-20-27**	5	T15	**4.0**
(4)	**C00-90-23**		**G00-20-28**		T20	**6.0**
(5)	**C00-90-24**		**G00-20-29**		T30	**16.0**
(6)	**C00-90-25**		**G00-20-29**		T30	**18.0**
(7)	**C00-90-23B**	3	**G00-20-28**		T20	**6.0**
(8)	**C00-90-24B**		**G00-20-29**		T30	**16.0**
(9)	**C00-90-25B**		**G00-20-29**		T30	**18.0**

N·m Recommended Tightening Torque (N·m)

Schunk "TENDOzero" Compensating Hydraulic Chuck



DIN 69871-AD/B

Dimensions (*mm*)

Cat. No.	Stock	Size	DCON	BD1	BD2	LF	LB1	LB2	Tx	Weight (kg)	Fig
1447893	★	SK40	*20*	*42*	*50*	*81*	*34*	*62*	15IP	1.4	1
1447946	★	SK40	*32*	*63*	*80*	*81*	*26*	*62*	15IP	2	1
204246Z		SK50	*20*	*42*	*50*	*81*	*34*	*62*	15IP	3.3	1
204247Z		SK50	*32*	*64*	*70*	*104*	*63*	*84*	15IP	4.4	1

MAS-BT JIS 6339-AD/B

Cat. No.	Stock	Size	DCON	BD1	BD2	LF	LB1	LB2	Tx	Weight (kg)	Fig
205636Z	★	BT30	*20*	*42*	*45*	*90*	*48*	*63*	15IP	1.5	2
204445Z	★	BT40	*20*	*42*	*45*	*90*	*48*	*63*	15IP	1.5	2
204457Z	★	BT50	*20*	*42*	*45*	*90*	*34*	*52*	15IP	4	2
204458Z	★	BT50	*32*	*64*	*70*	*120*	*63*	*82*	15IP	5.3	2

DIN 69893-HSK-A

Cat. No.	Stock	Size	DCON	BD1	BD2	LF	LB1	LB2	Tx	Weight (kg)	Fig
204056Z	★	HSK63	*20*	*42*	*50*	*90*	*48*	*64*	15IP	1.3	3
204057Z	★	HSK63	*25*	*57*	*63*	*120*	*59*	*94*	15IP	2.2	3
204058Z	★	HSK63	*32*	*64*	*75*	*125*	*63*	*99*	15IP	2.7	3
204066Z	★	HSK100	*20*	*20*	*50*	*105*	*59*	*76*	15IP	2.8	3
204067Z	★	HSK100	*25*	*25*	*63*	*110*	*62*	*81*	15IP	2.8	3
204068Z	★	HSK100	*32*	*32*	*75*	*110*	*62*	*81*	15IP	3.8	3

*Coolant tube not included

DIN 26623-1-PSC

Dimensions (*mm*)

Cat. No.	Stock	Size	DCON	BD1	BD2	LF	LB1	LB2	Tx	Weight (kg)	Fig
201846Z	★	PSC50	*20*	*42*	*50*	*90*	*52*	-	15IP	1.05	4
201856Z	★	PSC63	*20*	*42*	*63*	*97*	*55*	-	15IP	1.6	4
201858Z	★	PSC63	*32*	*63*	*63*	*110*	*62*	-	15IP	2.8	4

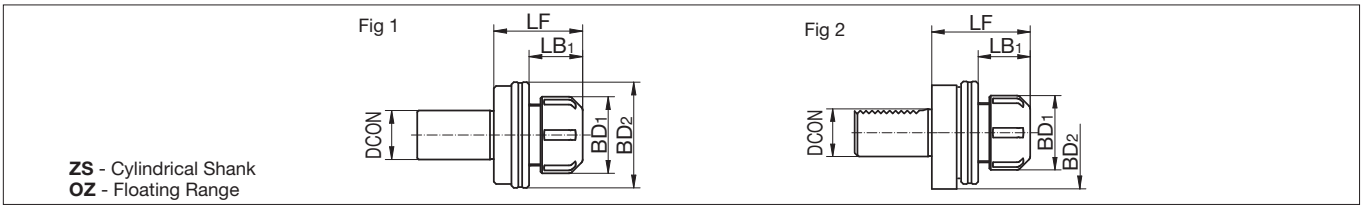
ABS-H Type

Cat. No.	Stock	Size	DCON	BD1	BD2	LF	LB1	LB2	Tx	Weight (kg)	Fig
204576Z	★	ABS50	*20*	*42*	-	*75*	*58*	-	15IP	0.9	5

ASME B5.50-CAT-AD/B

Cat. No.	Stock	Size	DCON	BD1	BD2	LF	LB1	LB2	Tx	Weight (kg)	Fig
203666Z	★	CAT40	*20*	*38*	*45*	*102*	*50*	*83*	15IP	2	6
204666Z	★	CAT50	*20*	*42*	*70*	*102*	*50*	*83*	15IP	2.8	6
204668Z	★	CAT50	*32*	*64*	*70*	*102*	*65*	*83*	15IP	4.1	6

Floating Chuck for Lathes (*ø11.900 to ø35.600mm*)



Cylindrical Shaft DIN 1835-A

Dimensions (*mm*)

Cat. No.	Stock	Shank	Type	Diameter Range	BD_1	BD_2	DCON	LF	LB_1	OZ	Fig
PZ60-25-20-053	★	ZS 20	ER25	*3.0 to 16.0*	*42*	*57*	*20*	*53*	*26*	±1	1
PZ60-32-25-058	★	ZS 25	ER32	*3.0 to 20.0*	*50*	*69*	*25*	*58*	*27*	±1.5	1
PZ60-40-25-064	★	ZS 25	ER40	*3.0 to 26.0*	*63*	*79*	*25*	*64*	*33*	±1.5	1
PZ60-32-32-058	★	ZS 32	ER32	*3.0 to 20.0*	*50*	*69*	*32*	*58*	*27*	±1.5	1
PZ60-40-32-064	★	ZS 32	ER40	*3.0 to 26.0*	*63*	*79*	*32*	*64*	*33*	±1.5	1

DIN 69880-VDI

Dimensions (*mm*)

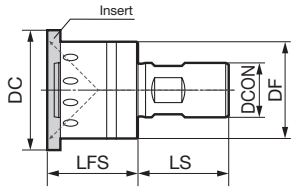
Cat. No.	Stock	Shank	Type	Diameter Range	BD_1	BD_2	DCON	LF	LB_1	OZ	Fig
PV60-25-20-057	★	VDI 20	ER25	*3.0 to 16.0*	*42*	*57*	*20*	*57*	*26*	±1	2
PV60-25-30-064	★	VDI 30	ER25	*3.0 to 16.0*	*42*	*68*	*30*	*64*	*26*	±1	2
PV60-25-30-072	★	VDI 30	ER32	*3.0 to 20.0*	*50*	*68*	*30*	*72*	*27*	±1.5	2
PV60-32-40-074	★	VDI 40	ER32	*3.0 to 20.0*	*50*	*83*	*40*	*74*	*27*	±1.5	2
PV60-40-40-074	★	VDI 40	ER40	*3.0 to 26.0*	*63*	*83*	*40*	*74*	*33*	±1.5	2

★: Worldwide Warehouse Item

Insert Holders

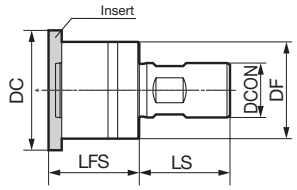
● SRKG (Through Hole)

Fig 1



● SRKB (Stop Hole)

Fig 2



Head (*ø35.601 to 140.6mm*)

Cap Screws and Wrench

Dimensions (*mm*)

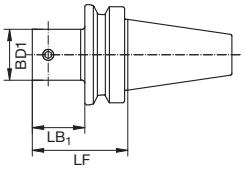
Dia. DC Range	Holder Cat. No.							Diameter	Shank Dia.	Length	Shank	Insert Screws	N·m	Center Assembly Bolt		
	Stock	SRKG	Fig	Stock	SRKB	Fig		DF	DCON	LFS	LS			Cap Screw SRKG	Cap Screw SRKB	Tightening Torque
ø35.601 to ø43.600	★	SRKG44-32-18-030	1	★	SRKB44-32-18-030	2		*32*	*18*	*30*	*30*	C00-90-02 (4x)	1.5	C00-26-23	C00-26-23B	Refer to page 164 for assembly instructions, and recommended torque specifications.
ø43.601 to ø51.600	★	SRKG52-39-20-035	1	★	SRKB52-39-20-035	2		*39*	*20*	*35*	*30*	C00-90-02 (5x)	1.5	C00-26-38	C00-26-38B	
ø51.601 to ø60.600	★	SRKG61-46-25-040	1	★	SRKB61-46-25-040	2		*46*	*25*	*40*	*35*	C00-90-02 (5x)	1.5	C00-24-26	C00-24-26B	
ø60.601 to ø80.600	★	SRKG81-56-32-050	1	★	SRKB81-56-32-050	2		*56*	*32*	*50*	*40*	C00-90-04 (4x)	3.5	C00-26-37	C00-26-37B	
ø80.601 to ø100.600	★	SRKG101-76-40-060	1	★	SRKB101-76-40-060	2		*76*	*40*	*60*	*50*	C00-90-04 (4x)	3.5	C00-24-31	C00-24-31B	
ø100.601 to ø120.600	★	SRKG121-76-40-060	1	★	SRKB121-76-40-060	2		*76*	*40*	*60*	*50*	C00-90-04 (8x)	3.5	C00-24-31	C00-24-31B	
ø120.601 to ø140.600	★	SRKG141-76-40-060	1	★	SRKB141-76-40-060	2		*76*	*40*	*60*	*50*	C00-90-04 (8x)	3.5	C00-24-31	C00-24-31B	

*Refer to the table at the bottom of page 11 for the catalog numbers of cap screws and wrenches applicable for each product. *: For SRKG **: For SRKB

Adaptors (with Integrated Compensation Device)

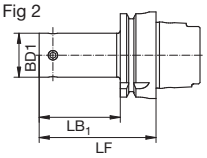
● BT/A

Fig 1



● HSK

Fig 2



DIN 69871-AD

Dimensions (*mm*)

Cat. No.	Stock	Size	BD_1	LF	LB_1	Weight (kg)	Fig
SRAD10-40A-44-065	★	SK40	*32*	*65*	*46*	1.1	1
SRAD10-40A-52-065	★	SK40	*39*	*65*	*46*	1.2	1
SRAD10-40A-61-075	★	SK40	*46*	*75*	*56*	1.4	1
SRAD10-40A-81-080	★	SK40	*56*	*80*	*61*	1.6	1
SRAD10-40A-101-095	★	SK40	*76*	*95*	*76*	2.2	1
SRAD10-50A-44-065	★	SK50	*32*	*65*	*46*	2.9	1
SRAD10-50A-52-065	★	SK50	*39*	*65*	*46*	3.0	1
SRAD10-50A-61-075	★	SK50	*46*	*75*	*56*	3.2	1
SRAD10-50A-81-085	★	SK50	*56*	*85*	*66*	3.6	1
SRAD10-50A-101-095	★	SK50	*76*	*95*	*76*	4.6	1

DIN 69871-B

Dimensions (*mm*)

Cat. No.	Stock	Size	BD_1	LF	LB_1	Weight (kg)	Fig
SRAD10-40B-44-065	★	SK40	*33*	*65*	*33*	1.1	1
SRAD10-40B-52-065	★	SK40	*38*	*65*	*38*	1.3	1
SRAD10-40B-61-075	★	SK40	*43*	*75*	*43*	1.4	1
SRAD10-40B-81-080	★	SK40	*53*	*80*	*56*	1.7	1
SRAD10-40B-101-095	★	SK40	-	*95*	*76*	2.5	1
SRAD10-50B-44-065	★	SK50	*27*	*65*	*32*	3.7	1
SRAD10-50B-52-065	★	SK50	*27*	*65*	*39*	3.8	1
SRAD10-50B-61-075	★	SK50	*37*	*75*	*46*	4.0	1
SRAD10-50B-81-085	★	SK50	*47*	*85*	*56*	4.3	1
SRAD10-50B-101-095	★	SK50	*57*	*95*	*76*	5.1	1

MAS-BT JIS 6339-AD

Cat. No.	Stock	Size	BD_1	LF	LB_1	Weight (kg)	Fig
SRAT10-40A-44-060	★	BT40	*32*	*60*	*33*	1.1	1
SRAT10-40A-52-065	★	BT40	*39*	*65*	*38*	1.3	1
SRAT10-40A-61-070	★	BT40	*46*	*70*	*43*	1.4	1
SRAT10-40A-81-080	★	BT40	*56*	*80*	*53*	1.7	1
SRAT10-40A-101-095	★	BT40	*76*	*95*	—	2.5	1
SRAT10-50A-44-065	★	BT50	*32*	*65*	*27*	3.7	1
SRAT10-50A-52-065	★	BT50	*39*	*65*	*27*	3.8	1
SRAT10-50A-61-075	★	BT50	*46*	*75*	*37*	4.0	1
SRAT10-50A-81-085	★	BT50	*56*	*85*	*47*	4.3	1
SRAT10-50A-101-095	★	BT50	*76*	*95*	*57*	5.1	1

DIN 69893-HSK-A

Cat. No.	Stock	Size	BD_1	LF	LB_1	Weight (kg)	Fig
SRAH10-63A-44-085	★	HSK63	*32*	*85*	*59*	1.0	2
SRAH10-63A-52-090	★	HSK63	*39*	*90*	*64*	1.2	2
SRAH10-63A-61-100	★	HSK63	*46*	*100*	*74*	1.5	2
SRAH10-63A-81-105	★	HSK63	*56*	*105*	*79*	1.8	2
SRAH10-63A-101-120	★	HSK63	*76*	*120*	*94*	2.4	2
SRAH10-100A-44-090	★	HSK100	*32*	*90*	*61*	2.3	2
SRAH10-100A-52-095	★	HSK100	*39*	*95*	*66*	2.6	2
SRAH10-100A-61-100	★	HSK100	*46*	*100*	*71*	2.8	2
SRAH10-100A-81-120	★	HSK100	*56*	*120*	*91*	3.5	2
SRAH10-100A-101-130	★	HSK100	*76*	*130*	*101*	5.0	2

*Coolant tube is not included

Coolant Tubes

Taper Size	
HSK40	H00-40-01
HSK63	H00-63-01
HSK100	H00-100-01

★: Worldwide Warehouse Item

• System Holders Beta Modular - *Ø 139.801 - 200.200 mm*

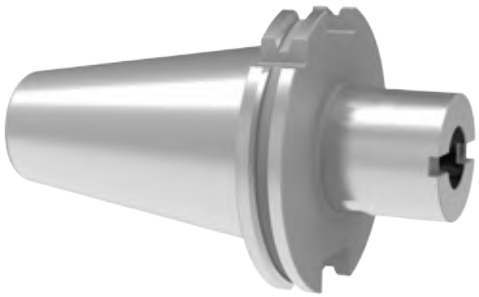


Fig. 1

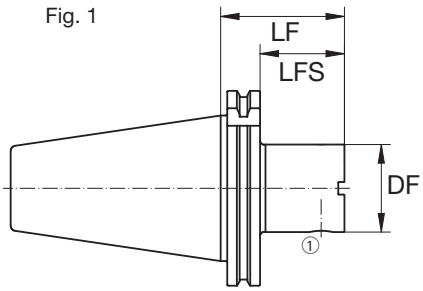
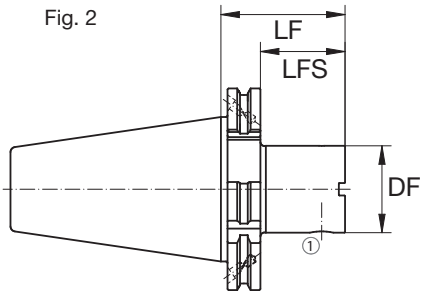


Fig. 2



System Holders Beta Modular - DIN 69871-AD

Spare Parts Dimensions (*mm*)

Size	Beta	Stock	Cat. No.	Fig	Diameter DF	Length LFS	Length LF	Shank Dia.	Weight (lbs)	Clamping Screw
SK50	63	★	**BD10-50A-63-060**	1	*63*	*41*	*60*	**BM-63**	7.27	Z00-63-24
	80	★	**BD10-50A-80-070**	1	*80*	*51*	*70*	**BM-80**	8.82	Z00-80-24
	100	★	**BD10-50A-100-115**	1	*100*	*96*	*115*	**BM-100**	15.21	Z00-100-24

System Holders Beta Module - DIN 69871-B

Spare Parts Dimensions (*mm*)

Size	Beta	Stock	Cat. No.	Fig	Diameter DF	Length LFS	Length LF	Shank Dia.	Weight (lbs)	Clamping Screw
SK50	63	★	**BD10-50B-63-060**	2	*63*	*41*	*60*	**BM-63**	7.27	Z00-63-24
	100	★	**BD10-50B-100-115**	2	*100*	*96*	*115*	**BM-100**	15.21	Z00-100-24

Fig. 1

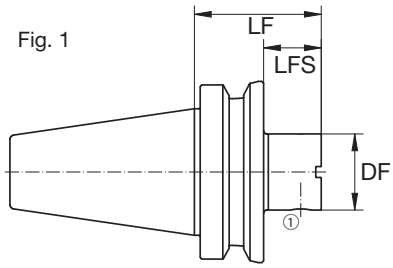
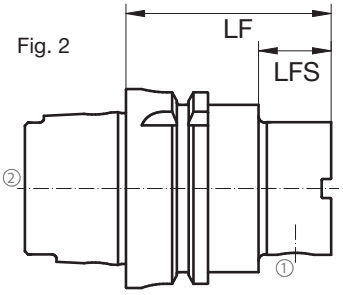


Fig. 2



System Holders Beta Modular - MAS-BT JIS 6339-AD

Spare Parts Dimensions (*mm*)

Size	Beta	Stock	Cat. No.	Fig	Diameter DF	Length LFS	Length LF	Shank Dia.	Weight (lbs)	Clamping Screw
BT50	63	★	**BT10-50A-63-080**	1	*63*	*42*	*80*	**BM-63**	9.47	Z00-63-24
	80	★	**BT10-50A-80-100**	1	*80*	*62*	*100*	**BM-80**	12.12	Z00-80-24
	100	★	**BT10-50A-100-110**	1	*100*	*72*	*110*	**BM-100**	15.43	Z00-100-24

System Holders Beta Module - DIN 69893-HSK-A

Spare Parts Dimensions (*mm*)

Size	Beta	Stock	Cat. No.	Fig	Diameter DF	Length LFS	Length LF	Shank Dia.	Weight (lbs)	Clamping Screw	Coolant Tube
HSK100	63	★	**BH10-100A-63-080***	2	*63*	*35*	*80*	**BM-63**	9.47	Z00-63-24	H00-63-01
	80	★	**BH10-100A-80-090***	2	*80*	*45*	*90*	**BM-80**	12.12	Z00-80-24	—
	100	★	**BH10-100A-100-100***	2	*100*	*55*	*100*	**BM-100**	15.43	Z00-100-24	H00-100-01

* Coolant tube is not included

★: worldwide warehouse item

• System Holders Beta Modular - *Ø 139.801 - 200.200 mm*

Fig. 1

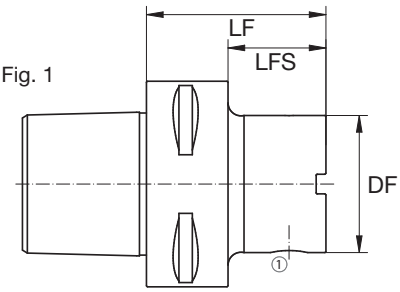
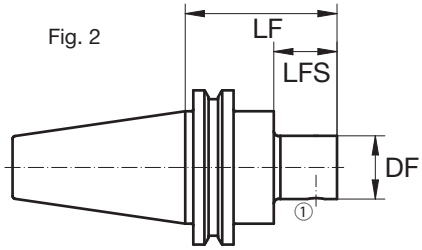


Fig. 2



System Holders Beta Modular - ISO 26623-1-PSC

Spare Parts Dimensions (*mm*)

Size	Beta	Stock	Cat. No.	Fig	Diameter DF	Length LFS	Length LF	Shank Dia.	Weight (lbs)	Clamping Screw
PSC63	63	★	**C10-63-63-065**	1	*63*	*40*	*65*	**BM-63**	3.30	Z00-63-24

System Holders Beta Module - ASME B5.50-CAT-AD

Spare Parts Dimensions (*mm*)

Size	Beta	Stock	Cat. No.	Fig	Diameter DF	Length LFS	Length LF	Shank Dia.	Weight (lbs)	Clamping Screw
CAT50	63		**C6U4-B063**	2	*63*	*30*	*65*	**BM-63**	6.61	Z00-63-24
	80		**C6U4-B080**	2	*80*	*40*	*75*	**BM-80**	7.27	Z00-80-24
	100		**C6U4-B100**	2	*100*	*106*	*125*	**BM-100**	9.92	Z00-100-24

★: worldwide warehouse item

• Modular Holders - *Ø 139.801 - 200.200 mm*

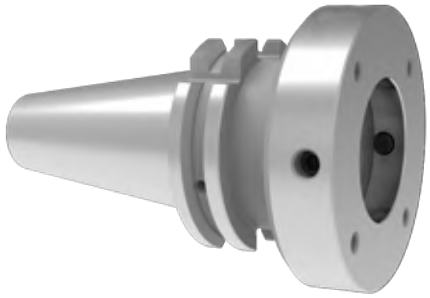


Fig. 1

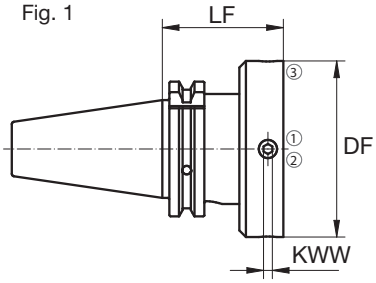
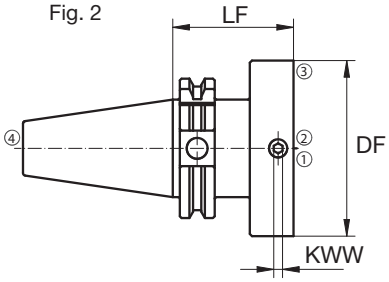


Fig. 2



Modular Holders - DIN 69871-AD/B

Spare Parts — Dimensions (*mm*)

Size	Stock	Cat. No.	Fig	Diameter DF	Length LF	Width KWW	Treaded Pin M10x 20	Wrench	Cyl. Screw
SK50	★	**AD10-50AB-100 060**	1	*100*	*60*	*5*	C00-03-28	G00-02-06	C00-22-15
	★	**AD10-50AB-117 060**	1	*117*	*60*	*5*			C00-22-15
	★	**AD10-50AB-140 060**	1	*140*	*60*	*5*			C00-22-64

Modular Holders - ASME B5.50-CAT-AD/B*

Spare Parts — Dimensions (*mm*)

Size	Stock	Cat. No.	Fig	Diameter DF	Length LF	Width KWW	Treaded Pin M10x 20	Wrench	Cyl. Screw
CAT50	★	**AC10-50AB-100-060**	2	*100*	*60*	*5*	C00-03-28	G00-02-06	C00-22-15
	★	**AC10-50AB-117-060**	2	*117*	*60*	*5*			C00-22-15
	★	**AC10-50AB-140-060**	2	*140*	*60*	*5*			C00-22-64

*Requires retention knob with metric thread

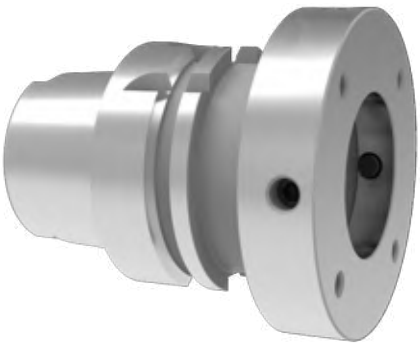


Fig. 1

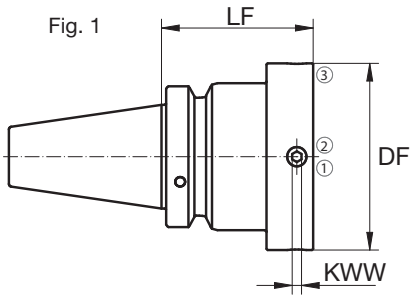
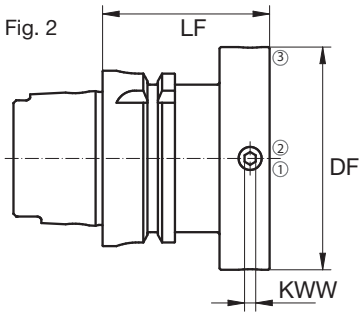


Fig. 2



Modular Holders - MAS-BT JIS 6339-AD/B

Spare Parts — Dimensions (*mm*)

Size	Stock	Cat. No.	Fig	Diameter DF	Length LF	Width KWW	Treaded Pin M10x 20	Wrench	Cyl. Screw
BT50	★	**AT10-50AB-100-070**	2	*100*	*70*	*5*	C00-03-28	G00-02-06	C00-22-15
	★	**AT10-50AB-117-080**	2	*117*	*80*	*5*			C00-22-15
		AT10-50AB-140-080	2	*140*	*80*	*5*			C00-22-64

Modular Holders - DIN 69893-HSK-A

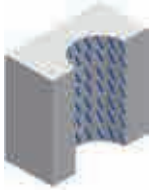
Spare Parts — Dimensions (*mm*)

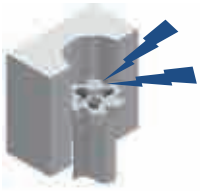
Size	Stock	Cat. No.	Fig	Diameter DF	Length LF	Width KWW	Treaded Pin M10x 20	Wrench	Cyl. Screw	Coolant Tube HSK100
HSK63	★	**AH10-63A-100-065***	2	*100*	*65*	*5*	C00-03-28	G00-02-06	C00-22-15	—
HSK100	★	**AH10-100A-80-055***	2	*80*	*55*	*4*			—	H00-100-01
HSK100	★	**AH10-100A-100-065***	2	*100*	*65*	*5*			C00-22-15	
HSK100	★	**AH10-100A-117-065***	2	*117*	*65*	*5*			C00-22-15	
HSK100		**AH10-100A-140-075***	2	*140*	*75*	*5*			C00-22-64	

* Coolant tube is not included

★: worldwide warehouse item

■ Troubleshooting

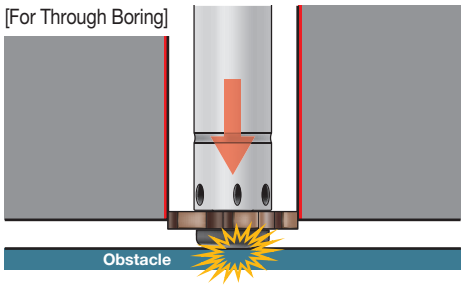
Failure	Countermeasures
Enlarged Diameter	· Reduce the runout as much as possible (use a holder with a diameter correction mechanism). · Decrease the cutting speed. · Increase the feed rate. · Increase the coolant concentration. · Reduce the stock removal. · Check the cutting edge for damage (whether there are built-up edges). · Change the reamer diameter.
Tapered Hole	· Reduce the runout as much as possible (use a holder with a diameter correction mechanism). · Decrease the cutting speed. · Decrease the feed rate. · Adjust the coolant concentration. · Review the pre-machining process. · Review the clamping method of the workpiece. · Compare the hole diameters when the workpiece is clamped and when it is unclamped. · Check and correct the direction of chip evacuation.
Chatter marks on machined surface 	· Reduce the runout as much as possible (use a holder with a diameter correction mechanism). · Change the approach angle of the insert cutting edge. · Review the clamping method of the workpiece. · Decrease the cutting speed. · Increase the feed rate.
Poor Surface Roughness	· Check the cutting edge for damage. · Reduce the runout as much as possible (use a holder with a diameter correction mechanism). · Check whether the cutting conditions are within the recommended range. · Change to internal coolant supply. · Increase the coolant concentration.

Failure	Countermeasures
Return Mark	· Reduce the runout as much as possible (use a holder with a diameter correction mechanism). · Check the cutting edge for damage (whether there are built-up edges). · Reduce the stock removal. · Change to an insert with a sharper cutting edge shape. · Decrease the return (lifting) feed.
Irregular Cutting Noise 	· Decrease the coolant concentration. · Increase the stock removal. · Check the cutting edge for damage. · Change the approach angle of the insert cutting edge.
Small Work Diameter	· Replace the insert. · Decrease the coolant concentration. · Increase the stock removal. · Increase the cutting speed. · Decrease the feed rate.

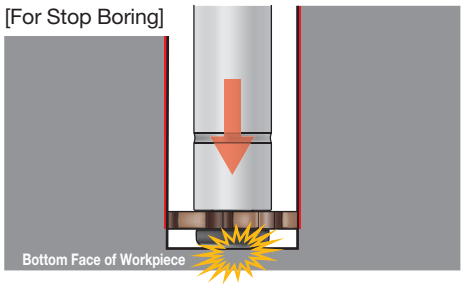
● Precautions for SD (Center Bolt Clamp)

This product can be used for both through-hole and stop-hole boring. However, the head of the center bolt protrudes from the end of the body, so ensure clearance by referring to the protrusion of the center bolt (LFA) shown in the dimension table.

[For Through Boring]



[For Stop Boring]



■ SR Reamer Usage Instructions (Adjusting Runout)

The runout at the cutting edge of a reamer should be zero to obtain optimum boring precision. To correct runout in the holder or the machine's spindle, use of holders with a runout adjustment mechanism, hydro chucks and shrink-fitting is recommended. Various methods can be used to measure runout on a SumiReamer SR Reamer. With good runout repeatability, it is recommended that inserts be replaced without removing the shank holder from the spindle.

- Runout Adjustment

Procedure:

1. Secure central clamping screw according to value "A" in the table (if no value is listed use value "B").
2. Load the tool into the machine spindle.
3. Set the indicator (with 1 µm / .0001 inch resolution on the marked run out ① area on the shank.
4. Measure run-out of the two adjustment screw ② axes.
   Compensate half the value of the total run-out error by using the adjustment screws. Check run out on all four axis points and repeat the adjustment if necessary. Tighten all adjusting screws, and verify run-out of .005 mm / .0002"" T.I.R. or less.
5. Tighten the central clamping screw according to the value in table "B".
6. Check the run out again and readjust if necessary.

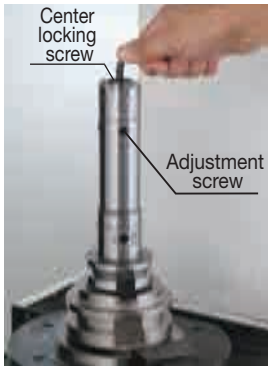
For Reaming Diameters larger than *36.601 mm*

Procedure

1. Secure central clamping screw according to value "A" in the table (if no value is listed use value "B").
2. Load the tool into the machine spindle.
3. Set the indicator (with 1 µm / .0001 inch resolution) on the marked run out area ① on the shank.
4. Measure run-out of the two adjustment screw ② axes.

Compensate half the value of the total run-out error by using the adjustment screws. Check run out on all four axis points and repeat the adjustment if necessary. Tighten all adjusting screws, and verify run-out of .005 mm / .0002"" T.I.R. or less.

5. Tighten the central clamping screw according to the value in table "B".
6. Check the run out again and readjust if necessary.



Recommended Tightening Torque for Center Locking Screw (N·m)

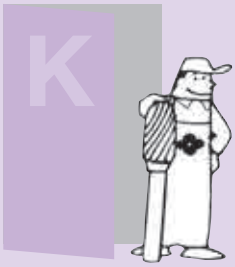
Holder Size	Cap Screw	Size	A	B
SRK □44	C00-26-23G/B	M8×60	*25*	*32*
SRK □52	C00-26-38G/B	M8×70	*25*	*32*
SRK □61	C00-24-26G/B	M10×80	*40*	*55*
SRK □81	C00-26-37G/B	M12×100	*65*	*85*
SRK □101	C00-24-31G/B	M16×100	*95*	*120*

G, B

SR Pararmeter	A [Nm]	B [Nm]
SR 044	-	35
SR 052	-	35
SR 061	-	55
SR 081	60	85
SR 101	70	120
SR 121	70	120
SR 141	70	120

Carbide Materials Brazed Tools
K1 to K12

K



Carbide Material Features and Applications K2
Plate Blanks..... K4
Rod Blanks K5
Special Rod Blanks K6
JIS Inserts for Carbide Tool Holders..... K8
JIS Carbide Tool Holders K9
Jig Boring Tools IJB K12

Stock Markings and Symbols	●: USA Standard stocked item ★: Worldwide Warehouse Item ▲: To be replaced by a new product, made to order, or discontinued (please confirm stock availability).	Blank: Made-to-order item — mark: Not available

Carbide Rod for Endmills, Drills & Reamers

Our Mission is to manufacture the highest quality tungsten carbide rod, by using the most modern production techniques available in the industry.

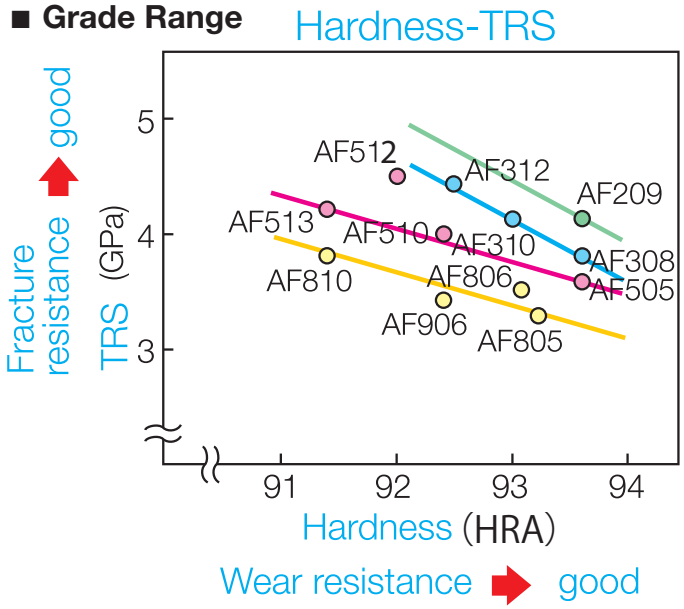
■ Features & Benefits

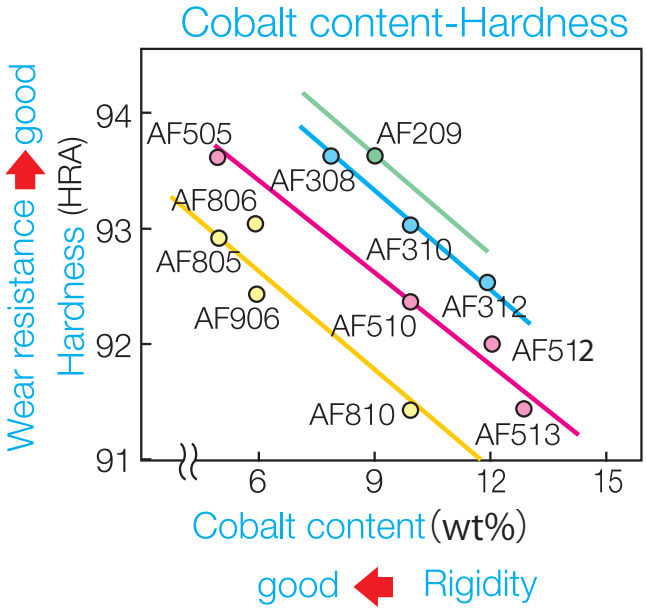
- All products manufactured in Japan
- Axismateria Ltd., subsidiary of Sumitomo Electric Hardmetal features two manufacturing facilities and a research & development location for carbide rod blanks.
- Only materials of highest quality are applied for production
- Incorporating the most advanced production facility available and unique manufacturing techniques, provides short delivery times and consistently high quality products
- We utilize the latest quality control and assurance systems
- We prioritize the advancement of high level research and development

■ Carbide Rod Grade Description

Class	Properties					Features	Products
	Grade	Grain Size (μm)	Cobalt Content (wt%)	TRS (GPa)	Hardness (HRA)		
Ultra- micro Grain	AF209	0.2	9.0	4.0	93.5	The finest micro-grain carbide	Ultra small size PCB Drills, drills, & endmills
	AF312	0.3	12.0	4.4	92.5	Very high toughness characteristics	Small size PCB drills
	AF310	0.3	10.0	4.1	93.0	High wear resistance with toughness	Small size PCB drills & routers
	AF308	0.3	8.0	3.8	93.6	High wear resistance ultra-micro grained	PCB drills & endmills for hardened steel
Micro Grain	AF513	0.5	13.0	4.2	91.4	Tough micro-grain carbide	Endmills, drills for fracture resistance & taps
	AF512	0.5	12.0	4.4	92.0	High wear resistance with added toughness	Endmills
	AF510	0.5	10.0	4.0	92.4	High wear resistance with added toughness	Endmills & drills for general purpose
	AF505	0.5	5.0	3.6	93.6	High wear resistance, micro-grain carbide	PCB drills & routers
Fine Grain	AF810	0.8	10.0	3.8	91.4	High wear resistance with added toughness	Endmills & drills
	AF806	0.8	6.0	3.5	93.0	High wear resistance at high speed machining	PCB drills
	AF805	0.8	5.0	3.3	93.2	High wear resistance, fine grain carbide	Endmills, drills for aluminum & reamers
	AF906	0.9	6.0	3.4	92.4	High toughness with average hardness	Endmills & drills for cast iron

■ Grade Range





■ Micro Structure

Ultra Micro Grain

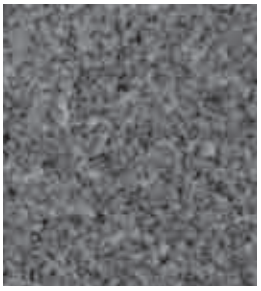
AF209
Grain Size: 0.2 μm

Ultra Micro Grain

AF312
Grain Size: 0.3 μm

Micro Grain

AF513
Grain Size: 0.5 μm



Fine Grain

AF810
Grain Size: 0.8 μm

■ Application Recommendation

Class	Application				Work Materials								
					P		H	M	S		K	N	
	Endmills	Drills	Reamers	PCB Drills, Routers	Soft Steel	General Steel	Hardened Material	Stainless Steel	Titanuim Alloy	Inconel	Cast Iron	Aluminum Alloy	Copper Alloy
AF209	●	●			②	②	②	①	②	②		②	②
AF312	●	●			①							②	②
AF310				●									
AF308	●				②	②	①	②	②	②		②	②
AF513	●	●			①	①	②	①	②	②	②	②	②
			●		①	①	②	①	②	②	②		②
AF512	●				②	②		①	①	①			
AF510	●				①	①	②	②	②	②	②	②	②
		●			①	①	①	①	②	②	②	②	②
AF505				●									
AF810	●				①	①	②	②	②	②	②	②	②
		●			①	①	①	①	②	②	②		②
AF806				●									
AF805	●	●		●					②	②	①	①	①
			●		②	②	②	②	②	②	①	①	①
AF906	●	●					②	②	①	①	①	①	①
			●		②	②	②	②	①	①	①	①	①

①: 1st choice ②: 2nd choice

Plate Blanks

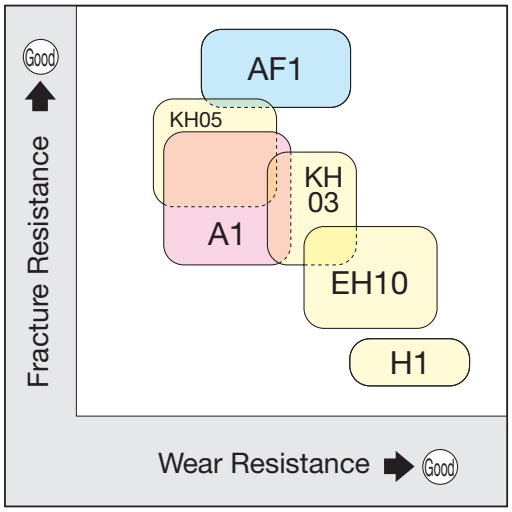
A comprehensive stocked range of grades in carbide plate blanks for mold and die materials, as well as carbide rods for drill or reamer materials.

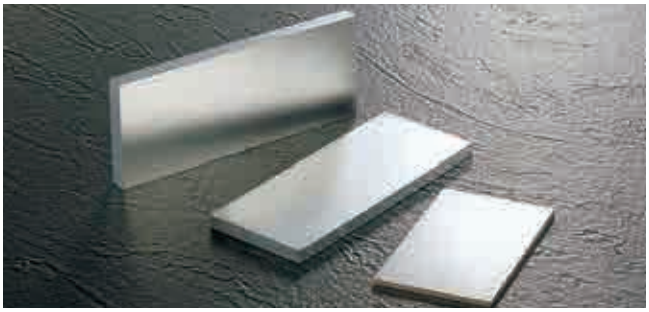
■ Grades

- **AF1 Ultra-fine grained Carbide**
  With grains finer than that of conventional grades, an excellent balance of high toughness and high hardness as well as superior edge sharpness is achieved.
- **A1 Micro-fine Grained Carbide**
  Micro-fine grained carbide A1 is a best-selling general purpose grade with high wear resistance and toughness.
- **Micro-grained Carbide H1**
  Reliable grade for machining non-ferrous metals.
- **Basic Carbide EH10**
  Highly evaluated grade for general machining of cast iron and exotic alloys. Perfect for drills and reamers.
- **KH Series**
  · KH03: Has strength (transverse rupture strength) and hardness similar to A1, with greatly improved chipping resistance that is comparable to ultra-fine grained grades.
  · KH05: With a higher cemented carbide binder content than KH03, this grade has even greater strength (transverse rupture strength) and chipping resistance.

■ Properties and Applications

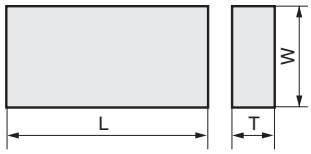
Grade	Hardness		Transverse Rupture Strength	Applications	
	HRA	HV(GPa)	TRS(GPa)		
A1	91.4	15.6	3.2	Endmills	IT Mold Punches
AF1	92.5	17.3	4.4	Small Drills	
KH03	91.4	15.2	3.3	Molds / Dies	
KH05	90.4	13.6	3.5		
EH10	92.4	17.3	3.4	Drills, Reamers	
H1	92.9	17.7	2.1		





Ultra-fine grained carbide (AF1) is specially developed for the manufacturing of carbide mold parts (punches) with a variety of sizes in stock.

Fig 1



■ Stock

Dimensions (mm)

Cat. No.	T		L		W		Grade				Fig
	Nominal Dimensions	Tolerance	Nominal Dimensions	Tolerance	Nominal Dimensions	Tolerance	A1	AF1	KH03	KH05	
0B10060012	1.2	+0.5 +0.2	100	+1.5 0	60	+1.0 0	★	★	★	★	1
0B10060015	1.5						★	★	★	★	1
0B10060020	2.0						★	★	★	★	1
0B10060025	2.5						★	★	★	★	1
0B10060030	3.0						★	★	★	★	1
0B10060040	4.0						★	★	★	★	1
0B15060020	2.0	+0.5 +0.2	150	+1.5 0	60	+1.0 0	★	★	★	★	1
0B15060025	2.5						★	★	★	★	1
0B15060030	3.0						★	★	★	★	1
0B15060035	3.5						★	★	★	★	1
0B15060040	4.0						★	★	★	★	1
0B15060045	4.5						★	★	★	★	1
0B15060050	5.0						★	★	★	★	1
0B15060055	5.5						★	★	★	★	1
0B15060060	6.0						★	★	★	★	1
0B15060070	7.0						★	★	★	★	1
0B15060080	8.0						★	★	★	★	1
0B15060090	9.0						★	★	★	★	1
0B15060100	10.0						★	★	★	★	1

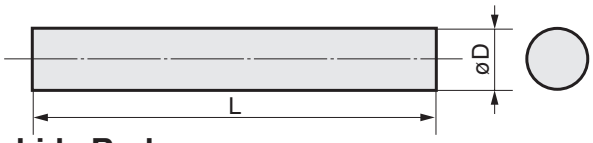
Plates with top and bottom faces ground can be made to order.
★: Worldwide Warehouse Item

Rod Blanks

Rod Blanks grades ideal for applications such as endmills, drills and reamers where edge strength, toughness and wear resistance are essential.

- All Sintered surface
- Available Grades: AF312, AF513, AF805, AF906, AF308, AF510
- Special grades & 330 mm length available upon request

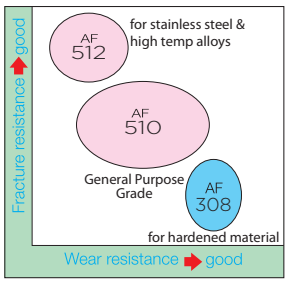
Fig 1



■ Carbide Rods - (CGC) Cut, Ground, Chamfer

Grade	Order #	h6 tolerance Product Description	Stock	øD Diameter (in.)	L Length (in.)	Chamfer (in.)
AF308	AML200K	1/8 X 1.5(CGC CARBIDE ROD)-AF308	●	1/8	1.5	0.015
	AML200P	1/8 X 2(CGC CARBIDE ROD)-AF308	●	1/8	2.0	
	AML200S	1/8 X 2.5(CGC CARBIDE ROD)-AF308	●	1/8	2.5	
	AML200V	1/8 X 3(CGC CARBIDE ROD)-AF308	●	1/8	3	
	AML200Y	3/16 X 2(CGC CARBIDE ROD)-AF308	●	3/16	2	
	AML2012	3/16 X 3(CGC CARBIDE ROD)-AF308	●	3/16	3	
	AML2007	1/4 X 2(CGC CARBIDE ROD)-AF308	●	1/4	2	
	AML200A	1/4 X 2.5(CGC CARBIDE ROD)-AF308	●	1/4	2.5	
	AML200D	1/4 X 3(CGC CARBIDE ROD)-AF308	●	1/4	3	
	AML200G	1/4 X 4(CGC CARBIDE ROD)-AF308	●	1/4	4	
	AML201H	5/16 X 2.5(CGC CARBIDE ROD)-AF308	●	5/16	2.5	
	AML201M	5/16 X 3(CGC CARBIDE ROD)-AF308	●	5/16	3	
	AML2018	3/8 X 2.5(CGC CARBIDE ROD)-AF308	●	3/8	2.5	
	AML201B	3/8 X 3(CGC CARBIDE ROD)-AF308	●	3/8	3	
	AML201E	3/8 X 4(CGC CARBIDE ROD)-AF308	●	3/8	4	
	AML2001	1/2 X 3(CGC CARBIDE ROD)-AF308	●	1/2	3	0.031
	AML2004	1/2 X 4(CGC CARBIDE ROD)-AF308	●	1/2	4	
	AML2015	3/4 X 4(CGC CARBIDE ROD)-AF308	●	3/4	4	
AF510	AML200M	1/8 X 1.5(CGC CARBIDE ROD)-AF510	●	1/8	1.5	0.015
	AML200Q	1/8 X 2(CGC CARBIDE ROD)-AF510	●	1/8	2.0	
	AML200T	1/8 X 2.5(CGC CARBIDE ROD)-AF510	●	1/8	2.5	
	AML200W	1/8 X 3(CGC CARBIDE ROD)-AF510	●	1/8	3	
	AML200Z	3/16 X 2(CGC CARBIDE ROD)-AF510	●	3/16	2	
	AML2013	3/16 X 3(CGC CARBIDE ROD)-AF510	●	3/16	3	
	AML2008	1/4 X 2(CGC CARBIDE ROD)-AF510	●	1/4	2	
	AML200B	1/4 X 2.5(CGC CARBIDE ROD)-AF510	●	1/4	2.5	
	AML200E	1/4 X 3(CGC CARBIDE ROD)-AF510	●	1/4	3	
	AML200H	1/4 X 4(CGC CARBIDE ROD)-AF510	●	1/4	4	
	AML201J	5/16 X 2.5(CGC CARBIDE ROD)-AF510	●	5/16	2.5	
	AML201N	5/16 X 3(CGC CARBIDE ROD)-AF510	●	5/16	3	
	AML2019	3/8 X 2.5(CGC CARBIDE ROD)-AF510	●	3/8	2.5	
	AML201C	3/8 X 3(CGC CARBIDE ROD)-AF510	●	3/8	3	
	AML201F	3/8 X 4(CGC CARBIDE ROD)-AF510	●	3/8	4	
	AML2002	1/2 X 3(CGC CARBIDE ROD)-AF510	●	1/2	3	0.031
	AML2005	1/2 X 4(CGC CARBIDE ROD)-AF510	●	1/2	4	
	AML2016	3/4 X 4(CGC CARBIDE ROD)-AF510	●	3/4	4	
AF512	AML200N	1/8 X 1.5(CGC CARBIDE ROD)-AF512	●	1/8	1.5	0.015
	AML200R	1/8 X 2(CGC CARBIDE ROD)-AF512	●	1/8	2.0	
	AML200U	1/8 X 2.5(CGC CARBIDE ROD)-AF512	●	1/8	2.5	
	AML200X	1/8 X 3(CGC CARBIDE ROD)-AF512	●	1/8	3	
	AML2011	3/16 X 2(CGC CARBIDE ROD)-AF512	●	3/16	2	
	AML2014	3/16 X 3(CGC CARBIDE ROD)-AF512	●	3/16	3	
	AML2009	1/4 X 2(CGC CARBIDE ROD)-AF512	●	1/4	2	
	AML200C	1/4 X 2.5(CGC CARBIDE ROD)-AF512	●	1/4	2.5	
	AML200F	1/4 X 3(CGC CARBIDE ROD)-AF512	●	1/4	3	
	AML200J	1/4 X 4(CGC CARBIDE ROD)-AF512	●	1/4	4	
	AML201K	5/16 X 2.5(CGC CARBIDE ROD)-AF512	●	5/16	2.5	
	AML201P	5/16 X 3(CGC CARBIDE ROD)-AF512	●	5/16	3	
	AML201A	3/8 X 2.5(CGC CARBIDE ROD)-AF512	●	3/8	2.5	
	AML201D	3/8 X 3(CGC CARBIDE ROD)-AF512	●	3/8	3	
	AML201G	3/8 X 4(CGC CARBIDE ROD)-AF512	●	3/8	4	
	AML2003	1/2 X 3(CGC CARBIDE ROD)-AF512	●	1/2	3	0.031
	AML2006	1/2 X 4(CGC CARBIDE ROD)-AF512	●	1/2	4	
	AML2017	3/4 X 4(CGC CARBIDE ROD)-AF512	●	3/4	4	

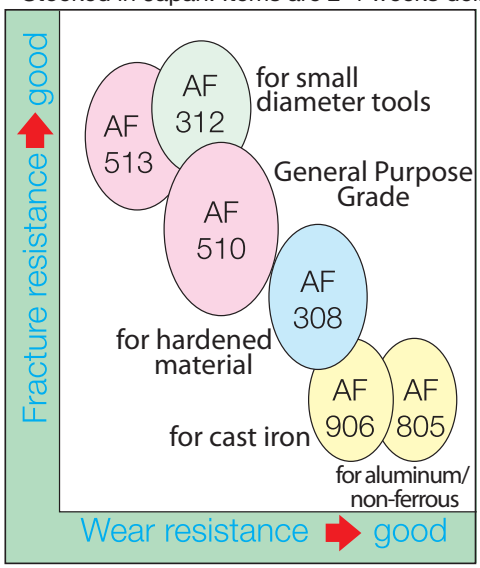
●: USA Stocked Item



■ Carbide Rods

Grade	øD Diameter (mm)	øD Tolerance	L Over Length	L Tolerance	AF312	AF513	AF805	AF906	AF308	AF510
AR010310	1.0	+0.3 +0.2	310 (mm)	+0.6 0	★	★	★	★		
AR015310	1.5				★	★	★	★		
AR020310	2.0				★	★	★	★		
AR025310	2.5	+0.4 +0.2			★	★	★	★		
AR030310	3.0				★	★	★	★	★	★
AR035310	3.5				★	★	★	★		
AR040310	4.0				★	★	★	★	★	★
AR045310	4.5				★	★	★	★		
AR050310	5.0	+0.5 +0.2			★	★	★	★		
AR055310	5.5				★	★	★	★		
AR060310	6.0				★	★	★	★	★	★
AR065310	6.5				★	★	★	★		
AR070310	7.0				★	★	★	★		
AR075310	7.5				★	★	★	★		
AR080310	8.0				★	★	★	★	★	★
AR090310	9.0	+0.6 +0.2			★	★	★	★		
AR100310	10.0				★	★	★	★	★	★
AR110310	11.0				★	★	★	★		
AR120310	12.0				★	★	★	★	★	★
AR130310	13.0				★	★	★	★		
AR140310	14.0				★	★	★	★		
AR150310	15.0				★	★	★	★		
AR160310	16.0	+0.8 +0.2			★	★	★	★	★	★
AR170310	17.0				★	★	★	★		
AR180310	18.0				★	★	★	★		
AR190310	19.0				★	★	★	★		
AR200310	20.0				★	★	★	★		

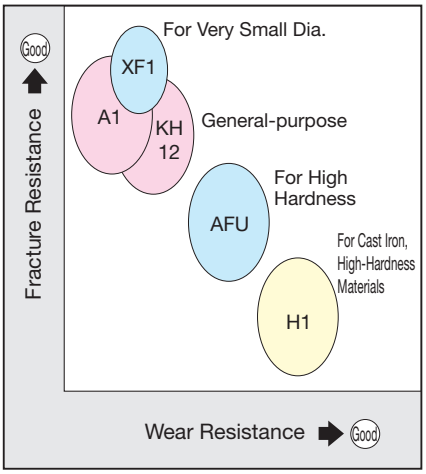
★: Stocked in Japan. Items are 2-4 weeks delivery



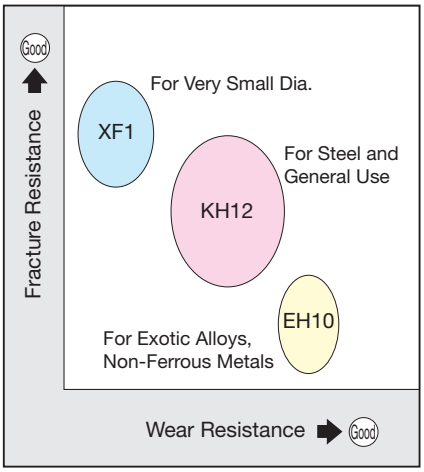
Please inquire about stock availability when ordering.
· For length requirements other than L=310mm, refer to "Special Rod Blanks" on page K6 for the available made-to-order specifications.

Special Rod Blanks

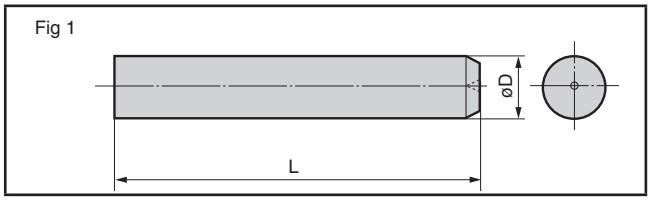
Endmill Blanks



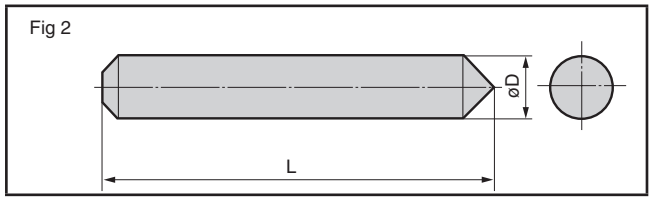
Drill Blanks



Shape (Example)



Shape (Example)



O.D.

Dimensions (mm)

øD	Tolerance	Fig
1.0 ≤ D ≤ 2.0	+ 0.3 + 0.2	1
2.0 < D ≤ 8.0	+ 0.5 + 0.2	1
8.0 < D ≤ 15.0	+ 0.6 + 0.2	1
15.0 < D ≤ 20.0	+ 0.6 + 0.3	1
20.0 < D ≤ 25.0	+ 0.6 + 0.3	1

Rods with steps can be made to order.

O.D.

Dimensions (mm)

øD	Tolerance	Fig
1.0 ≤ D ≤ 2.0	+ 0.3 + 0.2	2
2.0 < D ≤ 15.0	+ 0.5 + 0.3	2
15.0 < D ≤ 20.0	+ 0.6 + 0.3	2
20.0 < D ≤ 25.0	+ 0.6 + 0.3	2

Rods with steps can be made to order.

Overall Length

Dimensions (mm)

L	Tolerance	Warpage	Fig
40 ≤ L ≤ 100	Overall Length ± 0.5%	0.15	1
100 < L ≤ 200		0.15	1
200 < L ≤ 310		0.20	1

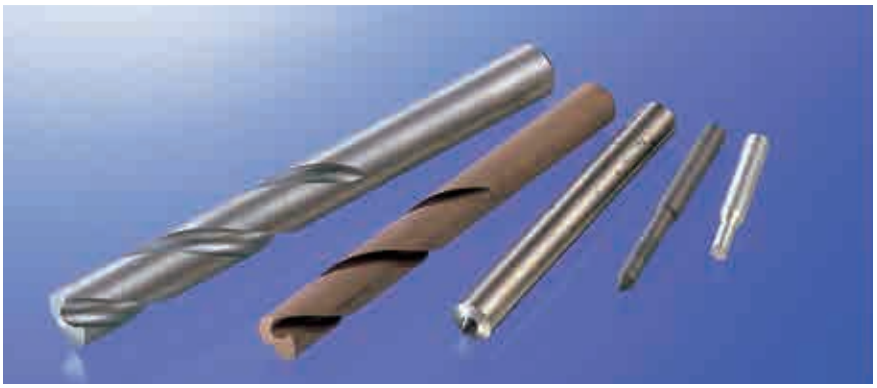
Ground rods can be made to order.

Overall Length

Dimensions (mm)

L	Tolerance	Warpage	Fig
40 ≤ L ≤ 100	Overall Length ± 0.5%	0.15	2
100 < L ≤ 200		0.15	2
200 < L ≤ 310		0.20	2

Ground rods can be made to order.

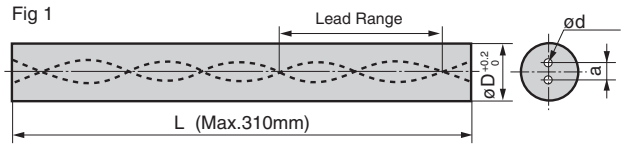


Special Rod Blanks

Drill Blanks with Oil Holes

Shape (Example)

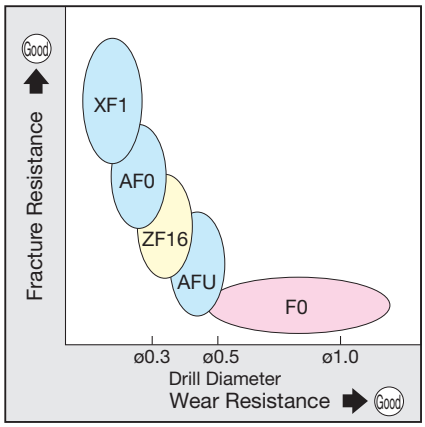
Fig 1



Right-hand Helix 30°, 2 Holes

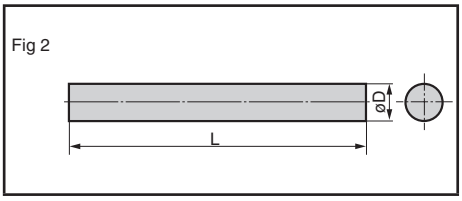
	Order #	Product Description	Stock	øD Diameter (mm)	øD1 Lead Bottom	ød Hole Diameter	a Hole Pitch	Lead (mm)
For Straight Drills	AML300T	3.6X330/30 OH STRAIGHT UNGROUND-AF810		3.6	3.3	0.47 ±0.05	$1.5^{0}_{-0.1}$	15.7 ~ 17.0
	AML300U	4.6X330/30 OH STRAIGHT UNGROUND-AF810		4.6	4.3	0.59 ±0.1	$1.7^{0}_{-0.2}$	20.9 ~ 22.6
	AML300V	5.6X330/30 OH STRAIGHT UNGROUND-AF810		5.6	5.3	0.71 ±0.1	$2.4^{0}_{-0.3}$	26.1 ~ 28.3
	AML300W	6.6X330/30 OH STRAIGHT UNGROUND-AF810		6.6	6.3	0.83 ±0.1	2.8 ±0.2	31.3 ~ 34.0
	AML300X	7.6X330/30 OH STRAIGHT UNGROUND-AF810		7.6	7.3	0.95 ±0.1	3.2 ±0.2	36.6 ~ 39.6
	AML300Y	8.6X330/30 OH STRAIGHT UNGROUND-AF810	●	8.6	8.3	1.06 ±0.1	3.6 ±0.2	41.8 ~ 45.3
	AML300Z	9.6X330/30 OH STRAIGHT UNGROUND-AF810		9.6	9.3	1.18 ±0.2	4.0 ±0.2	47.0 ~ 51.0
	AML300F	10.6X330/30 OH STRAIGHT UNGROUND-AF810		10.6	10.3	1.30 ±0.2	4.4 ±0.2	52.3 ~ 56.7
	AML300G	11.6X330/30 OH STRAIGHT UNGROUND-AF810		11.6	11.3	1.30 ±0.2	4.4 ±0.2	57.5 ~ 62.3
	AML300H	12.6X330/30 OH STRAIGHT UNGROUND-AF810	●	12.6	12.3	1.42 ±0.2	4.8 ±0.2	62.7 ~ 68.0
	AML300J	13.6X330/30 OH STRAIGHT UNGROUND-AF810		13.6	13.3	1.54 ±0.2	5.2 ±0.2	67.9 ~ 73.7
	AML300K	14.6X330/30 OH STRAIGHT UNGROUND-AF810		14.6	14.3	1.66 ±0.2	5.6 ±0.2	73.2 ~ 79.3
	AML300M	15.6X330/30 OH STRAIGHT UNGROUND-AF810		15.6	15.3	1.77 ±0.2	6.0 ±0.2	78.4 ~ 85.0
	AML300N	16.6X330/30 OH STRAIGHT UNGROUND-AF810		16.6	16.3	1.89 ±0.2	6.4 ±0.2	83.7 ~ 90.7
	AML300P	17.6X330/30 OH STRAIGHT UNGROUND-AF810		17.6	17.3	2.01 ±0.2	6.8 ±0.2	88.9 ~ 96.3
	AML300Q	18.6X330/30 OH STRAIGHT UNGROUND-AF810		18.6	18.3	2.13 ±0.2	7.2 ±0.2	94.1 ~ 102.0
	AML300R	19.6X330/30 OH STRAIGHT UNGROUND-AF810		19.6	19.3	2.28 ±0.2	7.6 ±0.2	99.3 ~ 107.7
	AML300S	20.6X330/30 OH STRAIGHT UNGROUND-AF810		20.6	20.3	2.36 ±0.2	2.8 ±0.2	104.6 ~ 113.4
For Step Drills	AML3008	3.6X330/30 OH STEP UNGROUND-AF810		3.6	3.3	0.23 ±0.05	$0.8^{-0.1}_{-0.2}$	15.7 ~ 17.0
	AML3009	4.6X330/30 OH STEP UNGROUND-AF810		4.6	4.3	0.35 ±0.05	$1.1^{0}_{-0.1}$	20.9 ~ 22.6
	AML300A	5.6X330/30 OH STEP UNGROUND-AF810		5.6	5.3	0.47 ±0.05	$1.5^{0}_{-0.3}$	26.1 ~ 28.3
	AML300B	6.6X330/30 OH STEP UNGROUND-AF810		6.6	6.3	0.47 ±0.1	2.0 ±0.2	31.3 ~ 34.0
	AML300C	7.6X330/30 OH STEP UNGROUND-AF810		7.6	7.3	0.59 ±0.1	2.0 ±0.2	36.6 ~ 39.6
	AML300D	8.6X330/30 OH STEP UNGROUND-AF810		8.6	8.3	0.71 ±0.1	2.4 ±0.2	41.8 ~ 45.3
	AML300E	9.6X330/30 OH STEP UNGROUND-AF810		9.6	9.3	0.83 ±0.1	2.8 ±0.2	47.0 ~ 51.0
	AML3001	10.6X330/30 OH STEP UNGROUND-AF810		10.6	10.3	0.95 ±0.1	3.2 ±0.2	52.3 ~ 56.7
	AML3002	11.6X330/30 OH STEP UNGROUND-AF810		11.6	11.3	0.95 ±0.2	3.2 ±0.2	57.5 ~ 62.3
	AML3003	12.6X330/30 OH STEP UNGROUND-AF810		12.6	12.3	1.06 ±0.2	3.6 ±0.2	62.7 ~ 68.0
	AML3004	13.6X330/30 OH STEP UNGROUND-AF810		13.6	13.3	1.06 ±0.2	3.6 ±0.2	67.9 ~ 73.7
	AML3005	14.6X330/30 OH STEP UNGROUND-AF810		14.6	14.3	1.18 ±0.2	4.0 ±0.2	73.2 ~ 79.3
	AML3006	15.6X330/30 OH STEP UNGROUND-AF810		15.6	15.3	1.30 ±0.2	4.4 ±0.2	78.4 ~ 85.0
	AML3007	16.6X330/30 OH STEP UNGROUND-AF810		16.6	16.3	1.42 ±0.2	4.8 ±0.2	83.7 ~ 90.7

PCB Drill Blanks



Shape (Example)

Fig 2



Solid Type

Dimensions (mm)

øD	L	Fig
2.15 ±0.02	$32.0^{+0.9}_{+0.4}$	2
3.25 ±0.02	$38.1^{+1.0}_{+0.4}$	2

Other sizes can be made to order.

Composite Type (Rough Ground)

øD	L	Fig
1.2 to 1.8 ±0.05	12 to 330 ± overall length 0.5%	2

Consult us about dimensions.
Centerless grinding can be performed.

Recommended Grades by Application (⊙: Best, ❍: Good)

·By Tool Diameter

Dimensions (mm)

Grade	Very Small Diameter (up to ø0.15)	Small Diameters (ø0.15 to ø0.40)	General Diameters (ø0.40 up)
XF1	⊙	❍	
AF1	❍	❍	
AF0	❍	⊙	❍
AFU		⊙	❍
ZF16		❍	❍
F0		❍	⊙

·By Application

Grade	Hardened Steel	High-speed Machining	Stacked Plates	For Routers
XF1		❍		
AF1			❍	
AF0		❍	⊙	❍
AFU	❍	❍		
ZF16	❍	⊙		
F0	⊙	❍		⊙

JIS Inserts for Carbide Tool Holders

Dimensions (mm)

Shape	Cat. No.	Carbide: P (Steel) P10 ST10P	P20 ST20E	P30 ST30E	P40 ST40E			M (Stainless Steel) M20 U2	M40 A40		K (Cast Iron) K01 H3	K01 H2	K10 H1	K20 G10E	K20 G2	A	B	C	RE	Typical Applicable Holders	Fig
01 Type Fig 1	01-0															10	6	3	4	31 Type 32 Type 45 Type 46 Type	1
	01-1															13	9	3	5		1
	01-2															16	11	4	5		1
	01-3															19	13	5	5		1
	01-4															22	15	6	8		1
	01-5															25	17	7	8		1
	01-6															30	20	8	8		1
02 Type Fig 2	02-0															10	6	3	–	41 Type 42 Type	2
	02-1															13	9	3	–		2
	02-2															16	11	4	–		2
	02-3															19	13	5	–		2
	02-4															22	15	6	–		2
	02-5															25	17	7	–		2
	02-6															30	20	8	–		2
03 Type Fig 3	03-0															10	–	3	–	37 Type 38 Type 47 Type 48 Type	3
	03-1															12	–	3	–		3
	03-2															15	–	4	–		3
	03-3															18	–	5	–		3
	03-4															24	–	6	–		3
	03-5															24	–	7	–		3
	03-6															28	–	8	–		3
Fig 4 04 Type	04-0															10	6	3	4	33 Type 34 Type	4
	04-1															13	9	3	5		4
	04-2															16	11	4	5		4
	04-3															19	13	5	5		4
	04-4															22	15	6	8		4
	04-5															25	17	7	8		4
	04-6															30	20	8	8		4
Fig 5 05 Type	05-1															5	8	3	–	49 Type 50 Type 51 Type 52 Type	5
	05-2															6	10	4	–		5
	05-3															7	12	5	–		5
	05-4															9	16	6	–		5
	05-5															10	18	7	–		5
	05-6															11	20	8	–		5
Fig 6 06 Type	06-0															10	10	3	2	36 Type 39 Type 40 Type	6
	06-1															13	13	3	2.5		6
	06-2															16	16	4	3		6
	06-3															19	19	5	4		6
	06-4															22	22	6	4		6
	06-5															25	25	7	5		6
	06-6															30	30	8	6		6
07 Type Fig 7	07-0															10	10	3	–	35 Type	7
	07-1															13	13	3	–		7
	07-2															16	16	4	–		7
	07-3															19	19	5	–		7
	07-4															25	20	6	–		7
	07-5															25	22	7	–		7
	07-6															30	25	8	–		7
08 Type Fig 8	08-1															3	8	3	–	43 Type	8
	08-3															4	13	4	–		8
	08-4															5	15	5	–		8
	08-5															6	17	6	–		8
	08-6															8	20	8	–		8

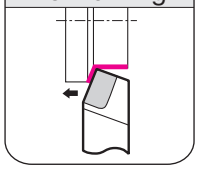
Items are not stocked in USA. For interest, please inquiry: materialg@sumicarbide.com

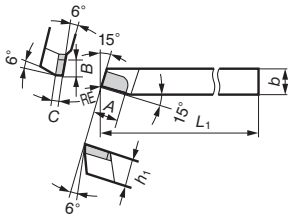
JIS Inserts for Carbide Tool Holders

Dimensions (*mm*)

31 Type (Right-Hand)
32 Type (Left-Hand)

For Turning

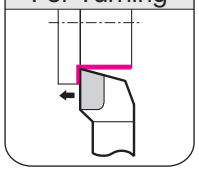


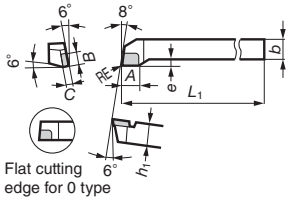


Figures show right-hand tools.

33 Type (Right-Hand)
34 Type (Left-Hand)

For Turning



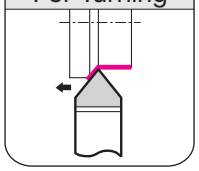


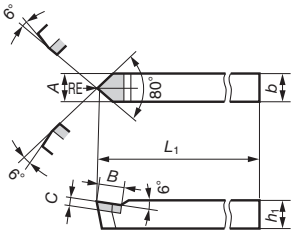
Flat cutting edge for 0 type

Figures show right-hand tools.

35 Type

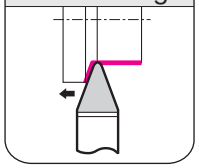
For Turning

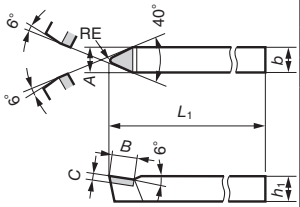




36 Type

For Turning





Shape	Cat. No.	Cermet T1200A		Carbide P (Steel) P10 ST10P	P20 ST20E	P30 ST30E	P40 ST40E			M (Stainless Steel) M20 U2	M40 A40		K (Cast Iron) K01 H3	K01 H2	K10 H1	K20 G10E	K20 G2	Shank b	h_1	L_1	e	a_r	Insert Part A	B	C	RE	Applicable Insert
31 Type (Right-Hand) / 32 Type (Left-Hand) For Turning	31-1																	13	13	100	–	–	13	9	3	0.5	01-1
	31-2																	16	16	120	–	–	16	11	4	0.5	01-2
	31-3																	19	19	140	–	–	19	13	5	0.5	01-3
	31-4	*																25	25	160	–	–	22	15	6	1	01-4
	31-5	–																25	30	180	–	–	25	17	7	1	01-5
	31-6	–																30	35	200	–	–	30	20	8	1	01-6
	32-1																	13	13	100	–	–	13	9	3	0.5	01-1
	32-2																	16	16	120	–	–	16	11	4	0.5	01-2
	32-3																	19	19	140	–	–	19	13	5	0.5	01-3
	32-4	*																25	25	160	–	–	22	15	6	1	01-4
	32-5	–																25	30	180	–	–	25	17	7	1	01-5
	32-6	–																30	35	200	–	–	30	20	8	1	01-6
33 Type (Right-Hand) / 34 Type (Left-Hand) For Turning	33-0																	10	10	80	0	–	10	6	3	0.3	04-0
	33-1																	13	13	100	4	–	13	9	3	0.5	04-1
	33-2																	16	16	120	4	–	16	11	4	0.5	04-2
	33-3																	19	19	140	5	–	19	13	5	0.5	04-3
	33-4	*																25	25	160	5	–	22	15	6	1	04-4
	33-5	–																25	30	180	6	–	25	17	7	1	04-5
	33-6	–																30	35	200	6	–	30	20	8	1	04-6
	34-0																	10	10	80	0	–	10	6	3	0.3	04-0
	34-1																	13	13	100	4	–	13	9	3	0.5	04-1
	34-2																	16	16	120	4	–	16	11	4	0.5	04-2
	34-3																	19	19	140	5	–	19	13	5	0.5	04-3
	34-4	*																25	25	160	5	–	22	15	6	1	04-4
	34-5	–																25	30	180	6	–	25	17	7	1	04-5
	34-6	–																30	35	200	6	–	30	20	8	1	04-6
35 Type For Turning	35-0																	10	10	80	–	–	10	10	3	0.3	07-0
	35-1																	13	13	100	–	–	13	13	3	0.5	07-1
	35-2																	16	16	120	–	–	16	16	4	0.5	07-2
	35-3																	19	19	140	–	–	19	19	5	0.5	07-3
	35-4	*																25	25	160	–	–	22	20	6	1	07-4
	35-5	–																25	30	180	–	–	25	22	7	1	07-5
	35-6	–																30	35	200	–	–	30	25	8	1	07-6
36 Type For Turning	36-0																	10	10	80	–	–	10	10	3	2	06-0
	36-1																	13	13	100	–	–	13	13	3	2	06-1
	36-2																	16	16	120	–	–	16	16	4	3	06-2
	36-3																	19	19	140	–	–	19	19	5	4	06-3
	36-4	*																25	25	160	–	–	22	22	6	4	06-4
	36-5	–																25	30	180	–	–	25	25	7	5	06-5
	36-6	–																30	35	200	–	–	30	30	8	5	06-6

Items marked * follow the insert dimensions of the ○○**-3** type (one size smaller) in their category. <Made to order>

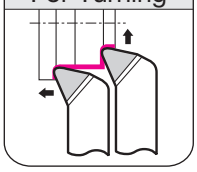
Items are not stocked in USA. For interest, please inquiry: materialg@sumicarbide.com

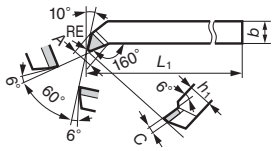
JIS Carbide Tool Holders

Dimensions (*mm*)

37 Type (Right-Hand)
38 Type (Left-Hand)

For Turning

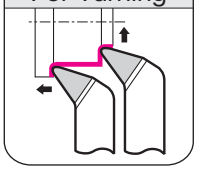


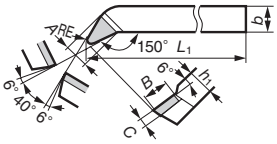


Figures show right-hand tools.

39 Type (Right-Hand)
40 Type (Left-Hand)

For Turning

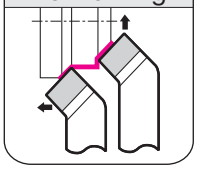


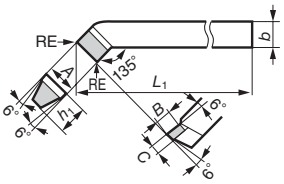


Figures show right-hand tools.

41 Type (Right-Hand)
42 Type (Left-Hand)

For Turning

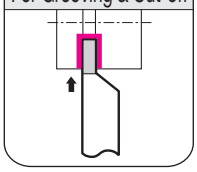


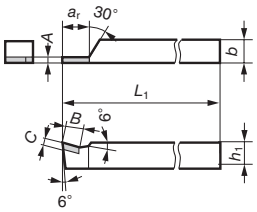


Figures show right-hand tools.

43 Type

For Grooving & Cut-off





Shape	Cat. No.	Cermet T1200A	Cermet	Carbide P (Steel) P10 ST10P	P20 ST20E	P30 ST30E	P40 ST40E			M (Stainless Steel) M20 U2	M40 A40		K (Cast Iron) K01 H3	K01 H2	K10 H1	K20 G10E	K20 G2	Shank b	h_1	L_1	e	a_r	Insert Part A	B	C	RE	Applicable Insert
	37-1																	13	13	100	–	–	12	–	3	0.5	03-1
	37-2																	16	16	120	–	–	15	–	4	0.5	03-2
	37-3																	19	19	140	–	–	18	–	5	0.5	03-3
	37-4	*																25	25	160	–	–	24	–	6	1	03-4
	37-5	–																25	30	180	–	–	24	–	7	1	03-5
	37-6	–																30	35	200	–	–	28	–	8	1	03-6
	38-1																	13	13	100	–	–	12	–	3	0.5	03-1
	38-2																	16	16	120	–	–	15	–	4	0.5	03-2
	38-3																	19	19	140	–	–	18	–	5	0.5	03-3
	38-4	*																25	25	160	–	–	24	–	6	1	03-4
	38-5	–																25	30	180	–	–	24	–	7	1	03-5
	38-6	–																30	35	200	–	–	28	–	8	1	03-6
	39-0																	10	10	80	–	–	10	10	3	2	06-0
	39-1																	13	13	100	–	–	13	13	3	2	06-1
	39-2																	16	16	120	–	–	16	16	4	3	06-2
	39-3																	19	19	140	–	–	19	19	5	4	06-3
	39-4	*																25	25	160	–	–	22	22	6	4	06-4
	39-5	–																25	30	180	–	–	25	25	7	5	06-5
	39-6	–																30	35	200	–	–	30	30	8	5	06-6
	40-0																	10	10	80	–	–	10	10	3	2	06-0
	40-1																	13	13	100	–	–	13	13	3	2	06-1
	40-2																	16	16	120	–	–	16	16	4	3	06-2
	40-3																	19	19	140	–	–	19	19	5	4	06-3
	40-4	*																25	25	160	–	–	22	22	6	4	06-4
	40-5	–																25	30	180	–	–	25	25	7	5	06-5
	40-6	–																30	35	200	–	–	30	30	8	5	06-6
	41-1																	13	13	100	–	–	13	9	3	0.5	02-1
	41-2																	16	16	120	–	–	16	11	4	0.5	02-2
	41-3																	19	19	140	–	–	19	13	5	0.5	02-3
	41-4	*																25	25	160	–	–	22	15	6	1	02-4
	41-5	–																25	30	180	–	–	25	17	7	1	02-5
	41-6	–																30	35	200	–	–	30	20	8	1	02-6
	42-1																	13	13	100	–	–	13	9	3	0.5	02-1
	42-2																	16	16	120	–	–	16	11	4	0.5	02-2
	42-3																	19	19	140	–	–	19	13	5	0.5	02-3
	42-4	*																25	25	160	–	–	22	15	6	1	02-4
	42-5	–																25	30	180	–	–	25	17	7	1	02-5
	42-6	–																30	35	200	–	–	30	20	8	1	02-6
	43-1																	10	16	100	–	13	3	8	3	–	08-1
	43-2																	13	19	120	–	16	3	8	3	–	08-1
	43-3																	16	22	140	–	19	4	13	4	–	08-3
	43-4	*																19	25	160	–	25	5	15	5	–	08-4
	43-5	–																22	32	180	–	30	6	17	6	–	08-5
	43-6	–																25	38	200	–	40	8	20	8	–	08-6

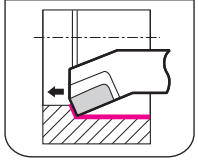
Items marked * follow the insert dimensions of the ○○**-3** type (one size smaller) in their category. <Made to order>

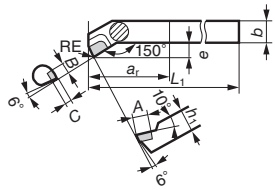
Items are not stocked in USA. For interest, please inquiry: materialg@sumicarbide.com

JIS Carbide Tool Holders

Dimensions (*mm*)

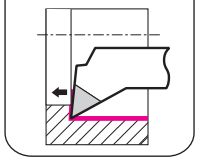
45 Type (Right-Hand)
46 Type (Left-Hand)
For Internal Diameter Machining

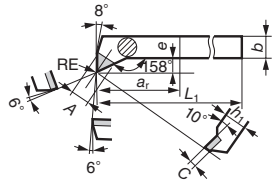




Figures show right-hand tools.

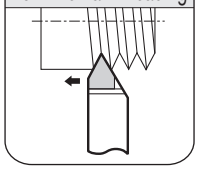
47 Type (Right-Hand)
48 Type (Left-Hand)
For Boring

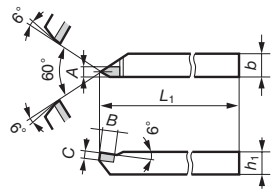




Figures show right-hand tools.

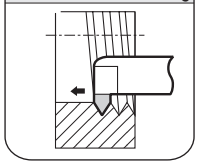
49 Type (Right-Hand)
50 Type (Left-Hand)
For External Threading

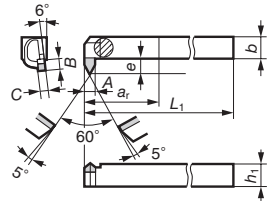




Figures show right-hand tools.

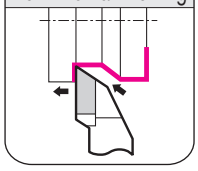
51 Type (Right-Hand)
52 Type (Left-Hand)
For Internal Threading

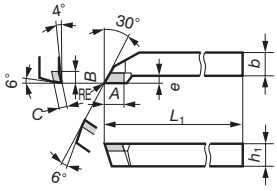




Figures show right-hand tools.

95 Type
For External Profiling





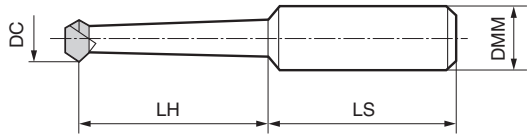
Shape	Cat. No.	Cermet		Carbide: P (Steel)						M (Stainless Steel)			K (Cast Iron)					Shank					Insert Part				Applicable Insert
				P10	P20	P30	P40			M20	M40		K01	K01	K10	K20	K20										
		T1200A		ST10P	ST20E	ST30E	ST40E			U2	A40		H3	H2	H1	G10E	G2	b	h_1	L_1	e	a_r	A	B	C	RE	
45 / 46	45-1																	13	13	140	7	50	10	6	3	0.5	01-0
	45-2																	16	16	160	9	60	13	9	3	0.5	01-1
	45-3																	19	19	190	11	80	16	11	4	0.5	01-2
	45-4																	25	25	230	13	100	19	13	5	1	01-3
	46-1																	13	13	140	7	50	10	6	3	0.5	01-0
	46-2																	16	16	160	9	60	13	9	3	0.5	01-1
	46-3																	19	19	190	11	80	16	11	4	0.5	01-2
	46-4																	25	25	230	13	100	19	13	5	1	01-3
47 / 48	47-1																	13	13	140	7	50	10	–	3	0.5	03-0
	47-2																	16	16	160	8	60	12	–	3	0.5	03-1
	47-3																	19	19	190	9	80	15	–	4	0.5	03-2
	47-4																	25	25	230	10	100	18	–	5	1	03-3
	48-1																	13	13	140	7	50	10	–	3	0.5	03-0
	48-2																	16	16	160	8	60	12	–	3	0.5	03-1
	48-3																	19	19	190	9	80	15	–	4	0.5	03-2
	48-4																	25	25	230	10	100	18	–	5	1	03-3
49 / 50	49-1																	13	13	100	–	–	5	8	3	–	05-1
	49-2																	16	16	120	–	–	6	10	4	–	05-2
	49-3																	19	19	140	–	–	7	12	5	–	05-3
	49-4																	25	25	160	–	–	9	16	6	–	05-4
	50-1																	13	13	100	–	–	5	8	3	–	05-1
	50-2																	16	16	120	–	–	6	10	4	–	05-2
	50-3																	19	19	140	–	–	7	12	5	–	05-3
	50-4																	25	25	160	–	–	9	16	6	–	05-4
51 / 52	51-1																	13	13	140	8	50	5	8	3	–	05-1
	51-2																	16	16	160	10	60	6	10	4	–	05-2
	51-3																	19	19	190	12	80	7	12	5	–	05-3
	51-4																	25	25	230	16	100	9	16	6	–	05-4
	52-1																	13	13	140	8	50	5	8	3	–	05-1
	52-2																	16	16	160	10	60	6	10	4	–	05-2
	52-3																	19	19	190	12	80	7	12	5	–	05-3
	52-4																	25	25	230	16	100	9	16	6	–	05-4
95	95-1																	25	25	160	5	–	20	10	7	1.7	09-E

Items are not stocked in USA. For interest, please inquiry: materialg@sumicarbide.com

IJB

Through-Boring

Fig 1

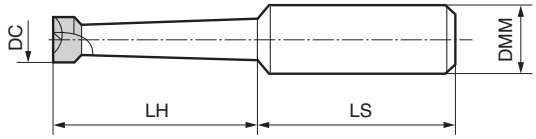


Dimensions (*mm*)

Cat. No.	Grade	Diameter	Head	Shank Dia.	Shank Length	Fig
	H1	DC	LH	DMM	LS	
IJB 4017		*1.7*	*6.5*	*4*	*20*	1
IJB 4019		*1.9*	*4.5*			1
IJB 4022		*2.2*	*9.0*			1
IJB 4026		*2.6*	*13.0*			1
IJB 4030		*3.0*	*13.5*			1
IJB 4035		*3.5*	*14.0*			1
IJB 4040		*4.0*	*18.0*			1
IJB 4050		*5.0*	*22.0*			1
IJB 8019		*1.9*	*7.5*	*8*	*25*	1
IJB 8030		*3.0*	*13.5*			1
IJB 8035		*3.5*	*14.0*			1
IJB 8040		*4.0*	*18.0*			1
IJB 8050		*5.0*	*22.0*			1
IJB 8060		*6.0*	*25.0*			1
IJB 8070		*7.0*	*27.0*			1
IJB 8080		*8.0*	*30.0*			1
IJB 8090		*9.0*	*33.0*			1
IJB 8100		*10.0*	*38.0*			1
IJB 8110		*11.0*	*43.0*			1
IJB 8120		*12.0*	*48.0*			1
IJB 1005		*5.0*	*22.0*	*10*	*30*	1
IJB 1006		*6.0*	*25.0*			1
IJB 1007		*7.0*	*27.0*			1
IJB 1008		*8.0*	*30.0*			1
IJB 1009		*9.0*	*33.0*			1
IJB 1010		*10.0*	*38.0*			1
IJB 1011		*11.0*	*43.0*			1
IJB 1012		*12.0*	*48.0*			1
IJB 1015		*15.0*	*65.0*			1

Stop-Boring

Fig 2



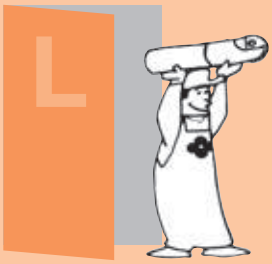
Dimensions (*mm*)

Cat. No.	Grade	Diameter	Head	Shank Dia.	Shank Length	Fig
	H1	DC	LH	DMM	LS	
IJB 4017C		*1.7*	*7.0*	*4*	*20*	2
IJB 4019C		*1.9*	*8.0*			2
IJB 4022C		*2.2*	*9.5*			2
IJB 4026C		*2.6*	*13.5*			2
IJB 4030C		*3.0*	*14.0*			2
IJB 4035C		*3.5*	*14.5*			2
IJB 4040C		*4.0*	*19.0*			2
IJB 4050C		*5.0*	*23.0*			2
IJB 8019C		*1.9*	*8.0*	*8*	*25*	2
IJB 8030C		*3.0*	*14.0*			2
IJB 8035C		*3.5*	*14.5*			2
IJB 8040C		*4.0*	*19.0*			2
IJB 8050C		*5.0*	*23.0*			2
IJB 8060C		*6.0*	*26.0*			2
IJB 8070C		*7.0*	*28.5*			2
IJB 8080C		*8.0*	*31.5*			2
IJB 8090C		*9.0*	*35.0*			2
IJB 8100C		*10.0*	*40.0*			2
IJB 8110C		*11.0*	*45.0*			2
IJB 8120C		*12.0*	*50.0*			2
IJB 1005C		*5.0*	*23.0*	*10*	*30*	2
IJB 1006C		*6.0*	*26.0*			2
IJB 1007C		*7.0*	*28.5*			2
IJB 1008C		*8.0*	*31.5*			2
IJB 1009C		*9.0*	*35.0*			2
IJB 1010C		*10.0*	*40.0*			2
IJB 1011C		*11.0*	*45.0*			2
IJB 1012C		*12.0*	*50.5*			2
IJB 1015C		*15.0*	*68.0*			2

Items are not stocked in USA. For interest, please inquiry: materialg@sumicarbide.com

SUMIBORON L

L1 to L132



Guidance for CBN - SUMIBORON Grades

SUMIBORON Series ····· L2
Coated CBN - SUMIBORON Series ····· L3
Grade Guidance - Cutting Hardened Steel ····· L4
Grade Guidance - Cutting Cast Iron ····· L7
Grade Guidance - Cutting Sintered Components ··· L9
Grade Guidance - Cutting Rolls/Hard Facing Alloys / Heat-Resistant Alloys ··· L10
Grade Guidance - Cutting Titanium Alloy ····· L11
Coated CBN - SUMIBORON BNC2115 / 2125 / 2010 / 2020 ····· L12
Coated CBN - SUMIBORON BNC2105 ····· L14
Coated CBN - SUMIBORON BNC300 / CBN - SUMIBORON BN350 ··· L15
CBN - SUMIBORON BN1000 / BN2000 ····· L16
CBN - SUMIBORON BN7125 / BN7115 ····· L18
CBN - SUMIBORON BNC8115 / BNS8125 ····· L20
Coated CBN - SUMIBORON BNC500 ····· L21
Binderless CBN - NCB100 ····· L22

Inserts

CBN - SUMIBORON Insert Identification ····· L24
Selection Guide for CBN - SUMIBORON Inserts ····· L25
CBN - SUMIBORON Break Master FV / LV / SV ····· L26
CBN - SUMIBORON One-Use Wiper Inserts WG / WH ····· L27
CBN - SUMIBORON Insert Edge Specifications ····· L28
Stock Table for CBN - SUMIBORON Indexable Inserts ··· L30

Specialized Tool Holders / Boring Bars

Tool Holders for Solid CBN - SUMIBORON ····· L108
Inserts & Special Holders for High Efficiency Machining ··· L110
CBN Small Hole Boring Bars BSME ····· L114
CBN Small Hole Boring Bars SEXC ····· L115
CBN Small Hole Boring Bars BNBX ····· L116
CBN Small Hole Boring Bars BNZ ····· L117
CBN Small Hole Boring Bars BNB ····· L118
CBN Small Diameter Round Insert Holders TRGT ····· L119
CBN Round Insert Holders PR ····· L120
CBN Roll Turning Tool Holder BNRN ····· L121
CBN Grooving Tool Holder GWB ····· L122
CBN Grooving Tool BNGG Type ····· L123

Rotating Tools / Endmills

CBN BN Finish Mill EASY FMU / FMU-E ····· L124
CBN RM Mill ····· L126
CBN Ballnose Endmill BES ····· L127
CBN Helical Master BNES ····· L128
Mold Finish Master BNBR / BNBP / BNBC ····· L129
CBN Ballnose Endmill BNBS ····· L132

Stock Markings and Symbols

●: Standard stocked item
★: Worldwide Warehouse Item
▲: Limited Avaibility Item, made to order, or discontinued (please confirm stock availability).

Blank: Made-to-order item
— mark: Not available

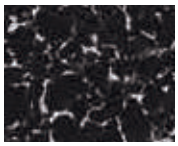
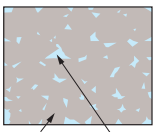
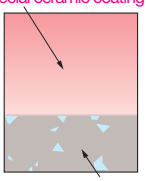
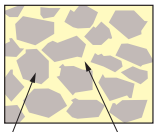
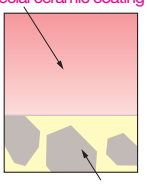
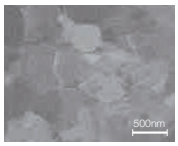
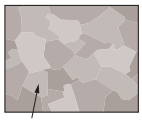
■ General Features

Sintered CBN - SUMIBORON®, which has CBN (cubic boron nitride) is a hard material second only to diamond - as its main component. CBN is sintered with a special ceramic binder under ultra-high pressure and temperature.
CBN - SUMIBORON® has high hardness, excellent thermal resistance and excellent properties including being unreactive to ferrous metals, enabling exotic alloys, hardened steel or hard cast iron to be machined. Excellent efficiency and longer tool life can also be achieved from high-speed finishing of cast iron.
Sumitomo's CBN - SUMIBORON® was first successfully developed in Japan by our company in 1977. Coated CBN - SUMIBORON® with a special ceramic coating, and binderless CBN made by directly bonding CBN particles without a binder are new additions to our product lineup.

■ Features

Sintered CBN - SUMIBORON® is mainly used for the machining of ferrous metals due to its low chemical reactivity with iron. There are 4 different classifications of CBN -SUMIBORON® as follows:

■ Classifications / Applications

	Classifications	Structure	Diagram	Grade	Work Material
(A)	With a high CBN content, where each grain is fused together, this group can be used for the machining of high-hardness materials like cast iron, heat-resistant alloys and sintered alloys.			BN7125 BN7000 BN700	K (FC) Sintered Alloy S
				BN7115	Sintered Alloy
				BN7500	Sintered Alloy
				BNS8125	K (FC/FCD) S
				BNC8115	K (FC/FCD) S H
(B)	CBN grains are held together by a special ceramic binder with a strong binding force provides excellent wear resistance and toughness in the machining of hardened steel and cast iron.			BN1000 BN2000 BN350 BNX10 BNX20	H
				BN500	K (FC/FCD)
(C)	SUMIBORON with special ceramic coating. The CBN and coating exhibit the hardness, toughness, thermal resistance and oxidation resistance that tool material requires for excellent cutting performance.			BNC2105 BNC2115 BNC2125 BNC2010 BNC2020 BNC300 BNC100 BNC160 BNC200	H
				BNC500	K (FCD)
(D)	Containing no binder but a structure of directly bonded nano- to sub-micron CBN particles which provides excellent hardness and thermal conductivity, making them highly efficient with long tool life when machining exotic alloys such as titanium alloys and cobalt-chrome alloys.			NCB100	K (FC) S Cemented Carbide Hard Brittle Material

Coated CBN Series

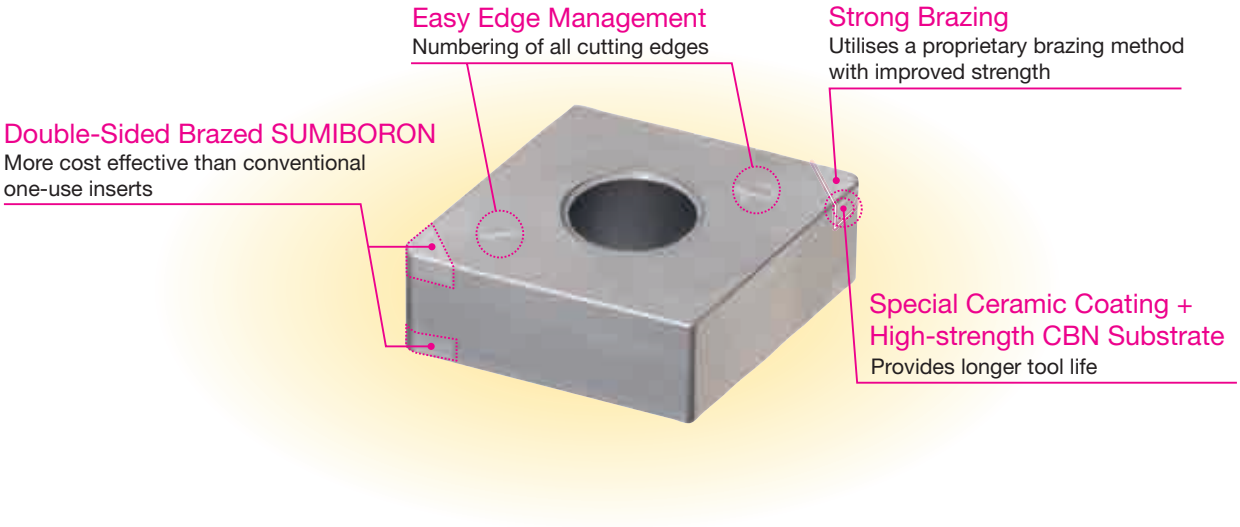
Achieves higher speed, higher efficiency and higher precision
Coated CBN (SUMIBORON)

■ General Features

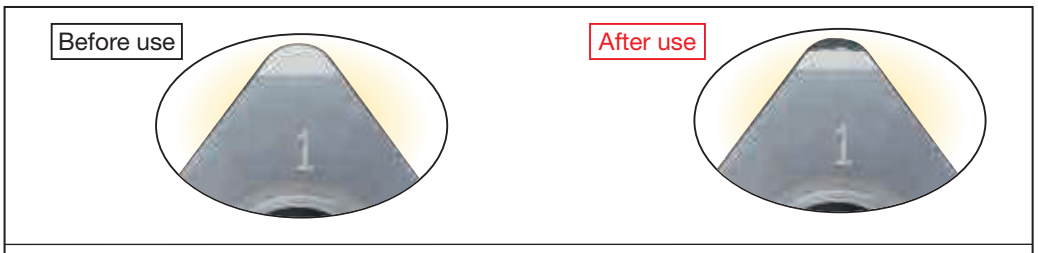
With a highly thermal-resistant and tough CBN substrate coupled with a special ceramic coating, this series caters to a wide variety of applications, with improved precision and longer tool life compared to conventional CBN.

Our extensive range, including more cost-effective, double-sided, multi-cornered one-use inserts, offers a selection of economical and easy-to-use tools.

■ Features



■ Cutting Edge Management

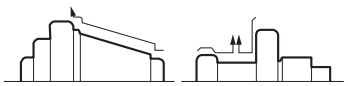
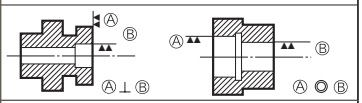


The edge numbers are still visible after machining, which makes the management of used cutting edges easy.

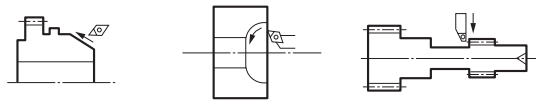
HARDENED STEEL MACHINING

● Advantages of CBN - SUMIBORON for hardened steel cutting

Below is an analysis of the use of CBN compared to grinding. In terms of cost, not only is the investment involved for introducing new machinery reduced, it is possible to shorten the processing cycle time by finishing complicated shapes in one run. In terms of quality, machining with a single chuck is possible, improving machining accuracy and squareness. Furthermore, dry machining is possible, with various advantages such as better global environmental conservation and resource recycling. The workpieces shown in the table to the lower right have shapes more likely to benefit from being cut, especially compared to grinding.

	Advantages	Remarks
Cost	Facility investment is low	· Cheaper machines · Reduced processes · Improved machining efficiency with less machining required
	Complex finishing in a single set-up	
Quality	Improved precision	
Environment	Environmentally-friendly	Sludge management → Chip control (Recyclable)

Machining Versatility with CBN



Taper Machining | Internal (Profile) Boring | Grooving / Profiling

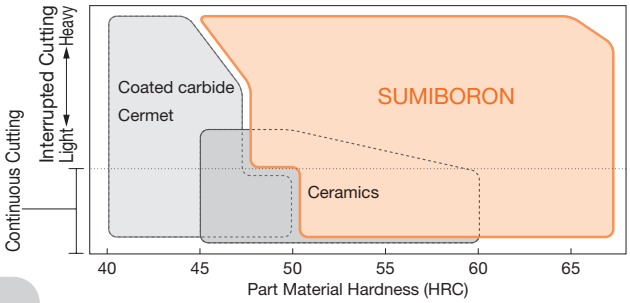
Recommended Grade

	Grade	Binder	CBN Content (%)	Grain Size (μm)	Hardness HV (GPa)	TRS (GPa)	Main Coating Components	Coating Thickness (μm)	Features
Coated	BNC2105	TiCN	45 to 50	3	30 to 32	1.1 to 1.2	TiAlN Super Multi-Layered Coating	3	Grade with excellent wear resistant coating and a CBN substrate ideal for high-speed finishing applications.
Coated	BNC2115	TiN	60 to 65	3	31 to 33	1.3 to 1.4	TiAlSiN Super Multi-layered Coating	3	Utilizing a coating with exceptional notch wear resistance and a tough CBN substrate to achieve stable and excellent surface finish.
Coated	BNC2125	TiN	65 to 70	4	33 to 35	1.5 to 1.6	TiAlBN Super Multi-layered Coating	3	Combination of a tough CBN substrate and a coating that has a balance of wear resistance and toughness, to achieve even more stable machining.
Coated	BNC2010	TiCN	50 to 55	2	30 to 32	1.1 to 1.2	TiCN Multi-layered Coating	2	Improved wear resistance from coating and substrate, achieves excellent and consistent surface roughness.
Coated	BNC2020	TiN	70 to 75	5	34 to 36	1.4 to 1.5	TiAlN Multi-layered Coating	2	Utilising a tough substrate along with a highly wear-resistant and adhesive coating layer, to achieve long tool life in general-purpose to high-efficiency machining.
Coated	BNC300	TiN	60 to 65	1	33 to 35	1.5 to 1.6	TiAlN	1	Suitable for finishing work materials combining continuous and interrupted cutting.
Coated	BNC100	TiN	40 to 45	1	29 to 32	1.0 to 1.1	TiAlN/TiCN	3	Suitable for high-speed finishing thanks to highly wear-resistant coating.
Coated	BNC160	TiN	60 to 65	3	31 to 33	1.2 to 1.3	TiAlN/TiCN	3	Achieves stable, high-precision finishing of hardened steel.
Coated	BNC200	TiN	65 to 70	4	33 to 35	1.4 to 1.5	TiAlN	3	A tough CBN substrate and a coating with high wear resistance provide a long tool life.
Coated	BNC8115	Al Alloy	85 to 90	8	39 to 42	0.95 to 1.15	TiAlN	2	Grade with 100% solid CBN structure using PVD coating with excellent wear resistance to enable roughing operations.
Uncoated	BN1000	TiCN	40 to 45	1	27 to 31	0.9 to 1.0	-	-	Achieves ultimate wear and fracture resistance. Suitable for high-speed cutting.
Uncoated	BN2000	TiN	50 to 55	2	31 to 34	1.1 to 1.2	-	-	General-purpose grade for hardened steel machining with a high degree of fracture and wear resistance.
Uncoated	BNX20	TiN	55 to 60	3	31 to 33	1.0 to 1.1	-	-	Achieves excellent crater wear resistance. Suitable for high-efficiency cutting under high-temperature conditions.
Uncoated	BN350	TiN	60 to 65	1	33 to 35	1.5 to 1.6	-	-	Achieves ultimate cutting edge strength. Suitable for heavy interrupted cutting.
Uncoated	BNX10	TiCN	40 to 45	3	27 to 31	0.9 to 1.0	-	-	Excellent wear resistance. Suited for high-speed continuous machining.

Transverse rupture strength measured with test piece equivalent to insert CBN layer.

Recommended Range

● Part Material Hardness and Recommended Range for SUMIBORON



Grade Guidance

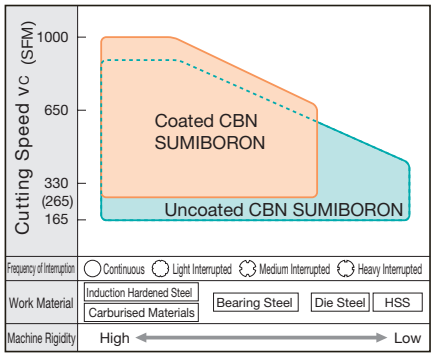
H Hardened Steel

Applications

Coated CBN - SUMIBORON: 1st recommendation for hardened steel machining, excellent performance in high-speed, high-efficiency machining.

Uncoated CBN - SUMIBORON: Optimal for machining small items with a limited cutting speed & hardened steel.

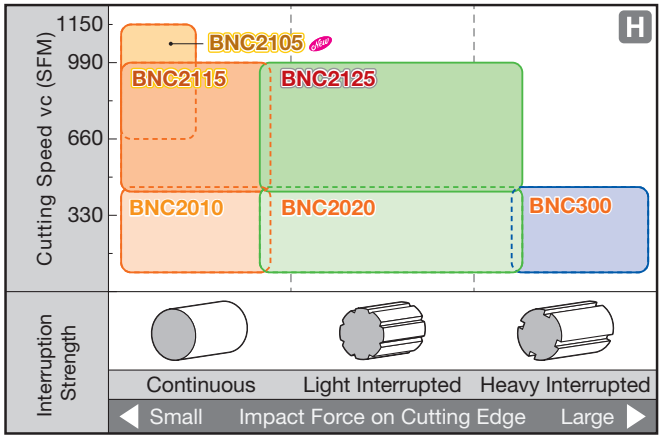
Series	Applications
Coated CBN SUMIBORON	· First recommendation for hardened steel machining · Machining requiring high speed and high accuracy · Machining requiring high efficiency, such as carburised layer removal
Uncoated CBN SUMIBORON	· Machining where cutting speed cannot be increased, such as small product machining · Machining of workpieces containing hard particles such as mold components · Machining with low tool rigidity



Application Range

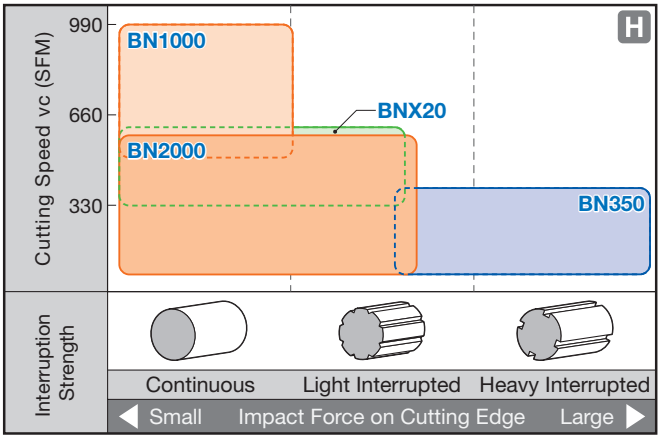
● Induction Hardened Steel (1045 Steel, 1050 Steel, etc.), Carburized Steel

Coated SUMIBORON



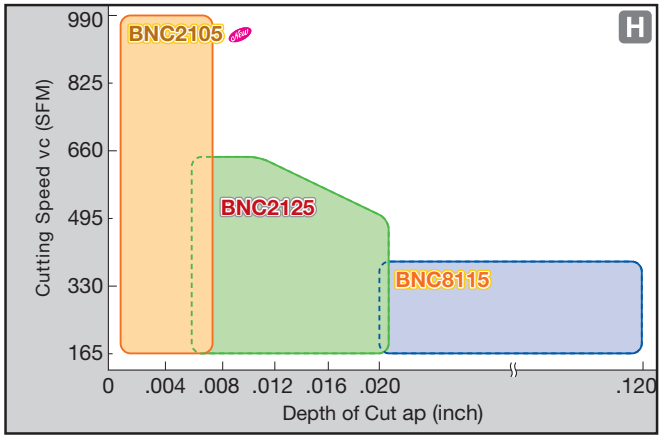
● Induction Hardened Steel (1045 Steel, 1050 Steel, etc.), Carburized Steel

Uncoated SUMIBORON



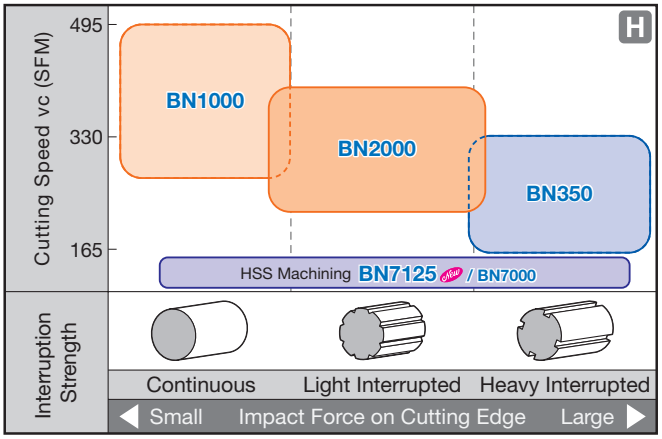
● Bearing Steel (SUJ2, etc.)

Coated SUMIBORON



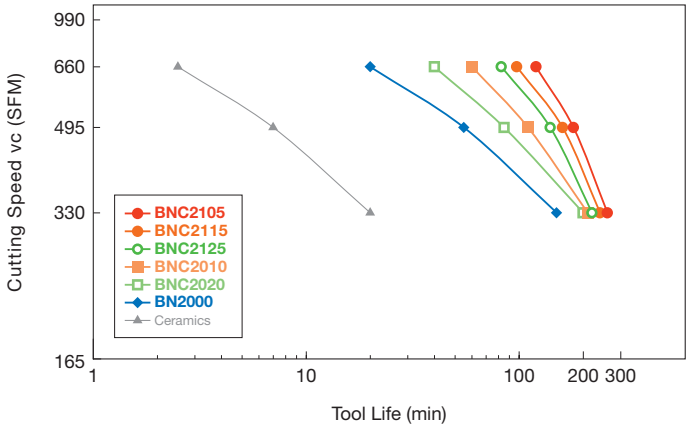
● Die Steel (SKD11/SKD61, etc.), HSS

Uncoated SUMIBORON



CBN Grade Guidance

Application Examples (Continuous Cutting)

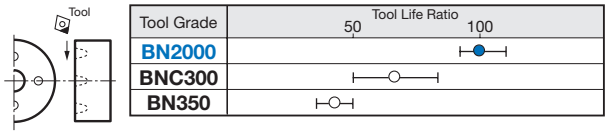


Tool Life Criterion: VBmax = .0039”

Part Material: Alloy Structural Steel Round Bar (58 to 62HRC)
Tool Cat. No.: DNGA432
Cutting Conditions: f = .0039 IPR, a_p = .0079" Wet

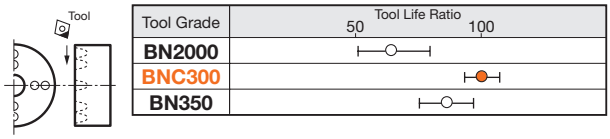
Application Examples (Interrupted Cutting)

[Light Int. - Face with 4 Chamfered Holes (Interrupted Cutting 25%)]



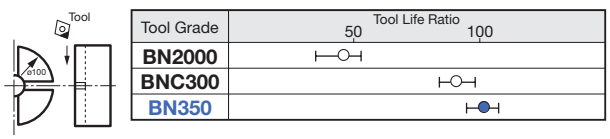
Part Material: Chromium Steel (58 to 62 HRC)
Tool Cat. No.: CNMA432
Cutting Conditions: v_c = 330 SFM, f = .0039 IPR, a_p = .0079" Dry

[Medium Int. - Face with 8 Chamfered Holes (Interrupted Cutting 50%)]



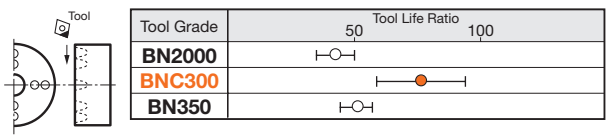
Part Material: Chromium Steel (58 to 62 HRC)
Tool Cat. No.: CNMA432
Cutting Conditions: v_c = 330 SFM, f = .0039 IPR, a_p = .0079" Dry

[Heavy Int. - U Groove Face (Interrupted Cutting 100%)]



Part Material: Chromium Steel (58 to 62 HRC)
Tool Cat. No.: CNMA432
Cutting Conditions: v_c = 330 SFM, f = .0039 IPR, a_p = .0079" Dry

[High Speed Int. - Face with 8 Chamfered Holes (Interrupted Cutting 50%)]



Part Material: Chromium Steel (58 to 62 HRC)
Tool Cat. No.: CNMA432
Cutting Conditions: v_c = 650 SFM, f = .0039 IPR, a_p = .0079" Dry

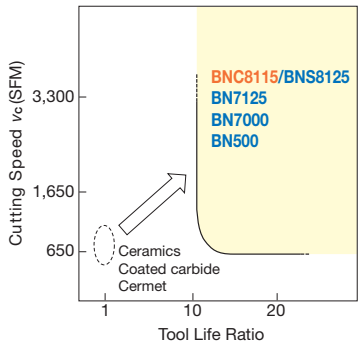
CAST IRON MACHINING

- Advantages of machining cast iron with CBN - SUMIBORON

Compared with conventional tools, a longer tool life for high speed machining is acheived. In addition, machining efficiency is improved along with consistently better wear resistance, a sharper edge, excellent surface roughness and dimensional tolerance. CBN - SUMIBORON is ideal for finishing of gray cast iron and ductile cast iron and heat-treated high-grade cast iron such as ADI.

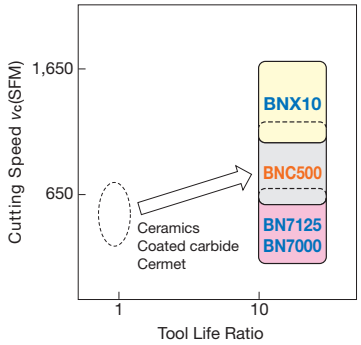
High-speed Machining

- Gray Cast Iron

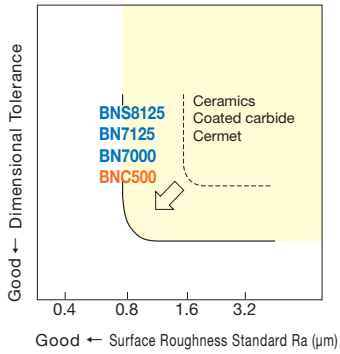


High-speed Machining

- Ductile Cast Iron



High-precision Machining



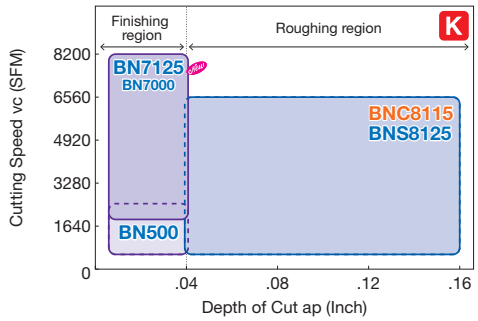
Recommended Grade

	Grade	Binder	CBN Content (%)	Grain Size (μm)	Hardness HV (GPa)	Transverse Rupture Strength (GPa)	Main Coating Components	Coating Thickness (μm)	Features
Uncoated	BNS8125	Al Alloy	85 to 90	8	39 to 42	0.95 to 1.15	-	-	100% solid CBN structure and excellent thermal shock resistance.
Uncoated	BN7125	Co Compound	90 to 95	2	41 to 44	1.9 to 2.0	-	-	General-purpose grade with excellent wear, fracture, and thermal resistance, suitable for machining of cast iron and exotic alloys.
Uncoated	BN7000	Co Compound	90 to 95	2	41 to 44	1.8 to 1.9	-	-	Exhibits wear and fracture resistance in cutting of cast iron and exotic alloys.
Uncoated	BN500	TiC	65 to 70	6	32 to 34	1.0 to 1.1	-	-	Grade optimised for cast iron cutting. Provides superior wear and fracture resistance.
Coated	BNC8115	Al Alloy	85 to 90	8	39 to 42	0.95 to 1.15	TiAlN	2	Grade with 100% solid CBN structure, using PVD coating with excellent wear resistance to enable roughing operations.
Coated	BNC500 (For Ductile Cast Iron)	TiC	60 to 65	4	32 to 34	1.1 to 1.2	TiAlN	3	Suitable for machining of hard-to-cut cast iron, thanks to the highly wear-resistant substrate and coating.

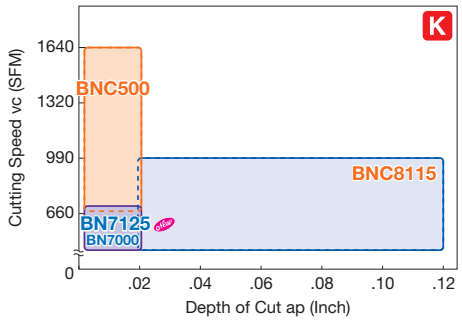
Transverse rupture strength measured with test piece equivalent to insert CBN layer.
Refer to pages L9 and L10 for machining of sintered components, rolls, hard facing alloys and heat-resistant alloys.

Application Range

- Gray Cast Iron



- Ductile Cast Iron



- Special Cast Iron

Work Material	Hardness (HB)	Work Material Structure	Examples	Cutting Speed vc (SFM) 330 660 990 1150 1320 1640
Ni-resistant Cast Iron	150 to 200	Austenite	Piston ring	BNC500
High-Cr Cast Iron	250 to 350	Austenite	Pump component	BNS8125
FCV (CGI)	400 to 580	Pearlite	Engine blocks Cylinder heads Brake discs	BNC500

CBN Grade Guidance

Recommended Cutting Conditions

Part Material		Recommended Grades	Recommended Cutting Conditions		
Material	Standard (Hardness)		Cutting Speed v_c (SFM) (330 – 3,300 – 6,600)	Feed Rate f (IPR)	Depth of Cut a_p (Inch)
Gray Cast Iron	FC200 to FC300 (HB ≤ 230)	BN7125 / BN7000	1,650 – 6,600	.0039 - .0197	≤ .039
		BNC8115 / BNS8125	650 – 6,600	.0039 - .0394	≤ .157
		BN500	650 – 2,310	.0039 - .0197	≤ .039
Alloy Cast Iron	(HB ≥ 200)	BN7125 / BN7000	650 – 2,650	.0039 - .0157	≤ .0197
		BNS8125	650 – 3,300	.0039 - .0314	≤ .0787
Ductile Cast Iron	FCD450 Up to FCD550	BN7125 / BN7000	260 – 650	.0039 - .0157	≤ .0236
		BNC500	500 – 1,650	.0039 - .0157	≤ .0197
	FCD600 Up to FCD700	BNC500	650 – 400	.0039 - .0157	≤ .0197
Vermicular Cast Iron FCV(CGI)	—	BNC500	650 – 1,650	.0039 - .0157	≤ .0157

Cutting Oil: Use wet. (BNS800 can also be used dry)

● Milling

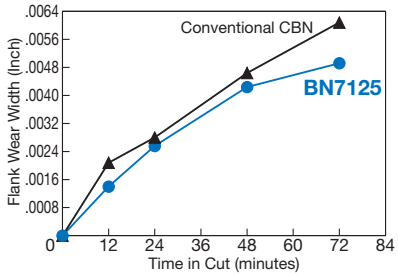
Part Material		Recommended Grade	Recommended Cutting Conditions		
Material	Standard (Hardness)		Cutting Speed v_c (SFM) (330 – 3,300 – 6,600)	Feed Rate f (IPR)	Depth of Cut a_p (inch)
Gray Cast Iron	FC200 to FC300 (HB ≤ 200)	BN7125 BN7000	2,650 – 6,600	.0039 - .0197	≤ .0197
		BNS8125	2,650 – 6,600	.0039 - .0394	≤ .1575

Cutting Oil: Use dry.

Performance

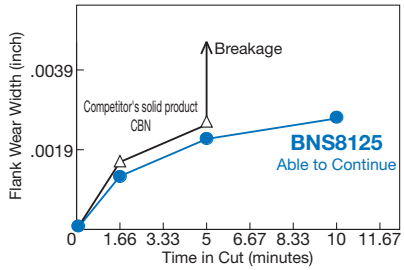
Gray Cast Iron Turning — Recommended Grades BN7125/BN7000/BNC8115/BNS8125/BN500

● High Speed Continuous Cutting



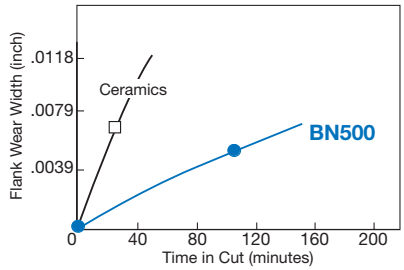
Part Material: Cast Iron (Pearlite)
Tool Cat. No.: 2NU-CNGA432
Cutting Conditions: v_c=2,650 SFM, f = .0059 IPR
a_p = .0079" Wet

● Interrupted Cutting



Part Material: Cast Iron (Pearlite)
Tool Cat. No.: SNG322
Cutting Conditions: v_c=2,000 SFM, f = .0118 IPR
a_p = .0197" Dry

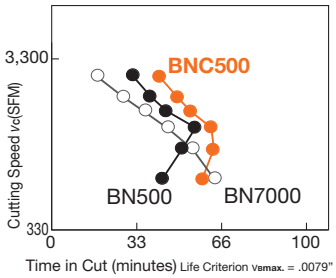
● Continuous Cutting



Part Material: FC300 (Pearlite)
Tool Cat. No.: SNG433
Cutting Conditions: v_c=1,650 SFM, f =.0117 IPR
a_p = .0059" Wet

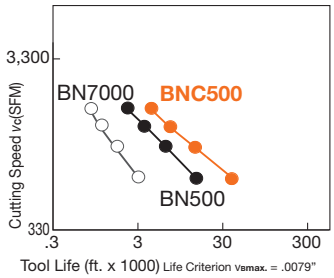
Turning Ductile Cast Iron — Recommended Grade BNC500

● FCD450



Part Material: FCD450 (Continuous Cutting)
Cutting Conditions: f = .0079 IPR, a_p = .0079 IPR" Wet

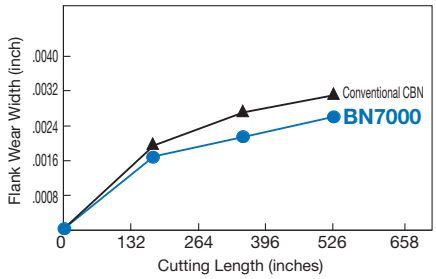
●FCD700



Part Material: FCD700 (Continuous Cutting)
Cutting Conditions: f = .0079 IPR, a_p = .0079 IPR" Wet

Milling Gray Cast Iron — Recommended Grade BNS800 / BN7000

● Cast Iron Milling



Part Material: FC250 (Pearlite)
Tool Cat. No.: FMU4100R SNEW1203ADTR
Cutting Conditions: v_c = 5,000 SFM, f = .0079 IPR, a_p = .0118" Dry

SINTERED COMPONENT MACHINING

- Advantages of cutting sintered components with CBN - SUMIBORON

CBN - SUMIBORON has much smaller edge wear than carbide or cermet, and also has better wear resistance and can form a sharp edge easily. CBN - SUMIBORON is able to prevent burrs and chipping on the edges of the workpiece, achieving good machining precision and surface roughness.

Sintered Components

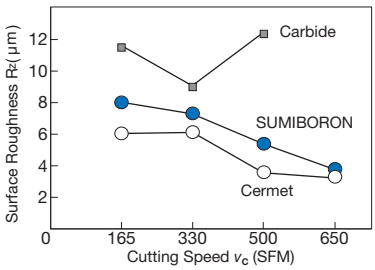
Recommended Grade

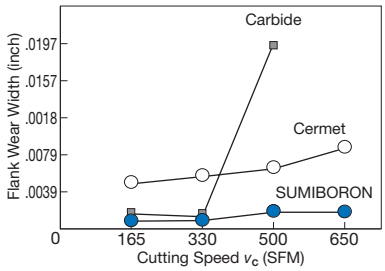
Grade	Binder	CBN Content (%)	Grain Size (μm)	Hardness HV (GPa)	TRS (GPa)	Main Coating Components	Coating Thickness (μm)	Features
BN7115	Co Compound	90 to 95	1	41 to 44	2.2 to 2.3	-	-	Grade balancing ultimate cutting edge sharpness with fracture resistance, suitable for finishing of sintered alloy.
BN7500	Co Compound	90 to 95	1	41 to 44	2.0 to 2.1	-	-	Grade maintaining good cutting edge sharpness, suitable for finishing of sintered alloy.
BN7125	Co Compound	90 to 95	2	41 to 44	1.9 to 2.0	-	-	Grade balancing ultimate fracture resistance with wear resistance, suitable for roughing of sintered alloy.
BN7000	Co Compound	90 to 95	2	41 to 44	1.8 to 1.9	-	-	Grade exhibiting improved wear and fracture resistance in roughing of sintered alloy.

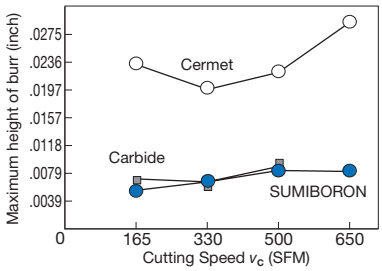
Transverse rupture strength measured with test piece equivalent to insert CBN layer

Performance

- Grade Performance Comparison







Work Material: SMF4040 equivalent
Machining Details: ø80-ø100 heavy interrupted facing with grooves and drilled holes (after 40 passes)
Tool Cat. No.: TNGA331
Cutting Conditions: f = .0039 IPR, a_p = .0039" Wet

For general powdered metal, carbide and cermet grades can perform up to v_c = 330 SFM. However, around v_c =400 SFM, wear becomes rapid and surface roughness deteriorates with increased burrs. On the other hand, CBN (SUMIBORON) exhibits stability and superior wear resistance, burr prevention and surface roughness, especially at high speeds.

Valve Seat Ring (VSR)

*VSR has both (Intake: IN) and (Exhaust: EX) with the exhaust generally being hardened.

Recommended Grade

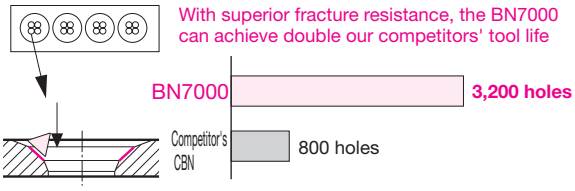
- Recommended Grade by Machining Details

	Gasoline VSR material	Diesel VSR material
Plunge cut	BN7000 BN7500 / BN350	BN7000 BN7500 / BN350
Traverse cut	BN7000 BN7500 / BN500	BN7000 BN7500 / BN500
Workpiece Hardness (HV)	Low ← 300HV → High	Low ← 300HV → High

Recommended Cutting Conditions

Cutting Speed v_c(SFM)	Feed Rate f (IPR)	Depth of Cut a_p(inch)
165 to 415	.0012 to .0079	.0020 to .0197

Application Examples



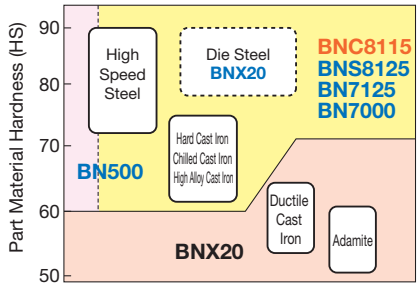
Part Material: Powdered Metal (150 to 250 HV)
Machining Details: VSR(IN) 45° Surface Finishing
Tool Cat. No.: TBGN521B
Cutting Conditions: v_c=330 SFM, f = .0031 IPR Wet

ROLL MACHINING

- Advantages of roll machining with CBN - SUMIBORON

CBN - SUMIBORON enables the machining of high-hardness rolls that were previously difficult to machine with conventional tools, drastically improving machining efficiency.

Recommended Grade



Finishing to Medium to Roughing
Roll stand (example for bar steel rolling)

Recommended Cutting Conditions

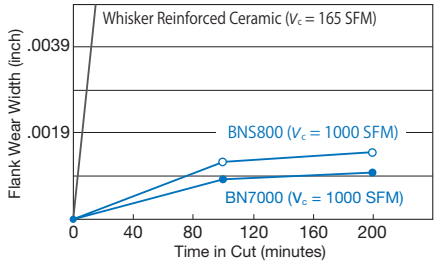
Part Material		Recommended Cutting Conditions		
Category	Hardness (HS)	Cutting Speed v_c (SFM) 65 130 200 265 330 400 465	Feed Rate f (IPR)	Depth of Cut a_p (Inch)
Adamite	≥ 40		.0039 - .0197	.0079 - .1181
Chilled cast iron	≥ 60		.0039 - .0197	.0079 - .1181
High-alloy cast iron	≥ 60		.0039 - .0197	.0079 - .1181
HSS	≥ 70		.0039 - .0157	.0039 - .1181

HARD FACING ALLOY MACHINING

- Advantages of hard facing alloy machining with CBN - SUMIBORON

CBN - SUMIBORON enables the machining of high-hardness facing alloys that were previously difficult to machine with conventional tools, drastically improving machining efficiency. The first recommended grade is BN7000, followed by BNS800.

Performance



Work Material: Colmonoy No.6 (NiCr-Based Self-Fluxing Alloy)
Tool Cat. No.: SNG322
Cutting Conditions: f = 0.0039 IPR, a_p = .0079" Dry

- BN7000 has a long tool life and minimal wear with high speed cutting

Recommended Cutting Conditions

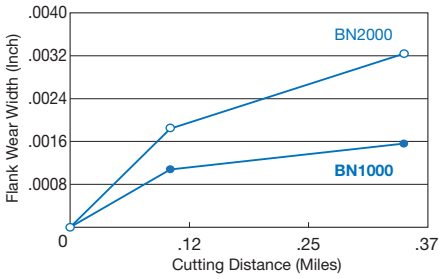
Part Material		Recommended Cutting Conditions		
Category	Material	Cutting Speed v_c (SFM) 165 330 660 1000	Feed Rate f (IPR)	Depth of Cut a_p (inch)
Ni-Based Self-Fluxing Alloy	Colmonoy No.6		.0019 - .0079	.0039 - .1181
Co-Based Self-Fluxing Alloy	Stellite		.0019 - .0079	.0039 - .0394

Hardened Stainless Steel Machining

- Advantages of machining hardened stainless steel with SUMIBORON

SUMIBORON enables the machining of hardened stainless steel, previously difficult to machine with conventional tools, drastically improving machining efficiency.
The first recommended grade is BN1000. When strength is required, we recommend BN2000.

Cutting Performance



Work Material : SUS440C (59 to 61HRC, continuous)
Tool Cat. No. : 2NU-CNGA120408
Cutting Conditions: vc = 660 SFM, f = .004 IPR, ap = .004", Wet

Recommended Cutting Conditions

Work Material	Recommended Cutting Conditions		
Category	Cutting Speed vc (SFM) 165 330 660 990	Feed Rate f (IPR)	Depth of Cut ap (Inch)
Hardened Stainless Steel		.001 to .008	.001 to .012

TITANIUM ALLOY CUTTING

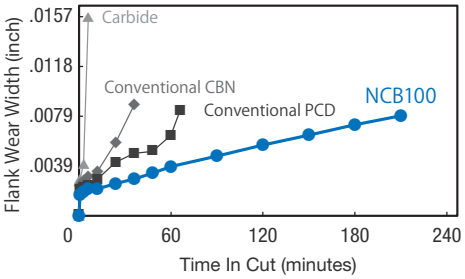
- Advantages of titanium alloy machining with SUMIBORON
  CBN (SUMIBORON) enables high speed machining of titanium alloys that were previously difficult to machine with conventional tools, drastically improving machining efficiency.

Recommended Grade

Grade	Binder	CBN Content (%)	Grain Size (μm)	Hardness HV (GPa)	Transverse Rupture Strength (GPa)	Main Coating Components	Coating Thickness (μm)	Features
NCB100	—	100	0.2 to 0.5	51 to 54	1.8 to 1.9	—	—	Ideal for high-efficiency finishing of titanium alloy.

Transverse rupture strength measured with test piece equivalent to insert CBN layer

Performance



Work Material: Titanium Alloy (Ti-6Al-4V)
Tool Cat. No.: CNGA432
Cutting Conditions: V_c = 500 SFM, f = 0.0059 IPR, a_p = .0197"
Wet (High Pressure Coolant)

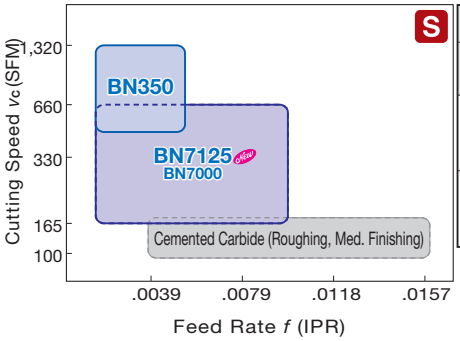
Recommended Cutting Conditions

Part Material		Grade	Recommended Cutting Conditions Min. - Max.		
Composition	Hardness (HRC)		Cutting Speed v_c (SFM) 165 330 500 660 825 1000	Feed Rate f (IPR)	Depth of Cut a_p (inch)
Ti-6Al-4V	30 - 35	NCB100		.0039 - .0197	.0039 - .0197
Ti-5Al-5V-5Mo-3Cr	32 - 38	NCB100		.0039 - .0197	.0039 - .0197
Ti-10V-2Fe-3Al	32 - 38	NCB100		.0039 - .0197	.0039 - .0197

HEAT-RESISTANT ALLOY MACHINING

- Advantages of heat-resistant alloy machining with CBN - SUMIBORON
  CBN - SUMIBORON provides long tool life in the finishing of heat-resistant alloys.

Recommended Grade



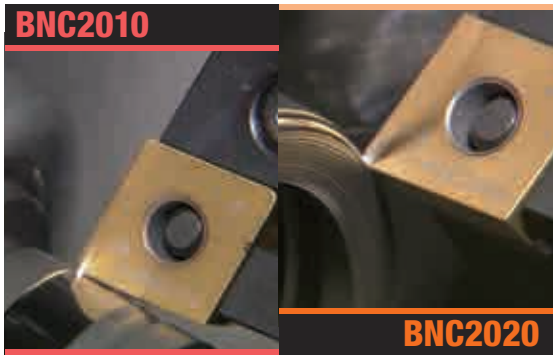
Recommended Cutting Conditions

Part Material		Recommended Cutting Conditions		
Category	Material	Cutting Speed v_c (SFM) 165 330 500 660	Feed Rate f (IPR)	Depth of Cut a_p (Inch)
Ni-Based Heat-Resistant Alloy	Inconel 718		.0019 - .0079	.0039 - .0394
Co-Based Heat-Resistant Alloy	Stellite		.0019 - .0079	.0039 - .0394

- CBN - SUMIBORON is ideal for finishing heat-resistant alloys.

BNC2115 / BNC2125 / BNC2010 / BNC2020

H Hardened Steel



Longer Tool Life and Cost Reduction

■ General Features

Provides improved machining accuracy and longer tool life compared to conventional Coated CBN - SUMIBORON by combining newly developed CBN substrate and ceramic coating.
Exhibits excellent performance in high-precision and general cutting of hardened steel and enables reductions in machining costs.

■ Lineup

● BNC2115 · The ultimate in high-precision machining of hardened steel
Utilizing a thick coating with exceptional notch wear resistance and a tough CBN substrate to achieve stable and excellent surface finish.

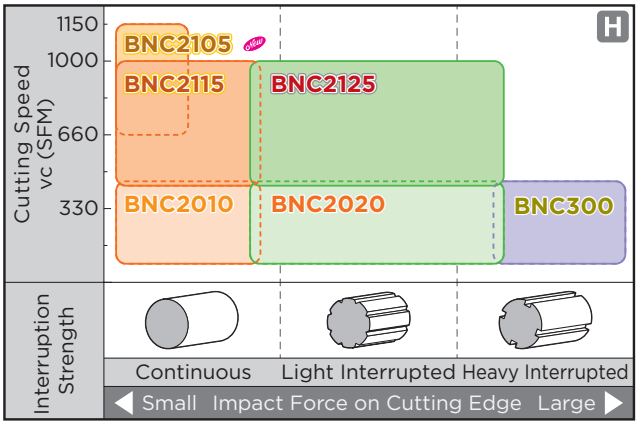
● BNC2125 · First recommendation for hardened steel machining
Combination of a tough CBN substrate and a thick coating that has a balance of wear resistance and toughness, to achieve stable machining in a wide range of applications.

● BNC2010 · High-precision grade for low- to medium-speed machining
Excellent wear resistant CBN substrate and coating layer, for high-precision machining that requires surface roughness and surface finish accuracy.

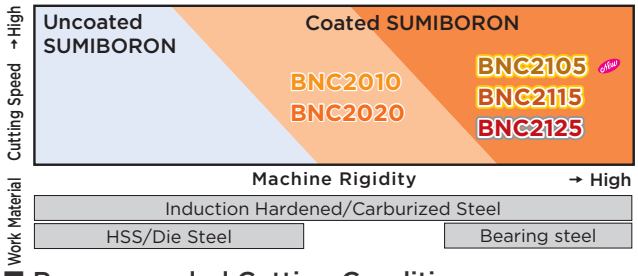
● BNC2020 · General-purpose grade for low- to medium-speed machining
Utilizing an especially high wear resistant coating and a tough CBN substrate. Excellent machining stability in low-rigidity situations and high-load cutting

■ Application Range

● Induction Hardened Steel (1045/1050, etc.), Carburised Steel



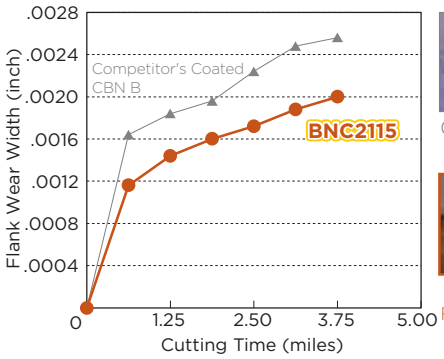
■ Differentiation



■ Recommended Cutting Conditions

Grade	Cutting Speed (vc) (SFM) Min. - **Optimum** -Max.	Feed Rate f (IPR) Min. - **Optimum** -Max.	Depth of Cut ap (Inch) Min. - **Optimum** -Max.
BNC2105	490 - **660** - 1150	.001 - **.004** - .006	.001 - **.006** - .008
BNC2115	360 - **600** - 990	.001 - **.004** - .008	.001 - **.008** - .014
BNC2125	360 - **530** - 990	.002 - **.008** - .016	.002 - **.012** - .020
BNC2010	165 - **450** - 600	.001 - **.004** - .008	.001 - **.008** - .014
BNC2020	165 - **400** - 600	.001 - **.008** - .016	.002 - **.012** - .020
BNC300	165 - **330** - 500	.001 - **.004** - .008	.001 - **.008** - .014

BNC2115 Continuous Cutting (Wear Resistance)

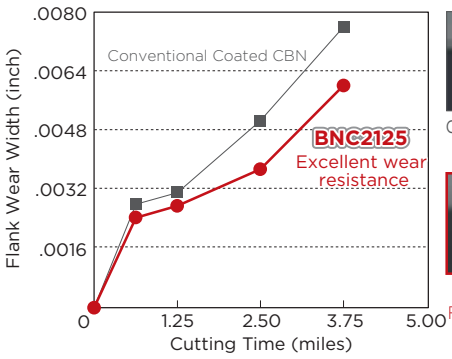


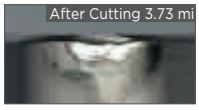
Competitor's Coated CBN B

BNC2115
Flank Wear Suppressed

Work Material: SCM415H (58-62HRC)
Tool Cat. No.: 4NC-DNGA432
Cutting Conditions: vc = 660 SFM, f = .0039 IPR, ap = .0197" Wet

BNC2125 Continuous Cutting (Wear Resistance)





Conventional Coated CBN
Flank Wear Progresses

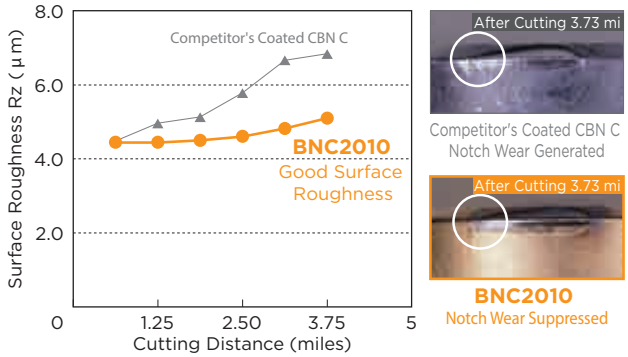
BNC2125
Flank Wear Suppressed

Work Material: 52100 (58-62HRC)
Tool Cat. No.: 4NC-DNGA432
Cutting Conditions: vc = 500 SFM, f = .0039 IPR, ap = .0079" Wet

BNC2115 / BNC2125 / BNC2010 / BNC2020

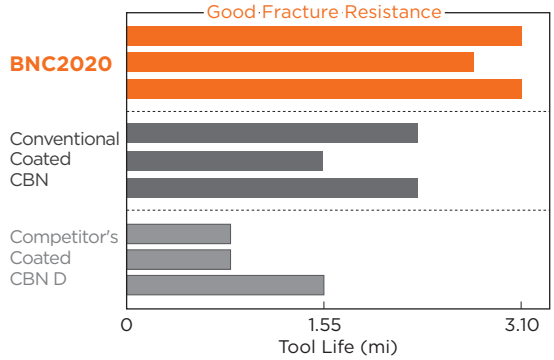
■ Cutting Performance

BNC2010 Continuous Cutting (Machined Surface Roughness)



Work Material: SCM415H (58-62HRC)
Tool Cat. No.: 4NC-DNGA432
Cutting Conditions: vc = 400 SFM, f = .0055 IPR, ap = .0059" Wet

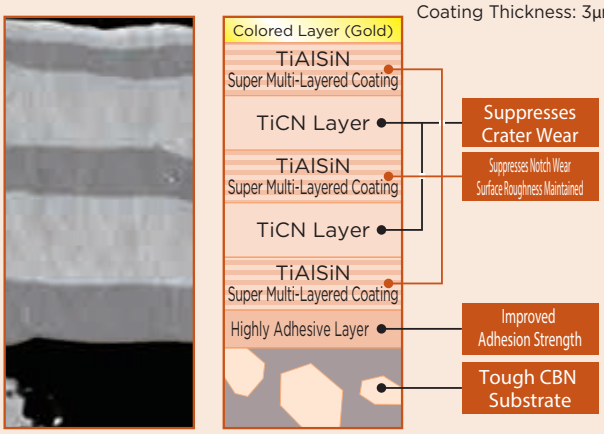
BNC2020 Interrupted Cutting (Fracture Resistance)



Work Material: SCM415H with 5 grooves (58 to 62HRC)
Tool Cat. No.: 4NC-CNGA433
Cutting Conditions: vc = 425 SFM, f = .0039 IPR, ap = .0236" Dry

BNC2115 High-precision Machining (Medium- to High-speed)

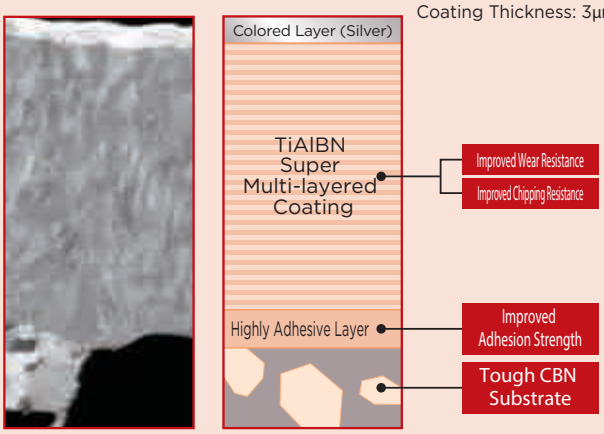
Coating Thickness: 3μm



Thick layers of high-strength TiAlSiN super multi-layered coating and highly heat-resistant TiCN coating are applied to a tough substrate to provide excellent surface finish quality

BNC2125 General-purpose Machining (Medium- to High-speed)

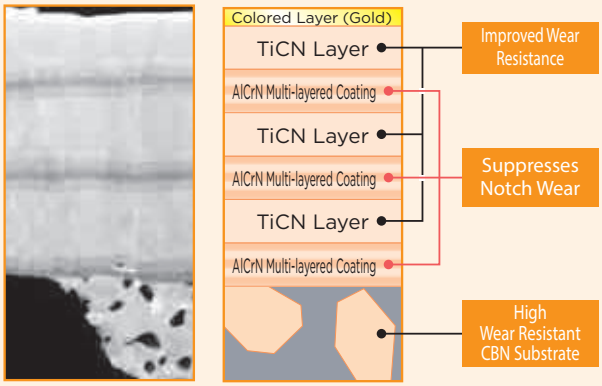
Coating Thickness: 3μm



Thick layer of super multi-layered ultra-fine TiAlBN coating with high strength and high hardness coupled with a tough substrate achieves high performance in a wide range of applications

BNC2010 High-precision Machining (Low- to Medium-speed)

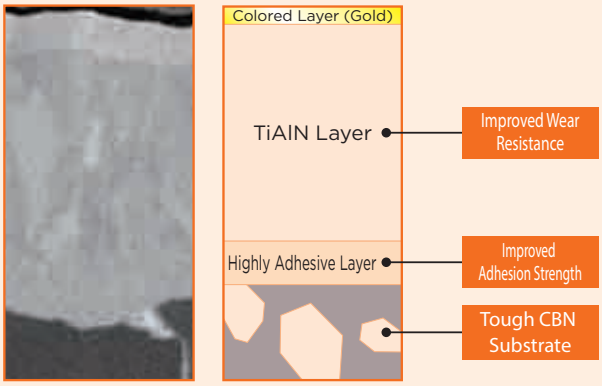
Coating Thickness: 2μm



Stacked high-strength AlCrN multi-layered coating and highly heat-resistant TiCN coating are applied to a highly wear-resistant substrate to maintain excellent surface finish quality

BNC2020 General-purpose Machining (Low- to Medium-speed, Unstable Cutting)

Coating Thickness: 2μm



Application of highly wear-resistant TiAlN coating to a tough substrate dramatically improves machining stability in low-rigidity setups and high-load cutting

The Definitive Grade in High-Speed, High-Accuracy Machining

■ General Features

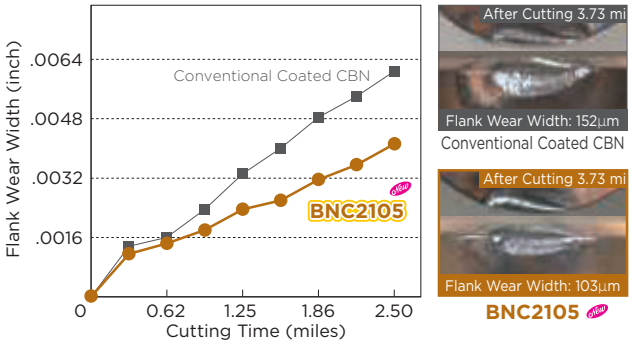
BNC2105 is the latest addition to the BNC lineup, fulfilling even higher-speed machining with Coated CBN, our first recommendation for high-speed machining of hardened steel.

● BNC2105 New

· Fulfills outstanding wear resistance in high-speed machining of hardened steel
Excellent wear resistant coating and CBN substrate, achieve stable and long tool life in high-speed machining.

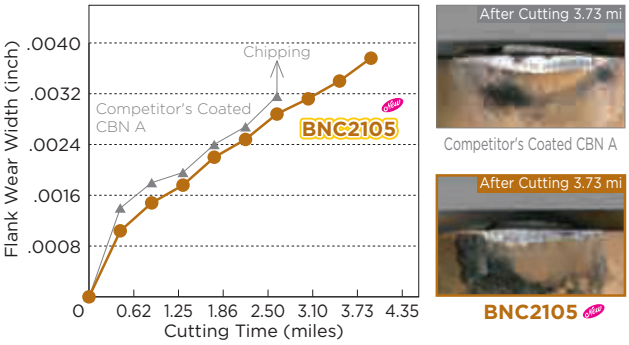
■ Cutting Performance

BNC2105 New Continuous Cutting (Wear Resistance)



Work Material: 52100 (58-62HRC)
Tool Cat. No.: 4NC-DNGA432
Cutting Conditions: vc = 660 SFM, f = 0.0039 IPR, ap = .0039" Wet

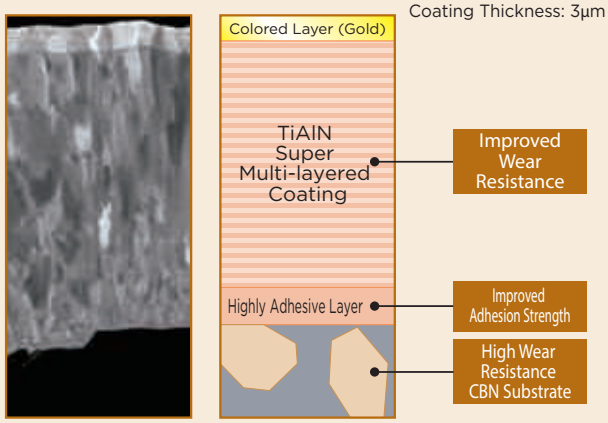
BNC2105 New Continuous Cutting (Wear Resistance)



Work Material: SCM415H (58-62HRC)
Tool Cat. No.: 4NC-DNGA432
Cutting Conditions: vc = 820 SFM, f = .0024 IPR, ap = .0039" Wet

■ CBN Substrate and Coating Structure

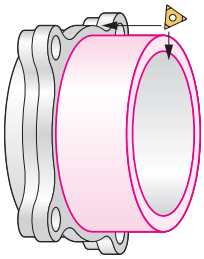
BNC2105 New High-precision Machining (High-speed)

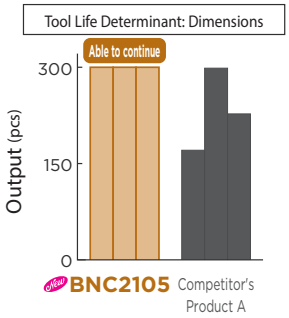


Highly wear-resistant TiAlN super multi-layered coating is made thicker. Utilizes long tool life in high-speed cutting in combination with a substrate using a newly developed TiCN binder with excellent thermal resistance

52100 Bearing Steel Hub (60HRC) H

BNC2105 suppresses fractures due to crater wear and realizes stable machining





Tool: 6NC-TNGA332 (BNC2105)
Cutting Conditions: vc = 750 SFM, f = .0047 IPR,
ap = .004" Wet

The Ultimate in Interrupted Cutting of Hardened Steel

■ General Features

BNC300

A CBN substrate that emphasizes toughness is coupled with a highly wear-resistant TiAlN-based coating layer that has improved adhesion strength. With a good balance of fracture and wear resistance, this grade achieves a long, stable tool life in interrupted cutting or in a mixture of continuous and interrupted cutting.

BN350

CBN - SUMIBORON with the highest fracture resistance and toughest CBN. Reliable grade for achieving stable tool life in heavy interrupted cutting conditions.

■ Features

•BNC300

· Long, stable tool life in interrupted cutting
Achieving long, stable tool life in heavy interrupted cutting, with superior fracture resistance.

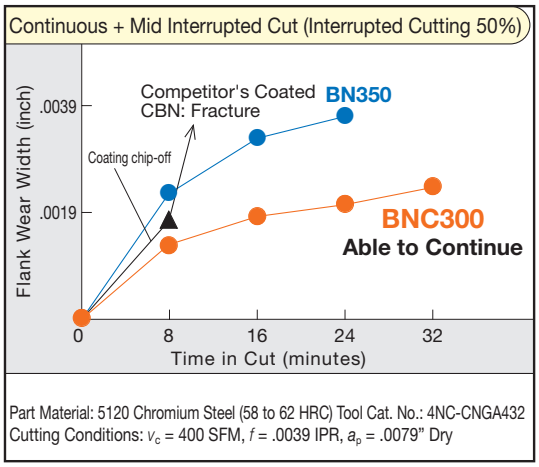
· Superior dimensional tolerance
TiAlN-based high-wear-resistance coating with good adhesion strength. Achieves superior dimensional tolerance even in interrupted cutting.

· Supports various work material shapes
Achieves long, stable tool life even in workpieces requiring both continuous and interrupted cutting.

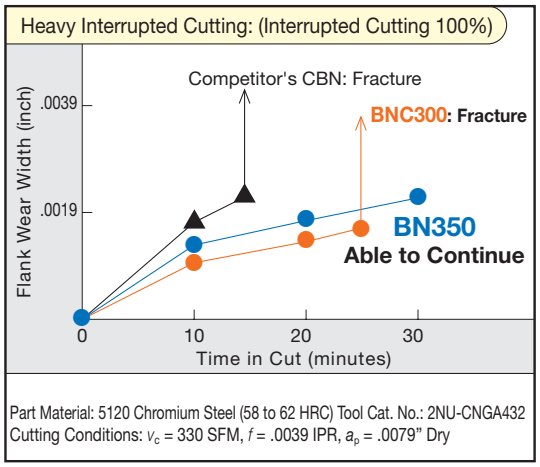
•BN350

· Superb stability with regard to fracture
Superior fracture resistance, preventing the fractures that commonly occur during interrupted cutting. Achieves a long, stable tool life.

■ Cutting Performance



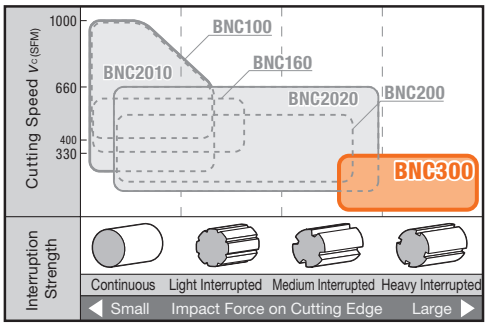
• **BNC300** has a superior balance of fracture and wear resistance.



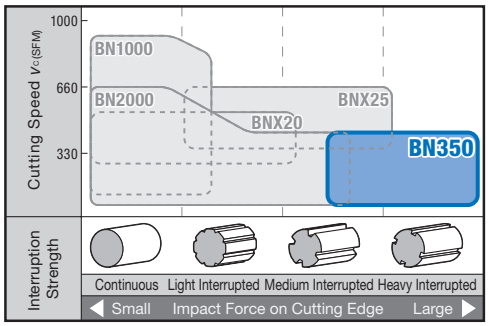
• **BN350** exhibits very good fracture resistance.

■ Application Range

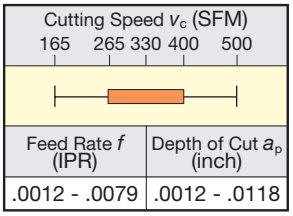
• Coated CBN (SUMIBORON)



• CBN (SUMIBORON)

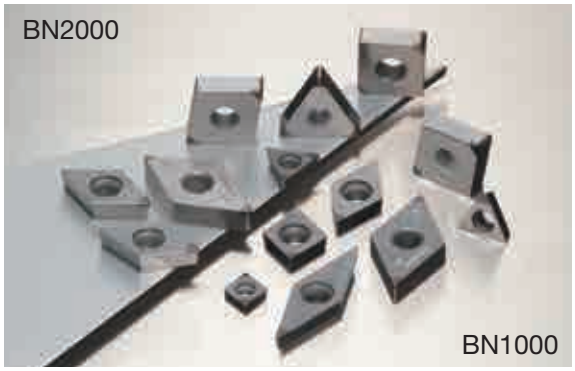


■ Recommended Cutting Conditions (BNC300/BN350 common)



Coolant: Dry

BN1000 / BN2000



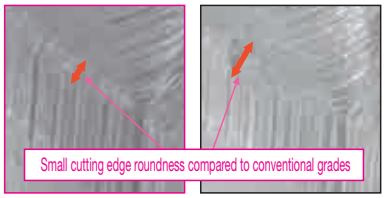
■ General Features

Uncoated CBN - SUMIBORON grades that have a newly developed high-purity ceramic binder applied to them. Both fracture and wear resistance are combined to achieve a stable tool life in a wide variety of hardened steel machining.
We offer a wide selection of tools starting with single-cornered types.

■ Features

- **BN1000**
  - **CBN - SUMIBORON grade for high-speed machining with the best wear resistance,** providing superior tool life in continuous cutting to light interrupted cutting.
  - **Improved fracture resistance while also emphasizing wear resistance**
    Improved hardness and thermal resistance from the high-purity TiCN ceramic binder.
- **BN2000**
  - **General-purpose grade suitable for typical hardened steel machining applications**
    Provides stable tool life in everything from continuous cutting to light to medium interrupted cutting.
  - **Has a high degree of both fracture and wear resistance**
    Significant improvements in the performance of both by employing a high-purity ceramic binder.
  - **Stable surface roughness achieved by increasing edge sharpness (right figure)**

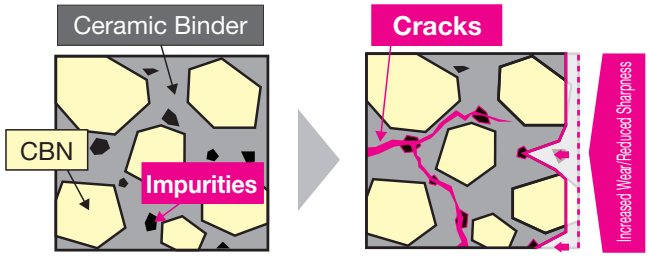
Sharpness Comparison



BN2000 | Conventional Grade

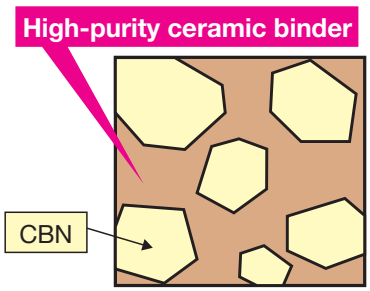
■ Newly Developed High-Purity Ceramic Binder

Conventional Grade



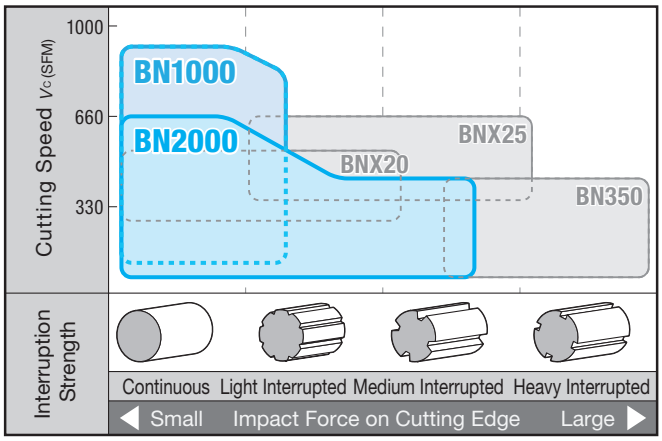
The impurities contained in the ceramic binder for conventional grades decrease the sintered body strength and thermal resistance, leading to cracks (breakage) and wear.

BN1000 / BN2000



With a newly developed high-purity ceramic binder, BN1000 / BN2000 achieve toughness and improved thermal resistance by decreasing impurities to an extreme.

■ Application Range



■ Recommended Cutting Conditions

- BN1000

Cutting Speed v_c (SFM)	
Feed Rate f (IPR)	Depth of Cut a_p (inch)
.0012 - .0059	.0012 - .0079

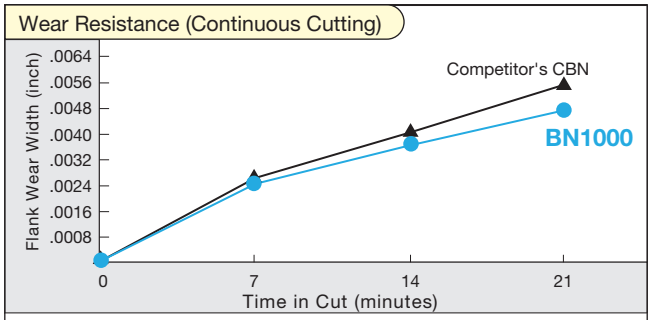
- BN2000

Cutting Speed v_c (SFM)	
Feed Rate f (IPR)	Depth of Cut a_p (inch)
.0012 - .0079	.0012 - .0117

Cutting Oil: Continuous Cutting Dry, Wet
Interrupted Cutting Dry

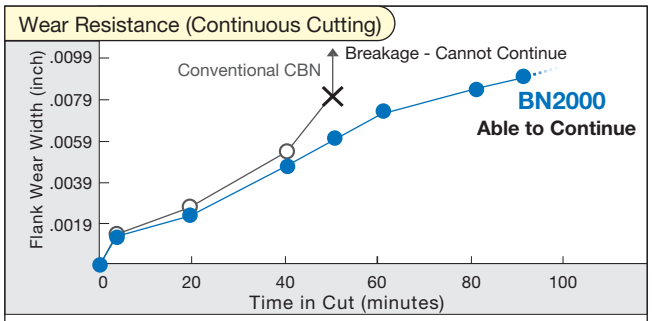
■ Cutting Performance

● BN1000



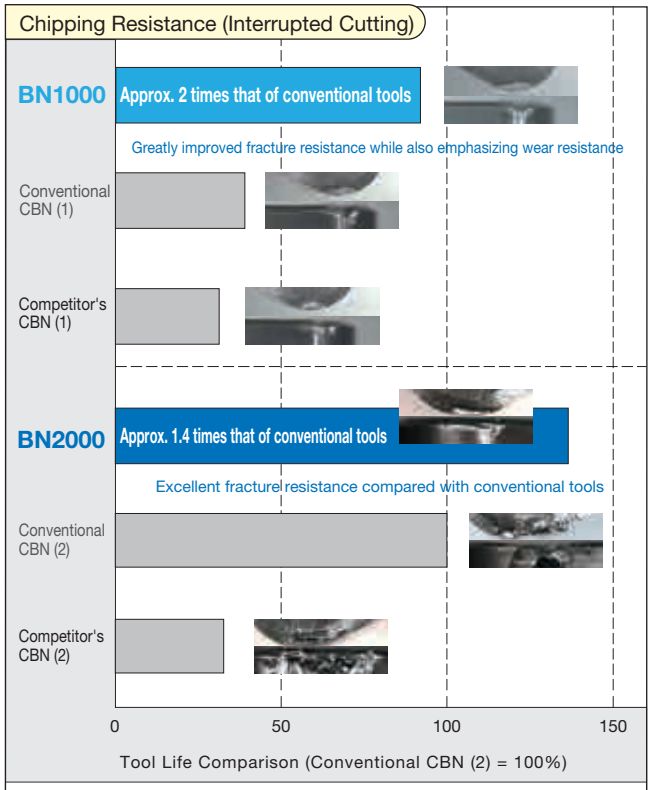
Part Material: High Carbon Steel Round Bar (58 to 62HRC)
Tool Cat. No.: 2NU-CNGA432
Cutting Conditions: v_c = 500 SFM, f = .0039 IPR, a_p = .0079" Dry

● BN2000



Part Material: Chromium Molybdenum Steel Round Bar (58 to 62HRC)
Tool Cat. No.: 2NU-CNGA432
Cutting Conditions: v_c = 330 SFM, f = .0039 IPR, a_p = .0079" Dry

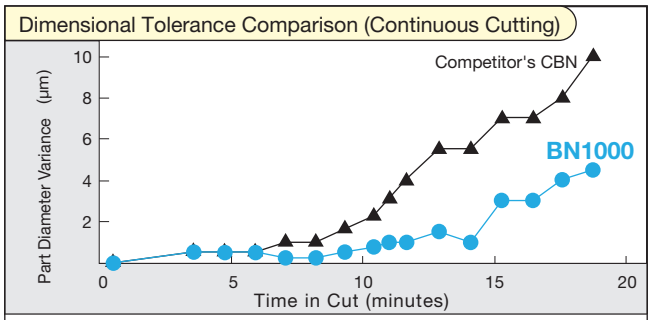
● BN1000 / BN2000



Part Material: 15CrMo Alloy Structural Steel 8V Grooved (58-62HRC)
Tool Cat. No.: 2NU-CNGA432
Cutting Conditions: v_c = 400 SFM, f = .0039 IPR, a_p = .0079" Dry

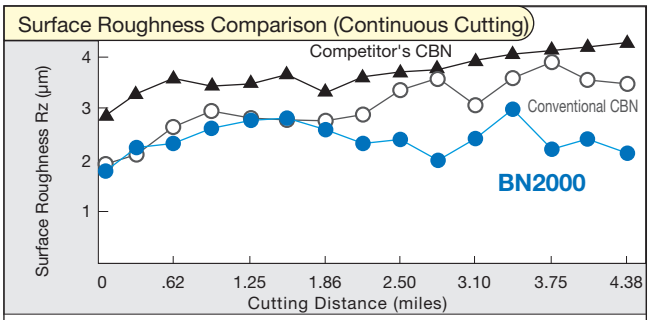
■ Machining Precision

● BN1000



Part Material: Chromium Molybdenum Steel ø5.12" O.D. (58 to 62 HRC)
Tool Cat. No.: 2NU-CNGA432
Cutting Conditions: v_c = 660 SFM, f = .0039 IPR, a_p = .0039" Wet

● BN2000



Work Material: Chromium Molybdenum Steel Round Bar (58 to 62HRC)
Tool Cat. No.: 2NU-CNGA432
Cutting Conditions: v_c = 330 SFM, f = .0031 IPR, a_p = .0079" Dry

BN7125 K Cast Iron Sintered Alloy /BN7115 Sintered Alloy

New

■ Features

Improved wear resistance through high CBN content. Further, with improved CBN particle/binder boundary strength due to the special binder and improved binding strength between CBN particles thanks to our proprietary sintering process, excellent fracture resistance is achieved.
Provides stable performance for high-speed finishing of cast iron, sintered alloy and exotic alloys.

■ Lineup

● BN7125 New

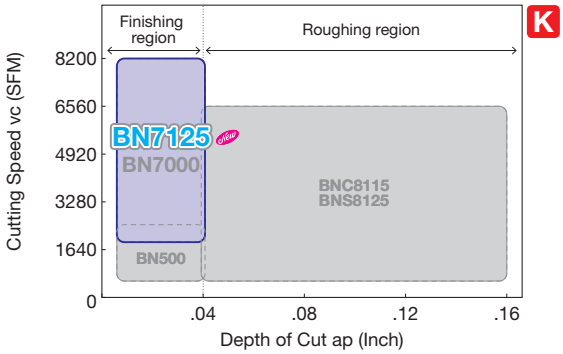
General-purpose Grade for Cast Iron/Sintered Alloy Machining
Achieves high-efficiency machining of sintered alloy with a standard + 3 types of cutting edge variations
Exhibits good thermal crack resistance in high-speed machining of cast iron
Also supports machining of difficult-to-cut materials such as rolls, high speed steel and heat-resistant alloys

● BN7115

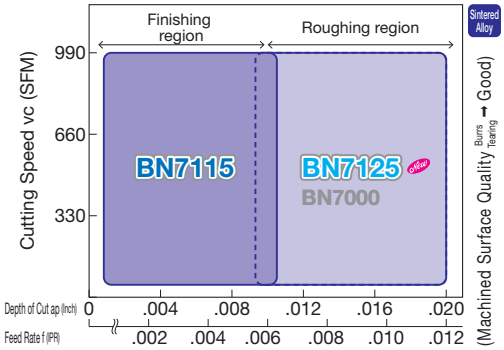
Edge sharpness in sintered alloy machining is excellent, suppressing burrs and tearing

■ Application Range

● Cast Iron



● Sintered Alloy



■ Recommended Cutting Conditions

● Cast Iron K

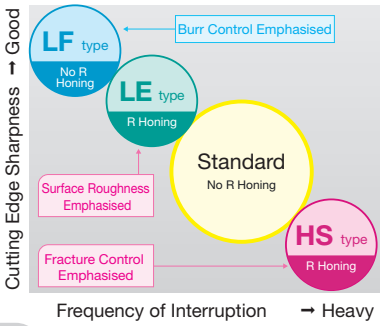
Work Material	Grade	Recommended Cutting Conditions Min. - **Optimum** - Max.		
		Cutting Speed vc (SFM)	Feed Rate f (IPR)	Depth of Cut ap (Inch)
Cast Iron	BN7125	330-**3300**-8200	.002-**.012**-.024	.002-**.020**-.039

● Sintered Alloy Sintered Alloy

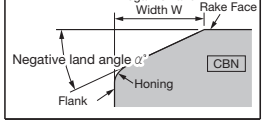
Work Material	Grade	Recommended Cutting Conditions Min. - **Optimum** - Max.		
		Cutting Speed vc (SFM)	Feed Rate f (IPR)	Depth of Cut ap (Inch)
General Sintered Alloy	BN7115	30 - **490** - 990	.0004-**.003**-.006	.002-**.005**-.010
	BN7125	30 - **490** - 990	.0004-**.006**-.012	.002-**.010**-.020
High-density Sintered Alloy	BN7115	30 - **330** - 660	.0004-**.002**-.005	.002-**.004**-.008
	BN7125	30 - **330** - 660	.0004-**.006**-.012	.002-**.010**-.020

■ Recommended Cutting Edge Treatment

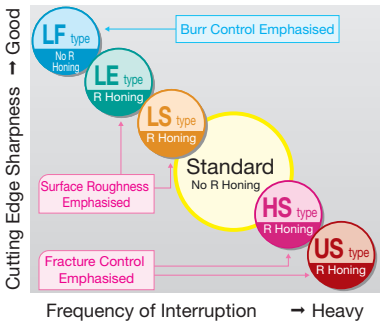
BN7125



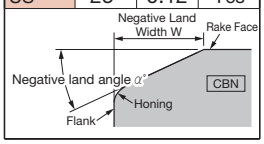
Type	α°	W(mm)	Honing
Standard	15°	0.12	No
LF	Sharp Edge		No
LE	Sharp Edge		Yes
HS	25°	0.12	Yes



BN7115

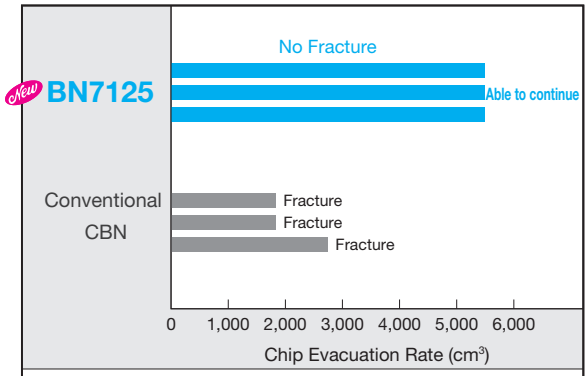


Type	α°	W(mm)	Honing
Standard	15°	0.12	No
LF	Sharp Edge		No
LE	Sharp Edge		Yes
LS	15°	0.07	Yes
HS	25°	0.05	Yes
US	25°	0.12	Yes



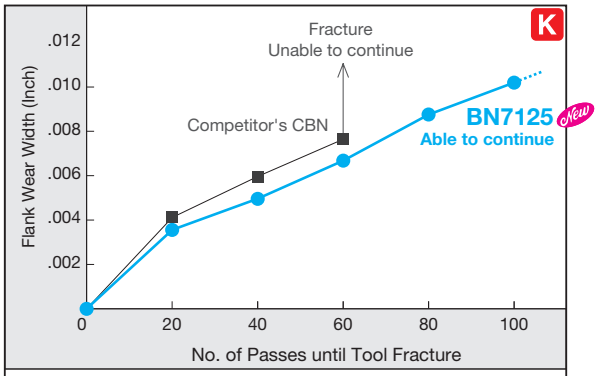
■ Cutting Performance (Cast Iron)

● BN7125 Milling (Fracture Resistance)



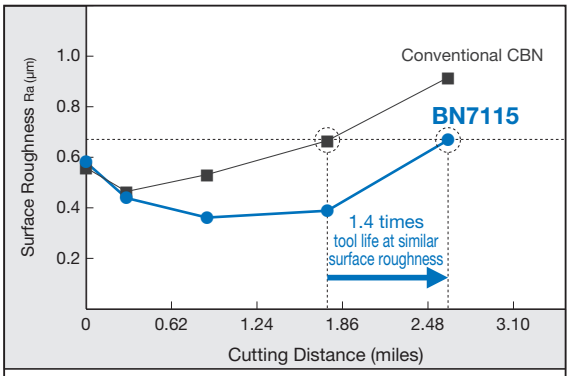
Work Material : FC250 (Pearlite)
Tool : FMU4080R, Insert: SNEW1203ADTR
Cutting Conditions : vc = 490 SFM, fz = .005 IPR, ap = .012", Remainder Wet

● BN7125 Interrupted Cutting (Fracture Resistance)



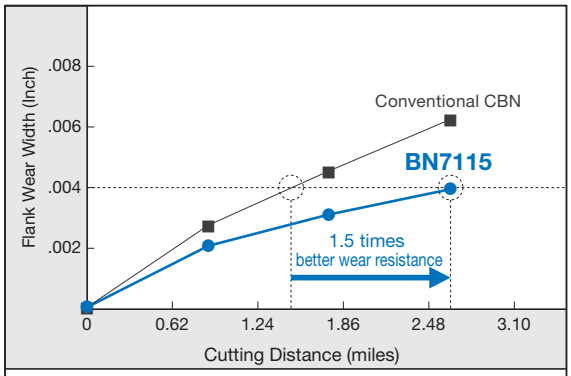
Work Material : FC250 with 6 grooves
Tool Cat. No. : 2NU-CNGA120408
Cutting Conditions: vc = 2460 SFM, f = .006 IPR, ap = .008", Wet

● BN7115 Continuous Cutting (Surface Roughness)

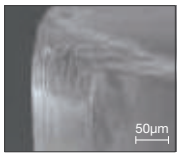


Work Material : Sintered Alloy F-08C2 equivalent (150HV)
Tool Cat. No. : 2NU-CNGA120408
Cutting Conditions: vc = 660 SFM, f = .004 IPR, ap = .008", Wet

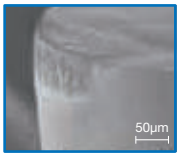
● BN7115 Continuous Cutting (Wear Resistance)



Work Material : Sintered Alloy F-08C2 equivalent (150HV)
Tool Cat. No. : 2NU-CNGA120408
Cutting Conditions: vc = 660 SFM, f = .004 IPR, ap = .008", Wet

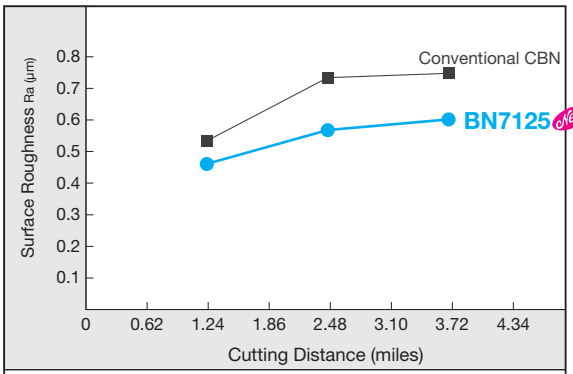


Conventional CBN



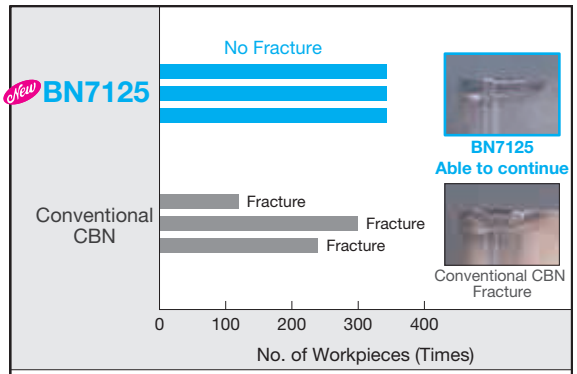
BN7115
Maintains sharp cutting edge

● BN7125 Continuous Cutting (Surface Roughness)



Work Material : Sintered Alloy F-08C2 equivalent (150HV)
Tool Cat. No. : 2NU-CNGA120408
Cutting Conditions: vc = 660 SFM, f = .004 IPR, ap = .008", Wet

● BN7125 Interrupted Cutting (Fracture Resistance)



Work Material : Hardened Sintered Alloy FLA-07C2M equivalent (500HV)
Tool Cat. No. : 3NU-TNGA160404LE
Cutting Conditions: vc = 820 SFM, f = .003 IPR, ap = .020", Wet

BNC8115 / BNS8125

K Cast Iron H Hardened Steel

■ Features

Covers a wide range of machining applications from roughing to finishing of cast iron, hard-to-cut cast iron and hardened steel.
100% solid CBN structure enables depth-of-cut of .20" and above.

■ Lineup

● BNC8115

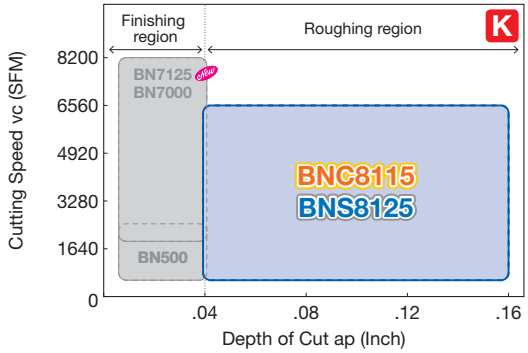
PVD coating with excellent wear resistance suppresses flank wear when machining difficult-to-cut cast iron and hardened steel. Ideal for roughing and depth-of-cut of .020" - .118". Can also be used for roughing and finishing of gray cast iron. Gold coating improves visibility of used corners.

● BNS8125

Optimizing the particle size distribution of the CBN particles has resulted in improved fracture resistance and longer life while maintaining wear resistance during gray cast iron machining.

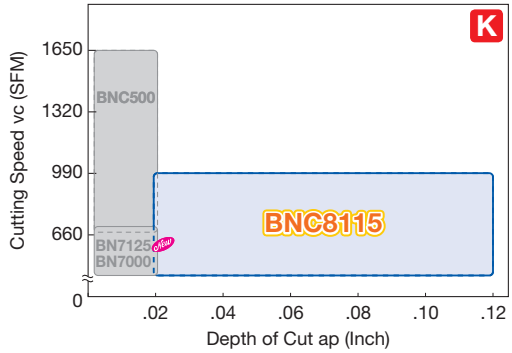
■ Application Range

● Gray Cast Iron

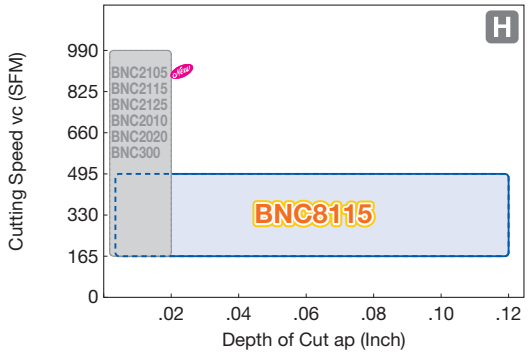


Wet machining is recommended for gray cast iron
For dry machining, BNC8115/BNS8125 are recommended for both roughing and finishing

● Ductile Cast Iron



● Hardened Steel



■ Recommended Cutting Conditions

● Cast Iron (Turning) K

Work Material	Grade	Recommended Cutting Conditions Min. - **Optimum** - Max.		
		Cutting Speed vc (SFM)	Feed Rate f (IPR)	Depth of Cut ap (Inch)
Gray Cast Iron	BNC8115	660-**3300**-6560	.004-**.020**-.040	≤ .157
	BNS8125	660-**3300**-6560	.004-**.020**-.040	≤ .157
Ductile Cast Iron	BNC8115	260- **520** - 990	.004-**.012**-.020	≤ .118
	BNS8125	260- **390** - 660	.004-**.012**-.020	≤ .118

● Hardened Steel (Turning) H

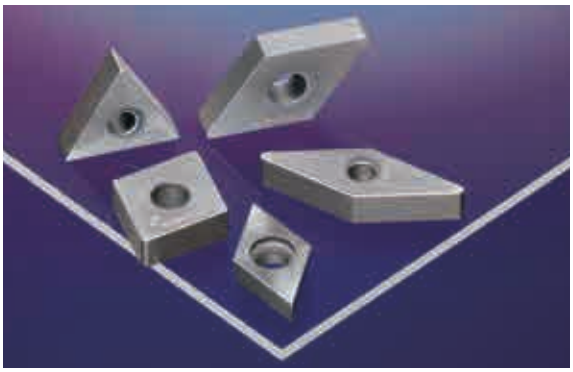
Work Material	Grade	Recommended Cutting Conditions Min. - **Optimum** - Max.		
		Cutting Speed vc (SFM)	Feed Rate f (IPR)	Depth of Cut ap (Inch)
Hardened Steel	BNC8115	165 - **330** - 495	.004-**.010**-.016	≤ .118

■ Choosing Between BNC8115 and BNS8125 (Cast Iron/Hardened Steel)

	Work Material	Coated SUMIBORON BNC8115 (Turning / Milling)		SUMIBORON BNS8125 (Turning / Milling)		SUMIBORON BN7000 (Turning / Milling)		Coated SUMIBORON BNC500 (Turning)		Coated SUMIBORON BNC2125 (Turning)	
K	Gray Cast Iron	○	Best	○	Best Economical	○	Depth of Cut 1.0mm or below High-speed Finishing	—	—	—	—
K	Ductile Cast Iron	○	Depth of Cut 0.5mm or above	○	Interrupted Machining	○	Depth of Cut 0.5mm or below Low-speed Machining	○	Depth of Cut 0.5mm or below	—	—
H	Hardened Steel	○	Depth of Cut 0.5mm or above	—	—	—	—	—	—	○	Depth of Cut 0.5mm or below High-speed Machining

○: Recommendation

Coated CBN grades for ductile cast iron machining

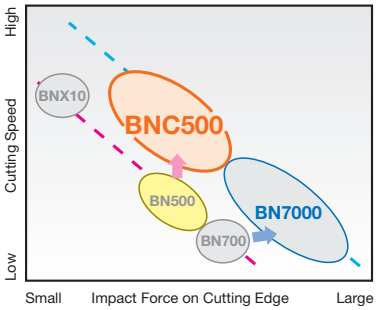


■ General Features

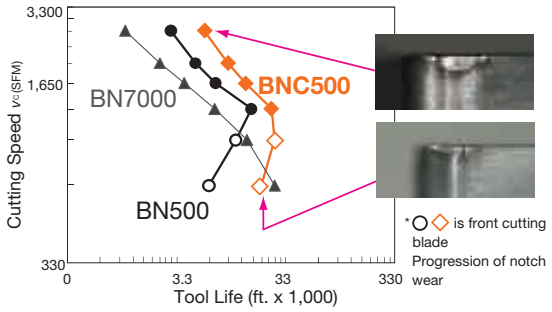
Broad improvements in the toughness of the CBN substrate and wear resistance through the use of a newly developed high-purity TiC binder. In addition, it demonstrates exceptional wear resistance by combining a ceramic coating with excellent thermal resistance. High-speed, high-precision machining is achieved when finishing ductile cast iron. It also provides a long, stable tool life for machining high-strength ductile cast iron, special cast irons such as vermicular cast iron and centrifugally-cast cast iron.

■ Features

● Stable tool life for high-speed machining of ductile cast iron
Superior wear resistance, making stable machining possible under high-speed conditions. Supports high-precision machining. Can maintain excellent dimensional tolerance and surface roughness over many hours.

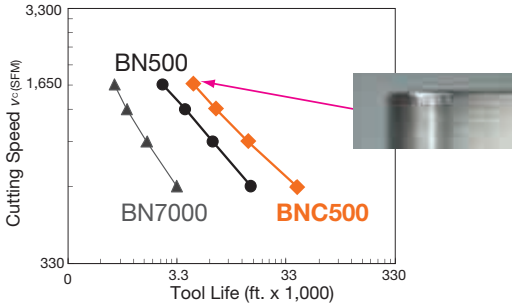


● Cast Iron Continuous Cutting (V-T Chart)



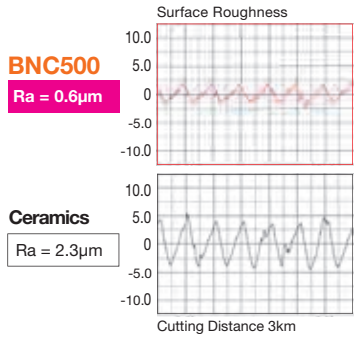
Part Material: Ductile Cast Iron (160HB) Tool Cat. No.: 4NC-CNGA432
Cutting Conditions: f = .0079 IPR, a_p = .0079" Wet
Tool Life Criterion: $V_B$max. = .0079"

● Ductile Cast Iron Continuous Cutting (V-T Chart)



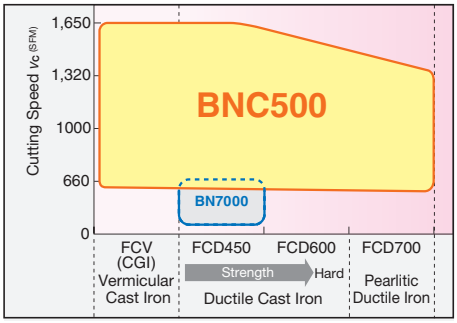
Part Material: 100-70-03 Cast Iron (260HB) Tool Cat. No.: 4NC-CNGA432
Cutting Conditions: f = .0079 IPR, a_p = .0079" Wet
Tool Life Criterion: $V_B$max. = .0079"

■ Machined Surface Quality

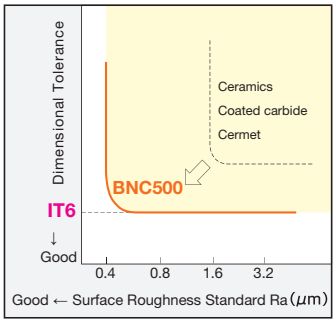


Part Material: Ductile Cast Iron FCD700 (260HB)
Cutting Conditions: V_C=1,320 SFM, f =.0039 IPR
a_p=.0039" Wet

■ Application Range



■ High-Precision Machining



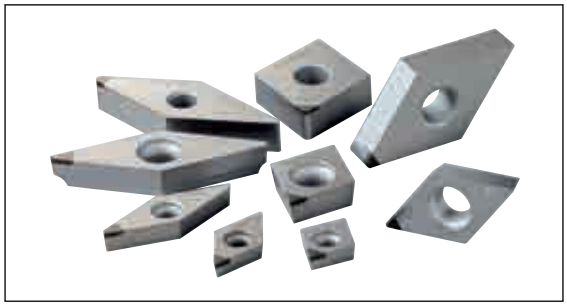
■ Recommended Cutting Conditions

Cutting Speed V_c (SFM) 660 – 1,000 – 1,320 – 1,650	
Feed Rate f (IPR)	Depth of Cut a_p (inch)
.0039 to .0157	≤ .0197

Cutting Oil: Wet

Nano-Polycrystalline CBN

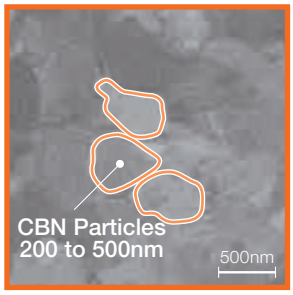
New



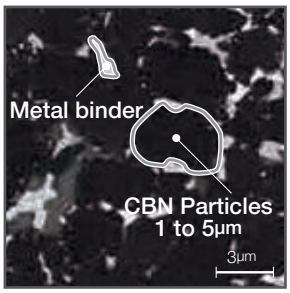
■ General Features

Binderless CBN, which does not contain any binders, is a CBN sintered product with directly and strongly bonded nano- to sub-micron CBN particles.
Compared to conventional CBN grades, this provides high hardness and thermal conductivity, making it highly efficient with a long tool life when machining exotic alloys such as titanium alloys and cobalt-chrome alloys.

■ Sintered Composition (SEM Image)



SUMIBORON Binderless



Conventional CBN

■ Physical Values

	SUMIBORON Binderless	Conventional CBN
CBN Content (vol%)	100	90 to 95
Binder	—	WC-Co
Hardness Hv (GPa)	51 to 54	41 to 44
Thermal Conductivity (W/m·K)	180 to 200	100 to 120

Binderless CBN NCB100

New

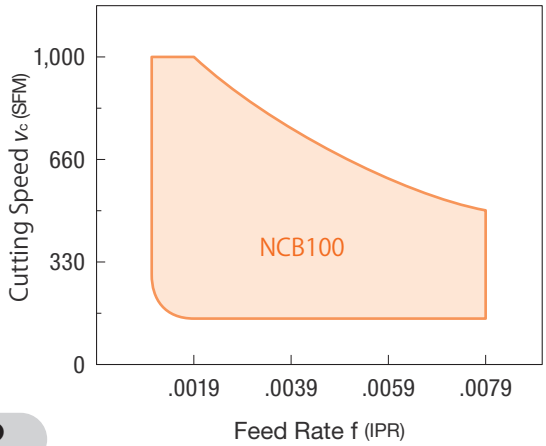
■ General Features

Adopts a nano-polycrystalline CBN sintered cutting edge with hardness and thermal conductivity significantly higher than conventional sintered CBN. Enables overwhelmingly longer tool life and improved efficiency and machining accuracy when machining exotic alloys such as titanium alloys or cobalt-chrome alloys.

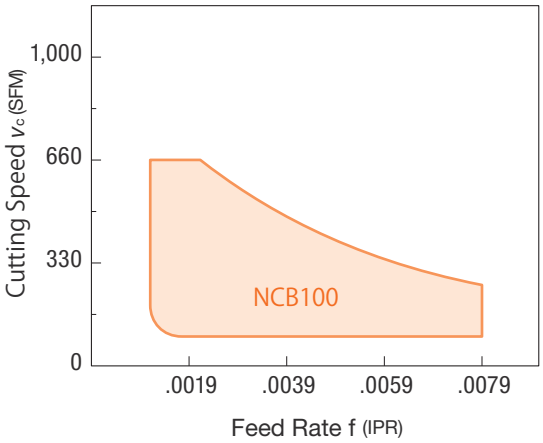
■ Features

- Ideal for high efficiency finishing of exotic alloys such as titanium alloys and cobalt-chrome alloys
  Exhibits outstanding wear resistance due to the excellent hardness and thermal conductivity of nano-polycrystalline CBN
- Excellent dimensional tolerance and machined surface roughness maintained for extended periods
  Tool replacement count can be drastically reduced compared to conventional grades, enabling work efficiency to be improved and total costs to be reduced

■ Application Range (Machining Titanium Alloy)



■ Application Range (Cobalt-chrome alloy machining)

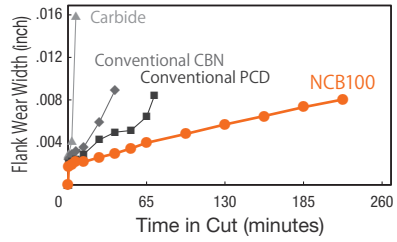


NCB100

K Cast Iron | S Exotic Alloy | Cemented Carbide | Hard Brittle Material

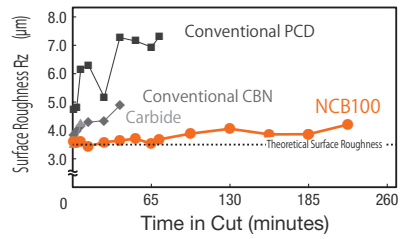
■ Cutting Performance (Machining Titanium Alloy)

• Wear Resistance

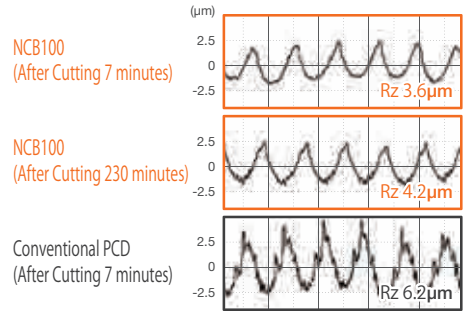


Part Material: Titanium Alloy (Ti-6Al-4V)
Tool Used: CNGA432
Cutting Conditions: V_c = 500 SFM, f = .0059 IPR
a_p = .0197" Wet (High Pressure Coolant)

• Machined Surface Roughness

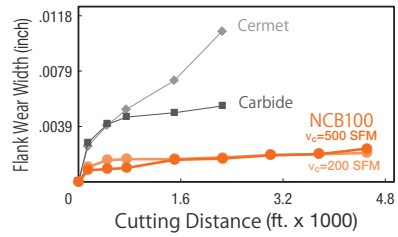


Part Material: Titanium Alloy (Ti-6Al-4V)
Tool Used: CNGA432
Cutting Conditions: V_c = 500 SFM, f = .0059 IPR
a_p = .0197" Wet (High Pressure Coolant)



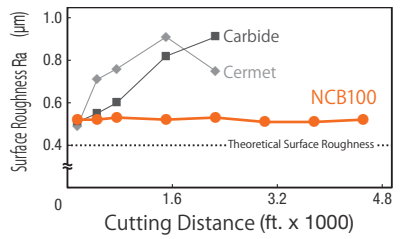
■ Cutting Performance (Machining Cobalt-chrome Alloy)

• Wear Resistance

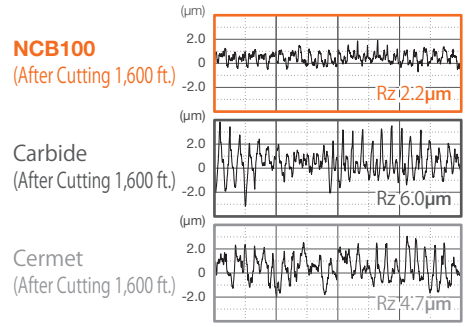


Part Material: Cobalt-chrome alloy (forging)
Tool: VNGA332
Cutting Conditions: V_c = 200, 500 SFM, f = .0039 IPR
a_p = .0157" Wet

• Machined Surface Roughness



Part Material: Cobalt-chrome alloy (forging)
Tool: VNGA332
Cutting Conditions: V_c = 200 SFM, f = .0039 IPR
a_p = .0157" Wet



■ Recommended Cutting Conditions

• Titanium Alloy

Part Material		Grade	Recommended Cutting Conditions		Min. - Max.
Composition	Hardness (HRC)		Cutting Speed v_c (SFM) 165 330 500 660 825 1000	Feed Rate f (IPR)	Depth of Cut a_p (inch)
Ti-6Al-4V	30 - 35	**NCB100**		.0019 - .0079	.0039 - .0197
Ti-5Al-5V-5Mo-3Cr	32 - 38	**NCB100**		.0019 - .0079	.0039 - .0197
Ti-10V-2Fe-3Al	32 - 38	**NCB100**		.0019 - .0079	.0039 - .0197

• Cobalt-chrome Alloy

Part Material		Grade	Recommended Cutting Conditions		Min. - Max.
Composition	Hardness (HRC)		Cutting Speed v_c (SFM) 165 330 500 660	Feed Rate f (IPR)	Depth of Cut a_p (inch)
Co-30Cr-5Mo	35 - 45	**NCB100**		.0019 - .0079	.0039 - .0118

• Carbide

Part Material		Grade	Recommended Cutting Conditions		Min. - Max.
Composition	Hardness (HRA)		Cutting Speed v_c (SFM) 15 30 45 65 80 100 115 130	Feed Rate f (IPR)	Depth of Cut a_p (inch)
WC-20Co	Less than 85	**NCB100**		.0012 - .0079	.0012 - .0079

*SUMIDIA BINDERLESS NPD10 is recommended for carbide machining of 83HRA or more.

• Others

Part Material		Grade	Recommended Cutting Conditions		Min. - Max.
Composition / Material	Hardness (HV)		Cutting Speed v_c (SFM) 30 165 330 660 1,000 1,320	Feed Rate f (IPR)	Depth of Cut a_p (inch)
Cermet Material (Ferrous metal including binder)	1,000 - 1,500	**NCB100**		.0019 - .0079	.0039 - .0118

Insert Identification

Regrindable Type

ANSI Part Number: **CNMA 432**

ISO Part Number: **CNMA120408(-)B**

(1) — (1) ANSI / ISO Symbol (Classification) ☞ B2, B3

(2) — (2) Additional Information: Refer to Table 1

Table 1 (2) Additional Information

Symbol	Old Symbol	Code Description
(-)B	(-)B	Full-top CBN
-BSTN	-BSN	Full-top CBN (Sharper Edge Type)

Single-use Type
(Disposable)

ANSI Part Number: **2NU - CNGA 432 LT**

ISO Part Number: **2NU - CNGA120408LT**

(1) — (1) No. of Cutting Edges: Refer to Table 2

(2) — (2) Type Symbol: Refer to Table 3

(3) — (3) ANSI / ISO Symbol (Classification) ☞ B2, B3

(4) — (4) Additional Information: Refer to Table 4

(Table 2) (1) No. of Cutting Edges

Symbol	Cutting Edges	Type
(None)	Cutting Edges: 1	1-cornered type
2	Cutting Edges: 2	Multi-Corner Type
3	Cutting Edges: 3	
4	Cutting Edges: 4	
6	Cutting Edges: 6	

(Table 3) (2) Type Symbol

Symbol	Type	Grade
NC	Coated CBN	BNC2010, 2020, BNC100, 160, BNC200, 300, 500
NU	Non-Coated CBN	BNX10, 20 BN1000, 2000, BN350, 500, 700, BN7000, 7115, 7500
	CBN Binderless	NCB100
NS	Non-Coated CBN Series	BNX25

*The NS type is a single-use insert for the BNX25 grade, using the latest brazing technique. The shape is the same as the NU type.
*Cat. numbers that begin with a "T-" are 10pcs pack

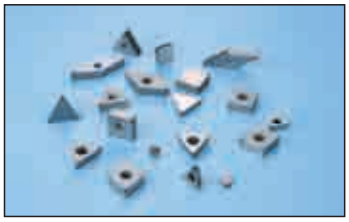
Table 4 (4) Additional Information ☞ L28

Symbol	Old Symbol	Code Description	
		CBN	Coated CBN
No	No	Standard Cutting Edge	
LF LE	F	Sharp edge type	
LT	S	Sharper Edge Type	
LS	M	General-purpose Type for Continuous Cutting	Sharper Edge Type
ES	—	—	High Efficiency Type
HT HS	T	Strong Edge Type	
WG WH W	W	Wiper Insert Type	
N-FV N-LV N-SV	N-SV	Chipbreaker Type	

Selection Guide

■ **Cutting Performance (Machining Titanium Alloy)**

One-Use Insert NU Type / NS Type



■ **Features**

- Affordable version of the previously expensive sintered CBN material, at its best size.
- Single-use type eliminates regrinding, making tool management easy.
- Reduce required storage space with 10pcs pack.

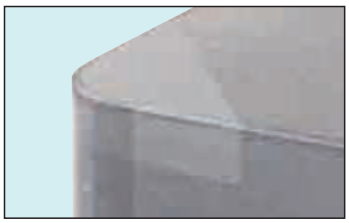
Multi-Cornered, One-Use Insert

■ **Features**

- Multiple CBN cutting edges are brazed onto one insert. Price per edge is lower than normal single-corner, single-use inserts.
- Coated CBN is available as a double-faced insert. Diamond type inserts have 4 cutting edges and triangular inserts have 6 cutting edges.
- Multi-cornered one-use type has G-class tolerance with side faces ground. In addition, all edges are numbered for easy cutting edge management.

One-Use Wiper Inserts

WG / WH Type

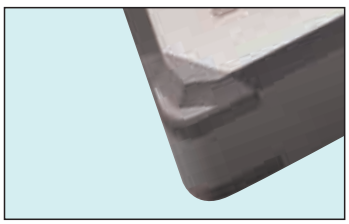


■ **Features**

- SUMIBORON single-use insert with wiper edge for hardened steel machining.
- Excellent surface roughness comparable to grinding.
- Improved machining efficiency is possible with higher speeds and feeds.
- Lineup of low feed WG types and high feed WH types.

One-Use Insert With Chipbreaker

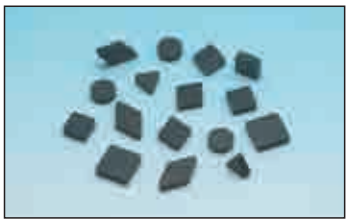
Break Master FV Type / LV Type / SV Type



■ **Features**

- Single-use CBN insert with chipbreaker. SV type is ideal for carburised layer removal, while LV and FV types are ideal for hardened steel machining.
- Chipbreaker incorporated on the CBN cutting edge to maintain chip control capabilities throughout the machining process.
- Unique chipbreaker design can be applied to both hardened and non-hardened parts with effective chip control.

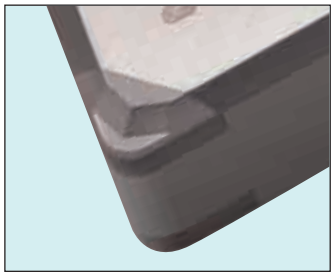
Solid CBN



■ **Features**

- BNS800 realizes a 100% solid CBN structure.
  With no brazed portion, this grade is excellent for the roughing of cast iron at large depths of cut.

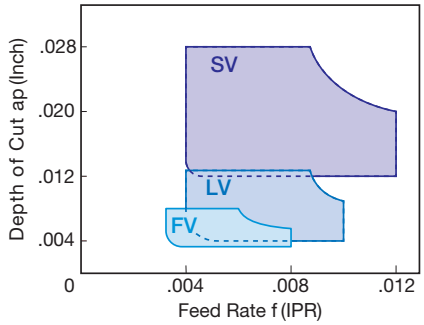
FV / LV / SV



■ Features

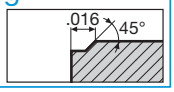
- One-use CBN - SUMIBORON insert with chipbreaker. SV type is ideal for carburized layer removal, while FV and LV types are ideal for hardened steel machining.
- Chipbreaker incorporated on the CBN cutting edge to maintain chip control capabilities throughout the machining process.
- Unique chipbreaker design can be applied to both hardened and non-hardened parts with effective chip control.
- SV lineup includes Coated CBN - SUMIBORON BNC2010/BNC160 for good wear resistance and BNC2020/BNC200, which enables high efficiency machining.
- FV and LV lineup include Coated CBN - SUMIBORON BNC2020/BNC200 for general purpose, BNC2010/BNC160 for good wear resistance and CBN - SUMIBORON BN2000 also for general purpose.

■ Application Range



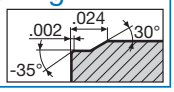
FV For Finishing

Excellent chip evacuation under finishing conditions with depth of cut at .008" or below



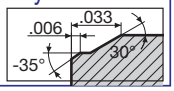
LV For Light Cutting

Excellent chip evacuation with depth of cut at .012" or below



SV For Carburized Layer Removal

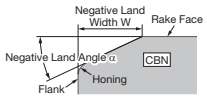
Ideal for carburized layer removal
Eliminates choked stoppages and dimensional defects



■ FV / LV / SV Cutting Edge Specifications

Type	Series	Notation	Cutting Edge Specification Identification Code	α	W	Honing
With Chipbreaker	FV	N-FV	—	0°	0	Yes
	LV	N-LV	S00535	35°	.002	Yes
	SV	N-SV	S01235	35°	.005	Yes

Cutting edge specification identification code S 0 0 5 3 5

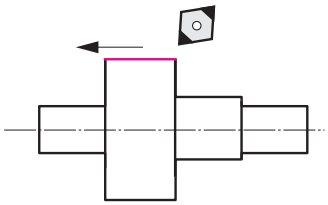


Negative land width
Negative land angle
Cutting Edge Shape T: Negative Land
S: Negative Land + Honing

Example: S00535
→ 35°/.002" Negative Land with Honing

■ Application Examples

External Carburized Layer Removal



· No constant stoppages or incorrect part dimension problems and the chips are small.
· Double the tool life of competitors' CBN.

Part Material: Low Alloy Steel Carburized Steel (Shaft)
Tool Cat. No.: 4NC-CNGG432SV (BNC200)
Cutting Conditions: v_c=500 SFM, f = .0059 IPR
a_p = .0197", 2 Passes Wet

Break Master SV

Tool Life = 200 pcs

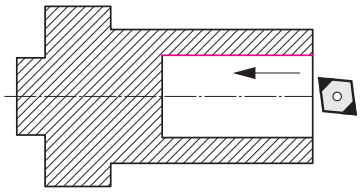
BNC200 (No Breaker)

Tool Life = 200 pcs

Competitor CBN (with chipbreaker)

Tool Life = 100 pcs

Finishing of Hardened Steel



· Improved chip control for internal diameter machining

Break Master FV

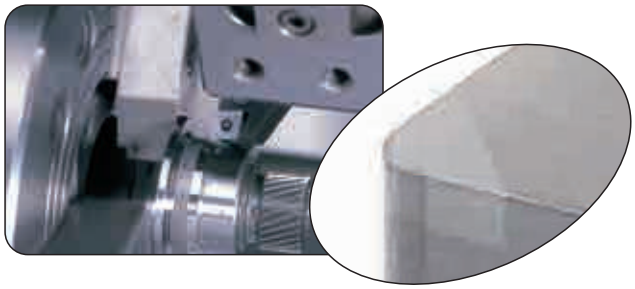
Tool Life = 300 pcs

BNC200 (No Breaker)

Tool Life = 300 pcs

Part Material: Carburized Steel 60HRC (Automotive Component)
Tool Cat. No.: 2NC-CCGT21.51FV (BNC200)
Cutting Conditions: v_c= 265 SFM, f = .0031 IPR
a_p= .0059" Wet

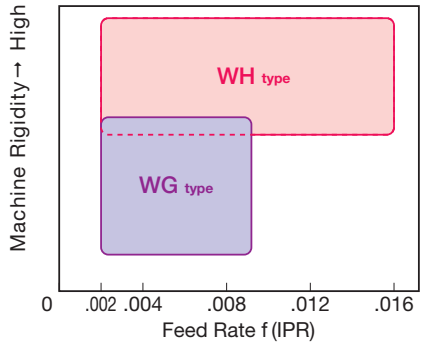
WG / WH



■ Features

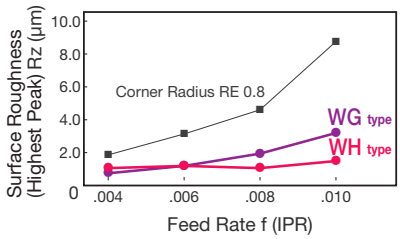
- CBN - SUMIBORON single-use insert with wiper edge for hardened steel machining.
- Excellent surface roughness comparable to grinding.
- Improved machining efficiency with higher speeds and feeds.
- Lineup of standard feed: WG and high feed: WH.

■ Application Range



Use WH type for high-rigidity workpieces and equipment, and WG type for issues of undulation or chatter.

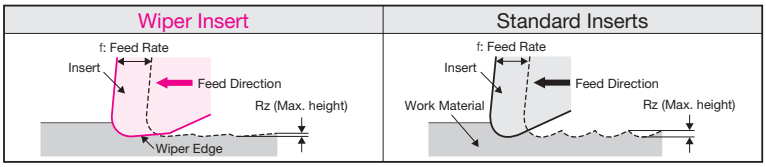
■ Surface Finish



The wiper insert offers good surface finish and improved machining efficiency.

Work Material: SCM415H (60HRC)
Tool Cat. No.: CNGA120408
Cutting Conditions: vc = 443 SFM, ap = .004", Dry

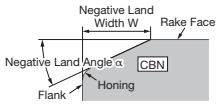
■ Wiper Insert Operation



■ WG type / WH type Cutting Edge Specifications

Type	Series	Notation	Cutting Edge Specification Identification Code	α	W	Honing
Wiper	WG type	WG	S01215	15°	.005	Yes
	WH type	WH	S01215	15°	.005	Yes

Cutting edge specification identification code S 0 1 2 1 5



Negative land width
Negative land angle
Cutting Edge Shape T: Negative Land
S: Negative Land + Honing

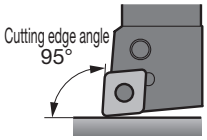
Example: S01215
→ 15°/.005" Negative Land with Honing

■ Precautions when Using Wiper Inserts

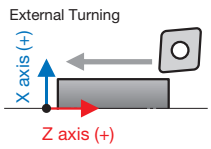
CNGA / CCGA / WNGA

WG Type / WH Type Wiper Insert

- Use a holder with a cutting edge angle of 95°.
- Machining program modification required CNGA / CCGA/ WNGA wiper inserts do not comply with the ISO standard. Correct the cutting edge position (tool offset) as explained on the right.



CNGA / CCGA / WNGA Wiper Insert Cutting Edge Position Offset (WG / WH)

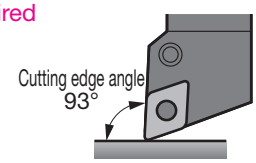


Nose Radius	Type	X-axis direction	Z-axis direction
.0156"	WG	-.0008"	-.0008"
	WH	-.0024"	-.0024"
.0313" / .0469"	WG	-.0004"	-.0004"
	WH	-.0024"	-.0024"

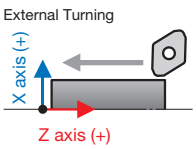
DNGA / DCGA

WG Type / WH Type Wiper Insert

- Use a holder with a cutting edge angle of 93°.
- Machining program modification required DNGA / DCGA wiper inserts do not comply with the ISO standard. Correct the cutting edge position (tool offset) as explained on the right.



DNGA / DCGA Wiper Insert Cutting Edge Position Offset (WG / WH)



Nose Radius	Type	X-axis direction	Z-axis direction
.0156"	WG	-.0067"	-.0004"
	WH	-.0276"	-.0024"
.0313"	WG	-.0020"	0
	WH	-.0228"	-.0020"

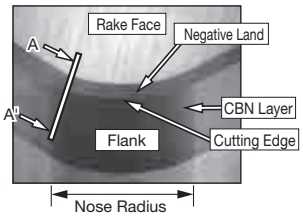
Note: Unlike other contour shapes, the DNGA / DCGA can only exhibit wiper effect for outer and inner diameter machining, and cannot be used for facing.

CBN Insert Edge Specification

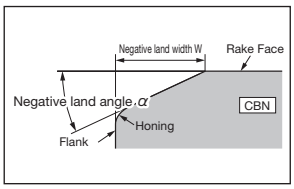
CBN Insert Edge Treatment

All CBN inserts are enhanced with the optimum cutting edge preparation for the various grades and geometries (shown on the right). This is to avoid cutting edge fracture caused by the heavy loads generated during the machining of high-hardness materials such as hardened steel.
As the pioneer of CBN tools, CBN - SUMIBORON's vast selection of grades and edge treatment combinations makes Sumitomo the world leader for hardened steel machining.

Close-up of cutting edge



Section A-A'



■ CBN Insert Edge Specification Overview

Series	Work Material	Grade	Neg.-Pos.	Standard: Edge Specification Identification Code	Standard: α	Standard: W	Standard: Honing	Low Cutting Force L / High-efficiency type E: Notation	Low Cutting Force L / High-efficiency type E: Edge Specification Identification Code	Low Cutting Force L / High-efficiency type E: α	Low Cutting Force L / High-efficiency type E: W	Low Cutting Force L / High-efficiency type E: Honing	Strong Edged H / U: Notation	Strong Edged H / U: Edge Specification Identification Code	Strong Edged H / U: α	Strong Edged H / U: W	Strong Edged H / U: Honing
Uncoated SUMIBORON	Hardened Steel	BNX10	Negative/Positive	T01225	25°	0.12	No	—	—	—	—	—	—	—	—	—	—
		BNX20	Negative/Positive	S01225	25°	0.12	Yes	LT	T01215*	15°	0.12	No	—	—	—	—	—
		BNX25	Negative/Positive	S01725	25°	0.17	Yes	—	—	—	—	—	—	—	—	—	—
		BN1000	Negative/Positive	S01225	25°	0.12	Yes	—	—	—	—	—	—	—	—	—	—
		BN2000	Negative/Positive	S01225	25°	0.12	Yes	LT	T01215	15°	0.12	No	HS	S01235	35°	0.12	Yes
		BN350	Negative	T01225	25°	0.12	No	—	—	—	—	—	HT	T01235	35°	0.12	No
			Positive	T01235	35°	0.12	No						—	—	—	—	—
	Cast Iron Sintered Alloy Exotic Alloy	BN500	Negative/Positive	T01215	15°	0.12	No	—	—	—	—	—	—	—	—	—	—
		BN7125	Negative/Positive	T01215	15°	0.12	No	LF	—	0°	0	No	HS	S01225	25°	0.12	Yes
								LE	—	0°	0	Yes					
		BN7000	Negative/Positive	T01215	15°	0.12	No	LF	—	0°	0	No	HS	S01225	25°	0.12	Yes
		BN700	Negative/Positive	T01215	15°	0.12	No	LF	—	0°	0	No	HS	S01225	25°	0.12	Yes
		BN7115	Negative/Positive	T01215	15°	0.12	No	LF	—	0°	0	No	HS	S00525	25°	0.05	Yes
								LE	—	0°	0	Yes	US	S01225	25°	0.12	Yes
								LS	S00715	15°	0.07	Yes	—	—	—	—	—
		BN7500	Negative/Positive	T01215	15°	0.12	No	LF	—	0°	0	No	HS	S00525	25°	0.05	Yes
								LE	—	0°	0	Yes					
								LS	S00715	15°	0.07	Yes					
		BNS8125	Negative	T02020	20°	0.2	No	LF	—	—	—	No	—	—	—	—	—
Coated SUMIBORON	Hardened Steel	BNC2105	Negative/Positive	S01225	25°	0.12	Yes	LS	S00515	15°	0.05	Yes	—	—	—	—	—
		BNC2115	Negative/Positive	S01225	25°	0.12	Yes	LS	S00515	15°	0.05	Yes	HS	S01730	30°	0.17	Yes
		BNC2125	Negative/Positive	S01225	25°	0.12	Yes	LS	S00515	15°	0.05	Yes	HS	S02735	35°	0.27	Yes
		BNC2010	Negative/Positive	S01225	25°	0.12	Yes	LE	—	0°	0	Yes	HS	S01730	30°	0.17	Yes
		BNC2020	Negative/Positive	S01225	25°	0.12	Yes	LT	T00515	15°	0.05	No	HS	S02735	35°	0.27	Yes
								ES	S00535	35°	0.05	Yes					
		BNC100	Negative/Positive	S01225	25°	0.12	Yes	LS	S01715	15°	0.17	Yes	—	—	—	—	—
		BNC160	Negative/Positive	S01225	25°	0.12	Yes	LS	S01020	20°	0.10	Yes	HS	S01730	30°	0.17	Yes
		BNC200	Negative/Positive	S01225	25°	0.12	Yes	LS	S01015	15°	0.10	Yes	HS	S01735	35°	0.17	Yes
		BNC300	Negative/Positive	S01225	25°	0.12	Yes	LS	S00515	15°	0.05	Yes	HS	S01735	35°	0.17	Yes
	Cast Iron	BNC500	Negative/Positive	S01215	15°	0.12	Yes	—	—	—	—	—	HS	S01225	25°	0.12	Yes
	Cast Iron/Hardened Steel	BNC8115	Negative	S02020	20°	0.2	Yes	—	—	—	—	—	—	—	—	—	—
SUMIBORON BINDERLESS	Cast Iron / Exotic Alloy Cemented Carbide / Hard Brittle Material	NCB100	Negative/Positive	T01215	15°	0.12	No	—	—	—	—	—	—	—	—	—	—

*BNX20 inserts with an inscribed circle of less than ø4.76 will have an identification code of T00715.

■ Insert Edge Specification with Wiper / Chipbreaker

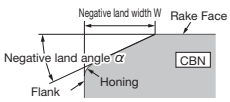
Type	Notation	Cutting Edge Specification Identification Code	α	W	Honing	Uncoated SUMIBORON: BN2000	Uncoated SUMIBORON: BNS8125	Coated SUMIBORON: BNC2115	BNC2125	BNC2010	BNC2020	BNC100	BNC160	BNC200	BNC500	BNC8115
Wiper	WG	S01215	15°	0.12	Yes	●		●	●	●	●		●	●		
	WH	S01215	15°	0.12	Yes	●		●	●	●	●		●	●		
	W	S01215	15°	0.12	Yes								●	●	●	
		S01715	15°	0.17	Yes							●				
		S02020	20°	0.20	Yes											●
		T02020	20°	0.20	No		●									
Wiper Sharp Edge	LFW	—	0°	0	No		□									
With Chipbreaker	N-FV	—	0°	0	Yes	●		●	●	●	●		●	●		
	N-LV	S00535	35°	0.05	Yes	●		●	●	●	●		●	●		
	N-SV	S01235	35°	0.12	Yes			●	●	●	●		●	●		

● mark: Standard stocked item □ mark: Made-to-order item

■ Edge Specification Identification Code

Edge Treatment Notation				
No	Standard Cutting Edge			
L	Low Cutting Force	+	F	Sharp Edge
E	High Efficiency		E	Honing
H	Strong Edged		T	Negative Land
U	Strong Edged		S	Negative Land + Honing
WG/WH/W	Wiper			
N-FV/N-LV/N-SV	With Chipbreaker			

● Edge specification identification code



S 0 1 2 2 5

Negative land width — Negative land angle

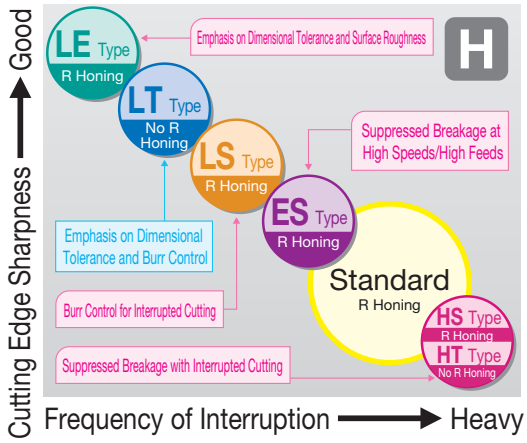
Cutting Edge Shape T : Negative land
S : Negative land + honing

Ex.: S01225
→ 25°/0.12mm Negative Land with Honing

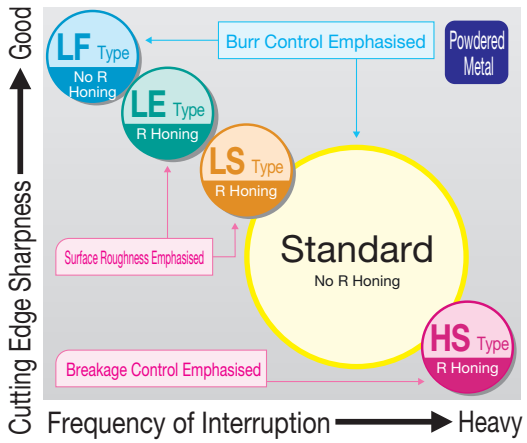
CBN Insert Edge Specification

■ Edge Treatment Performance

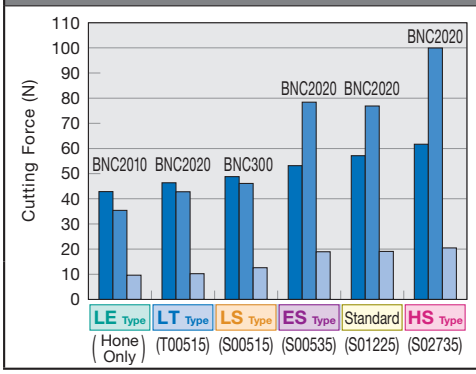
Machining of Hardened Steel



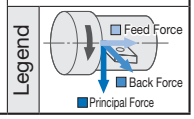
Powdered Metal Machining



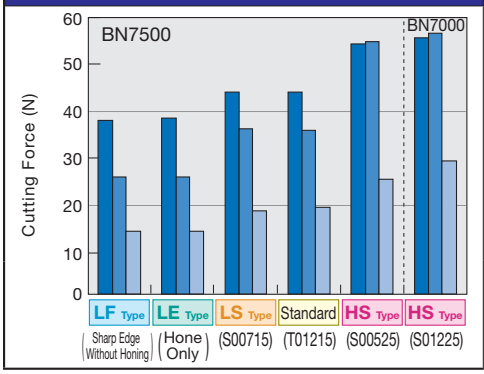
Comparison of Cutting Force with Coated CBN (v_c = 330 SFM)



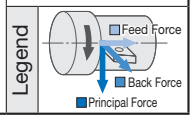
Part Material: Alloy Structural Steel
Tool Cat. No. DNGA432
Cutting Conditions:
v_c = 330 SFM
f = .0039 IPR
a_p = .0039"
Dry



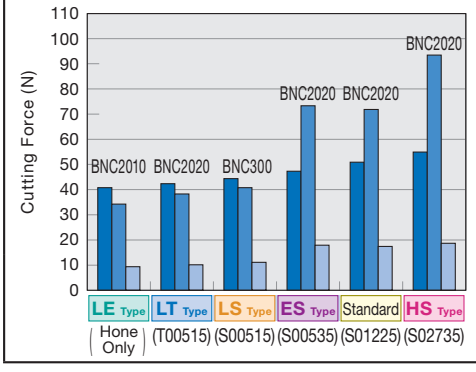
Cutting Force Comparison (Feed Rate: f = .0019 IPR)



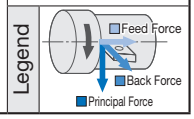
Part Material: Alloy Structural Steel
Tool Cat. No. CNGA432
Cutting Conditions:
v_c = 660 SFM
f=.0019 IPR
a_p = .0079"
Dry



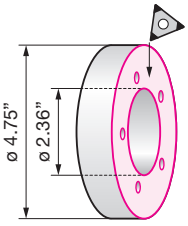
Comparison of Cutting Force with Coated CBN (v_c = 660 SFM)



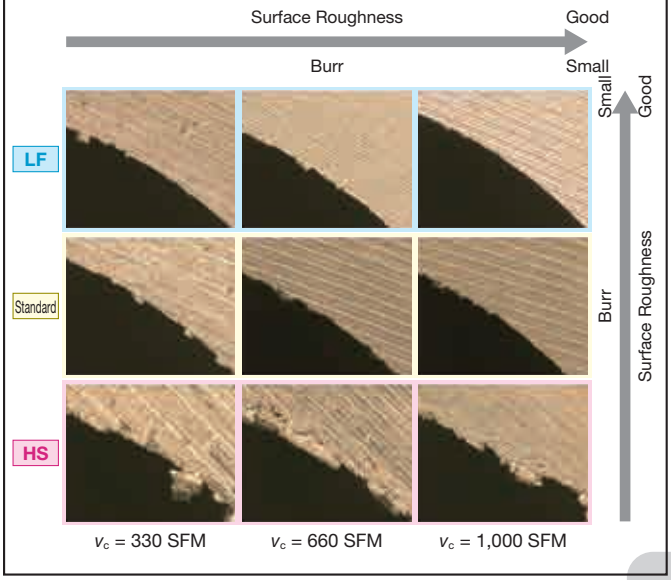
Part Material: Low Alloy Steel
Tool Cat. No.: DNGA432
Cutting Conditions:
v_c = 660 SFM
f = .0039 IPR
a_p = .0039"
Dry



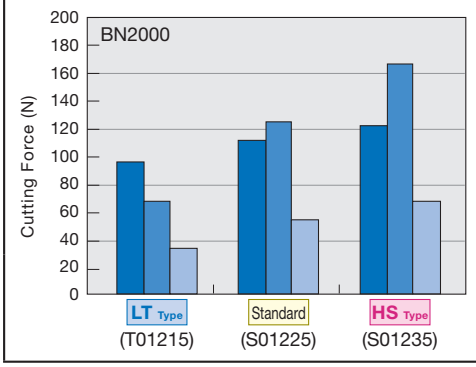
Relationship between Cutting Edge Treatment and Machining Quality



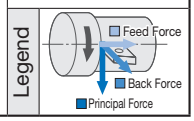
Part Material: Powder Metal 90HRB
Tool Cat. No.: 3NU-TNGA332 (BN7500)
Edge Specification: LF Type, Standard, HS Type
Cutting Conditions: v_c = 330, 660, 1,000 SFM
f = .0039 IPR
a_p = .0079"
Wet



Comparison of Cutting Force for Uncoated CBN



Part Material: Bearing Steel
Tool Cat. No.: CNGA432
Cutting Conditions:
v_c = 660 SFM
f = .0039 IPR
a_p = .0079"
Dry



C 80° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								–	

(Legend) Continuous Cutting ●: 1st Recommended ◐: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

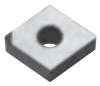
Recommended Application											
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

CN■■43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

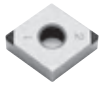
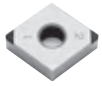
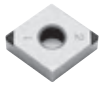
Applicable External Holders ☞ C5 to C10 Applicable Internal Holders ☞ E12 to E14

Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	Uncoated CBN BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	Binderless CBN NCB100
	Standard	NUCNMA430.5	NU-CNMA120402	1	1	.0078	.0984		●								
		NUCNMA431	NU-CNMA120404			.0156	.0984	●	●	▲	●		★				
		NUCNMA432	NU-CNMA120408			.0313	.0945	●	●	▲	●		★				
		NUCNMA433	NU-CNMA120412			.0469	.0906	●	●	▲	●		★				
		T-NUCNMA431	T-NU-CNMA120404	10	1	.0156	.0984	★	★		★						
		T-NUCNMA432	T-NU-CNMA120408			.0313	.0945	★	★		★						
		T-NUCNMA433	T-NU-CNMA120412			.0469	.0906	★	★		★						
	Standard	NUCNGA431	NU-CNGA120404	1	1	.0156	.0984										★
		NUCNGA432	NU-CNGA120408			.0313	.0945										★
		NUCNGA433	NU-CNGA120412			.0469	.0906										★

*Depth of cut for single-use types is 0.0197 inch or less.

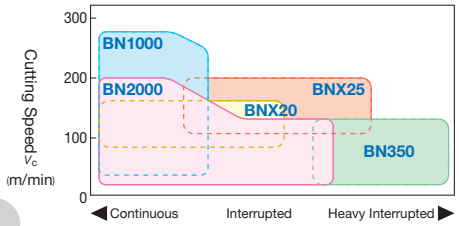
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	2NUCNGA431	2NU-CNGA120404	1	2	.0156	.0984	●	●	▲	●		●	●	▲		
		2NUCNGA432	2NU-CNGA120408			.0313	.0945	●	●	▲	●		●	●	▲		
		2NUCNGA433	2NU-CNGA120412			.0469	.0906	●	●	▲	●		●	●	▲		
		T-2NUCNGA431	T-2NU-CNGA120404	10	2	.0156	.0984		★								
		T-2NUCNGA432	T-2NU-CNGA120408			.0313	.0945		★		★		★				
		T-2NUCNGA433	T-2NU-CNGA120412			.0469	.0906		★								
 Wiper Insert	S01215	2NUCNGA431W	2NU-CNGA120404W	1	2	.0156	.0945							●			
		2NUCNGA432W	2NU-CNGA120408W			.0313	.0906				●			●			
 Wiper Insert	S01215	2NUCNGA431WG	2NU-CNGA120404WG	1	2	.0156	.0945		●					●	▲		
		2NUCNGA432WG	2NU-CNGA120408WG			.0313	.0945		●					●	▲		
		2NUCNGA433WG	2NU-CNGA120412WG			.0469	.0906		★								
	S01215	2NUCNGA431WH	2NU-CNGA120404WH	1	2	.0156	.0945		★					●	▲		
		2NUCNGA432WH	2NU-CNGA120408WH			.0313	.0906		★						▲		
		2NUCNGA433WH	2NU-CNGA120412WH			.0469	.0866		★								

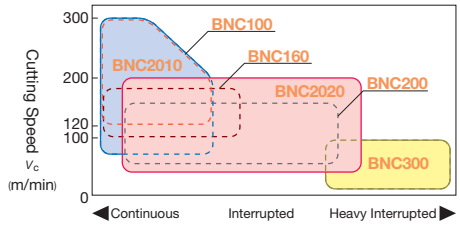
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



C 80° Diamond

CN■■43● Uncoated

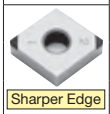
Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders C5 to C10 Applicable Internal Holders E12 to E14

(Legend) Continuous Cutting: ● 1st Recommended ○ 2nd Recommended; General Cutting: ● 1st Recommended ◐ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◐				✖	
S	Exotic Alloy					●				◐	●
H	Hardened Steel	●	◐		✖						
	Sintered Components					◐		●			

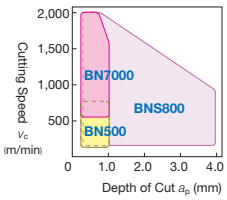
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
Break Master	Honing	2NUCNGG431FV	2NU-CNGM120404N-FV	1	2	.0156	.0984		●								
		2NUCNGG432FV	2NU-CNGM120408N-FV			.0313	.0945		●								
Break Master	S00535	2NUCNGG431LV	2NU-CNGM120404N-LV	1	2	.0156	.0984		●								
		2NUCNGG432LV	2NU-CNGM120408N-LV			.0313	.0945		●								
		2NUCNGG433LV	2NU-CNGM120412N-LV			.0469	.0906		●								
Low Cutting Force	Sharp Edge	2NUCNGA431LF	2NU-CNGA120404LF	1	2	.0156	.0984						●	★	▲		
		2NUCNGA432LF	2NU-CNGA120408LF			.0313	.0945						●	●	▲		
Low Cutting Force	Honing	2NUCNGA431LE	2NU-CNGA120404LE	1	2	.0156	.0984							●	▲		
		2NUCNGA432LE	2NU-CNGA120408LE			.0313	.0945							★	▲		
 Sharper Edge	T01215	2NUCNGA431LT	2NU-CNGA120404LT	1	2	.0156	.0984	●	●								
		2NUCNGA432LT	2NU-CNGA120408LT			.0313	.0945	●	●								
		2NUCNGA433LT	2NU-CNGA120412LT			.0469	.0906	●	●								
General-purpose for Continuous Cutting	S00715	2NUCNGA431LS	2NU-CNGA120404LS	1	2	.0156	.0984							●	▲		
		2NUCNGA432LS	2NU-CNGA120408LS			.0313	.0945								▲		
Strong Edge	T01235	2NUCNGA431T	2NU-CNGA120404HT	1	2	.0156	.0984										
		2NUCNGA432T	2NU-CNGA120408HT			.0313	.0945										

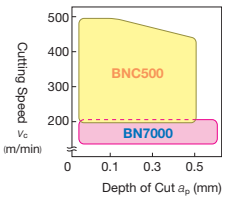
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

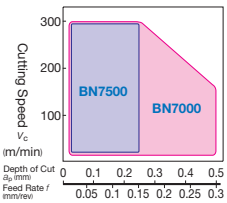
(C) Gray Cast Iron



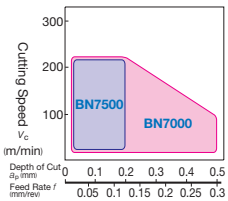
(D) Ductile Cast Iron



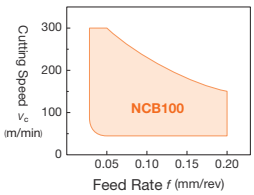
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



C 80° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ◐: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

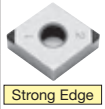
Recommended Application											
K Cast Iron					◕				✖		
S Exotic Alloy					●				◕	●	
H Hardened Steel	●	◕		✖							
Sintered Components					◕		●				

CN■■43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders ☞ C5 to C10 Applicable Internal Holders ☞ E12 to E14

Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
 Strong Edge	BN2000→S01235 BN7000→S01225 BN700→S01225 BN7500→S00525	**2NUCNGA431HS** **2NUCNGA432HS** **2NUCNGA433HS**	**2NU-CNGA120404HS** **2NU-CNGA120408HS** **2NU-CNGA120412HS**	1	2	.0156 .0313 .0469	.0984 .0945 .0906		● ● ●				● ● ●	★ ★ ●			

*Depth of cut for single-use types is 0.0197inch or less.

Multi-Cornered / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**2MDCNGA432** **2MDCNGA433**	**2MD-CNGA120408** **2MD-CNGA120412**	1	2	.0313 .0469	.1339 .1102						● 	● ●			

Negative (With Hole)

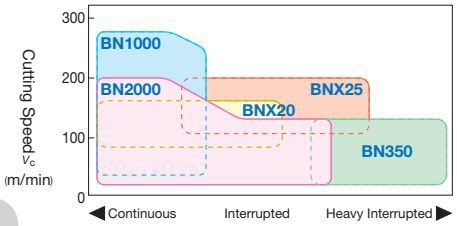
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**CNMA431** **CNMA432** **CNMA433**	**CNMA120404** **CNMA120408** **CNMA120412**	1	1	.0156 .0313 .0469	.1811 .1772 .1732		★ ● ★	▲ ▲ ▲			 ● ●				

Solid / Negative (With Hole)

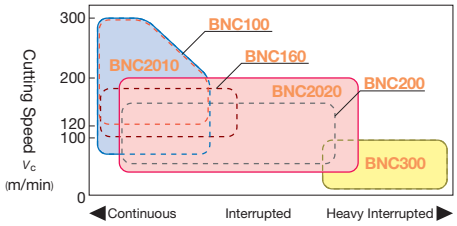
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**CNGA432** **CNGA433**	**CNGA120408** **CNGA120412**	1	Solid	.0313 .0469	.5077 .5077							● ●		● ●	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



CN■■43● Coated

Dimensions (inch)	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders C5 to C10 Applicable Internal Holders E12 to E14

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ● 1st Recommended ○ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

Recommended Application		Continuous Cutting			General Cutting			Interrupted Cutting					
K	Cast Iron										●	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	●	○	○	✖						
	Sintered Components										●		

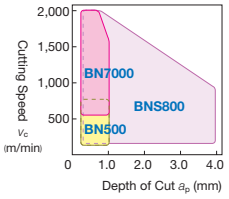
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
								Coated CBN											
	Standard	2NCCNGA431	2NC-CNGA120404	1	2	.0156	.0984		●	★	★	★				★			
		2NCCNGA432	2NC-CNGA120408			.0313	.0945		●	●	●	●	●	▲	▲	●			
		2NCCNGA433	2NC-CNGA120412			.0469	.0906		●	●	●	●	●	▲	▲	●			
		2NCCNGA434*	2NC-CNGA120416*			.0625	.1299				★	★	★		▲	★			
		2NCCNGA435*	2NC-CNGA120420*			.0787	.1260				★	★	★		▲	★			
		2NCCNGA436*	2NC-CNGA120424*			.0938	.1220				★	★	★		▲	★			
Wiper Insert	S01215	2NCCNGA431W	2NC-CNGA120404W	1	2	.0156	.0945		●	●									
		2NCCNGA432W	2NC-CNGA120408W			.0313	.0945		●	●									
Wiper Insert	S01215	2NCCNGA431WG	2NC-CNGA120404WG	1	2	.0156	.0945		●	●									
		2NCCNGA432WG	2NC-CNGA120408WG			.0313	.0945		●	●									
		2NCCNGA433WG	2NC-CNGA120412WG			.0469	.0906		●	●									
Wiper Insert	S01215	2NCCNGA432WH	2NC-CNGA120408WH	1	2	.0313	.0945		●	●									
		2NCCNGA433WH	2NC-CNGA120412WH			.0469	.0906		●	●									
Wiper Insert	S01215	4NCCNGA431WG	4NC-CNGA120404WG	1	4	.0156	.0945		★	★	●	●			▲	●			
		4NCCNGA432WG	4NC-CNGA120408WG			.0313	.0945		●	●	●	★			▲	●			
		4NCCNGA433WG	4NC-CNGA120412WG			.0469	.0906		●	●	★	●			▲	●			
Wiper Insert	S01215	4NCCNGA431WH	4NC-CNGA120404WH	1	4	.0156	.0945		★	★	●	●				●			
		4NCCNGA432WH	4NC-CNGA120408WH			.0313	.0906		●	●	●	●			▲	●			
		4NCCNGA433WH	4NC-CNGA120412WH			.0469	.0866		●	★	●	●			▲	★			
Wiper Insert	BNC100→S01715 BNC160→S01215 BNC200→S01215 BNC500→S01215	4NCCNGA431W	4NC-CNGA120404W	1	4	.0156	.0984				●	●	●	▲	▲	●			
		4NCCNGA432W	4NC-CNGA120408W			.0313	.0945				●	●	●	▲	▲	●		★	
		4NCCNGA433W	4NC-CNGA120412W			.0469	.0906				●	●	●		▲	●			
Break Master	Honing	4NCCNGG431FV	4NC-CNGG120404N-FV	1	4	.0156	.0984		★	★	★	●			▲	▲			
		4NCCNGG432FV	4NC-CNGG120408N-FV			.0313	.0945		●	★	●	●			▲	●			
		4NCCNGG433FV	4NC-CNGG120412N-FV			.0469	.0906		★	★	★	★			▲	★			
Break Master	S00535	4NCCNGG431LV	4NC-CNGG120404N-LV	1	4	.0156	.0984		★	★	★	●			▲	●			
		4NCCNGG432LV	4NC-CNGG120408N-LV			.0313	.0945		★	●	★	●			▲	●			
		4NCCNGG433LV	4NC-CNGG120412N-LV			.0469	.0906		★	★	★	★			▲	★			
Break Master	S01235	4NCCNGG432SV	4NC-CNGG120408N-SV	1	4	.0313	.0945		●	●		●			▲	●			
		4NCCNGG433SV	4NC-CNGG120412N-SV			.0469	.0906		★	●	●	●			▲	●			

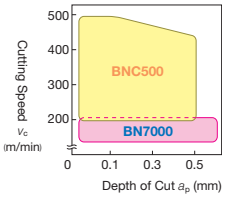
*For use with the CBN holders for high-efficiency machining shown on page L111.

CBN Application Range Map

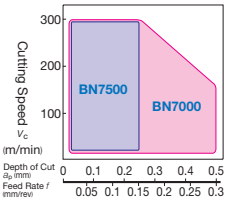
(C) Gray Cast Iron



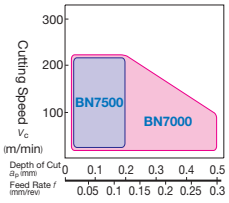
(D) Ductile Cast Iron



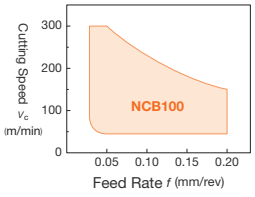
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



C 80° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

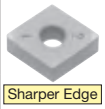
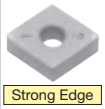
Recommended Application													
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

CN■■43● Coated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

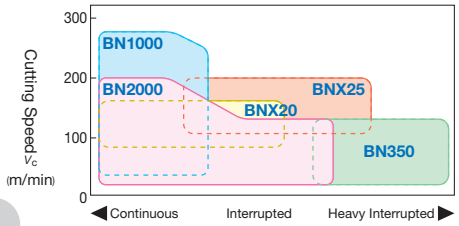
Applicable External Holders ☞ C5 to C10 Applicable Internal Holders ☞ E12 to E14

Multi-Cornered Single-Use / Negative (With Hole)

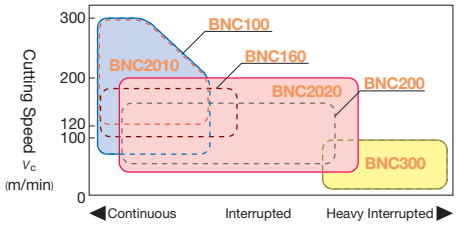
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
								Coated CBN											
Wiper Insert Break Master	S01235	4NCCNGG432SVW	4NC-CNGG120408N-SVW	1	4	.0313	.0906									●			
Low Cutting Force	Honing	2NCCNGA431LE	2NC-CNGA120404LE	1	2	.0156	.0984				★								
		2NCCNGA432LE	2NC-CNGA120408LE			.0313	.0945				★								
		2NCCNGA433LE	2NC-CNGA120412LE			.0469	.0906				★								
Sharper Edge	T00515	2NCCNGA431LT	2NC-CNGA120404LT	1	2	.0156	.0984					●							
		2NCCNGA432LT	2NC-CNGA120408LT			.0313	.0945					●							
		2NCCNGA433LT	2NC-CNGA120412LT			.0469	.0906					●							
 Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	2NCCNGA431LS	2NC-CNGA120404LS	1	2	.0156	.0984									★			
		2NCCNGA432LS	2NC-CNGA120408LS			.0313	.0945			★						●			
		2NCCNGA433LS	2NC-CNGA120412LS			.0469	.0906			★			★	▲					
Strong Edge	S01730	2NCCNGA432HS	2NC-CNGA120408HS	1	2	.0313	.0945		●	●	●	●	●		▲	●			
		2NCCNGA433HS	2NC-CNGA120412HS			.0469	.0906		●	●	●	●	●		▲	●			
 Strong Edge	S01730	2NCCNGA432ES	2NC-CNGA120408ES	1	2	.0313	.0945			●									
		2NCCNGA433ES	2NC-CNGA120412ES			.0469	.0906			●									
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	4NCCNGA431LS	4NC-CNGA120404LS	1	4	.0156	.0984							▲	▲	★			
		4NCCNGA432LS	4NC-CNGA120408LS			.0313	.0945								▲	●			
		4NCCNGA433LS	4NC-CNGA120412LS			.0469	.0906							▲	▲	★			
Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735 BNC300→S01735 BNC500→S01225	4NCCNGA431HS	4NC-CNGA120404HS	1	4	.0156	.0984		★	★	●	●	★			●		★	
		4NCCNGA432HS	4NC-CNGA120408HS			.0313	.0945		★	●	●	●	★		▲	●		★	
		4NCCNGA433HS	4NC-CNGA120412HS			.0469	.0906		★	●	●	●	★		▲	●		★	
High-Efficiency	S00535	4NCCNGA431ES	4NC-CNGA120404ES	1	4	.0156	.0984					★							
		4NCCNGA432ES	4NC-CNGA120408ES			.0313	.0945					●							
		4NCCNGA433ES	4NC-CNGA120412ES			.0469	.0906					●							

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



C 80° Diamond

CNG32● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	—
	Thickness	.1250		

Applicable External Holders ☞ C45

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
		Uncoated CBN									
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Solid / Negative (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**CNG322**	**CNGN090308**	1	Solid	.0313	.3740									●	
		CNG323	**CNGN090312**			.0469	.3701									●	

CNG43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	—
	Thickness	.1875		

Applicable External Holders ☞ L109

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
		Uncoated CBN									
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Solid / Negative (Dimple Lock)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**CNGX433**	**CNGX120412**	1	Solid	.0469	.4961									●	
		CNGX434	**CNGX120416**			.0625	.4921									●	

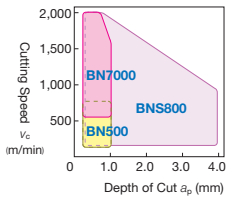
Applicable External Holders ☞ C44

Solid / Negative (Without Hole)

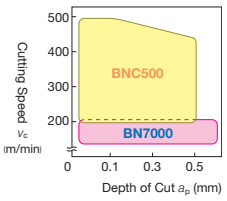
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**CNG432**	**CNGN120408**	1	Solid	.0313	.5000									●	
		CNG433	**CNGN120412**			.0469	.4961									★	
		CNG434	**CNGN120416**			.0625	.4921									★	

CBN Application Range Map

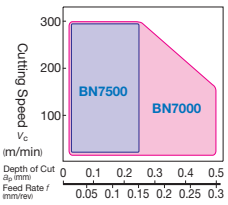
(C) Gray Cast Iron



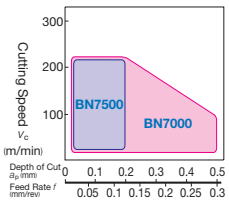
(D) Ductile Cast Iron



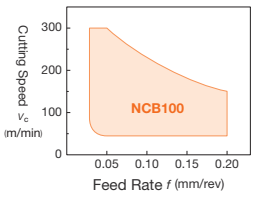
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



C 80° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								–	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

CCEW03X1● Uncoated

Dimensions (inch)				
	Inscribed Circle	.1378	Hole Dia.	.0748
	Thickness	.0551		

Applicable Internal Holders ☞ E31, E32

Recommended Application

		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Uncoated CBN / Binderless CBN

Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
Low Cutting Force	Sharp Edge	**NUCCEW03X102LF**	**NU-CCEW03X102LF**	1	1	.0078	.0472						★	★	▲		

*Depth of cut for single-use types is 0.0197 inch or less.

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

CCEW04X1● Uncoated

Dimensions (inch)				
	Inscribed Circle	.1693	Hole Dia.	.0906
	Thickness	.0709		

Applicable Internal Holders ☞ E31, E32

Recommended Application

		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Uncoated CBN / Binderless CBN

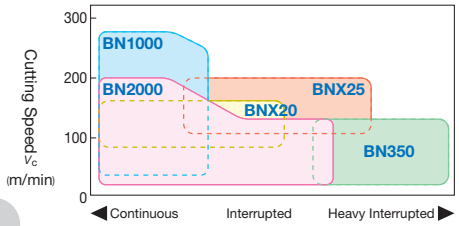
Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
Low Cutting Force	Sharp Edge	**NUCCEW04X102LF**	**NU-CCEW04X102LF**	1	1	.0078	.0787						★				

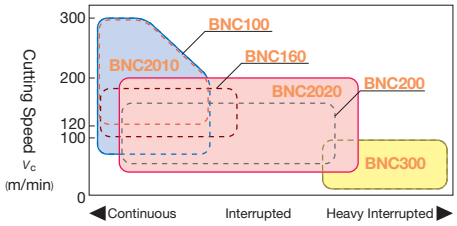
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



C 80° Diamond

CCG■21.5● Uncoated

Dimensions (inch)	Inscribed Circle	.2500	Hole Dia.	.1102
	Thickness	.0937		

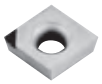
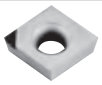
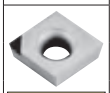
Applicable External Holders C34, D11, D19, D23, D27, D28 — Applicable Internal Holders E30 to E33

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◒				✖	
S	Exotic Alloy					●				◒	●
H	Hardened Steel	●	◒		✖						
	Sintered Components					◒		●			

Uncoated CBN — Binderless CBN

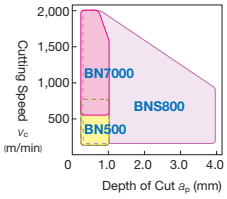
Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUCCGA21.50.5	NU-CCGW060202	1	1	.0078	.0984	★	●								
		NUCCGA21.51	NU-CCGW060204			.0156	.0984 *	●	●				★				★
		NUCCGA21.52	NU-CCGW060208			.0313	.0945		●								
 Sharper Edge	T01215	NUCCGA21.50.5LT	NU-CCGW060202LT	1	1	.0078	.0984		●								
		NUCCGA21.51LT	NU-CCGW060204LT			.0156	.0984		●								
		NUCCGA21.52LT	NU-CCGW060208LT			.0313	.0945		●								
 Strong Edge	S01235	NUCCGA21.50.5HS	NU-CCGW060202HS	1	1	.0078	.0984		●								
		NUCCGA21.51HS	NU-CCGW060204HS			.0156	.0984		●								

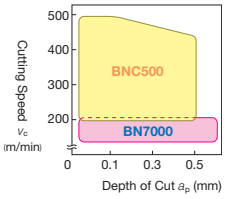
*Use NS (NS-CCGW) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.
*NCB100 cutting edge length is .0906.

CBN Application Range Map

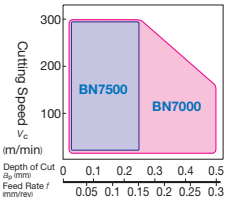
(C) Gray Cast Iron



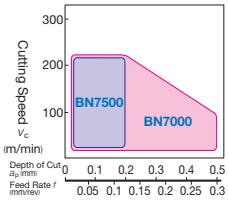
(D) Ductile Cast Iron



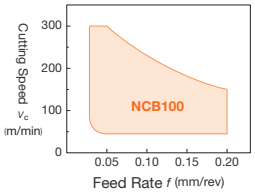
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



C 80° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

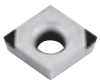
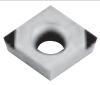
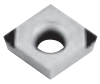
Recommended Application											
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

CCG■21.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1102
	Thickness	.0937		

Applicable External Holders ☞ C34
Applicable Internal Holders ☞ E30 to E33

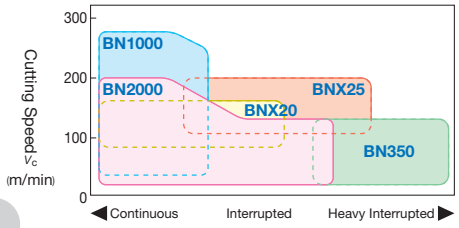
Multi-Cornered Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
								Uncoated CBN									
	Standard	2NUCCGA21.50.5	2NU-CCGW060202	1	2	.0078	.0906						●	●			
		2NUCCGA21.51	2NU-CCGW060204			.0156	.0906						●	●	▲		
		2NUCCGA21.52	2NU-CCGW060208			.0313	.0945						●	●	▲		
 Wiper Insert	S01215	2NUCCGA21.50.5WG	2NU-CCGW060202WG	1	2	.0078	.0906		●						▲		
		2NUCCGA21.51WG	2NU-CCGW060204WG			.0156	.0906		●						▲		
		2NUCCGA21.52WG	2NU-CCGW060208WG			.0313	.0945		●						▲		
 Break Master	Honing	2NUCCGT21.50.5FV	2NU-CCGT060202N-FV	1	2	.0078	.0906		●								
		2NUCCGT21.51FV	2NU-CCGT060204N-FV			.0156	.0906		●								
		2NUCCGT21.52FV	2NU-CCGT060208N-FV			.0313	.0945		●								

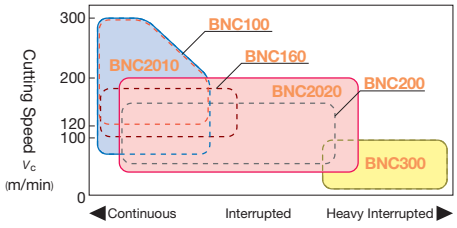
*Use 2NS (2NS-CCGW) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



C 80° Diamond

CCG■21.5● Coated

Dimensions (inch)	Inscribed Circle	.2500	Hole Dia.	.1102
	Thickness	.0937		

Applicable External Holders C34 Applicable Internal Holders E30 to E33

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
Sintered Components											◕		

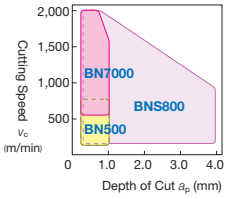
Coated CBN

Multi-Cornered Single-Use / 7° Positive (With Hole)

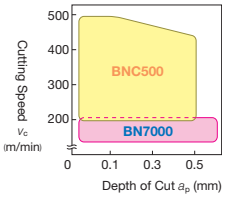
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	NCCCGA21.51	NC-CCGW060204	1	1	.0156	.0906		●	●	●	●			▲	●			
	Standard	2NCCCGA21.50.5	2NC-CCGW060202	1	2	.0078	.0945		★	●	★	●				●		★	
		2NCCCGA21.51	2NC-CCGW060204			.0156	.0906		★	●	★	●				●		★	
		2NCCCGA21.52	2NC-CCGW060208			.0313	.0906		★	★	●	●						★	
Wiper Insert	S01215	2NCCCGA21.50.5WG	2NC-CCGW060202WG	1	2	.0078	.0945		●	●	●	●			▲				
		2NCCCGA21.51WG	2NC-CCGW060204WG			.0156	.0906		●	●	●	●			▲	●			
		2NCCCGA21.52WG	2NC-CCGW060208WG			.0313	.0906				●	●			▲	●			
Break Master	Honing	2NCCCGT21.50.5FV	2NC-CCGT060202N-FV	1	2	.0078	.0906		●		●	●			▲	●			
		2NCCCGT21.51FV	2NC-CCGT060204N-FV			.0156	.0906		★	★	★	●			▲	●			
		2NCCCGT21.52FV	2NC-CCGT060208N-FV			.0313	.0906		●	●	●	●			▲	▲			
Low Cutting Force	Honing	2NCCCGA21.50.5LE	2NC-CCGW060202LE	1	2	.0078	.0945				★								
		2NCCCGA21.51LE	2NC-CCGW060204LE			.0156	.0906				★								
Sharper Edge	T00515	2NCCCGA21.50.5LT	2NC-CCGW060202LT	1	2	.0078	.0945					★							
		2NCCCGA21.51LT	2NC-CCGW060204LT			.0156	.0906					●							
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	2NCCCGA21.50.5LS	2NC-CCGW060202LS	1	2	.0078	.0945			★						★			
		2NCCCGA21.51LS	2NC-CCGW060204LS			.0156	.0906			★						★			

CBN Application Range Map

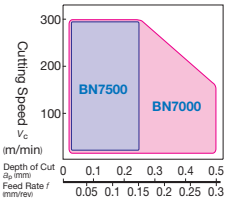
(C) Gray Cast Iron



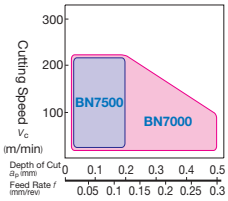
(D) Ductile Cast Iron



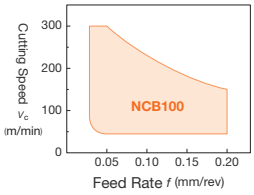
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



C 80° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting: ● 1st Recommended, ◯ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

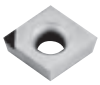
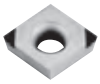
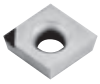
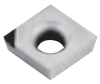
Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	K Cast Iron					◕				✖	
	S Exotic Alloy					●				◕	●
	H Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			
		Uncoated CBN									Binderless CBN

CCG■32.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable External Holders ☞ C34
Applicable Internal Holders ☞ E30 to E33

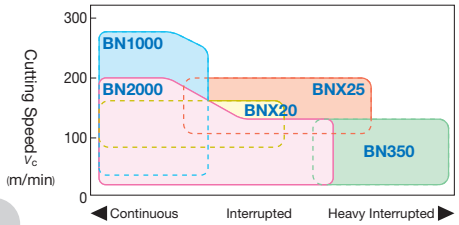
Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUCCGA32.50.5	NU-CCGW09T302	1	1	.0078	.0984	●	●	▲							
		NUCCGA32.51	NU-CCGW09T304			.0156	.0984	●	●	▲	●		★				●
		NUCCGA32.52	NU-CCGW09T308			.0313	.0945		●								●
		T-NUCCGA32.50.5	T-NU-CCGW09T302	10	1	.0078	.0984		★								
		T-NUCCGA32.51	T-NU-CCGW09T304			.0156	.0984		★								
 Break Master	Honing	2NUCCGT32.50.5LV	2NU-CCGT09T302N-LV	1	2	.0078	.0906		●								
 Sharper Edge	T01215	NUCCGA32.50.5LT	NU-CCGW09T302LT	1	1	.0078	.0984		●								
		NUCCGA32.52LT	NU-CCGW09T308LT			.0313	.0945		●								
 Strong Edge	S01235	NUCCGA32.50.5HS	NU-CCGW09T302HS	1	1	.0078	.0984		●								
		NUCCGA32.51HS	NU-CCGW09T304HS			.0156	.0984		●								
		NUCCGA32.52HS	NU-CCGW09T308HS			.0313	.0945		●								

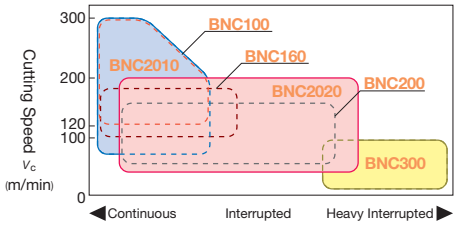
*Use NS (NS-CCGW) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



C 80° Diamond

CCG■32.5● Uncoated

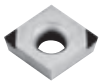
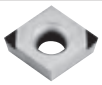
Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable External Holders C34 Applicable Internal Holders E30 to E33

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕	✖							
	Sintered Components					◕		●			

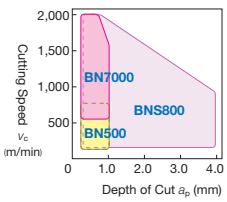
Multi-Cornered Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	2NUCCGA32.51	2NU-CCGW09T304	1	2	.0156	.0984	●			●		●	●	▲		
		2NUCCGA32.52	2NU-CCGW09T308			.0313	.0945	●			●		●	●	▲		
 Wiper Insert	S01215	2NUCCGA32.51W	2NU-CCGW09T304W	1	1	.0156	.0945							●			
Wiper Insert	S01215	2NUCCGA32.50.5WG	2NC-CCGW09T302WG	1	2	.0078	.0984		●						▲		
		2NUCCGA32.51WG	2NU-CCGW09T304WG			.0156	.0945		●					●	▲		
		2NUCCGA32.52WG	2NU-CCGW09T308WG			.0313	.0945		●						▲		
Wiper Insert	S01215	2NUCCGA32.51WH	2NU-CCGW09T304WH	1	2	.0156	.0945		★								
		2NUCCGA32.52WH	2NU-CCGW09T308WH			.0313	.0906		★								
Break Master	Honing	2NUCCGT32.51FV	2NU-CCGT09T304N-FV	1	2	.0156	.0945		★								
		2NUCCGT32.52FV	2NU-CCGT09T308N-FV			.0313	.0906		★								
Break Master	S00535	2NUCCGT32.51LV	2NU-CCGT09T304N-LV	1	2	.0156	.0945		●								
		2NUCCGT32.52LV	2NU-CCGT09T308N-LV			.0313	.0906		●								
Sharper Edge	Honing	2NUCCGA32.52LT	2NU-CCGW09T308LT	1	2	.0313	.0945	●									
Sharper Edge	Honing	2NUCCGA32.52HS	2NU-CCGW09T308HS	1	2	.0313	.0945							●			

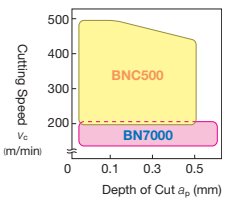
*Use NS (NS-CCGW) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

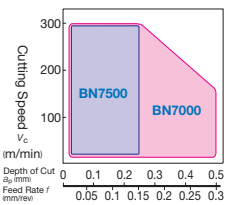
(C) Gray Cast Iron



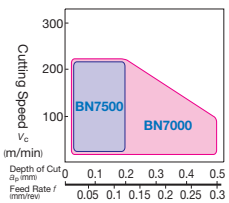
(D) Ductile Cast Iron



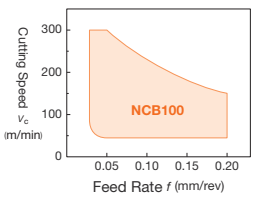
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



C 80° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								–	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application													
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
Sintered Components											◕		

CCG■32.5● Coated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

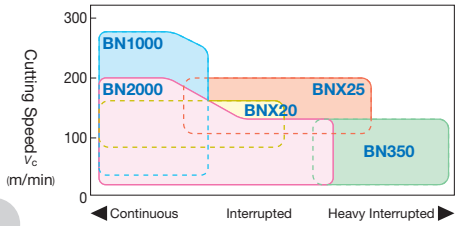
Applicable External Holders ☞ C34
Applicable Internal Holders ☞ E30 to E33

Multi-Cornered Single-Use / 7° Positive (With Hole)

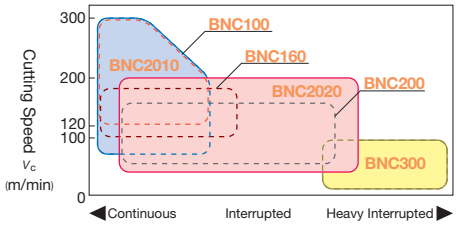
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
								Coated CBN											
	Standard	2NCCCGA32.50.5	2NC-CCGW09T302	1	2	.0078	.0984		★	●	★	●			▲	●		★	
		2NCCCGA32.51	2NC-CCGW09T304			.0156	.0984		●	●	●	●	●	▲	▲	●		★	
		2NCCCGA32.52	2NC-CCGW09T308			.0313	.0945		●	●	●	●	●	▲	▲	●		●	
Wiper Insert	S01215	2NCCCGA32.50.5WG	2NC-CCGW09T302WG	1	2	.0078	.0984		●	●	●	●			▲	●			
		2NCCCGA32.51WG	2NC-CCGW09T304WG			.0156	.0945		★	★	★	●			▲	●			
		2NCCCGA32.52WG	2NC-CCGW09T308WG			.0313	.0945		●	★	●	●			▲	●			
Wiper Insert	S01215	2NCCCGA32.51WH	2NC-CCGW09T304WH	1	2	.0156	.0945		★	★	★	★			▲	★			
		2NCCCGA32.52WH	2NC-CCGW09T308WH			.0313	.0906		★	★	★	★			▲	★			
Wiper Insert	BNC100-S01715 BNC160-S01215 BNC200-S01215 BNC2010-S01215 BNC2020-S01215	2NCCCGA32.51W	2NC-CCGW09T304W	1	2	.0156	.0945		●	●	●	●		▲	▲	●			
Break Master	Honing	2NCCCGT32.51FV	2NC-CCGT09T304N-FV	1	2	.0156	.0945		★	★	★	★			▲	★			
		2NCCCGT32.52FV	2NC-CCGT09T308N-FV			.0313	.0906		★	★	★	★			▲	★			
Break Master	S00535	2NCCCGT32.50.5LV	2NC-CCGT09T302N-LV	1	2	.0078	.0906		●	●	●	●			▲	●			
		2NCCCGT32.51LV	2NC-CCGT09T304N-LV			.0156	.0945		●	★	★	●			▲	●			
		2NCCCGT32.52LV	2NC-CCGT09T308N-LV			.0313	.0906		●	●	★	●			▲	●			
Low Cutting Force	Honing	2NCCCGA32.50.5LE	2NC-CCGW09T302LE	1	2	.0078	.0984				★								
		2NCCCGA32.51LE	2NC-CCGW09T304LE			.0156	.0984				★								
		2NCCCGA32.52LE	2NC-CCGW09T308LE			.0313	.0945				★								
Sharper Edge	T00515	2NCCCGA32.50.5LT	2NC-CCGW09T302LT	1	2	.0078	.0984					★							
		2NCCCGA32.51LT	2NC-CCGW09T304LT			.0156	.0984					★							
		2NCCCGA32.52LT	2NC-CCGW09T308LT			.0313	.0945					★							

CBN Application Range Map

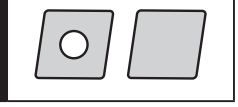
(A) Uncoated CBN



(B) Coated CBN



C 80° Diamond



CCG■32.5● Coated

Dimensions (inch)	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable External Holders C34 Applicable Internal Holders E30 to E33

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◒ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

Recommended Application		Coated CBN											
		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K Cast Iron											◒	●	✖
S Exotic Alloy													
H Hardened Steel		○	●	◒	○	◔	✖						
Sintered Components											◒		

Multi-Cornered Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	**2NCCCGA32.51LS** **2NCCCGA32.52LS**	**2NC-CCGW09T304LS** **2NC-CCGW09T308LS**	1	2	.0156 .0313	.0984 .0945		★ ●	★ ★			★ ★	▲	▲	● ●			
Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735 BNC300→S01735 BNC500→S01225	**2NCCCGA32.51HS** **2NCCCGA32.52HS**	**2NC-CCGW09T304HS** **2NC-CCGW09T308HS**	1	2	.0156 .0313	.0984 .0945						★		▲				

CCGE62● Uncoated

Dimensions (inch)	Inscribed Circle	.1875	Hole Dia.	—
	Thickness	.0625		

Applicable Holder: Special Holder

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◒ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

Recommended Application		Uncoated CBN									Binderless CBN
		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K Cast Iron						◒				✖	
S Exotic Alloy						●				◒	●
H Hardened Steel		●	◒	✖							
Sintered Components						◒		●			

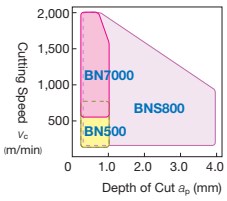
One-Use / 7° Positive (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUCCGE621** **NUCCGE622**	**NU-CCGN040104** **NU-CCGN040108**	1	1	.0156 .0313	.0984 .0945		★ ★	▲ ▲							
		T-NUCCGE621 **T-NUCCGE622**	**T-NU-CCGN040104** **T-NU-CCGN040108**	10	1	.0156 .0313	.0984 .0945		★ ★								
Strong Edge	S01235	**NUCCGE621HS** **NUCCGE622HS**	**NU-CCGN040104HS** **NU-CCGN040108HS**	1	1	.0156 .0313	.0984 .0945		★ ★								

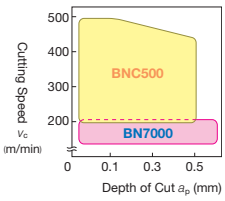
*Use NS (NS-CCGN) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

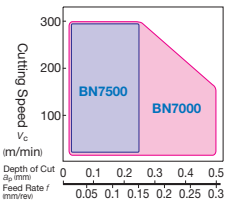
(C) Gray Cast Iron



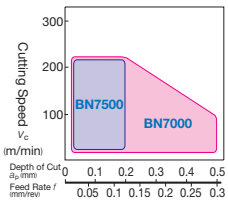
(D) Ductile Cast Iron



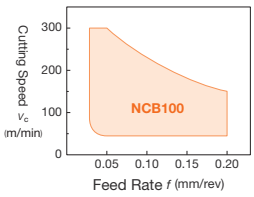
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



C 80° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ◯: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

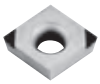
CCGA43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders ☞ C34 Applicable Internal Holders ☞ E33

Multi-Cornered / 7° Positive (With Hole)

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**2NUCCGA431**	**2NU-CCGW120404**	1	2	.0156	.0984						●	●			
		2NUCCGA432	**2NU-CCGW120408**			.0313	.0945						●	●			

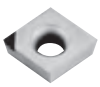
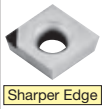
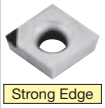
CPGA2.51.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3125	Hole Dia.	.1339
	Thickness	.0937		

Applicable Internal Holders ☞ E35 to E37

Single-Use / 11° Positive (With Hole)

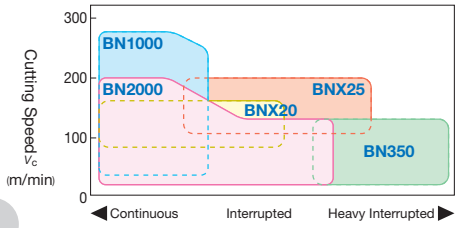
Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUCPGA2.51.50.5**	**NU-CPGW080202**	1	1	.0078	.0984		●	▲							
		NUCPGA2.51.51	**NU-CPGW080204**			.0156	.0984	★	●	▲							
		NUCPGA2.51.52	**NU-CPGW080208**			.0313	.0945		●	▲							
 Sharper Edge	T01215	**NUCPGA2.51.51LT**	**NU-CPGW080204LT**	1	1	.0156	.0984		★								
 Strong Edge	S01235	**NUCPGA2.51.50.5HS**	**NU-CPGW080202HS**	1	1	.0078	.0984		★								
		NUCPGA2.51.51HS	**NU-CPGW080204HS**			.0156	.0984		★								
		NUCPGA2.51.52HS	**NU-CPGW080208HS**			.0313	.0945		★								

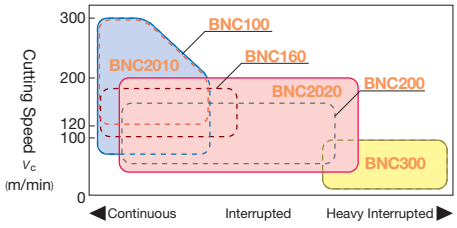
*Use NS (NS-CPGW) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



C 80° Diamond

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

CPGA2.51.5● Coated

Dimensions (inch)	Inscribed Circle	.3125	Hole Dia.	.1339
	Thickness	.0937		

Applicable Internal Holders ☞ E35 to E37

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
		Coated CBN											
K	Cast Iron										◒	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◒	○	◔	✖						
	Sintered Components										◒		

Multi-Cornered Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	**2NCCPGA2.51.50.5**	**2NC-CPGW080202**	1	2	.0078	.0984				★	★							
		2NCCPGA2.51.51	**2NC-CPGW080204**			.0156	.0984				★	★							

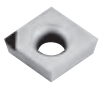
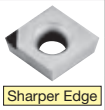
CPGA32● Uncoated

Dimensions (inch)	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1250		

Applicable Internal Holders ☞ E35 to E37

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◒				✖	
S	Exotic Alloy					●				◒	●
H	Hardened Steel	●	◒	✖							
	Sintered Components					◒		●			

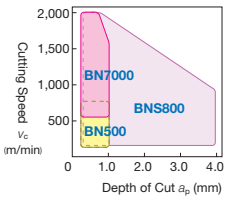
Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUCPGA320.5**	**NU-CPGW090302**	1	1	.0078	.0984	★	★	▲							
		NUCPGA321	**NU-CPGW090304**			.0156	.0984	★	★	▲							
		NUCPGA322	**NU-CPGW090308**			.0313	.0945	★	★	▲							
 Sharper Edge	T01215	**NUCPGA320.5LT**	**NU-CPGW090302LT**	1	1	.0078	.0984		★								
		NUCPGA321LT	**NU-CPGW090304LT**			.0156	.0984		★								
		NUCPGA322LT	**NU-CPGW090308LT**			.0313	.0945		★								
Strong Edge	S01235	**NUCPGA320.5HS**	**NU-CPGW090302HS**	1	1	.0078	.0984		★								
		NUCPGA321HS	**NU-CPGW090304HS**			.0156	.0984		★								
		NUCPGA322HS	**NU-CPGW090308HS**			.0313	.0945		★								

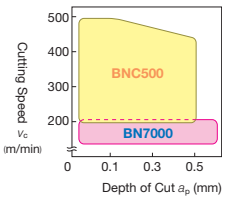
*Use NS (NS-CPGW) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

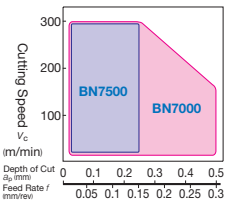
(C) Gray Cast Iron



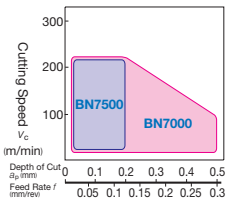
(D) Ductile Cast Iron



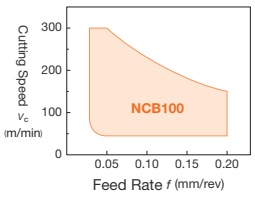
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



C 80° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

CPGA32● Coated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1250		

Applicable Internal Holders ☞ E35 to E37

Multi-Cornered Single-Use / 11° Positive (With Hole)

Recommended Application		Coated CBN											
K	Cast Iron									◕	●	✖
S	Exotic Alloy											
H	Hardened Steel	○	●	◕	○	◔	✖					
Sintered Components										◕		

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	2NCCPGA320.5	2NC-CPGW090302	1	2	.0078	.0984				★	★							
		2NCCPGA321	2NC-CPGW090304			.0156	.0984				★	★							

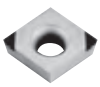
CPGA32.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable Internal Holders ☞ E34, E36

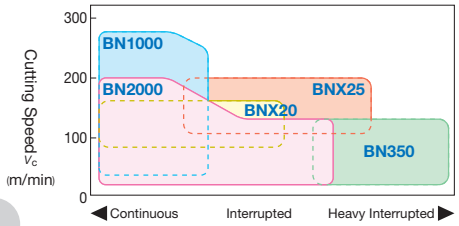
Multi-Cornered / 11° Positive (With Hole)

Recommended Application		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
Sintered Components						◕		●			

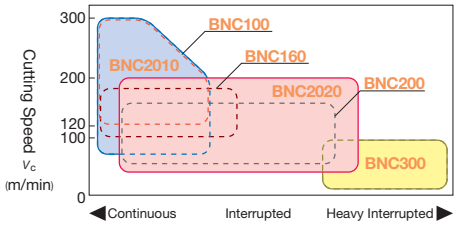
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	2NUCPGA32.51	2NU-CPGW09T304	1	2	.0156	.0984						●	●			
		2NUCPGA32.52	2NU-CPGW09T308			.0313	.0945						●	●			

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



D 55° Diamond

DNGA33● Coated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

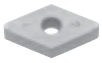
Applicable External Holders C11, C12 — Applicable Internal Holders E17 to E19

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◒	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◒	○	◔	✖						
Sintered Components											◒		

Coated CBN

Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	**2NCDNGA331**	**2NC-DNGA110404**	1	2	.0157	.0984		★	★	★	★							
		2NCDNGA332	**2NC-DNGA110408**			.0315	.0827		★	★	★	★							
		2NCDNGA333	**2NC-DNGA110412**			.0472	.0787		★	★	★	★							

DN■■43● Uncoated

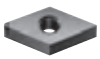
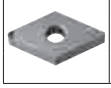
Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders C10 to C12 — Applicable Internal Holders E15 to E19

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◒				✖	
S	Exotic Alloy					●				◒	●
H	Hardened Steel	●	◒		✖						
Sintered Components						◒		●			

Uncoated CBN — Binderless CBN

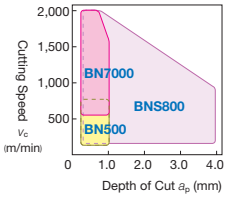
Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUDNMA430**	**NU-DNMA150401**	1	1	.0039	.1063		●								
		NUDNMA430.5	**NU-DNMA150402**			.0078	.0984		●								
		NUDNMA431	**NU-DNMA150404**			.0156	.0984	★	●	▲	●		★				
		NUDNMA432	**NU-DNMA150408**			.0313	.0827		●	▲	●		★				
		NUDNMA433	**NU-DNMA150412**			.0469	.0787		●	▲			★				
		T-NUDNMA431	**T-NU-DNMA150404**	10	1	.0156	.0984	★	★		★						
		T-NUDNMA432	**T-NU-DNMA150408**			.0313	.0827	★	★		★						
		T-NUDNMA433	**T-NU-DNMA150412**			.0469	.0787										
		**NUDNGA431**	**NU-DNGA150404**	1	1	.0156	.0984										★
		NUDNGA432	**NU-DNGA150408**			.0313	.0827										●
		NUDNGA433	**NU-DNGA150412**			.0469	.0787										★

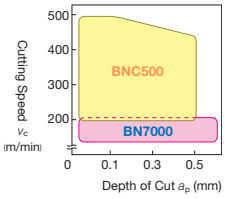
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

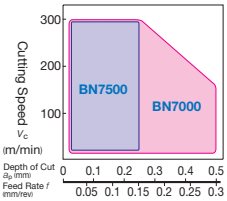
(C) Gray Cast Iron



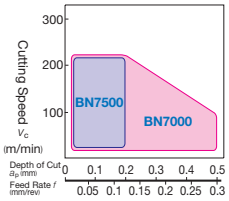
(D) Ductile Cast Iron



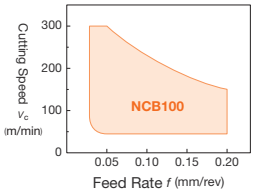
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



D 55° Diamond

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting: ● 1st Recommended, ◐ 2nd Recommended; General Cutting: ● 1st Recommended, ◐ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ◐ 2nd Recommended

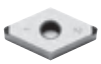
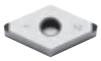
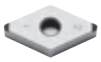
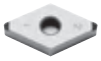
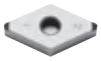
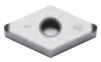
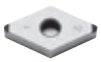
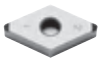
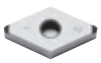
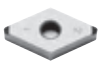
Recommended Application										
K	Cast Iron					◐				✖	
S	Exotic Alloy					●				◐	●
H	Hardened Steel	●	◐		✖						
Sintered Components						◐		●			

DN■■43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders C10 to C12 Applicable Internal Holders E15 to E19

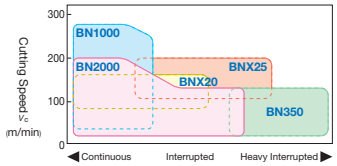
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
								Uncoated CBN									Binderless CBN
	Standard	2NUDNGA431	2NU-DNGA150404	1	2	.0156	.0984	●	●	▲	●		●	●	▲		
		2NUDNGA432	2NU-DNGA150408			.0313	.0827	●	●	▲	●		●	●	▲		
		2NUDNGA433	2NU-DNGA150412			.0469	.0787	●	●	▲	●		●	●			
		T-2NUDNGA431	T-2NU-DNGA150404	10	2	.0156	.0984		★								
		T-2NUDNGA432	T-2NU-DNGA150408			.0313	.0827		★		★		★				
 Wiper Insert	S01215	2NUDNGA431WG	2NU-DNGA150404WG	1	2	.0156	.0906		●								
		2NUDNGA432WG	2NU-DNGA150408WG			.0313	.0787		●					●	▲		
 Wiper Insert	S01215	2NUDNGA431WH	2NU-DNGA150404WH	1	2	.0156	.0827		★						▲		
		2NUDNGA432WH	2NU-DNGA150408WH			.0313	.0709		●						▲		
 Break Master	Honing	2NUDNGG431FV	2NU-DNGM150404N-FV	1	2	.0156	.0984		●								
		2NUDNGG432FV	2NU-DNGM150408N-FV			.0313	.0827		●								
 Break Master	S00535	2NUDNGG431LV	2NU-DNGM150404N-LV	1	2	.0156	.0984		●								
		2NUDNGG432LV	2NU-DNGM150408N-LV			.0313	.0827		●								
		2NUDNGG433LV	2NU-DNGM150412N-LV			.0469	.0787		★								
 Low Cutting Force	Sharp Edge	2NUDNGA431LF	2NU-DNGA150404LF	1	2	.0156	.0984						●				
		2NUDNGA432LF	2NU-DNGA150408LF			.0313	.0827						●				
 Sharper Edge	T01215	2NUDNGA431LT	2NU-DNGA150404LT	1	2	.0156	.0984		●								
		2NUDNGA432LT	2NU-DNGA150408LT			.0313	.0827		●								
		2NUDNGA433LT	2NU-DNGA150412LT			.0469	.0787										
 Strong Edge	T01235	2NUDNGA431T	2NU-DNGA150404HT	1	2	.0156	.0984	●	★								
		2NUDNGA432T	2NU-DNGA150408HT			.0313	.0827										
 Strong Edge	BN2000→S01235 BN7000→S01225 BN700→S01225 BN7500→S00525	2NUDNGA431HS	2NU-DNGA150404HS	1	2	.0156	.0984		★				★				
		2NUDNGA432HS	2NU-DNGA150408HS			.0313	.0827		●				●	●			
		2NUDNGA433HS	2NU-DNGA150412HS			.0469	.0787		●				●	●			
 Strong Edge	BN2000→S01235 BN7000→S01225 BN700→S01225 BN7500→S00525	2NUDNGA431HT	2NU-DNGA150404HT	1	2	.0156	.0984				★						
		2NUDNGA432HT	2NU-DNGA150408HT			.0313	.0827				★						

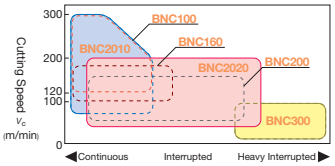
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



D 55° Diamond

DN■■43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders C10 to C12 Applicable Internal Holders E15 to E19

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application											
K	Cast Iron					◒				✖	
S	Exotic Alloy					●				◒	●
H	Hardened Steel	●	◒		✖						
	Sintered Components					◒		●			

Multi-Cornered / Negative (With Hole)

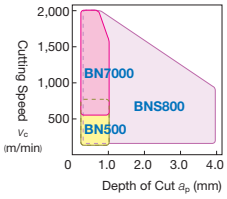
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
								Uncoated CBN									Binderless CBN
	Standard	**2MDDNGA432**	**2MD-DNGA150408**	1	2	.0313	.1220						●	●			
	Standard	**2MDDNMA431**	**2MD-DNMA150404**	1	2	.0156	.1378			▲							
		2MDDNMA432	**2MD-DNMA150408**			.0313	.1220			▲			●		▲		
		2MDDNMA433	**2MD-DNMA150412**			.0469	.1102			▲							

Negative (With Hole)

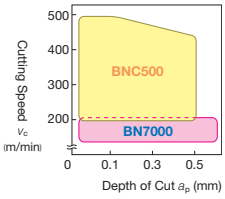
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
								Uncoated CBN									Binderless CBN
	Standard	**DNMA431**	**DNMA150404**	1	1	.0156	.1969		★	▲							
		DNMA432	**DNMA150408**			.0313	.1850		★	▲			●				
		DNMA433	**DNMA150412**			.0469	.1693		★	▲			●				

CBN Application Range Map

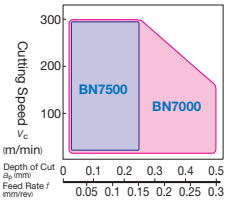
(C) Gray Cast Iron



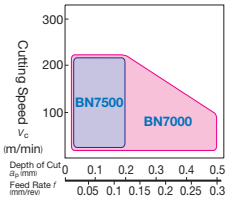
(D) Ductile Cast Iron



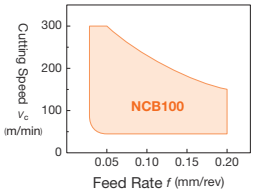
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



D 55° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application												
K Cast Iron										◕	●	✖
S Exotic Alloy												
H Hardened Steel	○	●	◕	○	◔	✖						
Sintered Components										◕		

DNG■43● Coated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders ☞ C10 to C12 Applicable Internal Holders ☞ E15 to E19

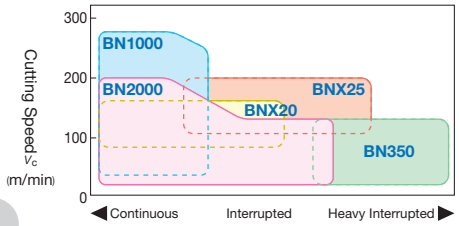
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
								Coated CBN											
Break Master	Honing	2NCDNGM431FV	2NC-DNGM150404N-FV	1	2	.0156	.0984		●	●									
		2NCDNGM432FV	2NC-DNGM150408N-FV			.0313	.0827		●	●									
		2NCDNGM433FV	2NC-DNGM150412N-FV			.0469	.0787		●	●									
Break Master	S00535	2NCDNGM431LV	2NC-DNGM150404N-LV	1	2	.0156	.0984		●	●									
		2NCDNGM432LV	2NC-DNGM150408N-LV			.0313	.0827		●	●									
		2NCDNGM433LV	2NC-DNGM150412N-LV			.0469	.0787		●	●									
Strong Edge	BNC2020→S02735 BNC300→S01735	2NCDNGA443HS	2NC-DNGA150412N-HS	1	2	.0469	.0787					●	●						
Break Master	S01235	2NCDNGM432SV	2NC-DNGM150408N-SV	1	2	.0313	.0827		●	●									

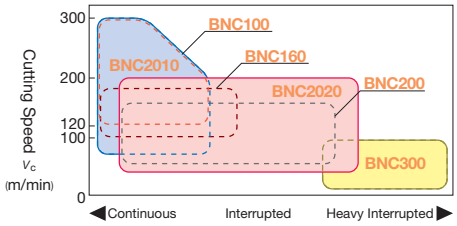
* For use with the CBN holders for high-efficiency machining shown on page L111 and L112. ** Use a holder with a cutting edge angle of 93°.

CBN Application Range Map

(A) Uncoated SUMIBORON



(B) Coated SUMIBORON



D 55° Diamond

DNG■43● Coated

Dimensions (inch)	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

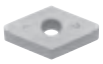
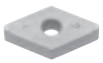
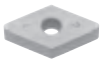
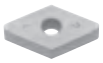
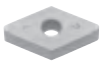
Applicable External Holders ☞ C10 to C12 Applicable Internal Holders ☞ E15 to E19

(Legend) Continuous Cutting: ● 1st Recommended ○ 2nd Recommended; General Cutting: ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended ✖ 2nd Recommended

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
Sintered Components											◕		

Coated CBN

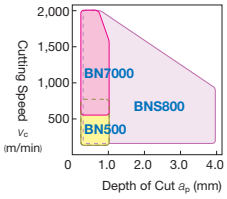
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	2NCDNGA431	2NC-DNGA150404	1	2	.0156	.0984		●	★	★	★				★			
		2NCDNGA432	2NC-DNGA150408			.0313	.0827		●	●	●	●	●	▲	▲	●			
		2NCDNGA433	2NC-DNGA150412			.0469	.0787		●	●	●	●	●	▲		●			
		2NCDNGA434*	2NC-DNGA150416*			.0625	.1339				★	★	★		▲	★			
		2NCDNGA435*	2NC-DNGA150420*			.0787	.1181				★	★	★		▲	★			
		2NCDNGA436*	2NC-DNGA150424*			.0938	.1063				★	★			▲	★			
 Wiper Insert	S01215	2NCDNGA431W	2NC-DNGA150404W	1	2	.0156	.0906		●	●									
		2NCDNGA432W	2NC-DNGA150408W			.0313	.0787		●	●									
	Standard	4NCDNGA431	4NC-DNGA150404	1	4	.0156	.0984		●	●	●	●	●	▲	▲	●		★	
		4NCDNGA432	4NC-DNGA150408			.0313	.0827		●	●	●	●	●	▲	▲	●		●	
		4NCDNGA433	4NC-DNGA150412			.0469	.0787		★	●	●	●	●		▲	●		★	
		4NCDNGA434*	4NC-DNGA150416*			.0625	.1339		★	★	★	★	★		▲	★			
		4NCDNGA435*	4NC-DNGA150420*			.0787	.1181		★	★	★	★	★		▲	★			
		4NCDNGA436*	4NC-DNGA150424*			.0938	.1063		★	★	★	★	★		▲	★			
 Wiper Insert	S01215	4NCDNGA431WG**	4NC-DNGA150404WG**	1	4	.0156	.0906		★	★	●	●			▲	●			
		4NCDNGA432WG**	4NC-DNGA150408WG**			.0313	.0787		★	●	●	●			▲	▲			
 Wiper Insert	S01215	4NCDNGA431WH**	4NC-DNGA150404WH**	1	4	.0156	.0827		★	★	●	●			▲	●			
		4NCDNGA432WH**	4NC-DNGA150408WH**			.0313	.0709		★	★	●	●			▲	●			
Break Master	Honing	4NCDNGG431FV	4NC-DNGG150404N-FV	1	4	.0156	.0984		★	★	★	●			▲	●			
		4NCDNGG432FV	4NC-DNGG150408N-FV			.0313	.0827		★	★	★	●				●			
		4NCDNGG433FV	4NC-DNGG150412N-FV			.0469	.0787		★	★	★	★			▲	★			
Break Master	S00535	4NCDNGG431LV	4NC-DNGG150404N-LV	1	4	.0156	.0984		★	●	●	●			▲	●			
		4NCDNGG432LV	4NC-DNGG150408N-LV			.0313	.0827		★	●	●	●			▲	●			
		4NCDNGG433LV	4NC-DNGG150412N-LV			.0469	.0787		★	★	★	★			▲				

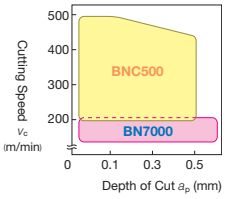
* For use with the CBN holders for high-efficiency machining shown on page L111 and L112. ** Use a holder with a cutting edge angle of 93°.

CBN Application Range Map

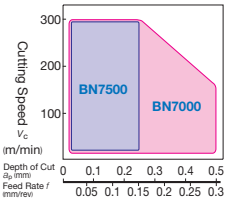
(C) Gray Cast Iron



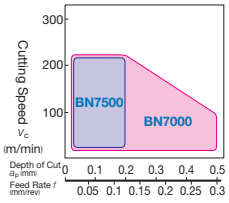
(D) Ductile Cast Iron



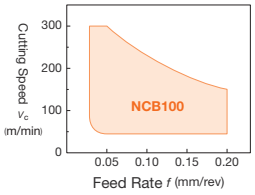
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



D 55° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

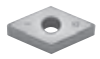
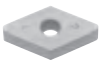
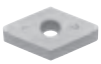
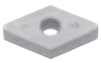
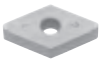
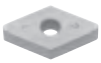
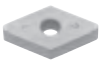
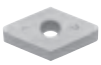
Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

DNG■43● Coated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

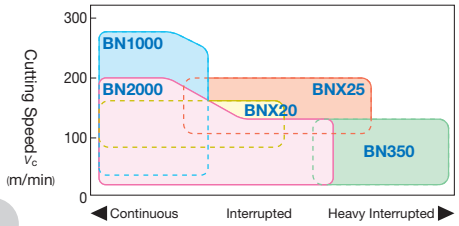
Applicable External Holders ☞ C10 to C12 Applicable Internal Holders ☞ E15 to E19

Multi-Cornered Single-Use / Negative (With Hole)

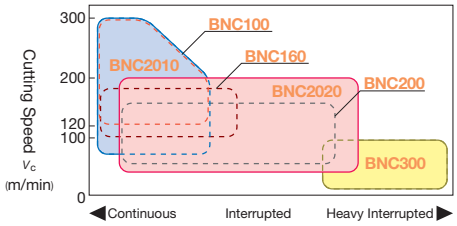
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
 Break Master	S01235	4NCDNGG432SV	4NC-DNGG150408N-SV	1	4	.0313	.0827		★	★	★	●			▲	●			
		4NCDNGG433SV	4NC-DNGG150412N-SV			.0469	.0787		★	●	★	●			▲	●			
 Low Cutting Force	Honing	2NCDNGA431LE	2NC-DNGA150404LE	1	2	.0156	.0984				★								
		2NCDNGA432LE	2NC-DNGA150408LE			.0313	.0827				★								
		2NCDNGA433LE	2NC-DNGA150412LE			.0469	.0787				★								
 Sharper Edge	T00515	2NCDNGA430.5LT	2NC-DNGA150402LT	1	2	.0078	.1024					★							
		2NCDNGA431LT	2NC-DNGA150404LT			.0156	.0984					●							
		2NCDNGA432LT	2NC-DNGA150408LT			.0313	.0827					●							
		2NCDNGA433LT	2NC-DNGA150412LT			.0469	.0787					●							
 Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	2NCDNGA431LS	2NC-DNGA150404LS	1	2	.0156	.0984		●	●			★						
 Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	4NCDNGA431LS	4NC-DNGA150404LS	1	4	.0156	.0984							▲	▲	★			
		4NCDNGA432LS	4NC-DNGA150408LS			.0313	.0827							▲	▲	★			
		4NCDNGA433LS	4NC-DNGA150412LS			.0469	.0787								▲	★			
 High-Efficiency	S00535	4NCDNGA431ES	4NC-DNGA150404ES	1	4	.0156	.0984					★							
		4NCDNGA432ES	4NC-DNGA150408ES			.0313	.0827					●							
		4NCDNGA433ES	4NC-DNGA150412ES			.0469	.0787					●							
 Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735 BNC300→S01735	2NCDNGA432HS	2NC-DNGA150408HS	1	2	.0313	.0827		●	●	●	●	●		▲	●			
		2NCDNGA433HS	2NC-DNGA150412HS			.0469	.0787		●	●	●	●	●						
 Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735 BNC300→S01735 BNC500→S01225	4NCDNGA432HS	4NC-DNGA150408HS	1	4	.0313	.0827		★	●	★	●	★		▲	●		★	
		4NCDNGA433HS	4NC-DNGA150412HS			.0469	.0787		★	★	●	●	★		▲	●			

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



D 55° Diamond

DNMA44● Uncoated

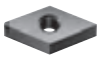
Dimensions (inch)	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.2500		

Applicable External Holders ☞ C10, C12 Applicable Internal Holders ☞ E19

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
		Uncoated CBN									
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕	✖							
	Sintered Components					◕		●			

Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUDNMA441**	**NU-DNMA150604**	1	1	.0156	.0984		★								
		NUDNMA442	**NU-DNMA150608**			.0313	.0827		★								
		NUDNMA443	**NU-DNMA150612**			.0469	.0787		★								

*Use NS (NS-DNMA) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

DNGA44● Coated

Dimensions (inch)	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.2500		

Applicable External Holders ☞ C10, C12 Applicable Internal Holders ☞ E19

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

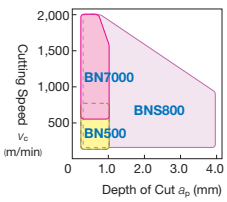
Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
		Coated CBN											
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

Multi-Cornered Single-Use / Negative (With Hole)

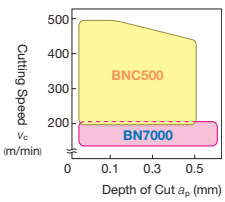
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	**4NCDNGA441**	**4NC-DNGA150604**	1	4	.0156	.0984				★	★							
		4NCDNGA442	**4NC-DNGA150608**			.0313	.0827				★	★							
		4NCDNGA443	**4NC-DNGA150612**			.0469	.0787				★	★							

CBN Application Range Map

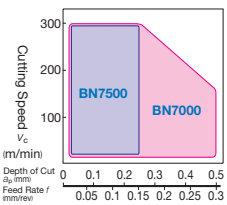
(C) Gray Cast Iron



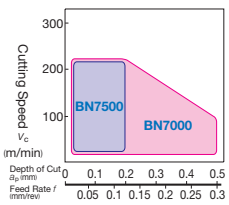
(D) Ductile Cast Iron



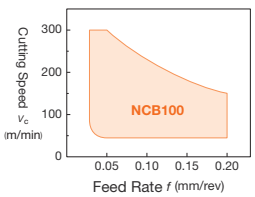
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



D 55° Diamond

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

DNG322● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	—
	Thickness	.1250		

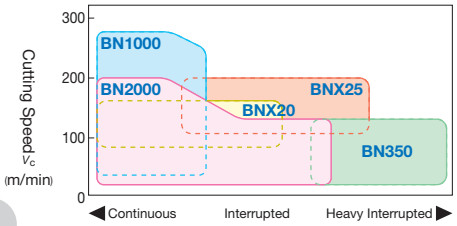
Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Solid / Negative (Without Hole)

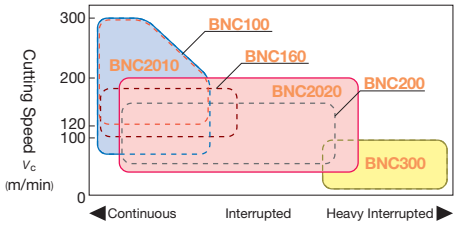
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**DNG322**	**DNGN110308**	1	Solid	.0313	.4252									★	
		DNG323	**DNGN110312**			.0469	.4134									★	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



D 55° Diamond

DCG■21.5● Uncoated

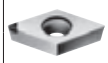
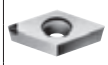
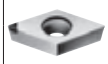
Dimensions (inch)	Inscribed Circle	.2500	Hole Dia.	.1102
	Thickness	.0937		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ● 1st Recommended, ◐ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◐				✖	
S	Exotic Alloy					●				◐	●
H	Hardened Steel	●	◐	✖							
	Sintered Components					◐		●			

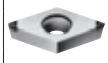
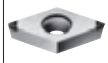
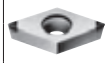
Applicable External Holders C35, D11, D20, D24, D25, D29, D30 — Applicable Internal Holders E38 to E41

Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUDCGA21.50.5	NU-DCGW070202	1	1	.0078	.1063	★	●								
		NUDCGA21.51	NU-DCGW070204			.0156	.0984	★	●				★				★
		NUDCGA21.52	NU-DCGW070208			.0313	.0827		●								
		T-NUDCGA21.50.5	T-NU-DCGW070202	10	1	.0078	.1063		★								
		T-NUDCGA21.51	T-NU-DCGW070204			.0156	.0984		★								
 Sharper Edge	T01215	NUDCGA21.50.5LT	NU-DCGW070202LT	1	1	.0078	.1063		●								
		NUDCGA21.51LT	NU-DCGW070204LT			.0156	.0984		●								
		NUDCGA21.52LT	NU-DCGW070208LT			.0313	.0827		●								
 Strong Edge	S01235	NUDCGA21.51HS	NU-DCGW070204HS	1	1	.0156	.0984		●								

*Use NS (NS-DCGW) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

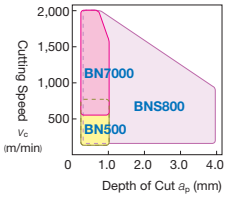
Multi-Cornered Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	2NUDCGA21.50.5	2NU-DCGW070202	1	2	.0078	.1063						●	●			
		2NUDCGA21.51	2NU-DCGW070204			.0156	.0984	●					●	●	▲		
		2NUDCGA21.52	2NU-DCGW070208			.0313	.0827	●					●	●	▲		
 Wiper Insert	S01215	2NUDCGA21.50.5WG	2NU-DCGW070202WG	1	2	.0078	.1024		●						▲		
		2NUDCGA21.51WG	2NU-DCGW070204WG			.0156	.0984		●						▲		
 Break Master	Honing	2NUDCGT21.50.5FV	2NU-DCGT070202N-FV	1	2	.0078	.1063		●								
		2NUDCGT21.51FV	2NU-DCGT070204N-FV			.0156	.0945		★								

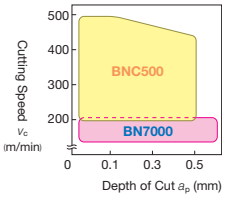
*Use 2NS (2NS-DCGW) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

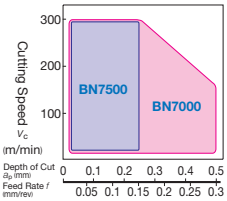
(C) Gray Cast Iron



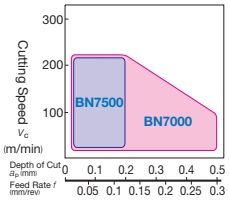
(D) Ductile Cast Iron



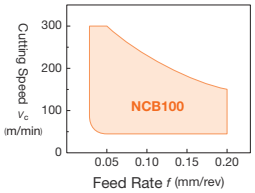
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



D 55° Diamond

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application													
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

DCG■21.5● Coated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1102
	Thickness	.0937		

Applicable External Holders C35, D11, D20, D24, D25, D29, D30
Applicable Internal Holders E38 to E41

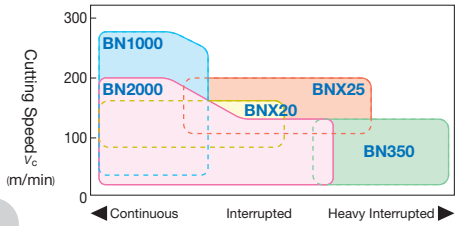
Multi-Cornered One-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
								Coated CBN											
	Standard	2NCDCGA21.50.5	2NC-DCGW070202	1	2	.0078	.1024		★	★	★	●				●			
		2NCDCGA21.51	2NC-DCGW070204			.0156	.0984		★	●	★	●		▲	▲	●		★	
		2NCDCGA21.52	2NC-DCGW070208			.0313	.0827		★	★	●	●							
Wiper Insert	Standard	2NCDCGA21.50.5WG**	2NC-DCGW070202WG	1	2	.0078	.0984				●	●							
		2NCDCGA21.51WG**	2NC-DCGW070204WG			.0156	.0945		●	●	●	●							
		2NCDCGA21.52WG**	2NC-DCGW070208WG			.0313	.0787		●	●	●	●				●			
Break Master	Honing	2NCDCGT21.50.5FV	2NC-DCGT070202N-FV	1	2	.0078	.0945				●	●			▲	●			
		2NCDCGT21.51FV	2NC-DCGT070204N-FV			.0156	.0945		★	●	★	●			▲	●			
		2NCDCGT21.52FV	2NC-DCGT070208N-FV			.0313	.0787				●	●				▲			
Sharper Edge	T00515	2NCDCGA21.50.5LT	2NC-DCGW070202LT	1	2	.0078	.1024					●							
		2NCDCGA21.51LT	2NC-DCGW070204LT			.0156	.0984					●							
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	2NCDCGA21.50.5LS	2NC-DCGW070202LS	1	2	.0078	.1024			★						★			
		2NCDCGA21.51LS	2NC-DCGW070204LS			.0156	.0984			★				▲		★			

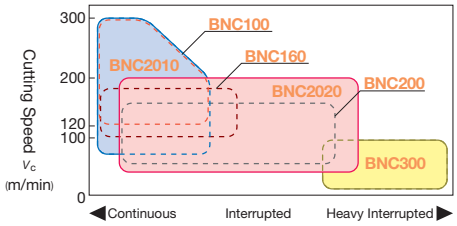
** Use a holder with a cutting edge angle of 93°

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



D 55° Diamond

DCG■32.5● Uncoated

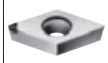
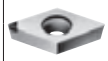
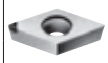
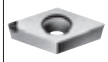
Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable External Holders C35, D11, D20, D24, D25, D29, D30 Applicable Internal Holders E38 to E41

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ● 1st Recommended, ○ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application											
K	Cast Iron					○				✖	
S	Exotic Alloy					●				○	●
H	Hardened Steel	●	○		✖						
	Sintered Components					○		●			

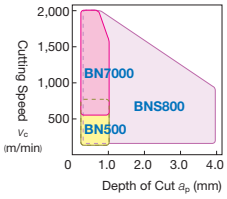
Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	Uncoated CBN BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	Binderless CBN NCB100
	Standard	NUDCGA32.50.5	NU-DCGW11T302	1	1	.0078	.1063	★	●				★				
		NUDCGA32.51	NU-DCGW11T304			.0156	.0984	★	●	▲			★				★
		NUDCGA32.52	NU-DCGW11T308			.0313	.0827		●								●
		NUDCGA32.53	NU-DCGW11T312			.0469	.0787		●								
		T-NUDCGA32.51	T-NU-DCGW11T304	10	1	.0156	.0984		★								
		T-NUDCGA32.52	T-NU-DCGW11T308			.0313	.0827		★								
 Low Cutting Force	Sharp Edge	NUDCGA32.50.5LF	NU-DCGW11T302LF	1	1	.0078	.1063						★				
		NUDCGA32.51LF	NU-DCGW11T304LF			.0156	.0984						★				
 Sharper Edge	T01215	NUDCGA32.50.5LT	NU-DCGW11T302LT	1	1	.0078	.1063		●								
		NUDCGA32.51LT	NU-DCGW11T304LT			.0156	.0984										
		NUDCGA32.52LT	NU-DCGW11T308LT			.0313	.0827		●								
		NUDCGA32.53LT	NU-DCGW11T312LT			.0469	.0787		●								
 Strong Edge	S01235	NUDCGA32.50.5HS	NU-DCGW11T302HS	1	1	.0078	.1063		●								
		NUDCGA32.51HS	NU-DCGW11T304HS			.0156	.0984		●								
		NUDCGA32.52HS	NU-DCGW11T308HS			.0313	.0827		●								

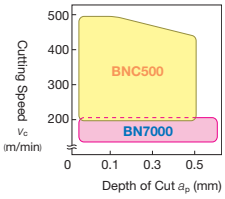
*Use NS (NS-DCGW) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

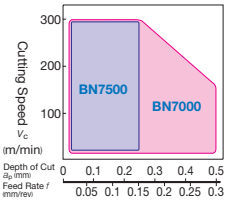
(C) Gray Cast Iron



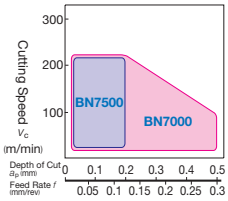
(D) Ductile Cast Iron



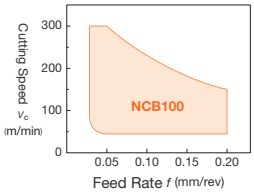
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



D 55° Diamond

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting: ● 1st Recommended, ◐ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

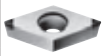
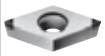
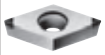
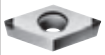
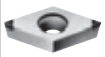
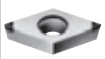
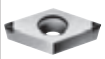
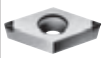
Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	K Cast Iron					◒				✖	
	S Exotic Alloy					●				◒	●
	H Hardened Steel	●	◒		✖						
	Sintered Components					◒		●			
		Uncoated CBN									Binderless CBN

DCG■32.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable External Holders C35, D11, D20, D24, D25, D29, D30 Applicable Internal Holders E38 to E41

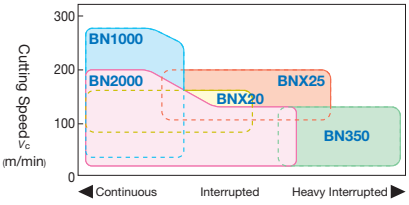
Multi-Cornered Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	2NUDCGA32.50.5	2NU-DCGW11T302	1	2	.0078	.1063						★	★	▲		
		2NUDCGA32.51	2NU-DCGW11T304			.0156	.0984	●			●		●	●	▲		
		2NUDCGA32.52	2NU-DCGW11T308			.0313	.0827	●		▲	●		●	●	▲		
		T-2NUDCGA32.51	T-2NU-DCGW11T304	10	2	.0156	.0984								▲		
 Wiper Insert	S01215	2NUDCGA32.50.5WG*	2NU-DCGW11T302WG*	1	2	.0078	.1024		●						▲		
		2NUDCGA32.51WG*	2NU-DCGW11T304WG*			.0156	.0906		●					●	▲		
		2NUDCGA32.52WG*	2NU-DCGW11T308WG*			.0313	.0827		●						▲		
Wiper Insert	S01215	2NUDCGA32.51WH*	2NU-DCGW11T304WH*	1	2	.0156	.0827		★								
		2NUDCGA32.52WH*	2NU-DCGW11T308WH*			.0313	.0709		★								
 Break Master	Honing	2NUDCGT32.51FV	2NU-DCGT11T304N-FV	1	2	.0156	.0945		★								
		2NUDCGT32.52FV	2NU-DCGT11T308N-FV			.0313	.0787		★								
 Break Master	S00535	2NUDCGT32.50.5LV	2NU-DCGT11T302N-LV	1	2	.0078	.1063		●								
		2NUDCGT32.51LV	2NU-DCGT11T304N-LV			.0156	.0945		●								
		2NUDCGT32.52LV	2NU-DCGT11T308N-LV			.0313	.0787		●								
 Strong Edge	S01215	2NUDCGA32.52HS	2NU-DCGT11T308N-HS	1	2	.0313	.0787							●			
 Low Cutting Force	Sharp Edge	2NUDCGA32.50.5LF	2NU-DCGW11T302LF	1	2	.0078	.1063							★	▲		
		2NUDCGA32.51LF	2NU-DCGW11T304LF			.0156	.0984						★	★	▲		
		2NUDCGA32.52LF	2NU-DCGW11T308LF			.0313	.0827						★	★	▲		
 Low Cutting Force	Honing	2NUDCGA32.50.5LE	2NU-DCGW11T302LE	1	2	.0078	.1063							★	▲		
		2NUDCGA32.51LE	2NU-DCGW11T304LE			.0156	.0984							★	▲		
		2NUDCGA32.52LE	2NU-DCGW11T308LE			.0313	.0827							★	▲		
 General-purpose for Continuous Cutting	S00715	2NUDCGA32.50.5LS	2NU-DCGW11T302LS	1	2	.0078	.1063							★	▲		
		2NUDCGA32.51LS	2NU-DCGW11T304LS			.0156	.0984							●	▲		
		2NUDCGA32.52LS	2NU-DCGW11T308LS			.0313	.0827							●	▲		

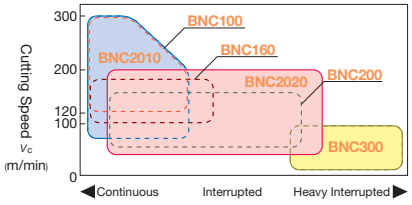
*Use 2NS (2NS-DCGW) for BNX25.
*Depth of cut for single-use types is 0.0197 inch or less.
*Use a holder with a cutting edge angle of 93°.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



D 55° Diamond

DCG■32.5● Coated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable External Holders C35, D11, D20, D24, D25, D29, D30 Applicable Internal Holders E38 to E41

(Legend) Continuous Cutting: ● 1st Recommended ○ 2nd Recommended; General Cutting: ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended ✖ 2nd Recommended

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

Coated CBN

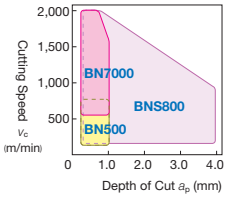
Multi-Cornered One-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	2NCDCGA32.50.5	2NC-DCGW11T302	1	2	.0078	.1063		★	●	★	●			▲	●		★	
		2NCDCGA32.51	2NC-DCGW11T304			.0156	.0984		●	●	●	●	●	▲	▲	●		★	
		2NCDCGA32.52	2NC-DCGW11T308			.0313	.0827		●	●	●	●	●		▲	●		★	
Wiper Insert	S01215	2NCDCGA32.50.5WG*	2NC-DCGW11T302WG*	1	2	.0078	.1024		●	●	●	●			▲	●			
		2NCDCGA32.51WG*	2NC-DCGW11T304WG*			.0156	.0906		●	★	●	●			▲	●			
		2NCDCGA32.52WG*	2NC-DCGW11T308WG*			.0313	.0827		★	★	●	●			▲	★			
Wiper Insert	S01215	2NCDCGA32.51WH*	2NC-DCGW11T304WH*	1	2	.0156	.0827		★	★	★	★			▲	★			
		2NCDCGA32.52WH*	2NC-DCGW11T308WH*			.0313	.0709		★	★	★	★			▲	★			
Break Master	Honing	2NCDCGT32.51FV	2NC-DCGT11T304N-FV	1	2	.0156	.0945		★	★	★	★			▲	★			
		2NCDCGT32.52FV	2NC-DCGT11T308N-FV			.0313	.0787		★	★	★	★			▲	★			
Break Master	S00535	2NCDCGT32.50.5LV	2NC-DCGT11T302N-LV	1	2	.0078	.1063				●	●			▲	●			
		2NCDCGT32.51LV	2NC-DCGT11T304N-LV			.0156	.0945		★	●	★	●				●			
		2NCDCGT32.52LV	2NC-DCGT11T308N-LV			.0313	.0787		●	●	★	●			▲	●			
Low Cutting Force	Honing	2NCDCGA32.50.5LE	2NC-DCGW11T302LE	1	2	.0078	.1063				★								
		2NCDCGA32.51LE	2NC-DCGW11T304LE			.0156	.0984				★								
		2NCDCGA32.52LE	2NC-DCGW11T308LE			.0313	.0827				★								
Sharper Edge	T00515	2NCDCGA32.50.5LT	2NC-DCGW11T302LT	1	2	.0078	.1063					★							
		2NCDCGA32.51LT	2NC-DCGW11T304LT			.0156	.0984					●							
		2NCDCGA32.52LT	2NC-DCGW11T308LT			.0313	.0827					●							

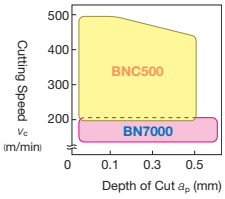
*Use a holder with a cutting edge angle of 93°.

CBN Application Range Map

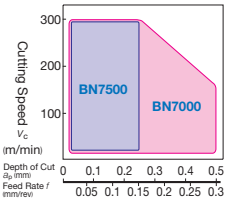
(C) Gray Cast Iron



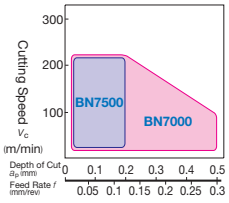
(D) Ductile Cast Iron



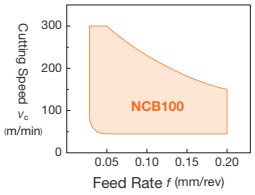
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



D 55° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application		Coated CBN											
K	Cast Iron									◕	●	✖
S	Exotic Alloy											
H	Hardened Steel	○	●	◕	○	◔	✖					
	Sintered Components									◕		

DCG■32.5● Coated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable External Holders ☞ C35, D11, D20, D24, D25, D29, D30
Applicable Internal Holders ☞ E38 to E41

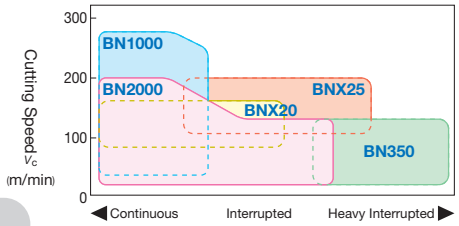
Multi-Cornered One-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	**2NCDCGA32.50.5LS** **2NCDCGA32.51LS** **2NCDCGA32.52LS**	**2NC-DCGW11T302LS** **2NC-DCGW11T304LS** **2NC-DCGW11T308LS**	1	2	.0078 .0156 .0313	.1063 .0984 .0827		★ ★ ★	★ ★ ★			 ★ ★	 ▲ ▲	▲ ▲ ▲	★ ● ●			
Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735 BNC300→S01735 BNC500→S01225	**2NCDCGA32.51HS** **2NCDCGA32.52HS**	**2NC-DCGW11T304HS** **2NC-DCGW11T308HS**	1	2	.0156 .0313	.0984 .0827						● ★						

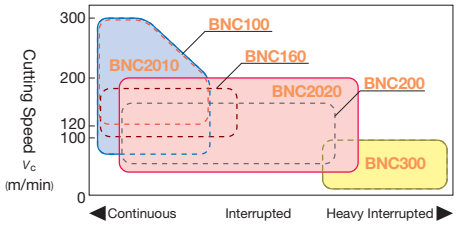
*Use a holder with a cutting edge angle of 93°.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



R Round

RNG● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750 to .5000	Hole Dia.	—
	Thickness	.1250 to .1875		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
Sintered Components						◕		●			

Applicable External Holders ☞ L108

Solid / Negative (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**RNG32**	**RNGN090300**	1	Solid	.1875									●	
	Standard	**RNG32B**	**RNGN090300-B**	1	Full Top	.1875						●	●			
	Standard	**RNG42**	**RNGN120300**	1	Solid	.2500									●	
	Standard	**RNG43**	**RNGN120400**	1	Solid	.2500									●	
	Standard	**RNG43B**	**RNGN120400-B**	1	Full Top	.2500			▲			●				

RNG● Coated

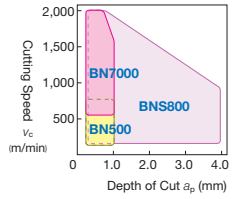
Dimensions (inch)				
	Inscribed Circle	.2500 to .3750	Hole Dia.	—
	Thickness	.1250		

Recommended Application		Coated CBN											
K	Cast Iron									◕	●	✖
S	Exotic Alloy											
H	Hardened Steel	○	●	◕	○	◔	✖					
Sintered Components										◕		

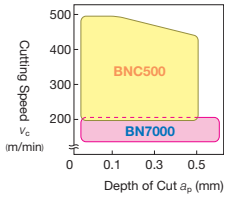
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	**RNG22-S** **RNG32-S**	**RNGN060300-S** **RNGN090300-S**	1	Solid	.1250 .1875									● ●			

CBN Application Range Map

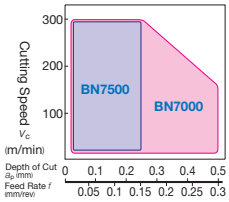
(C) Gray Cast Iron



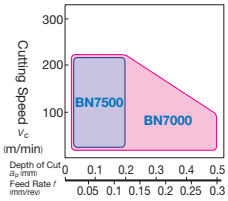
(D) Ductile Cast Iron



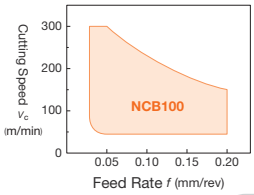
(E) General Powdered Metal



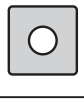
(F) High-density Powdered Metal



(G) Titanium Alloy



S Square



Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ◯: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application											
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

SN■A43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders ☞ C14 to C19
Applicable Internal Holders ☞ E20 to E22

Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
								Uncoated CBN									Binderless CBN
	Standard	**NUSNMA431**	**NU-SNMA120404**	1	1	.0156	.0984	●	★				★				
		NUSNMA432	**NU-SNMA120408**			.0313	.0906	★	★	▲	★		★				
		NUSNMA433	**NU-SNMA120412**			.0469	.0827	★	★	▲	●		★				
		T-NUSNMA431	**T-NU-SNMA120404**	10	1	.0156	.0984		★								
		T-NUSNMA432	**T-NU-SNMA120408**			.0313	.0906		★								
		T-NUSNMA433	**T-NU-SNMA120412**			.0469	.0827		★		★						

*Depth of cut for single-use types is 0.0197 inch or less.

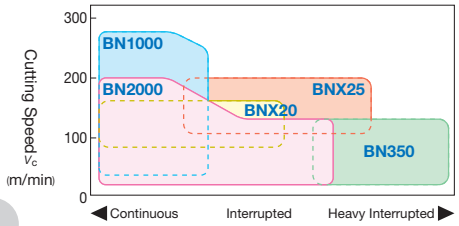
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**2NUSNGA431**	**2NU-SNGA120404**	1	2	.0156	.0984		★				★				
		2NUSNGA432	**2NU-SNGA120408**			.0313	.0906	●	★	▲	●		●	●			
		2NUSNGA433	**2NU-SNGA120412**			.0469	.0827	●	★	▲	●		●				
Sharper Edge	T01215	**2NUSNGA431LT**	**2NU-SNGA120404LT**	1	2	.0156	.0984		★								
		2NUSNGA432LT	**2NU-SNGA120408LT**			.0313	.0906		★								
		2NUSNGA433LT	**2NU-SNGA120412LT**			.0469	.0827		★								
Strong Edge	S01235	**2NUSNGA431HS**	**2NU-SNGA120404HS**	1	2	.0156	.0984		★								
		2NUSNGA432HS	**2NU-SNGA120408HS**			.0313	.0906		★								
		2NUSNGA433HS	**2NU-SNGA120412HS**			.0469	.0827		★								

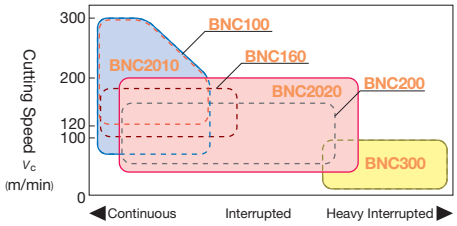
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



S Square

SN■A43● Uncoated

Dimensions (inch)	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ● 1st Recommended, ○ 2nd Recommended; Interrupted Cutting: ● 1st Recommended, ○ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
K	Cast Iron					●				✖	
S	Exotic Alloy					●				●	●
H	Hardened Steel	●	●	✖							
	Sintered Components					●		●			

Applicable External Holders C14 to C19 Applicable Internal Holders E20 to E22

Multi-Cornered / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**2MDSNMA431**	**2MD-SNMA120404**	1	2	.0156	.1378			▲							

Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**SNMA432** **SNMA433**	**SNMA120408** **SNMA120412**	1	1	.0313 .0469	.1850 .1811		★ ★				● ●				

Solid / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**SNGA432** **SNGA433**	**SNGA120408** **SNGA120412**	1	Solid	.0313 .0469	.5000 .5000									★ ●	

SNGA43● Coated

Dimensions (inch)	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										●	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	●	○	◔	✖						
	Sintered Components										●		

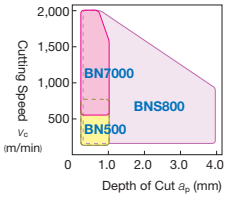
Applicable External Holders C14 to C19 Applicable Internal Holders E20 to E22

Multi-Cornered Single-Use / Negative (With Hole)

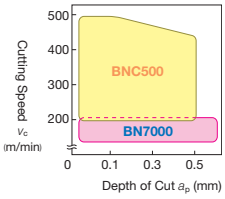
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	**2NCSNGA432** **2NCSNGA433**	**2NC-SNGA120408** **2NC-SNGA120412**	1	2	.0313 .0469	.0906 .0827			● ●		● ●				● ●		★ ★	
	Standard	**4NCSNGA431** **4NCSNGA432** **4NCSNGA433**	**4NC-SNGA120404** **4NC-SNGA120408** **4NC-SNGA120412**	1	4	.0156 .0313 .0469	.0984 .0906 .0827		★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★							

CBN Application Range Map

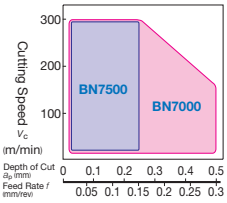
(C) Gray Cast Iron



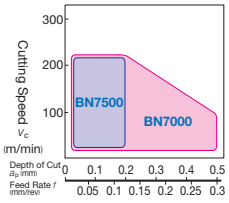
(D) Ductile Cast Iron



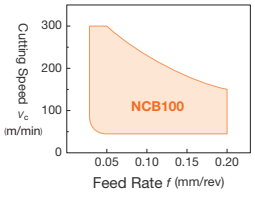
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



S Square

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

SN■■32● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	—
	Thickness	.1250		

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS3125	NCB100 (Binderless CBN)
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Uncoated CBN

Negative (Without Hole)

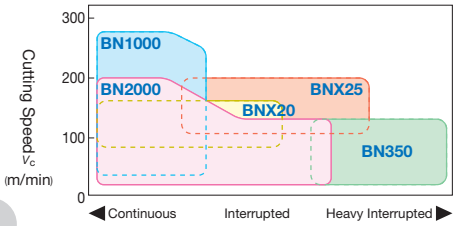
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS3125	NCB100
	Standard	**SNG322B**	**SNGN090308-B**	1	4	.0313	.3750						★				

Solid / Negative (Without Hole)

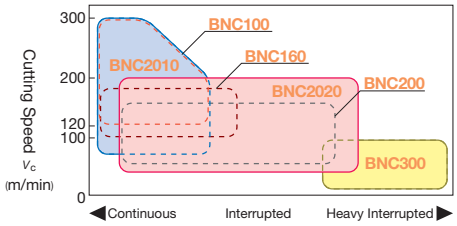
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS3125	NCB100
	Standard	**SNG322**	**SNGN090308**	1	Solid	.0313	.3750									●	
		SNG323	**SNGN090312**			.0469	.3750									●	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



S Square

SNG42● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	—
	Thickness	.1250		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Uncoated CBN

Solid / Negative (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**SNG422**	**SNGN120308**	1	Solid	.0313	.5000									★	
		SNG423	**SNGN120312**			.0469	.5000									●	
		SNG424	**SNGN120316**			.0625	.5000										

SNG■43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	—
	Thickness	.1875		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Uncoated CBN

Applicable External Holders ☞ C48 to C51

Negative (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**SNG432**	**SNGN120408**	1	1	.0313	.1890		★							●	
		SNG433	**SNGN120412**			.0469	.1890		★							★	

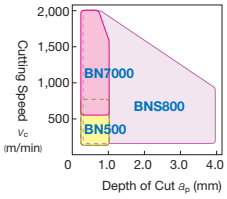
Applicable External Holders ☞ C48 to C51

Solid / Negative (Dimple Lock)

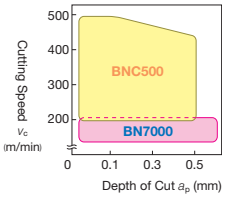
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**SNGX433**	**SNGX120412**	1	Solid	.0469	.5000									★	
		SNGX434	**SNGX120416**			.0625	.5000									★	

CBN Application Range Map

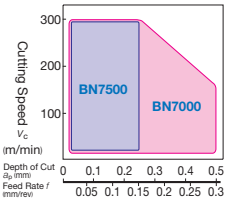
(C) Gray Cast Iron



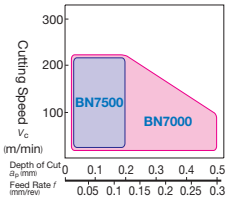
(D) Ductile Cast Iron



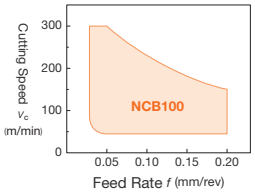
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



S Square

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ● 1st Recommended ◯ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

SNG43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	—
	Thickness	.1875		

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

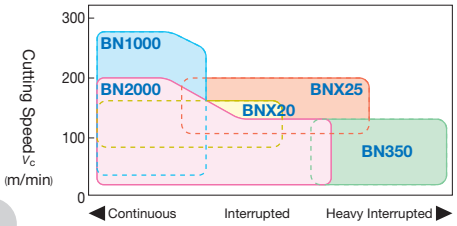
Applicable External Holders C48 to C51

Solid / Negative (Without Hole)

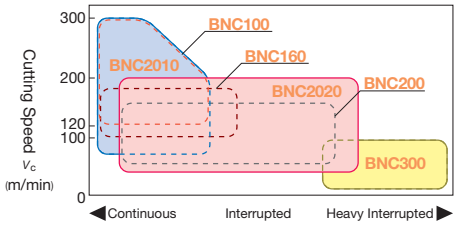
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**SNG432**	**SNGN120408**	1	Solid	.0313	.5000		★							●	
		SNG433	**SNGN120412**			.0469	.5000		★							★	
		SNG434	**SNGN120416**			.0625	.5000									★	
		SNG435	**SNGN120420**			.0787	.5000									★	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



S Square

SPG32● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	—
	Thickness	.1250		

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◒				✖	
S	Exotic Alloy					●				◒	●
H	Hardened Steel	●	◒		✖						
	Sintered Components					◒		●			

Uncoated CBN | Binderless CBN

Applicable Internal Holders E45

One-Use / 11° Positive (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUSPG321**	**NU-SPGN090304**	1	1	.0156	.0984						★				
		NUSPG322	**NU-SPGN090308**			.0313	.0984		★				★				
		T-NUSPG321	**T-NU-SPGN090304**	10	1	.0156	.0984		★								
		T-NUSPG322	**T-NU-SPGN090308**			.0313	.0984		★								
Sharper Edge	T01215	**NUSPG321LT**	**NU-SPGN090304LT**	1	1	.0156	.0984		★								
		NUSPG322LT	**NU-SPGN090308LT**			.0313	.0984		★								
Strong Edge	S01235	**NUSPG321HS**	**NU-SPGN090304HS**	1	1	.0156	.0984		★								
		NUSPG322HS	**NU-SPGN090308HS**			.0313	.0984		★								

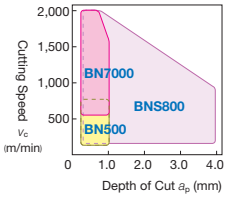
*Use NS (NS-SPGN) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

11° Positive (Without Hole)

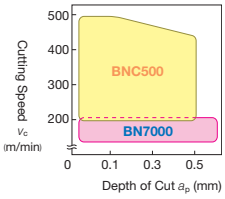
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**SPG321**	**SPGN090304**	1	1	.0156	.1890						★				
		SPG322	**SPGN090308**			.0313	.1890						★				

CBN Application Range Map

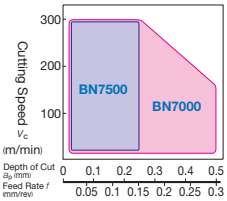
(C) Gray Cast Iron



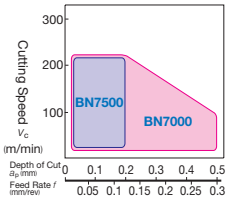
(D) Ductile Cast Iron



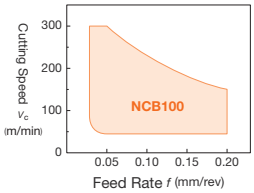
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application											
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

TN■■33● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

Applicable External Holders ☞ C20 to C26
Applicable Internal Holders ☞ E23 to E25

Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	Uncoated CBN BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	Binderless CBN NCB100
	Standard	**NUTNMA330**	**NU-TNMA160401**	1	1	.0039	.0984		★								
		NUTNMA330.5	**NU-TNMA160402**			.0078	.0945		●								
		NUTNMA331	**NU-TNMA160404**			.0156	.0906	●	●	▲	★		★				
		NUTNMA332	**NU-TNMA160408**			.0313	.0787	●	●	▲	●		★				
		NUTNMA333	**NU-TNMA160412**			.0469	.0787	●	●				★				
		T-NUTNMA331	**T-NU-TNMA160404**	10	1	.0156	.0906	★	★		★						
		T-NUTNMA332	**T-NU-TNMA160408**			.0313	.0787	★	★		★						

*Depth of cut for single-use types is 0.0197 inch or less.

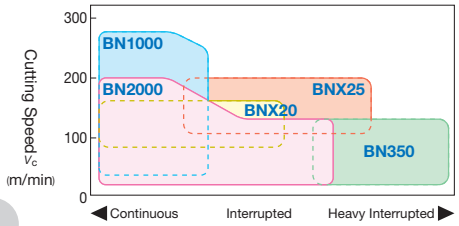
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**3NUTNGA331**	**3NU-TNGA160404**	1	3	.0156	.0906	★	●	▲	●		●	●	▲		
		3NUTNGA332	**3NU-TNGA160408**			.0313	.0787	●	●	▲	●		●	●	▲		
		3NUTNGA333	**3NU-TNGA160412**			.0469	.0787	●	●		●		★	●	▲		
		T-3NUTNGA331	**T-3NU-TNGA160404**	10	3	.0156	.0906		★				★	★	▲		
		T-3NUTNGA332	**T-3NU-TNGA160408**			.0313	.0787		★		★		★				
		T-3NUTNGA333	**T-3NU-TNGA160412**			.0469	.0787		★								

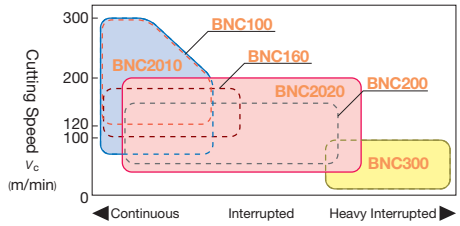
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TN■■33● Uncoated

Dimensions (inch)	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

Applicable External Holders ☞ C20 to C26 Applicable Internal Holders ☞ E23 to E25

(Legend) Continuous Cutting: ● 1st Recommended ○ 2nd Recommended; General Cutting: ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Uncoated CBN (BN1000 to BNS8125); Binderless CBN (NCB100)

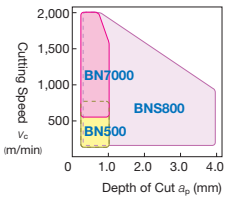
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
Break Master	S00535	3NUTNGG331LV	3NU-TNGM160404N-LV	1	3	.0156	.0906		★								
		3NUTNGG332LV	3NU-TNGM160408N-LV			.0313	.0787		★								
		3NUTNGG333LV	3NU-TNGM160412N-LV			.0469	.0787		★								
Low Cutting Force	Sharp Edge	3NUTNGA331LF	3NU-TNGA160404LF	1	3	.0156	.0906						★	★	▲		
		3NUTNGA332LF	3NU-TNGA160408LF			.0313	.0787						★	●	▲		
Low Cutting Force	Honing	3NUTNGA331LE	3NU-TNGA160404LE	1	3	.0156	.0906							★	▲		
		3NUTNGA332LE	3NU-TNGA160408LE			.0313	.0787							★	▲		
Sharper Edge	T01215	3NUTNGA331LT	3NU-TNGA160404LT	1	3	.0156	.0906	●	★								
		3NUTNGA332LT	3NU-TNGA160408LT			.0313	.0787	●	●								
		3NUTNGA333LT	3NU-TNGA160412LT			.0469	.0787	▲	●								
General-purpose for Continuous Cutting	S00715	3NUTNGA331LS	3NU-TNGA160404LS	1	3	.0156	.0906							★	▲		
		3NUTNGA332LS	3NU-TNGA160408LS			.0313	.0787								▲		
Strong Edge	BN2000→S01235 BN7000→S01225 BN700→S01225 BN7500→S00525	3NUTNGA331HS	3NU-TNGA160404HS	1	3	.0156	.0906		●				★	★	▲		
		3NUTNGA332HS	3NU-TNGA160408HS			.0313	.0787		★				●	●	▲		
		3NUTNGA333HS	3NU-TNGA160412HS			.0469	.0787		★								
Strong Edge	T01235	3NUTNGA331HT	3NU-TNGA160404HT	1	3	.0156	.0906				★						
		3NUTNGA332HT	3NU-TNGA160408HT			.0313	.0787				★						
		3NUTNGA333HT	3NU-TNGA160412HT			.0469	.0787				★						

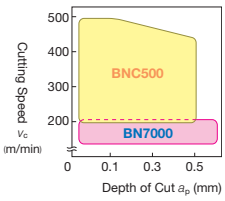
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

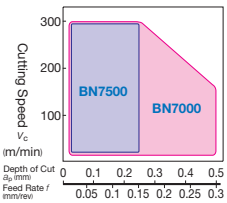
(C) Gray Cast Iron



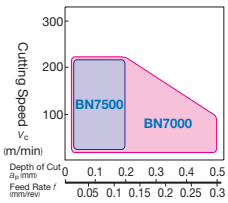
(D) Ductile Cast Iron



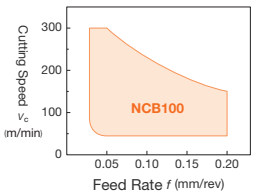
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								–	

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ● 1st Recommended, ○ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application														
K	Cast Iron					○	●					✖		
S	Exotic Alloy						●					●		●
H	Hardened Steel	●	●		✖									
Sintered Components							●			●				

TN■■33● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

Applicable External Holders C20 to C26
Applicable Internal Holders E23 to E25

Multi-cornered/Negative (With Hole)

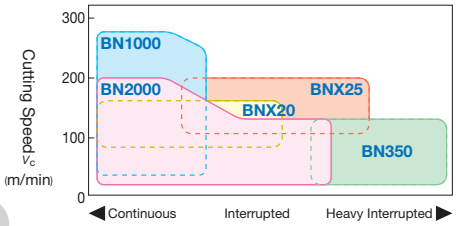
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
	Standard	**3MDTNMA331**	**3MD-TNMA160404**	1	3	.0156	.1260			▲							
		3MDTNMA332	**3MD-TNMA160408**			.0313	.1142			▲							

Solid / Negative (With Hole)

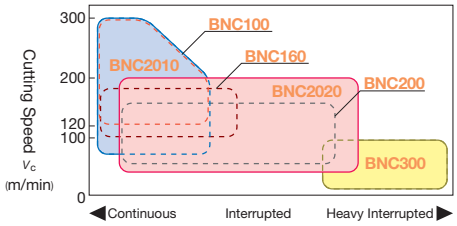
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**TNGA332**	**TNGA160408**	1	Solid	.0313	.6024									★	
		TNGA333	**TNGA160412**			.0469	.5827									★	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TNG■33● Coated

Dimensions (inch)	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

Applicable External Holders ☞ C20 to C26 Applicable Internal Holders ☞ E23 to E25

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ● 1st Recommended ○ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

Recommended Application													
K	Cast Iron										●	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	●	○	○	✖						
	Sintered Components										●		

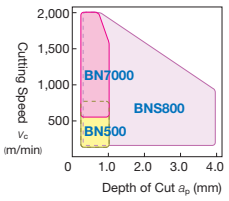
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
								Coated CBN											
	Standard	3NCTNGA331	3NC-TNGA160404	1	3	.0156	.0906		●	★	★	★				★			
		3NCTNGA332	3NC-TNGA160408			.0313	.0787		●	★	●	●	●	▲	▲	★			
		3NCTNGA333	3NC-TNGA160412			.0469	.0787		●	★	★	★							
		3NCTNGA334*	3NC-TNGA160416*			.0625	.1299				★	★	★		▲	★			
		3NCTNGA335*	3NC-TNGA160420*			.0787	.1181				★	★	★		▲	★			
		3NCTNGA336*	3NC-TNGA160424*			.0938	.1063				★	★	★		▲	★			
	Standard	6NCTNGA330.5	6NC-TNGA160402	1	6	.0078	.0945		★	★	★	★							
		6NCTNGA331	6NC-TNGA160404			.0156	.0906		★	★	●	●	●	▲	▲	●		★	
		6NCTNGA332	6NC-TNGA160408			.0313	.0787		★	★	●	●	●	▲	▲	●		★	
		6NCTNGA333	6NC-TNGA160412			.0469	.0787		★	★	●	●	★	▲	▲	●		★	
		6NCTNGA334*	6NC-TNGA160416*			.0625	.1299		★	★	★	★	★		▲	★			
		6NCTNGA335*	6NC-TNGA160420*			.0787	.1181		★	★	★	★	★		▲	★			
		6NCTNGA336*	6NC-TNGA160424*			.0938	.1063		★	★	★	★	★		▲	★			
Break Master	Honing	6NCTNGG331FV	6NC-TNGG160404N-FV	1	6	.0156	.0906		★	★	★	★			▲	★			
		6NCTNGG332FV	6NC-TNGG160408N-FV			.0313	.0787		★	★	★	★			▲	★			
		6NCTNGG333FV	6NC-TNGG160412N-FV			.0469	.0787		★	★	★	★			▲	★			
Break Master	S00535	6NCTNGG331LV	6NC-TNGG160404N-LV	1	6	.0156	.0906		★	★	★	★			▲	★			
		6NCTNGG332LV	6NC-TNGG160408N-LV			.0313	.0787		★	★	★	★			▲	★			
		6NCTNGG333LV	6NC-TNGG160412N-LV			.0469	.0787		★	★	★	★			▲	★			
Break Master	S01235	6NCTNGG332SV	6NC-TNGG160408N-SV	1	6	.0313	.0787		★	★	★	●			▲	▲			
		6NCTNGG333SV	6NC-TNGG160412N-SV			.0469	.0787		★	★	★	★			▲	★			
Low Cutting Force	Honing	3NCTNGA331LE	3NC-TNGA160404LE	1	3	.0156	.0906				★								
		3NCTNGA332LE	3NC-TNGA160408LE			.0313	.0787				★								
		3NCTNGA333LE	3NC-TNGA160412LE			.0469	.0787				★								
Sharper Edge	T00515	3NCTNGA330.5LT	3NC-TNGA160402LT	1	3	.0078	.0945					★							
		3NCTNGA331LT	3NC-TNGA160404LT			.0156	.0906					●							
		3NCTNGA332LT	3NC-TNGA160408LT			.0313	.0787					●							
		3NCTNGA333LT	3NC-TNGA160412LT			.0469	.0787					★							

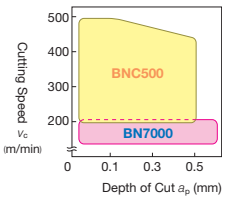
*For use with CBN holders for the high-efficiency machining shown on page L112 & L113.

CBN Application Range Map

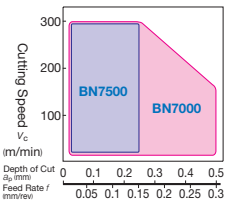
(C) Gray Cast Iron



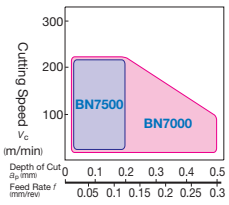
(D) Ductile Cast Iron



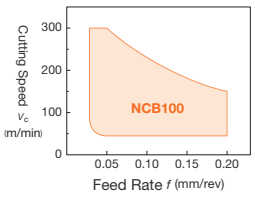
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								–	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application												
K Cast Iron										◕	●	✖
S Exotic Alloy												
H Hardened Steel	○	●	◕	○	◔	✖						
Sintered Components										◕		

TNG■33● Coated

Dimensions (inch)	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

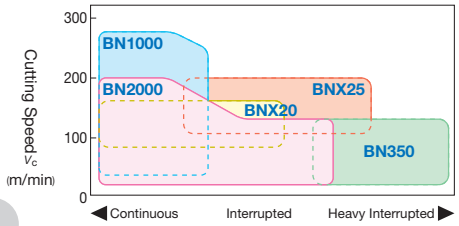
Applicable External Holders ☞ C20 to C26
Applicable Internal Holders ☞ E23 to E25

Multi-Cornered Single-Use / Negative (With Hole)

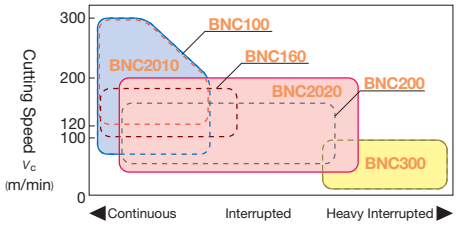
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
								Coated CBN											
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	3NCTNGA331LS	3NC-TNGA160404LS	1	3	.0156	.0906						★						
		3NCTNGA332LS	3NC-TNGA160408LS			.0313	.0787		●	★						●			
		3NCTNGA333LS	3NC-TNGA160412LS			.0469	.0787		★	★			★						
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	6NCTNGA331LS	6NC-TNGA160404LS	1	6	.0156	.0906								▲	★			
		6NCTNGA332LS	6NC-TNGA160408LS			.0313	.0787							▲	▲	★			
		6NCTNGA333LS	6NC-TNGA160412LS			.0469	.0787									★			
High-Efficiency	S00535	6NCTNGA331ES	6NC-TNGA160404ES	1	6	.0156	.0906					★							
		6NCTNGA332ES	6NC-TNGA160408ES			.0313	.0787					★							
		6NCTNGA333ES	6NC-TNGA160412ES			.0469	.0787					★							
Strong Edge	BNC2020→S02735 BNC200→S01735 BNC300→S01735	3NCTNGA332HS	3NC-TNGA160408HS	1	3	.0313	.0787			●		●							
Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735 BNC300→S01735 BNC500→S01225	6NCTNGA331HS	6NC-TNGA160404HS	1	6	.0156	.0906		★	★	●	●	★			●		★	
		6NCTNGA332HS	6NC-TNGA160408HS			.0313	.0787		★	★	●	★	★		▲	●		★	
		6NCTNGA333HS	6NC-TNGA160412HS			.0469	.0787		★	★	●	★	★			●		★	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TNMA43 Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ● 1st Recommended, ○ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					○				✖	
S	Exotic Alloy					●				○	●
H	Hardened Steel	●	○		✖						
	Sintered Components					○		●			

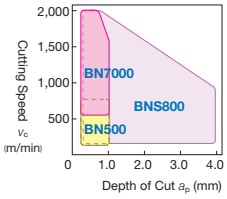
Applicable External Holders ☞ C20 to C26 Applicable Internal Holders ☞ E23 to E25

Single-Use / Negative (With Hole)

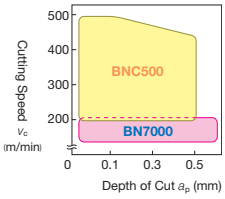
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUTNMA431**	**NU-TNMA220404**	1	1	.0156	.0906	●		▲							
		NUTNMA432	**NU-TNMA220408**			.0313	.0787	●		▲							
		NUTNMA433	**NU-TNMA220412**			.0469	.0787	●		▲							

CBN Application Range Map

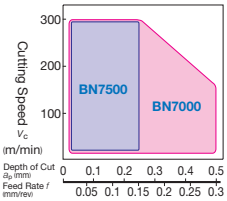
(C) Gray Cast Iron



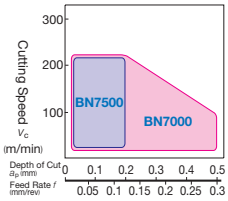
(D) Ductile Cast Iron



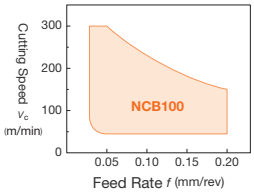
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application											
K Cast Iron					◕				✖		
S Exotic Alloy					●				◕	●	
H Hardened Steel	●	◕		✖							
Sintered Components					◕		●				

TNG22● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	—
	Thickness	.1250		

Solid / Negative (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
	Standard	**TNG222**	**TNGN110308**	1	Solid	.0313	.3858									●	
		TNG223	**TNGN110312**			.0469	.3622									★	

TNG33 Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	—
	Thickness	.1875		

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application											
K Cast Iron					◕				✖		
S Exotic Alloy					●				◕	●	
H Hardened Steel	●	◕		✖							
Sintered Components					◕		●				

Negative (Without Hole)

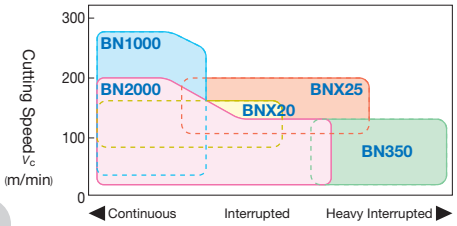
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
	Standard	**TNG331**	**TNGN160404**	1	1	.0156	.1378		★								
		TNG332	**TNGN160408**			.0313	.1260		★							★	
		TNG333	**TNGN160412**			.0469	.1142		★							●	

Solid / Negative (Without Hole)

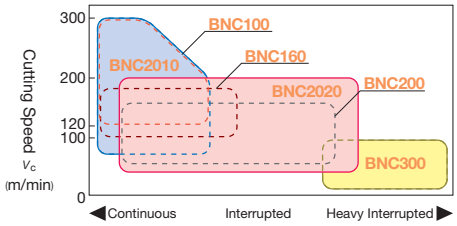
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**TNG332**	**TNGN160408**	1	Solid	.0313	.6024		★							★	
		TNG333	**TNGN160412**			.0469	.5827		★							●	
		TNG334	**TNGN160416**			.0625	.5591									★	
		TNG335	**TNGN160420**			.0787	.5354									★	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TBGE52● Uncoated

Dimensions (inch)				
	Inscribed Circle	.1563	Hole Dia.	—
	Thickness	.0625		

Applicable Internal Holders E74

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◒				✖	
S	Exotic Alloy					●				◒	●
H	Hardened Steel	●	◒	✖							
	Sintered Components					◒		●			

5° Positive (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	TBGE520.5B	TBGN060102B	1	3	.0078	.2559		●	▲							
		TBGE521B	TBGN060104B			.0156	.2480		●	▲			●				
		TBGE522B	TBGN060108B			.0313	.2244		★	▲							

*STN inserts are sharper edge type

TCGA21.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1100
	Thickness	.0938		

Applicable External Holders C39, C40, D32 Applicable Internal Holders E47

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◒				✖	
S	Exotic Alloy					●				◒	●
H	Hardened Steel	●	◒	✖							
	Sintered Components					◒		●			

7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	3NUTCGA21.51	3NU-TCGW110204	1	3	.0156							●	●			
		3NUTCGA21.52	3NU-TCGW110208			.0313							●	●			

TCGA21.5● Coated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1100
	Thickness	.0938		

Applicable External Holders C39, C40, D32 Applicable Internal Holders E47

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

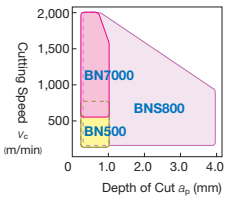
Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
		Coated CBN											
K	Cast Iron										◒	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◒	○	◔	✖						
	Sintered Components										◒		

7° Positive (with hole)

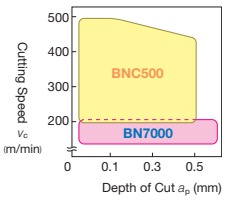
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	NCTCGA21.51	NC-TCGW110204	1	1	.0156	.0906		●	●	●	●		▲	▲	●			
		NCTCGA21.52	NC-TCGW110208			.0313	.0787		●	●	●	●			▲	●			
		3NCTCGA21.51	3NC-TCGW110204	1	3	.0156	.0984			●						●		●	

CBN Application Range Map

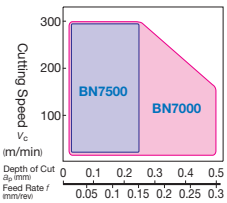
(C) Gray Cast Iron



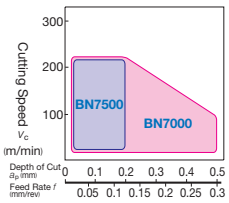
(D) Ductile Cast Iron



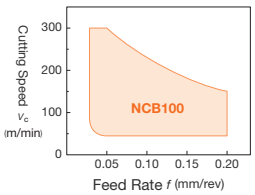
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

TCGA32.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable External Holders ☞ C39, C40, D32 Applicable Internal Holders ☞ E47

7° positibe(with hole)

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
		Uncoated CBN									
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**3NUTCGA32.52**	**3NU-TCGW16T308**	1	3	.0313							●				

TCGA32.5● Coated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1563		

Applicable External Holders ☞ C39, C40, D32 Applicable Internal Holders ☞ E47

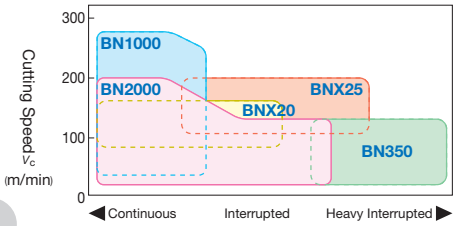
7° positibe(with hole)

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
		Coated CBN											
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

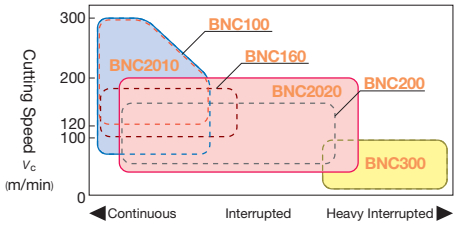
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	**3NCTCGA32.52**	**3NC-TCGW16T308**	1	3	.0313	.0787											●	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TPG■63● Uncoated

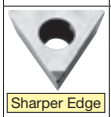
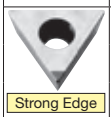
Dimensions (inch)	Inscribed Circle	.1875	Hole Dia.	.0945
	Thickness	.0937		

Applicable Internal Holders ☞ E46, E48, E50 to E52

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		Uncoated CBN									
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
Sintered Components						◕		●			

Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
	Standard	NUTPGD630.5	NU-TPGW080202	1	1	.0078	.1024	★	●	▲			●	●			
		NUTPGD631	NU-TPGW080204			.0156	.0984	★	●	▲			●	●			
		NUTPGD632	NU-TPGW080208			.0313	.0866		●				★				
 Sharper Edge	T01215	NUTPGD630.5S	NU-TPGW080202S	1	1	.0078	.1024			▲							
		NUTPGD630.5LT	NU-TPGW080202LT			.0078	.1024		●								
		NUTPGD631LT	NU-TPGW080204LT			.0156	.0984		★								
Strong Edge	S01235	NUTPGD630.5HS	NU-TPGW080202HS	1	1	.0078	.1024		●								
		NUTPGD631HS	NU-TPGW080204HS			.0156	.0984		●								
		NUTPGD632HS	NU-TPGW080208HS			.0313	.0866		●								
 Strong Edge	T01215	NUTPGD631LF	NU-TPGW080204LF	1	1	.0156	.0984						★				

*Use NS (NSTPGD) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

TPG■63● Coated

Dimensions (inch)	Inscribed Circle	.1875	Hole Dia.	.0945
	Thickness	.0937		

Applicable Internal Holders ☞ E46, E48, E50 to E52

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

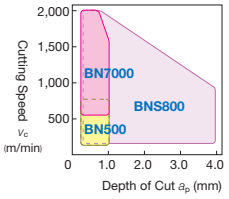
Recommended Application		Coated CBN											
K	Cast Iron									◕	●	✖
S	Exotic Alloy											
H	Hardened Steel	○	●	◕	○	◔	✖					
Sintered Components										◕		

Multi-Cornered Single-Use / 11° Positive (With Hole)

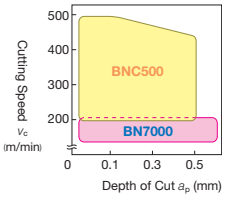
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	3NCTPGA630.5	3NC-TPGW080202	1	3	.0078	.1024				★	★							
		3NCTPGA631	3NC-TPGW080204			.0156	.0984				★	★							

CBN Application Range Map

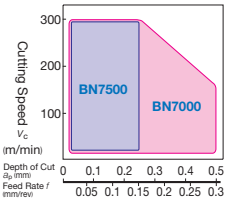
(C) Gray Cast Iron



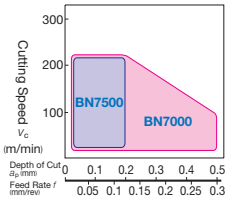
(D) Ductile Cast Iron



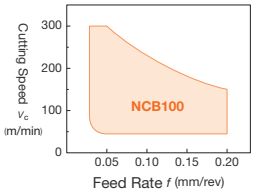
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

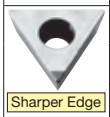
TPG■1.81.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2189	Hole Dia.	.1020
	Thickness	.0937		

Applicable Internal Holders ☞ E48, E50

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
Sintered Components						◕		●			

Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cuttiag Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUTPGA1.81.50.5	NU-TPGW090202	1	1	.0078	.1024		●				★				
		NUTPGA1.81.51	NU-TPGW090204			.0156	.0984	★	●	▲			★				
		NUTPGA1.81.52	NU-TPGW090208			.0313	.0866		●								
 Sharper Edge	T01215	NUTPGA1.81.50.5LT	NU-TPGW090202LT	1	1	.0078	.1024		●								
		NUTPGA1.81.51LT	NU-TPGW090204LT			.0156	.0984		●								
Strong Edge	S01235	NUTPGA1.81.50.5HS	NU-TPGW090202HS	1	1	.0078	.1024		●								
		NUTPGA1.81.51HS	NU-TPGW090204HS			.0156	.0984		●								

*Use NS (NSTPGA) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

TPG■1.81.5● Coated

Dimensions (inch)				
	Inscribed Circle	.2189	Hole Dia.	.1020
	Thickness	.0937		

Applicable Internal Holders ☞ E48, E50

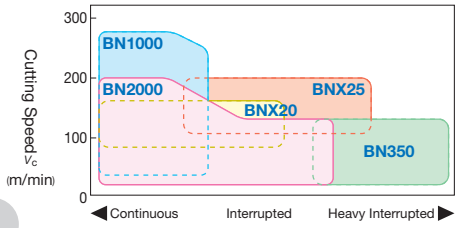
Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
Sintered Components											◕		

Multi-Cornered Single-Use / 11° Positive (With Hole)

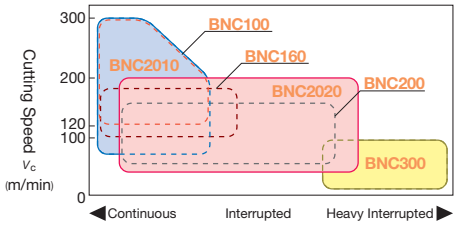
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	3NCTPGA1.81.50.5	3NC-TPGW090202	1	3	.0078	.1024		★	★	★	★						★	
		3NCTPGA1.81.51	3NC-TPGW090204			.0156	.0984		★	★	★	★						★	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TPGA21.5● Uncoated

Dimensions (inch)	Inscribed Circle	.2500	Hole Dia.	.1100
	Thickness	.0937		

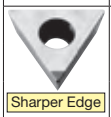
(Legend) Continuous Cutting: ● 1st Recommended, ◯ 2nd Recommended; General Cutting: ● 1st Recommended, ◯ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ◯ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◯				✖	
S	Exotic Alloy					●				◯	●
H	Hardened Steel	●	◯	✖							
	Sintered Components					◯		●			

Uncoated CBN | Binderless CBN

Applicable Internal Holders ☞ E47 to E48

Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUTPGA21.50.5	NU-TPGW110202	1	1	.0078	.0984		●				★				
		NUTPGX21.50.5	NU-TPGW110202			.0078	.0984			▲							
		NUTPGA21.51	NU-TPGW110204			.0156	.0906		●				★				
		NUTPGX21.51	NU-TPGW110204			.0156	.0906			▲							
		NUTPGX21.51S	NU-TPGW110204			.0156	.0906			▲							
		T-NUTPGA21.51	T-NU-TPGW110204	10	1	.0156	.0906		★								
 Sharper Edge	T01215	NUTPGA21.50.5LT	NU-TPGW110202LT	1	1	.0078	.0984		●								
		NUTPGA21.51LT	NU-TPGW110204LT			.0156	.0906		●								
Strong Edge	S01235	NUTPGA21.51HS	NU-TPGW110204HS	1	1	.0156	.0906		●								

*Use NS (NSTPGA) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

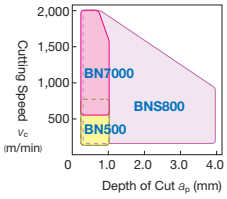
Multi-Cornered Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	3NUTPGA21.51	3NU-TPGW110204	1	3	.0156	.0906						●	●	▲		
		3NUTPGA21.52	3NU-TPGW110208			.0313	.0787						●	●	▲		
Low Cutting Force	Sharp Edge	3NUTPGA21.51LF	3NU-TPGW110204LF	1	3	.0156	.0906						★	●	▲		
Low Cutting Force	Honing	3NUTPGA21.51LE	3NU-TPGW110204LE	1	3	.0156	.0906								▲		
General-purpose for Continuous Cutting	S00715	3NUTPGA21.51LS	3NU-TPGW110204LS	1	3	.0156	.0906							●	▲		

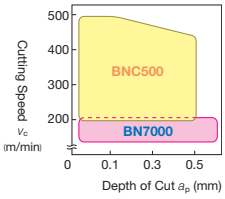
*Use 3NS (3NSTPGA) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

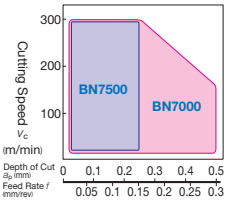
(C) Gray Cast Iron



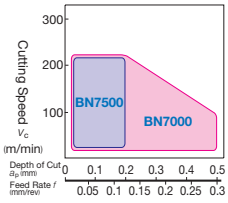
(D) Ductile Cast Iron



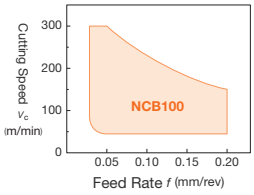
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

TPGA21.5● Coated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1100
	Thickness	.0937		

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
		Coated CBN											
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

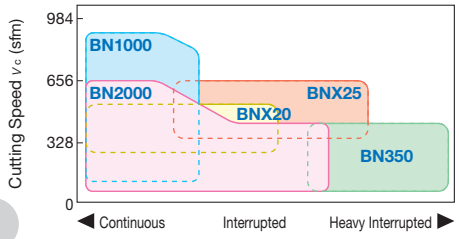
Applicable Internal Holders ☞ E47 to E48

Multi-Cornered Single-Use / 11° Positive (With Hole)

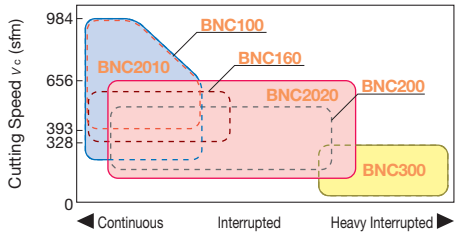
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	**3NCTPGA21.51**	**3NC-TPGW110204**	1	3	.0156	.0984											●	
		3NCTPGA21.52	**3NC-TPGW110208**			.0313	.0787											●	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TPG■22● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1339
	Thickness	.1250		

Applicable Internal Holders ☞ E46, E48, E50 to E52

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application											
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

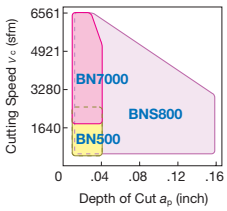
Multi-Cornered Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
								Uncoated CBN									
	Standard	3NUTPGA220.5	3NU-TPGW110302	1	3	.0078	.0945						●	●			
		3NUTPGA221	3NU-TPGW110304			.0156	.0984						●	●	▲		
		3NUTPGA222	3NU-TPGW110308			.0313	.0866						●	●	▲		
Break Master	Honing	3NUTPGT221FV	3NU-TPGT110304N-FV	1	3	.0156	.0866		★								
		3NUTPGT222FV	3NU-TPGT110308N-FV			.0313	.0748		★								
Low Cutting Force	Sharp Edge	3NUTPGA220.5LF	3NU-TPGW110302LF	1	3	.0078	.1024						★	★	▲		
		3NUTPGA221LF	3NU-TPGW110304LF			.0156	.0984						★	★	▲		
		3NUTPGA222LF	3NU-TPGW110308LF			.0313	.0866						★	★	▲		
Low Cutting Force	Honing	3NUTPGA221LE	3NU-TPGW110304LE	1	3	.0156	.0984							★	▲		
General-purpose for Continuous Cutting	S00715	3NUTPGA221LS	3NU-TPGW110304LS	1	3	.0156	.0984							●	▲v		

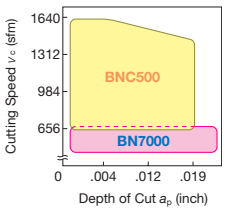
*Use 3NS (3NSTPGA) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

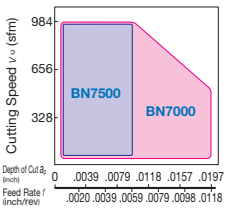
(C) Gray Cast Iron



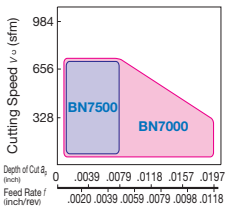
(D) Ductile Cast Iron



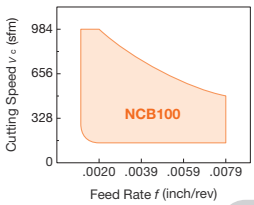
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

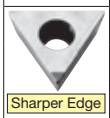
Recommended Application										
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

TPG■22● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1339
	Thickness	.1250		

Applicable Internal Holders ☞ E46, E48, E50 to E52

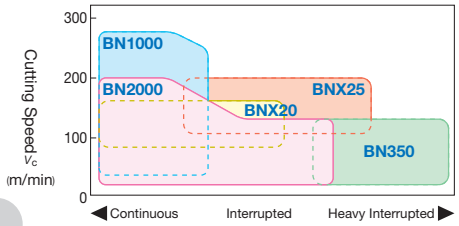
Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
								Uncoated CBN									
	Standard	NUTPGA220.5	NU-TPGW110302	1	1	.0078	.1024	★	●	▲			★				
		NUTPGA221	NU-TPGW110304			.0156	.0984	●	●	▲	●		★				
		NUTPGA222	NU-TPGW110308			.0313	.0866	●	●	▲	●		★				
		NUTPGA221S	NU-TPGW110304S	1	1	.0156	.0984			▲							
Low Cutting Force	Sharp Edge	NUTPGA220.5LF	NU-TPGW110302LF	1	1	.0078	.1024						★				
		NUTPGA221LF	NU-TPGW110304LF			.0156	.0984						★				
		NUTPGA222LF	NU-TPGW110308LF			.0313	.0866						★				
 Sharper Edge	T01215	NUTPGA220.5LT	NU-TPGW110302LT	1	1	.0078	.1024		●								
		NUTPGA222LT	NU-TPGW110308LT			.0313	.0866		●								
Strong Edge	S01235	NUTPGA220.5HS	NU-TPGW110302HS	1	1	.0078	.1024		●								
		NUTPGA221HS	NU-TPGW110304HS			.0156	.0984		●								
		NUTPGA222HS	NU-TPGW110308HS			.0313	.0866		●								

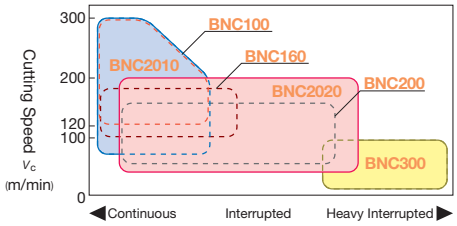
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TPG■22● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1339
	Thickness	.1250		

Applicable Internal Holders ☞ E46, E48, E50 to E52

11° Positive (With Hole)

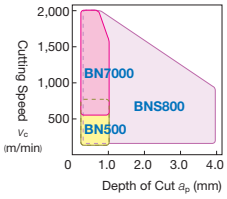
(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

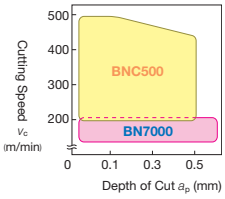
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**TPGA221**	**TPGW110304**	1	1	.0156	.1378		★	▲			★				
		TPGA222	**TPGW110308**			.0313	.1260		★	▲							
Strong Edge	S01235	**TPG221HS**	**TPGW110304HS**	1	1	.0156	.1378		★								
		TPGA222HS	**TPGW110308HS**			.0313	.1260		★								

CBN Application Range Map

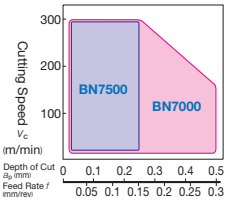
(C) Gray Cast Iron



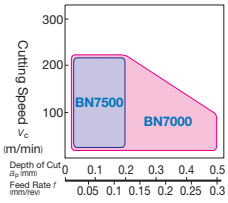
(D) Ductile Cast Iron



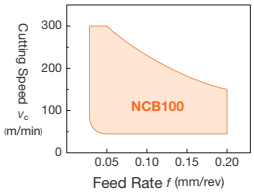
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								–	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

TPG■22● Coated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1339
	Thickness	.1250		

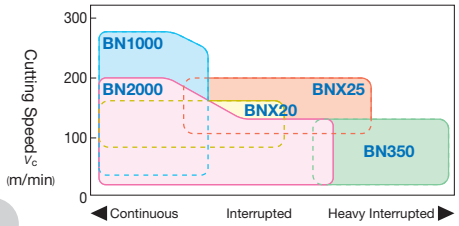
Applicable Internal Holders ☞ E46, E48, E50 to E52

Multi-Cornered Single-Use / 11° Positive (With Hole)

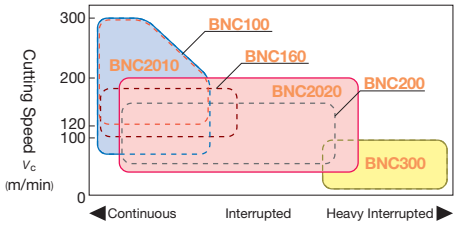
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	NCTPGA221	NC-TPGW110304	1	1	.0156	.0906		●	●	●	●		▲	▲				
		NCTPGA222	NC-TPGW110308			.0313	.0787		●	●		●				●			
	Standard	3NCTPGA221	3NC-TPGW110304	1	3	.0156	.0906		★	●	★	●	★		▲	●		★	
		3NCTPGA222	3NC-TPGW110308			.0313	.0787		★	●	★	●	★		▲	●		★	
Break Master	Honing	3NCTPGT221FV	3NC-TPGT110304N-FV	1	3	.0156	.0866		★	★	★	★			▲	★			
		3NCTPGT222FV	3NC-TPGT110308N-FV			.0313	.0748		★	★	★	★			▲	★			
Low Cutting Force	Honing	3NCTPGA220.5LE	3NC-TPGW110302LE	1	3	.0078	.0945				★								
		3NCTPGA221LE	3NC-TPGW110304LE			.0156	.0906				★								
		3NCTPGA222LE	3NC-TPGW110308LE			.0313	.0787				★								
Sharper Edge	T00515	3NCTPGA220.5LT	3NC-TPGW110302LT	1	3	.0078	.0945					★							
		3NCTPGA221LT	3NC-TPGW110304LT			.0156	.0906					●							
		3NCTPGA222LT	3NC-TPGW110308LT			.0313	.0787					●							
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	3NCTPGA221LS	3NC-TPGW110304LS	1	3	.0156	.0906		★	●			★		▲	●			
		3NCTPGA222LS	3NC-TPGW110308LS			.0313	.0787		★	★			★		▲	●			
Strong Edge	S01735	3NCTPGA221HS	3NC-TPGW110304HS	1	3	.0156	.0906						★						
		3NCTPGA222HS	3NC-TPGW110308HS			.0313	.0787						★						

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TPGA32● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1250		

Applicable Internal Holders ☞ E48, E52

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ● 1st Recommended, ○ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
K	Cast Iron					○				✖	
S	Exotic Alloy					●				○	●
H	Hardened Steel	●	○		✖						
	Sintered Components					○		●			

Uncoated CBN

Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUTPGA320.5	NU-TPGW160302	1	1	.0078	.0945		●								
		NUTPGA321	NU-TPGW160304			.0156	.0906	●	●	▲	●						
		NUTPGA322	NU-TPGW160308			.0313	.0787	●	●	▲							

*Depth of cut for single-use types is 0.0197 inch or less.

TPGA33● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1875		

Applicable Internal Holders ☞ E46, E48, E51 to E52

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ● 1st Recommended, ○ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
K	Cast Iron					○				✖	
S	Exotic Alloy					●				○	●
H	Hardened Steel	●	○		✖						
	Sintered Components					○		●			

Uncoated CBN

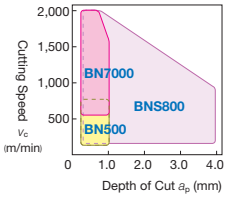
Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUTPGA331	NU-TPGW160404	1	1	.0156	.0984	●	●	▲	●						
		NUTPGA332	NU-TPGW160408			.0313	.0866	●	●	▲	●						
		NUTPGA332S	NU-TPGW160408S	1	1	.0313	.0866			▲							
		T-NUTPGA331	T-NU-TPGW160404	10	1	.0156	.0984	★	★		★						
		T-NUTPGA332	T-NU-TPGW160408			.0313	.0866	★	★		★						

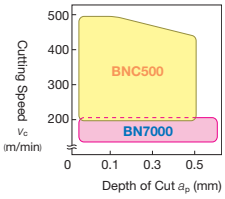
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

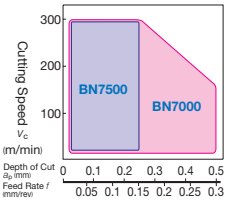
(C) Gray Cast Iron



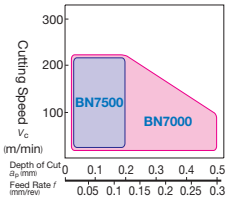
(D) Ductile Cast Iron



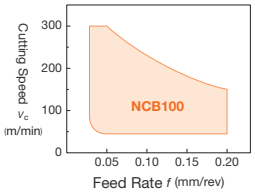
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								–	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application											
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
Sintered Components						◕		●			

TPGA33● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1875		

Applicable Internal Holders ☞ E46, E48, E51 to E52

Single-Use / 11° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
								Uncoated CBN									
Low Cutting Force	Sharp Edge	**NUTPGA331LF**	**NU-TPGW160404LF**	1	1	.0156	.0984						★				
Sharper Edge	T01215	**NUTPGA331LT** **NUTPGA332LT**	**NU-TPGW160404LT** **NU-TPGW160408LT**	1	1	.0156 .0313	.0984 .0866		★ ●								
Strong Edge	S01235	**NUTPGA331HS** **NUTPGA332HS**	**NU-TPGW160404HS** **NU-TPGW160408HS**	1	1	.0156 .0313	.0984 .0866		● ●								

*Depth of cut for single-use types is 0.0197 inch or less.

11° Positive (With Hole)

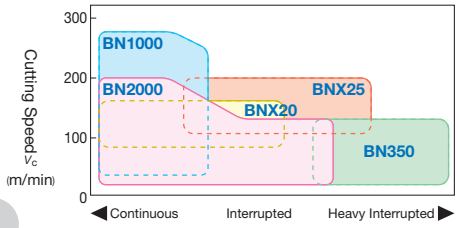
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**TPGA331** **TPGA332**	**TPGW160404** **TPGW160408**	1	1	.0156 .0313	.1378 .1260		★ ★	 ▲							
Strong Edge	S01235	**TPGA331HS** **TPGA332HS**	**TPGW160404HS** **TPGW160408HS**	1	1	.0156 .0313	.1378 .1260		★ ★								

Multi-Cornered Single-Use / 11° Positive (With Hole)

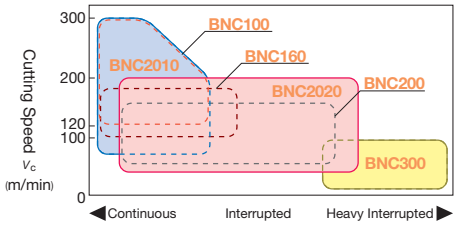
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**3NUTPGA331** **3NUTPGA332**	**3NU-TPGW160404** **3NU-TPGW160408**	1	3	.0156 .0313	.0984 .0906	● ●			● ●		● ●				

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TPGA33● Coated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1875		

Applicable Internal Holders ☞ E46, E48, E51 to E52

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

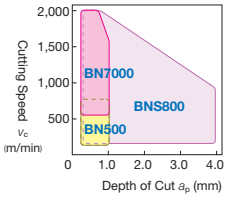
Recommended Application													
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
Sintered Components											◕		

Multi-Cornered Single-Use / 11° Positive (With Hole)

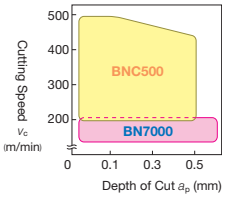
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
								Coated CBN											
	Standard	3NCTPGA331	3NC-TPGW160404	1	3	.0156	.0906		★	★	●	●			▲	★		★	
		3NCTPGA332	3NC-TPGW160408			.0313	.0787		★	★	●	●			▲	●		★	
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	3NCTPGA331LS	3NC-TPGW160404LS	1	3	.0156	.0906									★			
		3NCTPGA332LS	3NC-TPGW160408LS			.0313	.0787									★			
Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735 BNC300→S01735 BNC500→S01225	3NCTPGA331HS	3NC-TPGW160404HS	1	3	.0156	.0906			★	★	★				★			
		3NCTPGA332HS	3NC-TPGW160408HS			.0313	.0787			★	★	★				★			

CBN Application Range Map

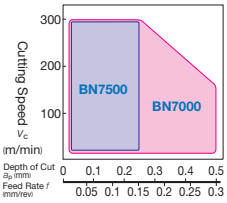
(C) Gray Cast Iron



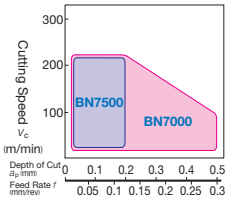
(D) Ductile Cast Iron



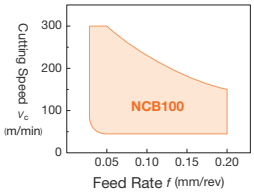
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

TPG■1.81.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2187	Hole Dia.	—
	Thickness	.0937		

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

11° Positive (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**TPG1.81.51**	**TPGN090204**	1	1	.0156	.1378		★								
Strong Edge	S01235	**TPG1.81.51HS**	**TPGN090204HS**	1	1	.0156	.1378		★								

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

TPG22● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	—
	Thickness	.1250		

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Applicable Internal Holders ☞ E49

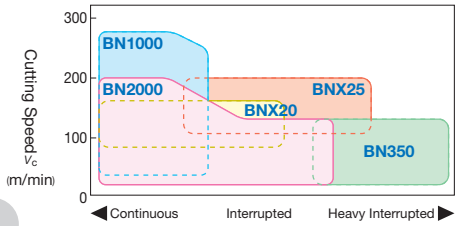
One-Use / 11° Positive (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUTPG221**	**NU-TPGN110304**	1	1	.0156	.0906	●	●	▲	●		★				
		NUTPG222	**NU-TPGN110308**			.0313	.0787	●	●	▲	★		★				
		T-NUTPG221	**T-NU-TPGN110304**	10	1	.0156	.0906		★								
		T-NUTPG222	**T-NU-TPGN110308**			.0313	.0787		★								
Sharper Edge	T01215	**NUTPG220.5LT**	**NU-TPGN110302LT**	1	1	.0078	.0945		●								
		NUTPG221LT	**NU-TPGN110304LT**			.0156	.0906		●								
		NUTPG222LT	**NU-TPGN110308LT**			.0313	.0787		★								
	Standard	**3NUTPG221**	**3NU-TPGN110304**	1	3	.0156	.0906						●	●			
		3NUTPG222	**3NU-TPGN110308**			.0313	.0787						●	●			

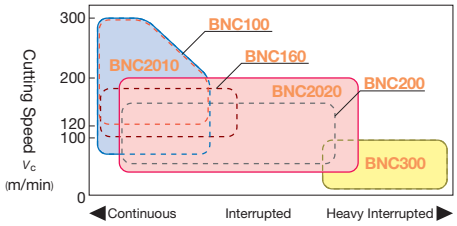
*Use NS (NS-TPGN) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TPG■22● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	—
	Thickness	.1250		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Uncoated CBN; Binderless CBN

Applicable Internal Holders E49

One-Use / 11° Positive (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
Strong Edge	S01235	**NUTPG222HS**	**NU-TPGN110308HS**	1	1	.0313	.0787		●								

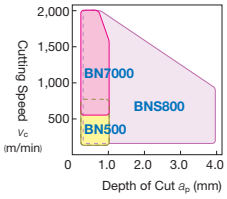
*Depth of cut for single-use types is 0.0197 inch or less.

11° Positive (Without Hole)

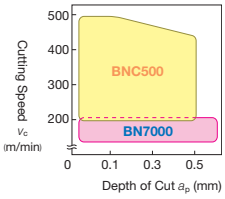
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**TPG221** **TPG222**	**TPGN110304** **TPGN110308**	1	1	.0156 .0313	.1378 .1260		★ ★				● ●				
Strong Edge	S01235	**TPG222HS**	**TPGN110308HS**	1	1	.0313	.1260		★								
Strong Edge	S01235	**TPGA221HS** **TPGA222HS**	**TPGN110304HS** **TPGN110308HS**	1	1	.0156 .0313	.1378 .1260		★ ★								

CBN Application Range Map

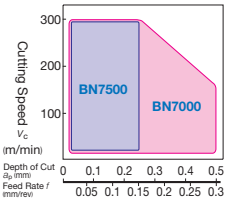
(C) Gray Cast Iron



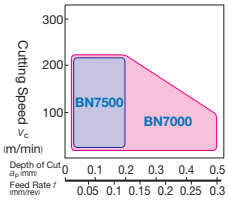
(D) Ductile Cast Iron



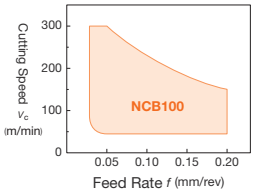
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



T Triangular

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ◐: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

TPG32● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	—
	Thickness	.1250		

Applicable External Holders C53 Applicable Internal Holders E49

One-Use / 11° Positive (Without Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
								Uncoated CBN									Binderless CBN
	Standard	NUTPG320.5	NU-TPGN160302	1	1	.0078	.0945		●								
		NUTPG321	NU-TPGN160304			.0156	.0906	●	●	▲	●		★				
		NUTPG322	NU-TPGN160308			.0313	.0787	●	●	▲	●		★				
		T-NUTPG321	T-NU-TPGN160304	10	1	.0156	.0906		★								
		T-NUTPG322	T-NU-TPGN160308			.0313	.0787		★								
Sharper Edge	T01215	NUTPG321LT	NU-TPGN160304LT	1	1	.0156	.0906		●								
		NUTPG322LT	NU-TPGN160308LT			.0313	.0787		●								
Strong Edge	S01235	NUTPG321HS	NU-TPGN160304HS	1	1	.0156	.0906		●								
		NUTPG322HS	NU-TPGN160308HS			.0313	.0787		●								
	Standard	3NUTPG321	3NU-TPGN160304	1	3	.0156	.0906							●			
		3NUTPG322	3NU-TPGN160308			.0313	.0787						●	●			

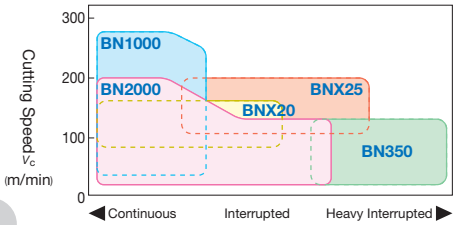
*Use NS (NSTPG) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

11° Positive (Without Hole)

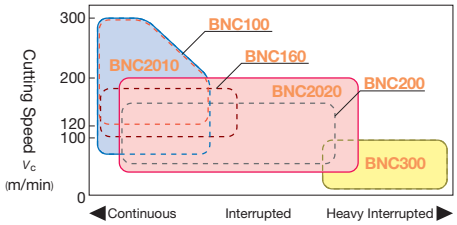
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	TPG321	TPGN160304	1	1	.0156	.1378		★				★	●			
		TPG322	TPGN160308			.0313	.1260		★	▲			●	●			
		TPG323	TPGN160312			.0469	.1142						●	●			
Strong Edge	S01235	TPG321HS	TPGN160304HS	1	1	.0156	.1378		★								
		TPG322HS	TPGN160308HS			.0313	.1260		★								

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



T Triangular

TPG43● Uncoated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	—
	Thickness	.1875		

Applicable External Holders ☞ C53

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

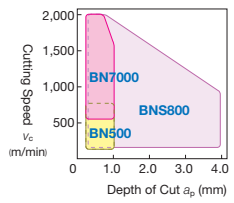
Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

11° Positive (Without Hole)

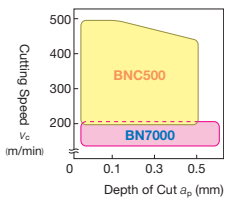
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**TPG432**	**TPGN220408**	1	1	.0313	.1260		★								
Strong Edge	S01235	**TPG432HS**	**TPGN220408HS**	1	1	.0313	.1260		★								

CBN Application Range Map

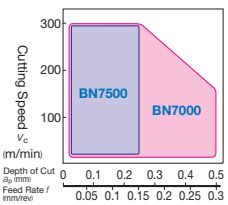
(C) Gray Cast Iron



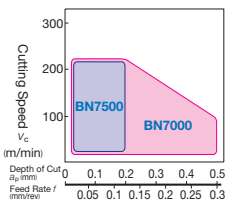
(D) Ductile Cast Iron



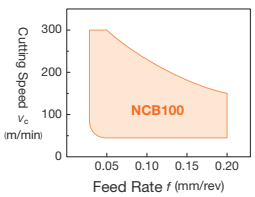
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



V 35° Diamond

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ● 1st Recommended ◯ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

Recommended Application		Uncoated CBN									
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Binderless CBN

VN■■33● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

Applicable External Holders C29 to C31 Applicable Internal Holders E26

Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUVNMA330	NU-VNMA160401	1	1	.0039	.1378		●								
		NUVNMA330.5	NU-VNMA160402			.0078	.1299		●								
		NUVNMA331	NU-VNMA160404			.0156	.1102	●	●	▲	●		★				
		NUVNMA332	NU-VNMA160408			.0313	.0787	●	●	▲	●		★				
		NUVNMA333	NU-VNMA160412			.0469	.0669			▲	●						
		T-NUVNMA331	T-NU-VNMA160404	10	1	.0156	.1102	★	★		★						
		T-NUVNMA332	T-NU-VNMA160408			.0313	.0787	★	★		★						
	Standard	NUVNGA331	NU-VNGA160404	1	1	.0156	.0984										★
		NUVNGA332	NU-VNGA160408			.0313	.0630										●

*Depth of cut for single-use types is 0.0197 inch or less.

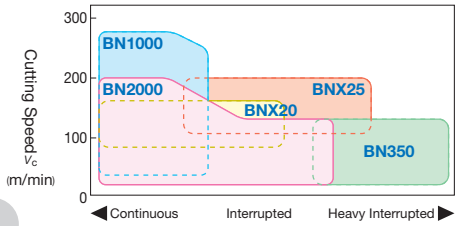
Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	2NUVNGA331	2NU-VNGA160404	1	2	.0156	.1102	●	●	▲	●		●	●	▲		
		2NUVNGA332	2NU-VNGA160408			.0313	.0787	●	●	▲	●		●	●	▲		
		2NUVNGA333	2NU-VNGA160412			.0469	.0669						●				
		T-2NUVNGA331	T-2NU-VNGA160404	10	2	.0156	.1102		★								
		T-2NUVNGA332	T-2NU-VNGA160408			.0313	.0787		★								

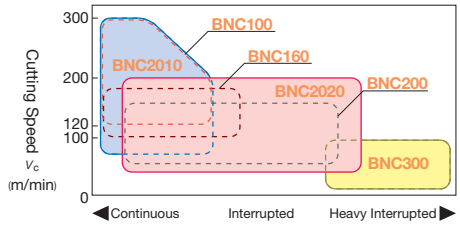
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



V 35° Diamond

VN■■33● Uncoated

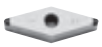
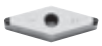
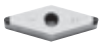
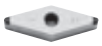
Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

Applicable External Holders C29 to C31 Applicable Internal Holders E26

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◒				✖	
S	Exotic Alloy					●				◒	●
H	Hardened Steel	●	◒	✖							
	Sintered Components					◒		●			

Multi-Cornered Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
 Break Master	S00535	2NUVNGG331LV 2NUVNGG332LV	2NU-VNGM160404N-LV 2NU-VNGM160408N-LV	1	2	.0156 .0313	.1102 .0787		★ ★								
Low Cutting Force	Sharp Edge	2NUVNGA332LF	2NU-VNGA160408LF	1	2	.0313	.0787						●	●			
 Sharper Edge	T01215	2NUVNGA331LT 2NUVNGA332LT	2NU-VNGA160404LT 2NU-VNGA160408LT	1	2	.0156 .0313	.1102 .0787	● ●	● ●								
 Strong Edge	BN2000→S01235 BN7000→S01225 BN700→S01225	2NUVNGA331HS 2NUVNGA332HS	2NU-VNGA160404HS 2NU-VNGA160408HS	1	2	.0156 .0313	.1102 .0787		★ ●				● ●	● ●			
 Strong Edge	T01235	2NUVNGA331HT 2NUVNGA332HT	2NU-VNGA160404HT 2NU-VNGA160408HT	1	2	.0156 .0313	.1102 .0787				★ ★						

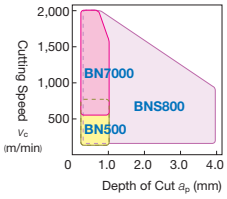
*Depth of cut for single-use types is 0.0197 inch or less.

Multi-Cornered / Negative (With Hole)

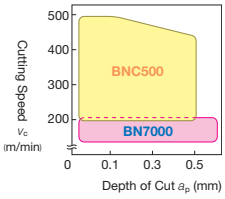
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	2MDVNMA331 2MDVNMA332 2MDVNMA333	2MD-VNMA160404 2MD-VNMA160408 2MD-VNMA160412	1	2	.0156 .0313 .0469	.1220 .1535 .1142			▲ ▲ ▲			● 				

CBN Application Range Map

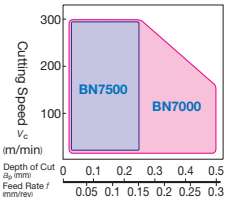
(C) Gray Cast Iron



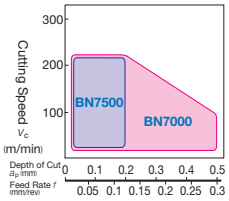
(D) Ductile Cast Iron



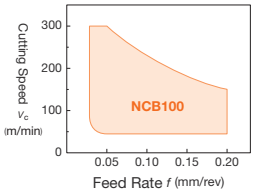
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



V 35° Diamond

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ◯: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

VN■■33● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

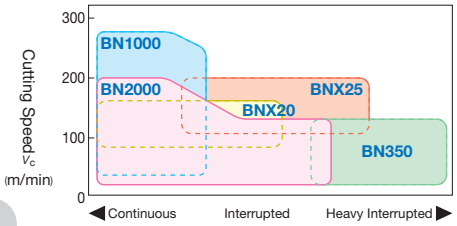
Applicable External Holders C29 to C31
Applicable Internal Holders E26

Negative (With Hole)

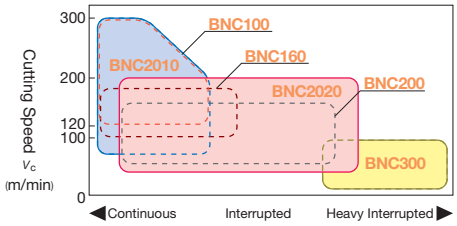
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**VNMA331**	**VNMA160404**	1	1	.0156	.1969										
		VNMA332	**VNMA160408**			.0313	.1614										

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



V 35° Diamond

VNG■33● Coated

Dimensions (inch)	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

Applicable External Holders C29 to C31
Applicable Internal Holders E26

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ● 1st Recommended ○ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

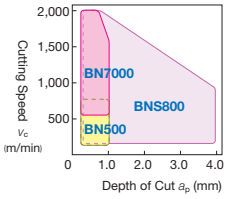
Recommended Application													
K	Cast Iron										●	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	●	○	○	✖						
	Sintered Components										●		

Multi-Cornered Single-Use / Negative (With Hole)

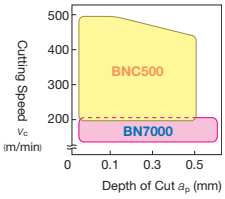
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
								Coated CBN											
	Standard	2NCVNGA331	2NC-VNGA160404	1	2	.0156	.1102		●	●	●	★				●			
		2NCVNGA332	2NC-VNGA160408			.0313	.0787		●	●	●	●	●	▲	▲	●			
	Standard	4NCVNGA330.5	4NC-VNGA160402	1	4	.0078	.1299		★	★	★	★							
		4NCVNGA331	4NC-VNGA160404			.0156	.1102		●	●	●	●	●	▲	▲	●		★	
		4NCVNGA332	4NC-VNGA160408			.0313	.0787		●	●	●	●	●	▲	▲	●		★	
		4NCVNGA333	4NC-VNGA160412			.0469	.0669			★		●				●			
Break Master	Honing	4NCVNGG331FV	4NC-VNGG160404N-FV	1	4	.0156	.1102			★	★	★			▲	★			
		4NCVNGG332FV	4NC-VNGG160408N-FV			.0313	.0787			★	★	★			▲				
Break Master	S00535	4NCVNGG331LV	4NC-VNGG160404N-LV	1	4	.0156	.1102			★	★	★			▲	★			
		4NCVNGG332LV	4NC-VNGG160408N-LV			.0313	.0787			★	★	★			▲	★			
Sharper Edge	T00515	2NCVNGA331LT	2NC-VNGA160404LT	1	2	.0156	.1102					●							
		2NCVNGA332LT	2NC-VNGA160408LT			.0313	.0787					●							
		2NCVNGA333LT	2NC-VNGA160412LT			.0469	.0669					★							
Sharper Edge	S01015	2NCVNGA332LS	2NC-VNGA160408LS	1	2	.0313	.0787			★						●			
Sharper Edge	BNC2020→S02735 BNC200→S01735 BNC300→S01735	2NCVNGA332HS	2NC-VNGA160408HS	1	2	.0313	.0787			●		●	●			●			
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015	4NCVNGA331LS	4NC-VNGA160404LS	1	4	.0156	.1102									●			

CBN Application Range Map

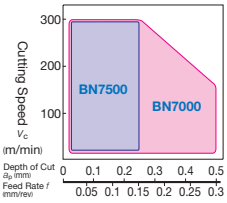
(C) Gray Cast Iron



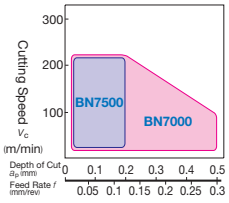
(D) Ductile Cast Iron



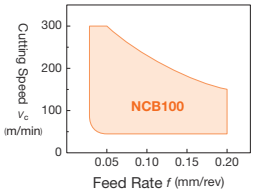
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



V 35° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

VNG■33● Coated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1500
	Thickness	.1875		

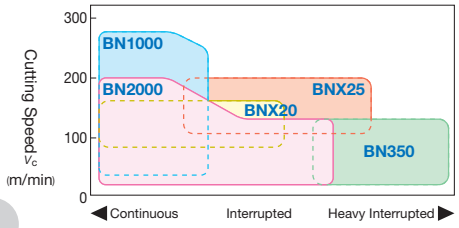
Applicable External Holders ☞ C29 to C31
Applicable Internal Holders ☞ E26

Multi-Cornered Single-Use / Negative (With Hole)

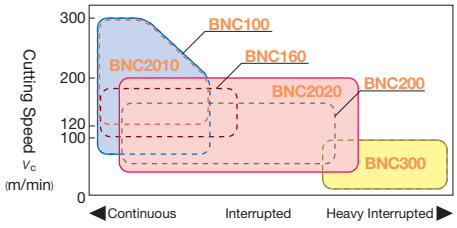
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
High-Efficiency	S00535	**4NCVNGA331ES**	**4NC-VNGA160404ES**	1	4	.0156	.1102					★							
Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735 BNC300→S01735 BNC500→S01225	**4NCVNGA331HS**	**4NC-VNGA160404HS**	1	4	.0156	.1102		★	★	●	★	★		▲	●		★	

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



V 35° Diamond

VBGA22● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1102
	Thickness	.1250		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application														
K	Cast Iron					○	◕					✖		
S	Exotic Alloy						●					◕		●
H	Hardened Steel	●	◕		✖									
	Sintered Components						◕			●				

Applicable External Holders D11, D26, D23 Applicable Internal Holders E53 to E57

Single-Use / 5° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
	Standard	NUVBGA220.5	NU-VBGW110302	1	1	.0078	.1260	★	●								
		NUVBGA221	NU-VBGW110304			.0156	.1102 *	★	●				★				★
		NUVBGA222	NU-VBGW110308			.0313	.0787 **		●				★				★
Sharper Edge	T01215	NUVBGA220.5LT	NU-VBGW110302LT	1	1	.0078	.1260		●								
		NUVBGA221LT	NU-VBGW110304LT			.0156	.1102		●								
		NUVBGA222LT	NU-VBGW110308LT			.0313	.0787		★								
Strong Edge	S01235	NUVBGA220.5HS	NU-VBGW110302HS	1	1	.0078	.1260		●								
		NUVBGA221HS	NU-VBGW110304HS			.0156	.1102		●								
		NUVBGA222HS	NU-VBGW110308HS			.0313	.0787		●								

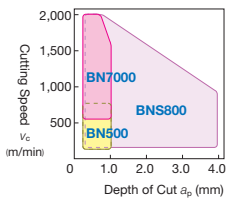
Use NS (NSVBGA) for BNX25. Depth of cut for single-use types is 0.0197 inch or less.
* NCB100 cutting edge length is .0984".
** NCB100 cutting edge length is .0630".

Multi-Cornered Single-Use / 5° Positive (With Hole)

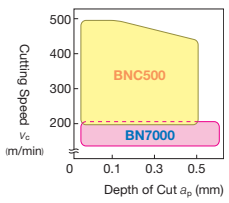
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	2NUVBGA221	2NU-VBGW110304	1	2	.0156	.1102						●	●			
		2NUVBGA222	2NU-VBGW110308			.0313	.0787						●	●			

CBN Application Range Map

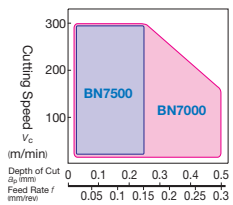
(C) Gray Cast Iron



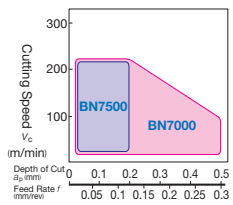
(D) Ductile Cast Iron



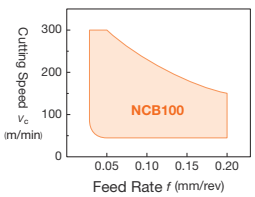
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



V 35° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

VBGA22● Coated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1102
	Thickness	.1250		

Applicable External Holders ☞ D11, D26, D33 Applicable Internal Holders ☞ E53 to E57

Multi-Cornered Single-Use / 5° Positive (With Hole)

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
Sintered Components											◕		

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	2NCVBGA220.5	2NC-VBGW110302	1	2	.0078	.1260		★	★	★	★							
		2NCVBGA221	2NC-VBGW110304			.0156	.1102		★	★	●	●			▲	●		★	
		2NCVBGA222	2NC-VBGW110308			.0313	.0787		★	★	★	●				●		★	
Sharper Edge	T00515	2NCVBGA220.5LT	2NC-VBGW110302LT	1	2	.0078	.1260					★							
		2NCVBGA221LT	2NC-VBGW110304LT			.0156	.1102					●							
Sharper Edge	S01715	2NCVBGA221LS	2NC-VBGW110304LS	1	2	.0156	.1102							▲					

VBGA33● Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1875		

Applicable External Holders ☞ D26, D33 Applicable Internal Holders ☞ E53 to E54

Single-Use / 5° Positive (With Hole)

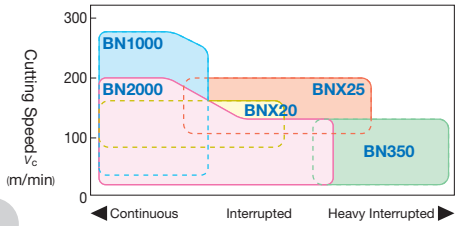
Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
K	Cast Iron		○	◕					✖		
S	Exotic Alloy			●					◕		●
H	Hardened Steel	●	◕		✖						
Sintered Components				◕			●				

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUVBGA330.5	NU-VBGW160402	1	1	.0078	.1496	★	●								
		NUVBGA331	NU-VBGW160404			.0156	.1299 *	★	●								★
		NUVBGA332	NU-VBGW160408			.0313	.0984 **		●								★
Sharper Edge	T01215	NUVBGA330.5LT	NU-VBGW160402LT	1	1	.0078	.1496		●								
		NUVBGA331LT	NU-VBGW160404LT			.0156	.1299		●								
		NUVBGA332LT	NU-VBGW160408LT			.0313	.0984		★								
Strong Edge	S01235	NUVBGA331HS	NU-VBGW160404HS	1	1	.0156	.1299		●								
		NUVBGA332HS	NU-VBGW160408HS			.0313	.0984		●								

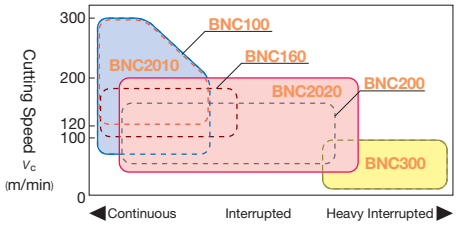
Depth of cut for single-use types is 0.0197 inch or less.
* NCB100 cutting edge length is .0984". ** NCB100 cutting edge length is .0630"

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



V 35° Diamond

VBGA33● Uncoated

Dimensions (inch)	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1875		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
K	Cast Iron					○	◕				✖
S	Exotic Alloy						●				◕	●
H	Hardened Steel	●	◕		✖							
Sintered Components							◕			●		

Applicable External Holders ☞ D26, D33 Applicable Internal Holders ☞ E53 to E54

Multi-Cornered Single-Use / 5° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	2NUVBGA331	2NU-VBGW160404	1	2	.0156	.1299						●	★			
		2NUVBGA332	2NU-VBGW160408			.0313	.0984						●	●			

*Depth of cut for single-use types is 0.0197 inch or less.

VBGA33● Coated

Dimensions (inch)	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1875		

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron											◕	●	✖
S	Exotic Alloy													
H	Hardened Steel	○	●	◕	○	◔	✖							
Sintered Components												◕		

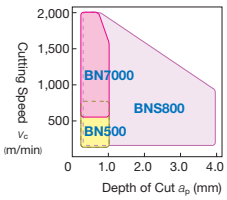
Applicable External Holders ☞ D26, D33 Applicable Internal Holders ☞ E53 to E54

Multi-Cornered Single-Use / 5° Positive (With Hole)

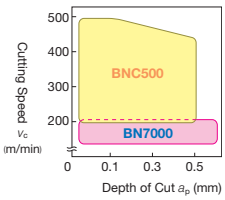
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	2NCVBGA330.5	2NC-VBGW160402	1	2	.0078	.1496		★	★	★	★							
		2NCVBGA331	2NC-VBGW160404			.0156	.1299		★	●	★	●				●		★	
		2NCVBGA332	2NC-VBGW160408			.0313	.0984		★	●	★	●				●		★	
Low Cutting Force	Honing	2NCVBGA330.5LE	2NC-VBGW160402LE	1	2	.0078	.1496				★								
		2NCVBGA331LE	2NC-VBGW160404LE			.0156	.1299				★								
		2NCVBGA332LE	2NC-VBGW160408LE			.0313	.0984				★								
Sharper Edge	T00515	2NCVBGA330.5LT	2NC-VBGW160402LT	1	2	.0078	.1496					★							
		2NCVBGA331LT	2NC-VBGW160404LT			.0156	.1299					●							
		2NCVBGA332LT	2NC-VBGW160408LT			.0313	.0984					●							
Sharper Edge	T00515	2NCVBGA332HS	2NC-VBGW160408HS	1	2	.0313	.0984						●						

CBN Application Range Map

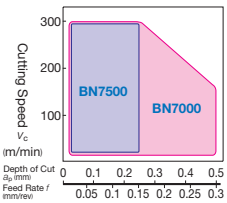
(C) Gray Cast Iron



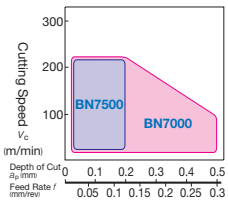
(D) Ductile Cast Iron



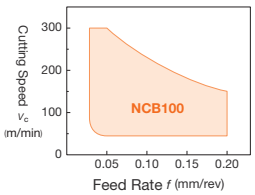
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



V 35° Diamond

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ● 1st Recommended ○ 2nd Recommended; General Cutting ◕ 1st Recommended ◔ 2nd Recommended; Interrupted Cutting ✖ 1st Recommended ✖ 2nd Recommended

VCGA1.51.5● Uncoated

Dimensions (inch)				
	Inscribed Circle	.1875	Hole Dia.	.0906
	Thickness	.0937		

Applicable Internal Holders ☞ E59 to E60

Recommended Application

		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

Uncoated CBN / Binderless CBN

Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	NUVCGA1.51.50.5	NU-VCGW080202	1	1	.0078	.1299		★								
		NUVCGA1.51.51	NU-VCGW080204			.0156	.1102		★								
		NUVCGA1.51.52	NU-VCGW080208			.0313	.0787		★								
Sharper Edge	T01215	NUVCGA1.51.50.5LT	NU-VCGW080202LT	1	1	.0078	.1299		★								
		NUVCGA1.51.51LT	NU-VCGW080204LT			.0156	.1102		★								
		NUVCGA1.51.52LT	NU-VCGW080208LT			.0313	.0787		★								
Strong Edge	S01235	NUVCGA1.51.51HS	NU-VCGW080204HS	1	1	.0156	.1102		●								
		NUVCGA1.51.52HS	NU-VCGW080208HS			.0313	.0787		★								

*Depth of cut for single-use types is 0.0197 inch or less.

VCGA63● Coated

Dimensions (inch)				
	Inscribed Circle	.1875	Hole Dia.	.0906
	Thickness	.0937		

Applicable Internal Holders ☞ E59 to E60

Recommended Application

		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

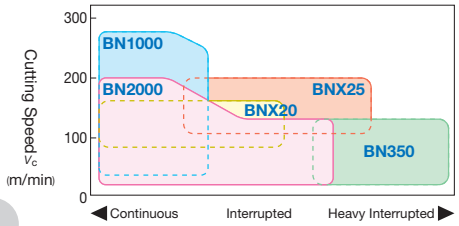
Coated CBN

Multi-Cornered Single-Use / 7° Positive (With Hole)

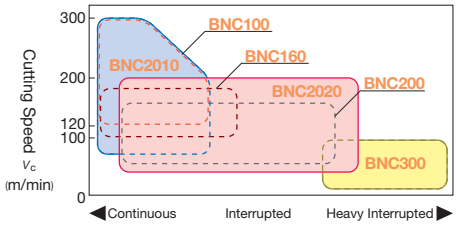
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	2NCVCGA630.5	2NC-VCGW080202	1	2	.0078	.1299				★	★							
		2NCVCGA631	2NC-VCGW080204			.0156	.1102				★	★							

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



V 35° Diamond

VCGA22● Uncoated

Dimensions (inch)				
	Inscribed Circle	.2500	Hole Dia.	.1102
	Thickness	.1250		

Applicable External Holders ☞ C42, D12, D21, D33 Applicable Internal Holders ☞ E58 to E60

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
		Uncoated CBN									Binderless CBN
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

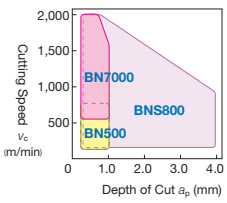
Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUVCGA220.5**	**NU-VCGW110302**	1	1	.0078	.1299	★	●	▲							
		NUVCGA221	**NU-VCGW110304**			.0156	.1102		●	▲							
Strong Edge	S01235	**NUVCGA220.5HS**	**NU-VCGW110302HS**	1	1	.0078	.1299		●								
		NUVCGA221HS	**NU-VCGW110304HS**			.0156	.1102		★								

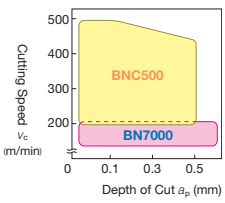
*Use NS (NS-VCGA) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

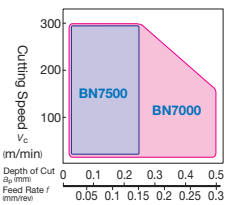
(C) Gray Cast Iron



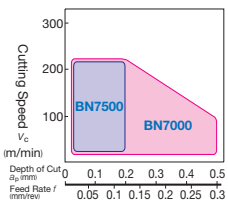
(D) Ductile Cast Iron



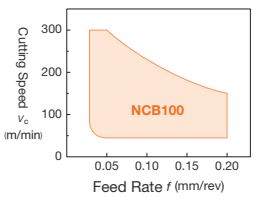
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



V 35° Diamond

Standard Edge Specification Details L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

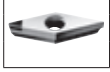
VC■■33 Uncoated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1875		

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
Sintered Components						◕		●			
		Uncoated CBN									Binderless CBN

Applicable External Holders C41 to C43, D26, D33 Applicable Internal Holders E58

Single-Use / 7° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUVCGA331**	**NU-VCGW160404**	1	1	.0156	.1102 *	★					★				★
		NUVCGA332	**NU-VCGW160408**			.0313	.0748 **										★

Use NS (NSVCGA) for BNX25. Depth of cut for single-use types is 0.0197 inch or less.
* NCB100 cutting edge length is .0984".
** NCB100 cutting edge length is .0630".

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

VCGA33● Coated

Dimensions (inch)				
	Inscribed Circle	.3750	Hole Dia.	.1732
	Thickness	.1875		

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
Sintered Components											◕		
		Coated CBN											

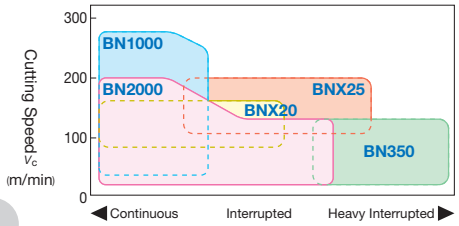
Applicable External Holders C41 to C43, D26, D33 Applicable Internal Holders E58

Multi-Cornered Single-Use / 7° Positive (With Hole)

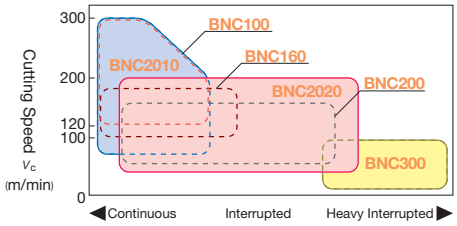
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	**2NCVCGA331**	**2NC-VCGW160404**	1	2	.0156	.1102		★	●	●	●			▲	●			
		2NCVCGA332	**2NC-VCGW160408**			.0313	.0748		★	●	●	●		▲	▲	●			
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015 BNC300→S00515	**2NCVCGA331LS**	**2NC-VCGW160404LS**	1	2	.0156	.1102		★	★					▲	★			
		2NCVCGA332LS	**2NC-VCGW160408LS**			.0313	.0748		★	★					▲	★			
Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735	**2NCVCGA331HS**	**2NC-VCGW160404HS**	1	2	.0156	.1102			★	★	●			▲	★			
		2NCVCGA332HS	**2NC-VCGW160408HS**			.0313	.0748			★	★	●			▲	★			

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



W Trigon

WNMA43● Uncoated

Dimensions (inch)	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Applicable External Holders ☞ C32, C33 Applicable Internal Holders ☞ E28, E29

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◒ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
		Uncoated CBN									
K	Cast Iron					◒				✖	
S	Exotic Alloy					●				◒	●
H	Hardened Steel	●	◒		✖						
	Sintered Components					◒		●			

Single-Use / Negative (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**NUWNMA431**	**NU-WNMA080404**	1	1	.0156	.1299	●	●	▲	●						
		NUWNMA432	**NU-WNMA080408**			.0313	.1102	●	●	▲	●						
		NUWNMA433				.0469	.0787			▲							

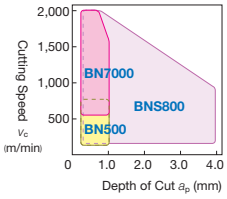
*Use NS (NS-WNMA) for BNX25. *Depth of cut for single-use types is 0.0197 inch or less.

Multi-Cornered Single-Use / Negative (With Hole)

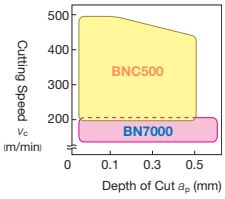
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
	Standard	**3NUWNGA432**	**3NU-WNGA080408**	1	3	.0313	.0787	●			●		●	●			
		3NUWNGA433	**3NU-WNGA080412**			.0469	.0787				●		●	●			

CBN Application Range Map

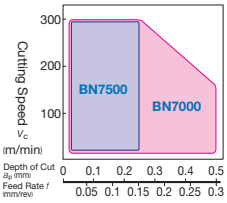
(C) Gray Cast Iron



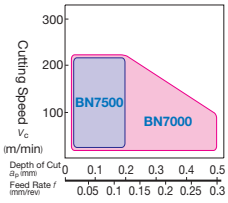
(D) Ductile Cast Iron



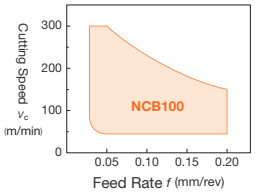
(E) General Powdered Metal



(F) High-density Powdered Metal



(G) Titanium Alloy



W Trigon

Standard Edge Specification Details ☞ L28, L29

	BNX10	BNX20	BNX25	BN1000 BN2000 BN250	BN350 BN300	BNC2010 BNC2020	BNC100 BNC160	BNC200 BNC300	BNC500	BN500	BN7000 BN700 BN600	BN7500	BNS800	NCB100
Neg.	T01225	S01225	S01725	S01225	T01225	S01225	S01225	S01225	S01215	T01215	T01215	T01215	T02020	T01215
Pos.					T01235								-	

(Legend) Continuous Cutting ●: 1st Recommended ○: 2nd Recommended; General Cutting ◕: 1st Recommended ◔: 2nd Recommended; Interrupted Cutting ✖: 1st Recommended ✖: 2nd Recommended

WNGA43● Coated

Dimensions (inch)				
	Inscribed Circle	.5000	Hole Dia.	.2031
	Thickness	.1875		

Recommended Application		BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
K	Cast Iron										◕	●	✖
S	Exotic Alloy												
H	Hardened Steel	○	●	◕	○	◔	✖						
	Sintered Components										◕		

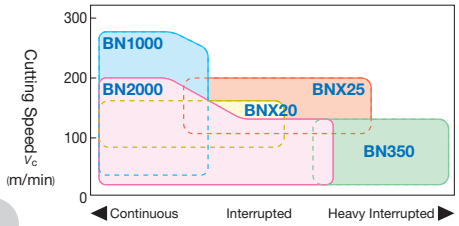
Applicable External Holders ☞ C32, C33 Applicable Internal Holders ☞ E28, E29

Multi-Cornered Single-Use / Negative (With Hole)

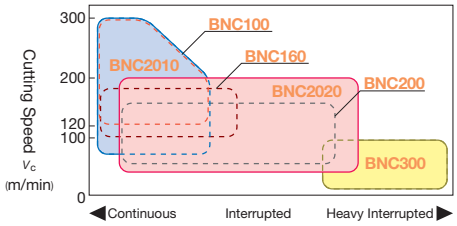
Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BNC2105	BNC2115	BNC2125	BNC2010	BNC2020	BNC300	BNC100	BNC160	BNC200	PMC7125	BNC500	BNC8115
	Standard	6NCWNGA431	6NC-WNGA080404	1	6	.0156	.0906		★	★	★	★							
		6NCWNGA432	6NC-WNGA080408			.0313	.0787		★	★	●	●			▲	●			
		6NCWNGA433	6NC-WNGA080412			.0469	.0787		★	★	★	★							
Wiper Insert	S01215	6NCWNGA432WG	6NC-WNGA080408WG	1	6	.0313	.0787		●	★	●	●			▲	●			
		6NCWNGA433WG	6NC-WNGA080412WG			.0469	.0787				●	●			▲	●			
Wiper Insert	S01215	6NCWNGA432WH	6NC-WNGA080408WH	1	6	.0313	.0748		★	★	●	●			▲	●			
		6NCWNGA433WH	6NC-WNGA080412WH			.0469	.0787				●	●			▲	●			
Sharper Edge	T00515	3NCWNGA432LT	3NC-WNGA080408LT	1	3	.0313	.0787					★							
Sharper Edge	BNC100→S01715 BNC160→S01020 BNC200→S01015	6NCWNGA432LS	6NC-WNGA080408LS	1	6	.0313	.0787								▲	★			
Strong Edge	BNC2010→S01730 BNC2020→S02735 BNC160→S01730 BNC200→S01735	6NCWNGA432HS	6NC-WNGA080408HS	1	6	.0313	.0787		★	★	★	●			▲	★			

CBN Application Range Map

(A) Uncoated CBN



(B) Coated CBN



W Trigon

WBED52● Uncoated

Dimensions (inch)				
	Inscribed Circle	.1563	Hole Dia.	.0866
	Thickness	.0625		

Applicable Internal Holders ☞ E61, E62

(Legend) Continuous Cutting: ● 1st Recommended, ○ 2nd Recommended; General Cutting: ◕ 1st Recommended, ◔ 2nd Recommended; Interrupted Cutting: ✖ 1st Recommended, ✖ 2nd Recommended

Recommended Application		BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100 (Binderless CBN)
		Uncoated CBN									
K	Cast Iron					◕				✖	
S	Exotic Alloy					●				◕	●
H	Hardened Steel	●	◕		✖						
	Sintered Components					◕		●			

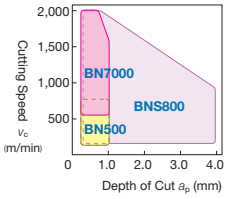
Single-Use / 5° Positive (With Hole)

Shape	Cutting Edge Specification	Sumitomo Cat. No.	ISO Cat. No.	Pcs/ Pack	No. of Cutting Edges	Nose Radius RE	Effective Cutting Edge Length LE	BN1000	BN2000	BN250	BN350	BN7125	BN7000	BN7115	BN7500	BNS8125	NCB100
Low Cutting Force	Sharp Edge	**NUWBED520.5LLF**	**NU-WBEW060102L-LF**	1	1	.0078	.0512						★				

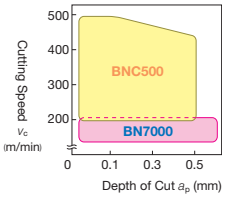
*Depth of cut for single-use types is 0.0197 inch or less.

CBN Application Range Map

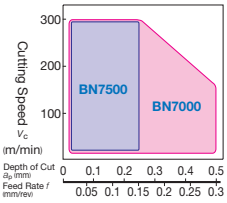
(C) Gray Cast Iron



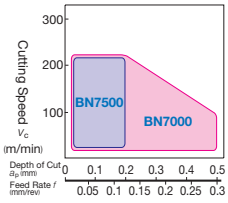
(D) Ductile Cast Iron



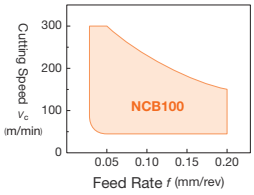
(E) General Powdered Metal



(F) High-density Powdered Metal

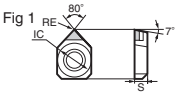


(G) Titanium Alloy



Turning Insert

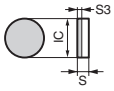
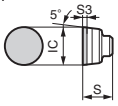
Dimensions (inch)

Shape		Sumitomo Cat. No.	ISO Cat. No.	BN1000	BN2000	BN250	BN7000	BN7115 (Coated)	BNC200 (Coated)	Inscribed Circle IC	Thickness S	Nose Radius RE	Hole Dia.	Applicable Holder	Fig
	Fig 1 	**NUZNEX620.5**	**NU-ZNEX040102**		●	▲	★	●		.1875	.0625	.0079	.0906	SUMIBORON Small Dia. Boring Bar (BNZ) → L117	1
		NUZNEX621	**NU-ZNEX040104**		●	▲	●	●		.1875	.0625	.0157	.0906		1

*Use NS (NS-ZNEX) for BNX25.
*T-NU-ZNEX is a 10-piece pack.

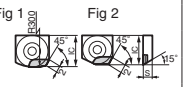
Round Insert

Dimensions (inch)

Shape		Sumitomo Cat. No.	ISO Cat. No.	BN250	BN350	BN7000	BN7115	BNS8125	BNS800	Inscribed Circle IC	Thickness S	CBN Layer Thickness S3	Applicable Holder	Fig
	Fig 1  Fig 2	**RNG32B**	**RNGN090300-B**			●	●			.3750	.1250	.0315	Special Holder	1
		RNG43B	**RNGN120400-B**	▲		●				.5000	.1875	.0315		1
		RNG32	**RNGN090300**					●	▲	.3750	.1250	.1250	Solid SUMIBORON Holders (CRDN, CRSN) → L108	2
		RNG42	**RNGN120300**					●	▲	.5000	.1250	.1250		2
		RNG43	**RNGN120400**					●	▲	.5000	.1875	.1875		2
	Fig 1 	**RBG08-B**	**RBG08-B**			★				.3150	.2559	.0315	SUMIBORON for Machining Rolls SEC-R (BNRN) →L121	1
		RBG10-B	**RBG10-B**			★				.3937	.3543	.0315		1
		RBG12-B	**RBG12-B**			★				.4724	.4331	.0315		1
		RBG16-B	**RBG16-B**			★				.6299	.5118	.0315		1
		RBG20-B	**RBG20-B**			★				.7874	.5906	.0315		1
		RBG26-B	**RBG26-B**			★				1.0236	.5906	.0315		1

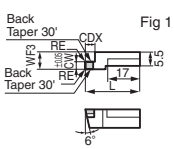
Milling Insert

Dimensions (inch)

Shape		Sumitomo Cat. No.	ISO Cat. No.	BN1000	BN2000	BN7000	BN7115	Inscribed Circle IC	Thickness S	Applicable Holder	Fig
	Fig 1  Fig 2	**SNEW1203ADTR**	**SNEW1203ADTR**			●	●	.5000	.1250	BN Finish Mill EASY (FMU) →L125	1
		SNEW1203ADTRS	**SNEW1203ADTR-S**			●	●	.5000	.1250		2

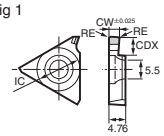
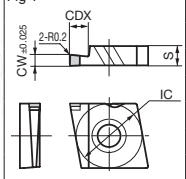
Grooving / Threading Tool Insert

Dimensions (inch)

Shape (Right Hand)		Sumitomo Cat. No.	ISO Cat. No.	BN2000 R	BN2000 L	BN250 R	BN250 L	BN350 R	BN350 L	Groove Width CW	Groove Depth CDX	Nose Radius RE	Overall Length L	Cutting Edge Distance WF3	Applicable Holder	Fig
	 Fig 1	**BNGNT0200R/L**	**BNGNT0200R/L**				●	●		.0787	.1575	.0079	.9843	.2362	SUMIBORON Grooving Tool (BNGG) →L123	1
		BNGNT0250R/L	**BNGNT0250R/L**				●	●		.0984	.1575	.0079	.9843	.2362		1
		BNGNT0300R/L	**BNGNT0300R/L**			●	●	★		.1181	.1969	.0157	.9843	.2362		1
		BNGNT0400R/L	**BNGNT0400R/L**			●	●	●		.1575	.2362	.0157	1.0236	.2362		1
		BNGNT0500R/L	**BNGNT0500R/L**					★		.1969	.2362	.0157	1.0236	.2362		1
		BNGNT0600R/L	**BNGNT0600R/L**					★		.2362	.2756	.0157	1.0630	.2362		1

Insert for Grooving Tool Holders

Dimensions (inch)

Shape		Sumitomo Cat. No.	ISO Cat. No.	BN2000 R	BN2000 L	BNC30G R	BNC30G L	BN250 R	BN250 L	BN7000 R	BN7000 L	BN7500 R	BN7500 L	Inscribed Circle IC	Width of Cut CW	Nose Radius RE	Groove Depth CDX	Hole Dia.	Applicable Holder	Fig
	 Fig 1	**TGAR4125**	**TGAR4125**	★										.5000	.0492	.0079	.0787	.2165	Grooving Tool (GWC, GWCS, GWCI) →F33 to F36	1
		TGAR4150	**TGAR4150**	★										.5000	.0591	.0079	.1378	.2165		1
		TGAR4200	**TGAR4200**	★										.5000	.0787	.0079	.1378	.2165		1
		TGAR4250	**TGAR4250**	★										.5000	.0984	.0079	.1575	.2165		1
		TGAR4300	**TGAR4300**	★										.5000	.1181	.0079	.1575	.2165		1
		TGAR4350	**TGAR4350**	★										.5000	.1378	.0079	.1969	.2165		1
		TGAR4400	**TGAR4400**	★										.5000	.1575	.0079	.1969	.2165		1
	 Fig 1	**CGAR/L4062**	-	●	●	●	●	▲	▲					.6250	.062	.0079	.1378	.2165	SUMIBORON Grooving Tool (GWB) →L122	
		CGAR/L4094	-	●	●	●	●		▲					.6250	.094	.0079	.1575	.2165		
		CGAR/L4125	-	●	●	●		▲						.6250	.125	.0079	.1969	.2165		
		CGAR/L1504150	**CGAR/L1504150**	★	●	●	●	▲	▲	●	●	●	●	.6250	.0591	.0079	.1378	.2165		1
		CGAR/L1504200	**CGAR/L1504200**	●	●	●	●	▲	▲	●	●	●	●	.6250	.0787	.0079	.1378	.2165		1
		CGAR/L1504250	**CGAR/L1504250**	●	●	●	●	▲	▲					.6250	.0984	.0079	.1575	.2165		1
		CGAR/L1504300	**CGAR/L1504300**	●	●	●	●	▲	▲	●	●	●	●	.6250	.1181	.0079	.1575	.2165		1
		CGAR/L1504350	**CGAR/L1504350**			★	●	▲	▲					.6250	.1378	.0079	.1969	.2165		1
		CGAR/L1504400	**CGAR/L1504400**	●	●	●	★		▲	●	●	●	●	.6250	.1575	.0079	.1969	.2165		1
		CGAR/L1504450	**CGAR/L1504450**			●	★	▲	▲					.6250	.1772	.0079	.1969	.2165		1
		CGAR/L6189	-	●	●	●		▲						.6250	.189	.0079	.1969	.2165		
		CGAR/L1506500	**CGAR/L1506500**	●	●	★	●	▲	▲					.6250	.1969	.0079	.1969	.2165		1
		CGAR/L1506550	**CGAR/L1506550**			▲			▲					.6250	.2165	.0079	.1969	.2165		1
		CGAR/L1506600	**CGAR/L1506600**	●	●	●	●		▲					.6250	.2362	.0079	.1969	.2165		1

General Turning and Profiling
Clamp-on

CRDN

External Diameter / Profiling

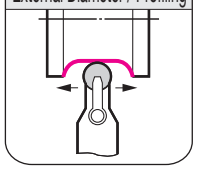
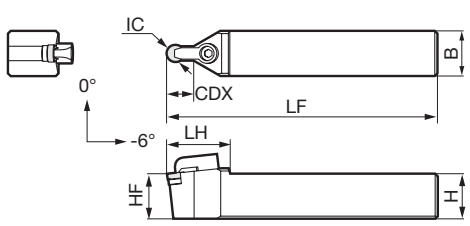


Fig 1



Insert L61

(1) RNG32
(2) RNG42
(3) RNG43

Holder

Parts

Dimensions (mm)

Cat. No.	Stock	Inscribed Circle IC	Height H	Width B	Overall Length LF	Cutting Edge Height HF	Head LH	Depth of Cut CDX	Applicable Insert	Fig	Clamp	Double Screw	Shim	Shim Set Screw	Wrench
CRDN N2525-32	★	*9.525*	*25*	*25*	*150*	*25*	*35*	*15*	RNG32	1	CCM8-LONG	WB8-22T	SRND32	SPP3	LT27
CRDN N2525-42	★	*12.7*	*25*	*25*	*150*	*25*	*35*	*20*	RNG42	1			SRND42		
CRDN N2525-43	★	*12.7*	*25*	*25*	*150*	*25*	*35*	*20*	RNG43	1					

General Turning and Face Grooving
Clamp-on

CRSN

External Diameter / Facing

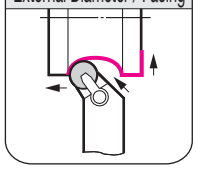


Fig 1

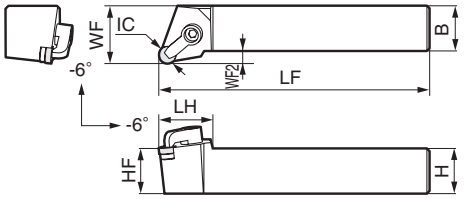


Figure shows right-hand (R) tool.

Insert L61

(1) RNG32
(2) RNG42
(3) RNG43

Holder

Parts

Dimensions (mm)

Cat. No.	Stock R	Stock L	Inscribed Circle IC	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Offset WF2	Applicable Insert	Fig	Clamp	Double Screw	Shim	Shim Set Screw	Wrench
CRSN R/L2525-32	★		*9.525*	*25*	*25*	*150*	*32*	*25*	*30*	*7*	RNG32	1	CCM8-LONG	WB8-22T	SRND32	SPP3	LT27
CRSN R/L2525-42	★		*12.7*	*25*	*25*	*150*	*32*	*25*	*30*	*7*	RNG42	1			SRND42		
CRSN R/L2525-43	★		*12.7*	*25*	*25*	*150*	*32*	*25*	*30*	*7*	RNG43	1					

Please refer to C Section: ceramic holders CRDNN (C47) and CRSN(R/L) and methods for holding dimple lock inserts

General Turning
Dimple Lock

Fig 1

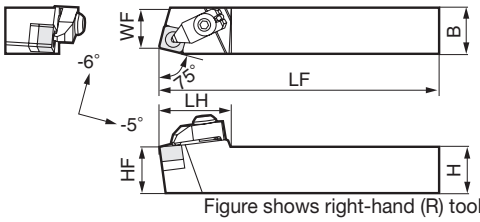


Figure shows right-hand (R) tool.

Insert L65

Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig	Clamp	Bolt	Shim	Shim Set Screw	Spring	Wrench
XSBN R/L2525-43	★		*25*	*25*	*150*	*21.5*	*25*	*38*	SNGX43○○	1	DSLX8	BH0825	SSND433	SPP3	GSP10	LH050

General Turning and Facing
Dimple Lock

Fig 1

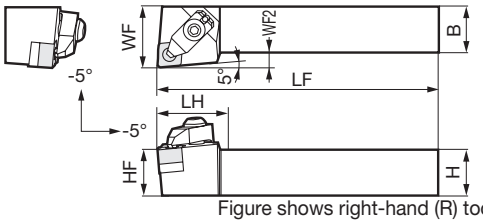


Figure shows right-hand (R) tool.

Insert L35

Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Offset WF2	Applicable Insert	Fig	Clamp	Bolt	Shim	Shim Set Screw	Spring	Wrench
XCLN R/L2525-43	★		*25*	*25*	*150*	*32*	*25*	*33*	*7*	CNGX43○○	1	DSLX8	BH0825	SCND433	SPP3	GSP10	LH050

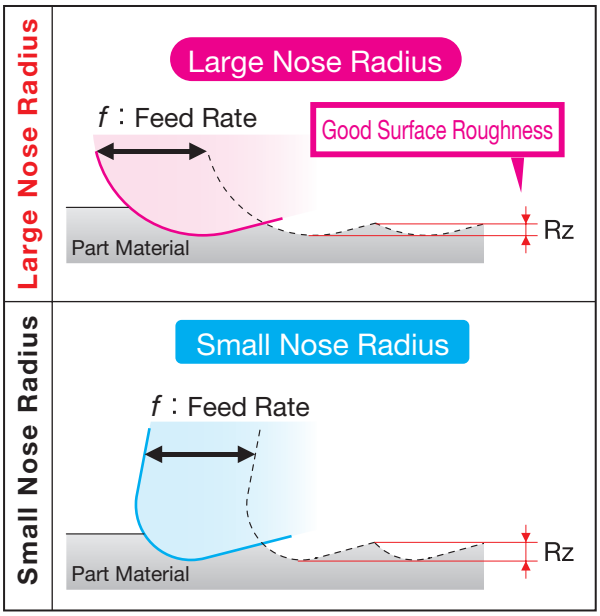
Please refer to C Section: ceramic holders CRDNN (C47) and CRSN(R/L) and methods for holding dimple lock inserts

Inserts & Special Holders for High Efficiency Machining

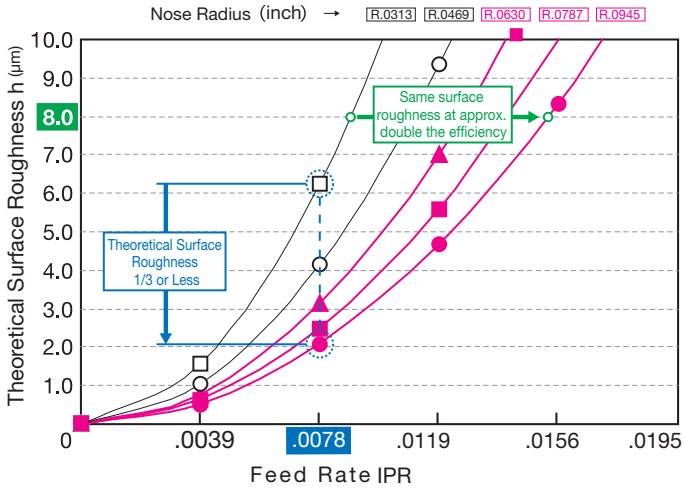
■ Features

- Improved finished surface roughness with high-feed cutting
- Ideal for profiling when when low surface roughness is required

● Operation with different nose radii



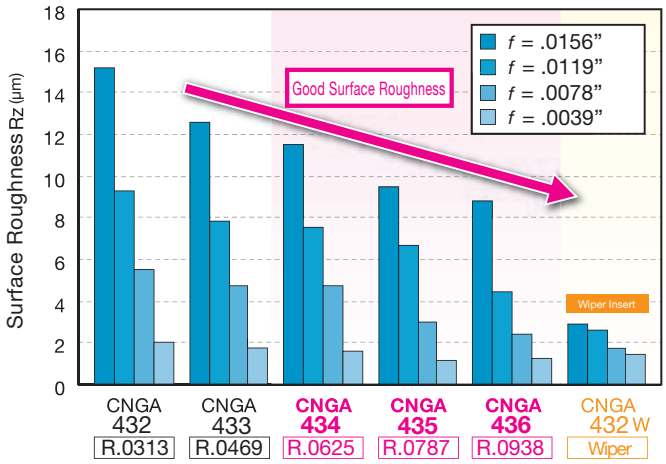
● Comparison of Theoretical Surface Roughness



Feed Rate f = .0079 IPR	Nose Radius .0313" vs. .0938" Comparison **Theoretical surface roughness 1/3 or lower**
Required Theoretical Surface Roughness Rz 8.0μm	Nose Radius .0313" vs. .0938" Comparison **Same surface roughness at approx. double the efficiency**

* Actual value of surface roughness is approximately 1.5 to 3 times higher (for steel).
* Theoretical surface roughness is calculated using the following formula: [$h = (f^2 / 8r) \times 10^3$].

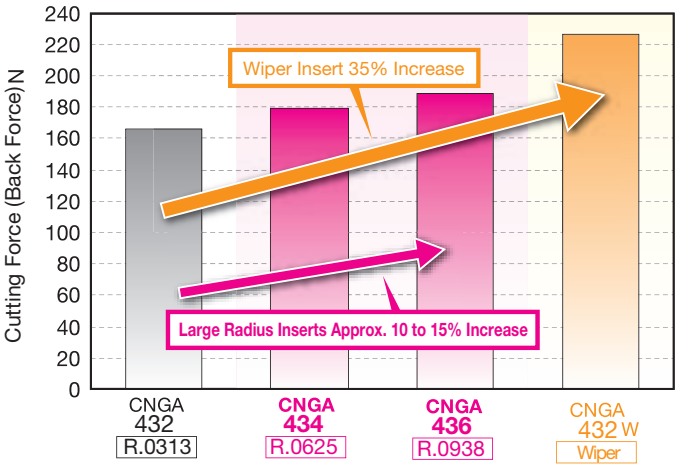
● Machined surface roughness comparison with different nose radii



Inserts with a larger nose radius also give better surface roughness during actual machining

Part Material: Chromium Molybdenum Steel (60HRC)
Cutting Conditions: v_c = 330 SFM, a_p = .0039" Dry

● Cutting force comparison with different nose radii



Low cutting force compared to wiper insert enables high-feed cutting

Part Material: Chromium Molybdenum Steel (60HRC)
Cutting Conditions: v_c = 500 SFM, f = .0117 IPR, a_p = .0039" Dry

Inserts & Special Holders for High Efficiency Machining

DCLN

External Turning and Facing

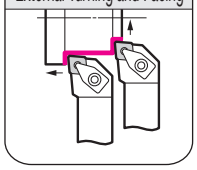


Fig 1

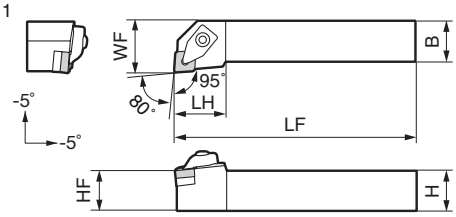


Figure shows right-hand (R) tool.

Insert L33

(1) 2NC-CNGA434
(2) 2NC-CNGA435
(3) 2NC-CNGA436
(4) 4NC-CNGA434
(5) 4NC-CNGA435
(6) 4NC-CNGA436

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shims	Upper Surface Wrench	Lower Surface Wrench
DCLN R/L 2525M12-R24	★	★	25	25	150	32	25	32	○NC-CNGA43○	1	SCP-2	5.0	CNS1204-R24	BFTX0409N	TRX15 (*)	LH040	LH025
DCLN R/L 3225P12-R24	★		32	25	170	32	32	32		1							
DCLN R/L 3232P12-R24	★		32	32	170	40	32	32		1							

*Dedicated tool holder for .063"/.079"/.094" nose radius inserts. Other sizes cannot be used.
*Wrench for shim is sold separately from the main body.

DDJN

External / Profiling

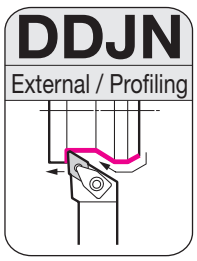


Fig 1

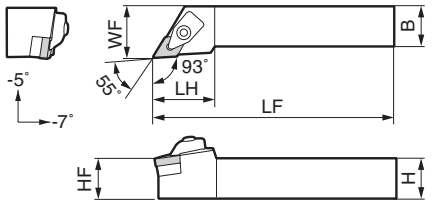


Figure shows right-hand (R) tool.

Insert L51

(1) 2NC-DNGA434
(2) 2NC-DNGA435
(3) 2NC-DNGA436
(4) 4NC-DNGA434
(5) 4NC-DNGA435
(6) 4NC-DNGA436

Holder / Parts

Dimensions (mm)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shims	Upper Surface Wrench	Lower Surface Wrench
DDJN R/L 2525M15-R24	★	★	25	25	150	32	25	32	○NC-DNGA43○	1	SCP-2	5.0	DNS1504-R24	BFTX0409N	TRX15 (*)	LH040	LH025
DDJN R/L 3225P15-R24	★		32	25	170	32	32	38		1							
DDJN R/L 3232P15-R24	★		32	32	170	40	32	38		1							

*Dedicated tool holder for .063"/.079"/.094" nose radius inserts. Other sizes cannot be used.
*Wrench for shim is sold separately from the main body.

DDHN

External / Profiling

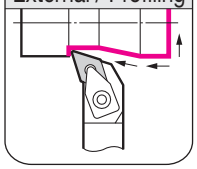


Fig 1

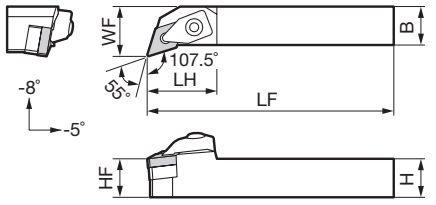


Figure shows right-hand (R) tool.

Insert L51

(1) 2NC-DNGA434
(2) 2NC-DNGA435
(3) 2NC-DNGA436
(4) 4NC-DNGA434
(5) 4NC-DNGA435
(6) 4NC-DNGA436

Holder / Parts

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shims	Upper Surface Wrench	Lower Surface Wrench
DDHN R/L 2525M15-R24	★	★	25	25	150	35	25	35	○NC-DNGA43○	1	SCP-2	5.0	DNS1504-R24	BFTX0409N	TRX15 (*)	LH040	LH025

*Dedicated tool holder for .063"/.079"/.094" nose radius inserts. Other sizes cannot be used.
*Wrench for shim is sold separately from the main body.

N·m Recommended Tightening Torque (N·m)

Inserts & Special Holders for High Efficiency Machining

DDNN

External / Profiling

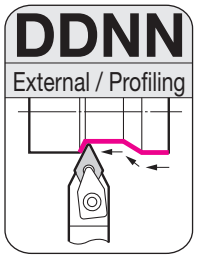


Fig 1

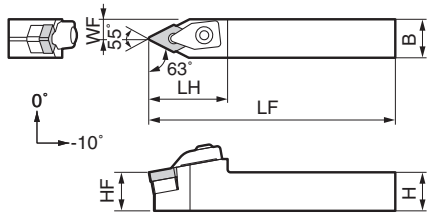


Figure shows right-hand (R) tool.

Insert L51

(1) 2NC-DNGA434
(2) 2NC-DNGA435
(3) 2NC-DNGA436
(4) 4NC-DNGA434
(5) 4NC-DNGA435
(6) 4NC-DNGA436

Holder / Parts

Dimensions (mm)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shims	Upper Surface Wrench	Lower Surface Wrench
DDNN N 2525M15-R24	★	25	25	150	13	25	40	○NC-DNGA43○	1	SCP-2	5.0	DNS1504-R24	BFTX0409N	TRX15 (*)	LH040	LH025

*Dedicated tool holder for .063"/.079"/.094" nose radius inserts. Other sizes cannot be used.
*Wrench for shim is sold separately from the main body.

DTGN

External Turning

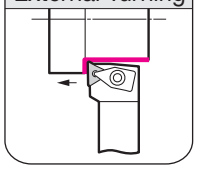


Fig 1

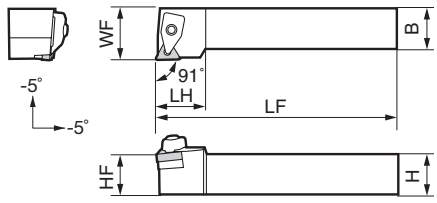


Figure shows right-hand (R) tool.

Insert L71

(1) 3NC-TNGA334
(2) 3NC-TNGA335
(3) 3NC-TNGA336
(4) 6NC-TNGA334
(5) 6NC-TNGA335
(6) 6NC-TNGA336

Holder / Parts

Dimensions (mm)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig	Clamp Set	N·m	Shim	Shim Screw	Wrench for Shims	Upper Surface Wrench	Lower Surface Wrench
DTGN R/L 2525M16-R24	★	★	25	25	150	32	25	32	○NC-TNGA33○	1	SCP-1	5.0	TNS1604-R24	BFTX0307N	TRX10 (*)	LH040	LH025
DTGN R/L 3225P16-R24	★		32	25	170	32	32	32		1							
DTGN R/L 3232P16-R24	★		32	32	170	40	32	32		1							

*Dedicated tool holder for .063"/.079"/.094" nose radius inserts. Other sizes cannot be used.
*Wrench for shim is sold separately from the main body.

N·m Recommended Tightening Torque (N·m)

Inserts & Special Holders for High Efficiency Machining

T 60° | 91° | CBN

DTFN

Facing

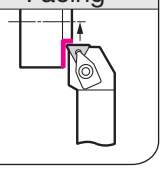


Fig 1

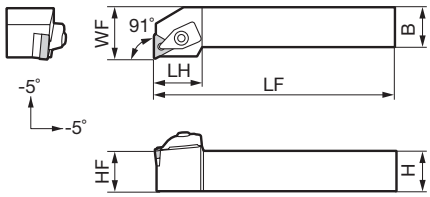


Figure shows right-hand (R) tool.

Insert L71

(1) 3NC-TNGA334
(2) 3NC-TNGA335
(3) 3NC-TNGA336
(4) 6NC-TNGA334
(5) 6NC-TNGA335
(6) 6NC-TNGA336

Holder / Parts

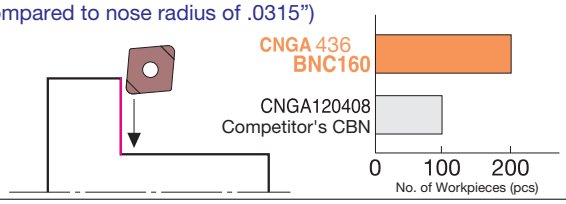
Dimensions (mm)

Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge WF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig	Clamp Set	Clamp Set N·m	Shim	Shim Screw	Wrench for Shims	Upper Surface Wrench	Lower Surface Wrench
DTFN R/L 2525M16-R24	★	★	25	25	150	32	25	30	○NC-TNGA33○	1	SCP-1	5.0	TNS1604-R24	BFTX0307N	TRX10 (*)	LH040	LH025

*Dedicated tool holder for .063"/.079"/.094" nose radius inserts. Other sizes cannot be used.
*Wrench for shim is sold separately from the main body.

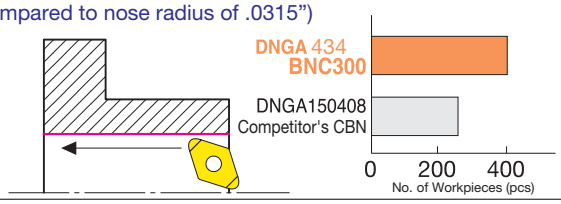
Application Example (For Automotive Components)

Nose radius of .094" achieves 2x greater tool life (compared to nose radius of .0315")



Work Material: Carburised Steel (60HRC)
Cutting Conditions: [R.094"] v_c = 400 SFM, f = .014 IPR, a_p = .0079"
[R.0315"] v_c = 400 SFM, f = .0079 IPR, a_p = .0079"

Nose radius of .0630" achieves 1.5x greater tool life (compared to nose radius of .0315")



Part Material: Carburized Steel (60HRC)
Cutting Conditions: v_c = 330 SFM, f = .0059 IPR, a_p = .0039"

BSME

■ Features

- Achieves the minimum bore diameter of ø2.5mm in boring of hardened steel
- Achieves high-precision cutting edge positioning thanks to the newly developed clamp mechanism
- Expands the range of small hole boring to achieve more high-efficiency machining requiring no grinding
- BSME (Brazed)
  Can be used with work diameters from ø2.5 to 5.0mm
- SEXC (Indexable Insert)
  Can be used with work diameters from ø4.0 to 6.0mm

Expansion | Carbide (Coolant Hole) | CBN

CBN - SUMIBORON
Brazed

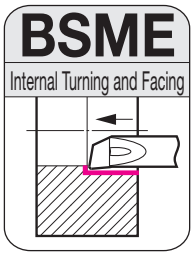


Fig 1

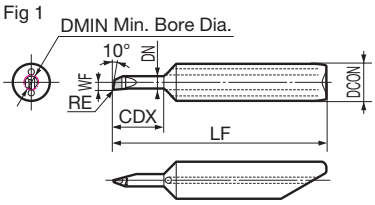
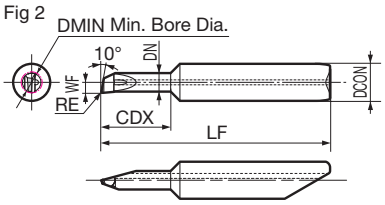


Fig 2



Holder (CBN - SUMIBORON)

Dimensions (*mm*)

Cat. No.	BN2000 R	BN2000 L	Min. Bore Dia. DMIN	Diameter DCON	Neck Diameter DN	Overall Length LF	Cutting Edge Distance WF	Max. Boring Depth CDX	Corner Radius RE	Applicable Sleeve	Fig
BSME R/L 25020D2S6	★	★	***2.5***	*6.0*	*2.0*	*32.0*	*1.20*	*5.3*	*0.2*		1
BSME R/L 25020D3S6	★	★	***2.5***	*6.0*	*2.0*	*34.5*	*1.20*	*7.8*	*0.2*		1
BSME R/L 25020D4S6			***2.5***	*6.0*	*2.0*	*37.0*	*1.20*	*10.3*	*0.2*		1
BSME R/L 30020D2S6	★	★	***3.0***	*6.0*	*2.5*	*32.8*	*1.45*	*6.3*	*0.2*		2
BSME R/L 30020D3S6	★	★	***3.0***	*6.0*	*2.5*	*35.8*	*1.45*	*9.3*	*0.2*		2
BSME R/L 30020D4S6			***3.0***	*6.0*	*2.5*	*38.8*	*1.45*	*12.3*	*0.2*		2
BSME R/L 35020D2S6	★	★	***3.5***	*6.0*	*3.0*	*33.5*	*1.70*	*7.3*	*0.2*		2
BSME R/L 35020D3S6	★	★	***3.5***	*6.0*	*3.0*	*37.0*	*1.70*	*10.8*	*0.2*		2
BSME R/L 35020D4S6			***3.5***	*6.0*	*3.0*	*40.5*	*1.70*	*14.3*	*0.2*	HBSM6020	2
BSME R/L 40020D2S6	★	★	***4.0***	*6.0*	*3.5*	*33.9*	*1.95*	*8.3*	*0.2*	HBSM6020A	2
BSME R/L 40020D3S6	★	★	***4.0***	*6.0*	*3.5*	*37.9*	*1.95*	*12.3*	*0.2*		2
BSME R/L 40020D4S6			***4.0***	*6.0*	*3.5*	*41.9*	*1.95*	*16.3*	*0.2*		2
BSME R/L 45020D2S6	★	★	***4.5***	*6.0*	*4.0*	*35.0*	*2.20*	*9.3*	*0.2*		2
BSME R/L 45020D3S6	★	★	***4.5***	*6.0*	*4.0*	*39.5*	*2.20*	*13.8*	*0.2*		2
BSME R/L 45020D4S6			***4.5***	*6.0*	*4.0*	*44.0*	*2.20*	*18.3*	*0.2*		2
BSME R/L 50020D2S6	★	★	***5.0***	*6.0*	*4.5*	*35.8*	*2.45*	*10.3*	*0.2*		2
BSME R/L 50020D3S6	★	★	***5.0***	*6.0*	*4.5*	*40.8*	*2.45*	*15.3*	*0.2*		2
BSME R/L 50020D4S6			***5.0***	*6.0*	*4.5*	*45.8*	*2.45*	*20.3*	*0.2*		2

The BSME requires HBSM6020 (A) adapter sleeve (sold separately).

Fig 1

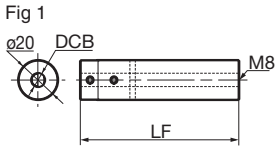
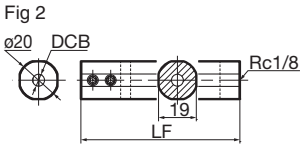
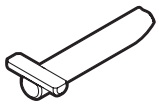


Fig 2



Alignment Jig

Cat. No.	Stock	
AFBSM60	★	

This jig is used for centring sleeves when setting them into holders.

Sleeve

Dimensions (Inch / *mm*)

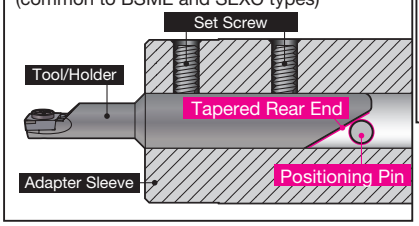
Cat. No.	Stock	OD Dia. DC	Bore Dia. DCB	Overall Length LF	Fig	Set Screw	Wrench
New **HBSM601905**	●	.750	.236	3.150	1		
New **HBSM60254**	●	1.000	.236	3.150	1	BT0506	TH025
HBSM6020	★	*20*	*6.0*	*80*	1		
HBSM6020A	★	*20*	*6.0*	*80*	2		

Adapter sleeve is optional.

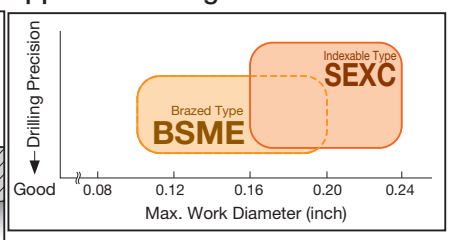
• USA Stocked Item ★ Worldwide Warehouse Item

Newly Developed Clamp Mechanism

Achieves high-precision cutting edge positioning by combining a tool/holder that has a tapered rear end with a sleeve having an internal positioning pin.
(common to BSME and SEXC types)



Application Range



Carbide Coolant Hole | CBN

SUMIBORON - CBN
Screw-on

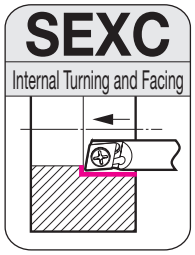
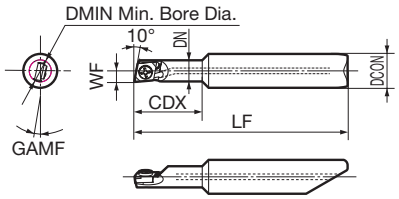


Fig 1



Holder

Parts

Dimensions (mm)

Cat. No.	Stock R	Stock L	Min. Bore Dia. DMIN	Diameter DCON	Neck Diameter DN	Overall Length LF	Cutting Edge Distance WF	Max. Boring Depth CDX	Rake Angle GAMF	Applicable Sleeve	Fig	Bolt	N·m	Wrench
E06D2-SEXC R/L03-04P	★	★	4.0	6.0	3.75	33.75	1.95	8	-13°	HBSM60____	1	MIB1.6-2	0.2	SDBSM
E06D3-SEXC R/L03-04P	★	★	4.0	6.0	3.75	37.75	1.95	12	-13°		1			
E06D2-SEXC R/L03-05P	★	★	5.0	6.0	4.75	35.25	2.45	10	-12°		1	MIB1.6-2.5	0.2	
E06D3-SEXC R/L03-05P	★	★	5.0	6.0	4.75	40.25	2.45	15	-12°		1			
E06D2-SEXC R/L03-06P	★	★	6.0	6.0	5.75	36.75	2.95	12	-11°		1	MIB1.6-3	0.2	
E06D3-SEXC R/L03-06P	★	★	6.0	6.0	5.75	42.75	2.95	18	-11°		1			

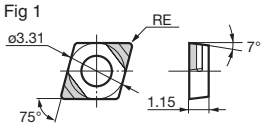
SEXC needs the HBSM6020 (A) adapter sleeve (sold separately).

Insert (CARBIDE CBN - SUMIBORON)

Dimensions (mm)

Cat. No.	AC1030U	T1500A	BN2000	BN7000	Nose Radius RE	Fig
ECEM03X1005L-FYF New	●	●			.05	1
ECEM03X1005R-FYF New	★	★			.05	1
ECEM03X101L-FYF New	●	★			.1	1
ECEM03X101R-FYF New	★	★			.1	1
ECEM03X1015L-FYF New	★	●			.15	1
ECEM03X1015R-FYF New	●	●			.15	1
ECEM03X102L-FYF New	●	★			.2	1
ECEM03X102R-FYF New	★	●			.2	1
2NU-ECXA030X02LE			★		.2	1
2NU-ECXA030X02LF			★	★	.2	1

Fig 1



Part Number Suffix: LE: Honing, LF: Sharp Edge

Fig 1

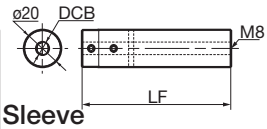
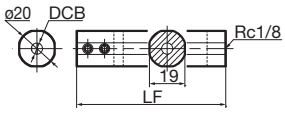


Fig 2



Sleeve

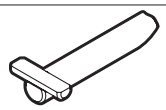
Dimensions (Inch / mm)

Cat. No.	Stock	OD Dia. DC	Bore Dia. DCB	Overall Length LF	Fig	Set Screw	Wrench
HBSM601905 New	●	.750	.236	3.150	1	BT0506	TH025
HBSM60254 New	●	1.000	.236	3.150	1		
HBSM6020	★	20	6.0	80	1		
HBSM6020A	★	20	6.0	80	2		

Adapter sleeve is optional.

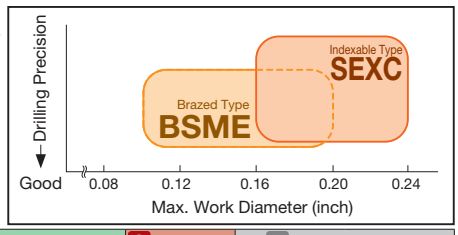
Alignment Jig

Cat. No.	Stock
AFBSM60	★



This jig is used for centering sleeves when setting them into holders.

Application Range



Recommended Cutting Conditions

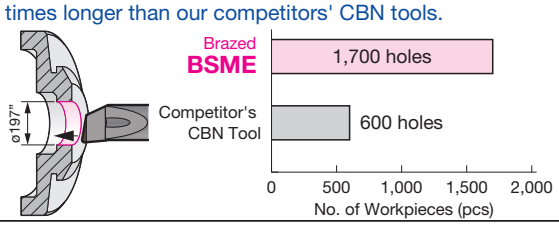
Work Material	P General Steel		M Stainless Steel		K Cast Iron		N Non-Ferrous Metal		S Exotic Alloy	H Hardened Steel	
Insert Grades	AC1030U	T1500A	AC1030U	T1500A	AC1030U	T1500A	AC1030U	T1500A	AC1030U	BN2000	BN7000
Spindle Speed n (min⁻¹)	2,000-10,000	2,000-10,000	2,000-8,000	2,000-8,000	2,000-10,000	2,000-10,000	5,000-15,000	5,000-15,000	2,000-6,000	Above 2,000	Above 2,000
Depth of Cut ap (Inch)	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	up to .0079	.0004 - 0.0059	.0004 - 0.0059
Feed Rate f (IPR)	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	up to .0020	.0004 - .0039	.0004 - .0039

May cause chattering or chipping at the cutting edge during low-speed machining. Excessive depth of cut causes deformation of the tool, which consequently leads to deterioration of dimensional tolerance.

Application Examples

Hardened Alloy Steel Valve Component — BSME

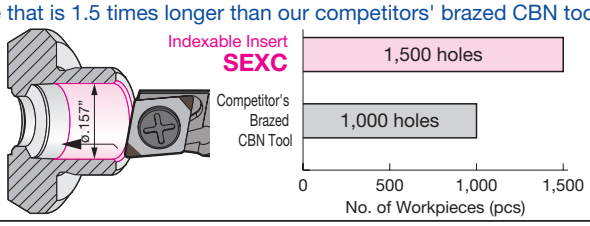
The BSME provides stable machining and a tool life that is over 2 times longer than our competitors' CBN tools.



Part Material: Hardened Alloy Steel Valve Component (Automotive Component)
Tool: BSME R50020D2S6 Grade: BN2000
Cutting Conditions: v_c = 387 SFM (7,500 RPM), f = 0.0008 IPR, a_p = 0.004" Dry

Bearing Steel: Small Automotive Component — SEXC

The SEXC provides drastically reduced tool costs and a tool life that is 1.5 times longer than our competitors' brazed CBN tools.



Part Material: Bearing Steel Small Automotive Component (60HRC)
Holder: E06D2-SEXC R/L03-04P Insert: 2NU-ECXA 030X02LF (BN2000)
Cutting Conditions: v_c = 164 SFM (4,000 RPM), f = 0.0008 IPR, a_p = 0.0008" Wet

• USA Stocked Item ★ Worldwide Warehouse Item

N·m Recommended Tightening Torque (N·m)

BNBX Type

T 60° | 92° | CBN

SUMIBORON
Brazed

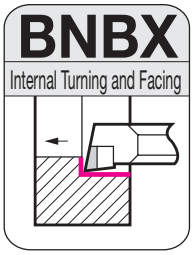
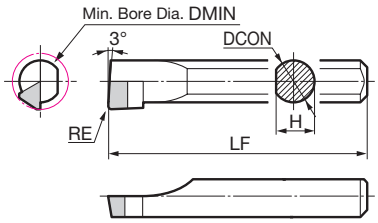


Fig 1



Holder (SUMIBORON)

Dimensions (*mm*)

Cat. No.	BN2000	BN7000	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Nose Radius RE	Applicable Sleeve	Fig
BNBX020R	★	★	***2.5***	*2.0*	*1.8*	*40*	*0.2*	HBX2016	1
BNBX025R	★	★	***3.0***	*2.5*	*2.2*	*40*	*0.2*	HBX2516	1
BNBX030R	★	★	***3.5***	*3.0*	*2.7*	*40*	*0.2*	HBX3016	1
BNBX035R	★	★	***4.0***	*3.5*	*3.2*	*40*	*0.2*	HBX3516	1
BNBX040R	★	★	***4.5***	*4.0*	*3.7*	*40*	*0.2*	HBX4016	1
BNBX045R	★	★	***5.0***	*4.5*	*4.2*	*40*	*0.2*	HBX4516	1
BNBX050R	★	★	***5.5***	*5.0*	*4.7*	*60*	*0.2*	HBX5016	1
BNBX055R	★	★	***6.0***	*5.5*	*5.2*	*60*	*0.2*	HBX5516	1
BNBX060R	★	★	***6.5***	*6.0*	*5.7*	*60*	*0.2*	HBX6016	1
BNBX065R	★		***7.0***	*6.5*	*6.2*	*60*	*0.2*	HBB6516	1
BNBX070R	★		***7.5***	*7.0*	*6.7*	*80*	*0.2*	HBB716	1
BNBX075R	★		***8.0***	*7.5*	*7.2*	*80*	*0.2*	HBB7516	1
BNBX080R	★		***8.5***	*8.0*	*7.7*	*80*	*0.2*	HBB816	1

BNBX bars can be used with HBB type sleeves, but HBX type sleeves are recommended for bars below ø6mm.

Fig 1

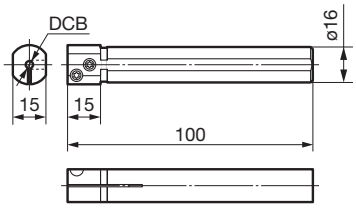
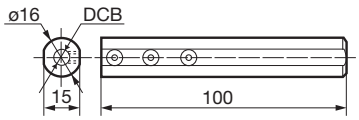


Fig 1



Sleeve (HBX Type)

Dimensions (*mm*)

Cat. No.	Stock	Bore Dia. DCB	Applicable Bar	Fig
HBX2016	★	*2.0*	BNBX020R	1
HBX2516	★	*2.5*	BNBX025R	1
HBX3016	★	*3.0*	BNBX030R	1
HBX3516	★	*3.5*	BNBX035R	1
HBX4016	★	*4.0*	BNBX040R	1
HBX4516	★	*4.5*	BNBX045R	1
HBX5016	★	*5.0*	BNBX050R	1
HBX5516	★	*5.5*	BNBX055R	1
HBX6016	★	*6.0*	BNBX060R	1

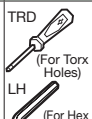
Sleeve (HBB Type)

Dimensions (*mm*)

Cat. No.	Stock	Bore Dia. DCB	Applicable Bar	Fig
HBB6516	★	*6.5*	BNBX065R	1
HBB716	★	*7.0*	BNBX070R	1
HBB7516	★	*7.5*	BNBX075R	1
HBB816	★	*8.0*	BNBX080R	1

HBB Type sleeve can also be used with ø2.5 to 6.0mm holders.

Spare Parts (for Adapter Sleeve)

Applicable Sleeve	Flat Screw		Set Screw	Wrench
		N·m	BT06035T BT0404	TRD  (For Torx Holes) LH (For Hex Socket)
HBX2○○○	BFTX0409N	**1.5**	BT06035T	TRD15
HBX3○○○ HBX4○○○ HBX5○○○ HBX6○○○	BFTX0409N	**3.0**	BT06035T	TRD15
HBB○○○○	-	-	BT0404	LH020

N·m Recommended Tightening Torque (N·m)

• USA Stocked Item ★ Worldwide Warehouse Item ▲ USA Limited Availability Item

BNZ Type

T 60° | 91° | CBN

SUMIBORON
Screw-on

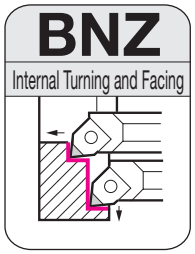
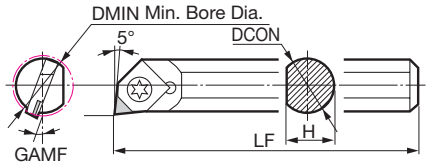


Fig 1



Holder

Parts

Dimensions (*mm*)

Cat. No.	Stock	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Rake Angle GAMF	Fig	Flat Screw		Wrench	Adapter Sleeve
									N·m	(For Torx Holes)	
BNZ606R	★	***7.0***	*6.0*	*5.5*	*80*	-14°	1	BFTX0204N	**0.5**	TRX06	HBB616
BNZ608R	★	***9.0***	*8.0*	*7.5*	*100*	-12°	1				HBB816
BNZ610R	★	***11.0***	*10.0*	*9.5*	*125*	-10°	1				-
BNZ612R	★	***13.0***	*12.0*	*11.0*	*130*	-8°	1				
BNZ616R	★	***17.0***	*16.0*	*15.0*	*145*	-6°	1				
BNZ620R	★	***21.0***	*20.0*	*19.0*	*160*	-5°	1				

Insert (SUMIBORON)

Dimensions (*mm*)

Quantity	Cat. No.	BNC2010	BNC2020	BN1000	BN2000	BN7000	Nose Radius RE
Single pack	**NU-ZNEX040102**	-	-	●	●	●	*0.2*
	NU-ZNEX040104	-	-	●	●	●	*0.4*
	NC-ZNEX040102LE	●	-	-	-	-	*0.2*
	NC-ZNEX040104LE	●	-	-	-	-	*0.4*
	NC-ZNEX040102LT	-	●	-	-	-	*0.2*
	NC-ZNEX040104LT	-	●	-	-	-	*0.4*
10 pack	**T-NU-ZNEX040102**	-	-		●		*0.2*
	T-NU-ZNEX040104	-	-		●		*0.4*

Fig 1

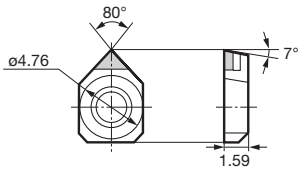
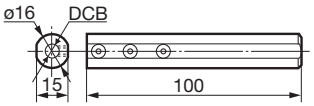


Fig 1



Sleeve

Dimensions (*mm*)

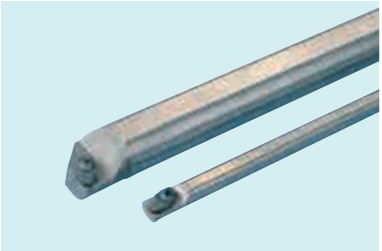
Cat. No.	Stock	Bore Dia. DCB	Applicable Holders	Fig
HBB616	★	*6.0*	BNZ606R	1
HBB816	★	*8.0*	BNZ608R	1

HBX Type sleeve (HBX6016) can also be used with BNZ606R.

• USA Stocked Item ★ Worldwide Warehouse Item ▲ USA Limited Availability Item

N·m Recommended Tightening Torque (N·m)

BNB Type



- High rigidity full cemented carbide boring bar shank
  - Minimal deformation produces boring with excellent dimensional tolerance.
  - Minimal chatter produces superior surface finish.
- Full-top CBN - SUMIBORON insert enables 3 cutting edges
- Can be used with PCD - SUMIDIA inserts for non-ferrous metal machining
- Now with economical single-corner NF Type PCD - SUMIDIA insert

T 60° | 92° | CBN | PCD

SUMIBORON
Clamp-on

SUMIBORON

L

BNB
Internal Turning and Facing

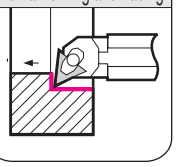


Fig 1

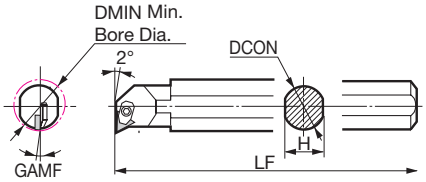


Figure shows right-hand (R) tool.

Holder

Parts

Dimensions (inch/ *mm*)

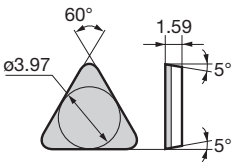
Cat. No.	Stock	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Rake Angle GAMF	Fig	Clamp	Bolt	Nut	Wrench
											(For Hex Socket)
BNB508R	★	**0.394" (*10.0*)**	0.315" (*8.0*)	0.276" (*7.0*)	5.512" (*140*)	-9°	1	BNBC	BH0306	BNBW-2	TH020
BNB510R	★	**0.472" (*12.0*)**	0.394" (*10.0*)	0.354" (*9.0*)	5.512" (*140*)	-8°	1				
BNB512R	★	**0.551" (*14.0*)**	0.472" (*12.0*)	0.433" (*11.0*)	6.299" (*160*)	-6°	1		FBUP3-A0-9	BNBW-4	
BNB516R	★	**0.708" (*18.0*)**	0.630" (*16.0*)	0.551" (*14.0*)	7.086" (*180*)	-5°	1				
BNB520R	★	**0.866" (*22.0*)**	0.787" (*20.0*)	0.708" (*18.0*)	7.086" (*180*)	-4°	1		BH0310	BNBW-7	

Insert (CBN - SUMIBORON, PCD - SUMIDIA)

Dimensions (*mm*)

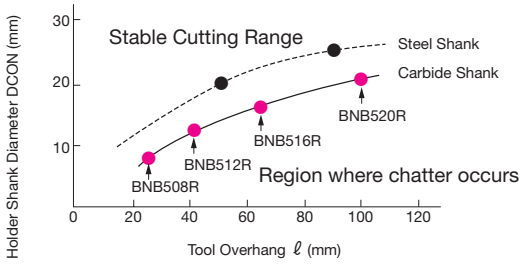
Cat. No.	CBN - SUMIBORON BNX10	BNX20	BN2000	BN350	BN500	BN7000	PCD - SUMIDIA DA150	DA1000	Nose Radius RE
TBGE520B		★	★				★	★	*0.2*
TBGE521B	★	★	★	★	★	★	★	★	*0.4*
TBGE522B		★	★	★	★	★			*0.8*
TBGE520BSN*	-	★	-	-	-	-	-	-	*0.2*
TBGE521BSN*	-	★	-	-	-	-	-	-	*0.4*
TBGE522BSN*	-	★	-	-	-	-	-	-	*0.8*
NF-TBGE520**	-	-	-	-	-	-	-	★	*0.2*
NF-TBGE521**	-	-	-	-	-	-	-	★	*0.4*

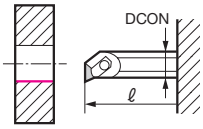
Fig 1



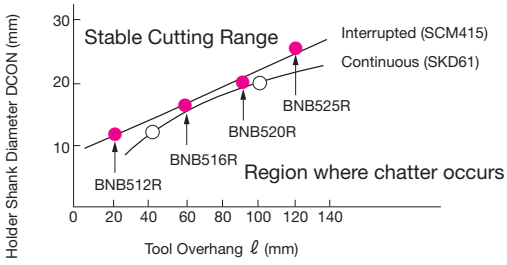
* TBGE ○○○-BSN is only available in BNX20 grade and has a smaller negative land angle.
(BSN: -15°, B: -25°. However, the negative land angle is uniquely configured for each grade.)
** NF-TBGE is a single corner insert. (This is not a Full-Top insert)

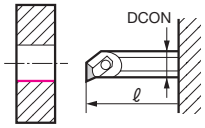
Performance





Work Material: SKD61 (60HRC)
Insert Cat. No.: TBGN060104B
Cutting Conditions: v_c=100m/min, f =0.1mm/rev, a_p=0.2mm

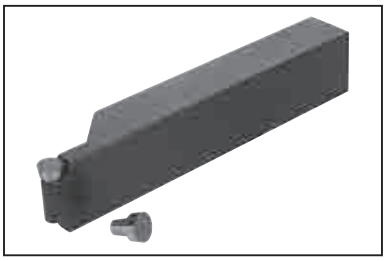




Work Material: SCM415 (61HRC) Internal Diameter ø45 (6U Groove)
Insert Cat. No.: TBGN060104B
Cutting Conditions: v_c=100m/min, f =0.1mm/rev, a_p=0.2mm

• USA Stocked Item ★ Worldwide Warehouse Item ▲ USA Limited Availability Item

TRGT Type



- Clamping by cutting force alone
  - Secure clamping is achieved by inserting the tapered portion of the insert into the holder.
  - The lack of protrusions on the insert rake face allows smooth chip evacuation.
- Round insert enables various machining operations
  Small round insert with stable clamping can be applied to various machining operations.

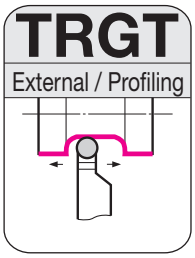


Fig 1

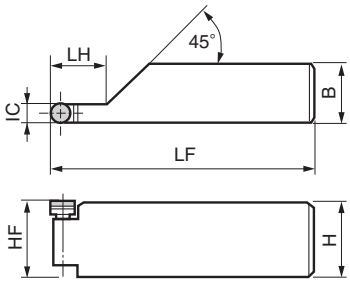


Figure shows right-hand (R) tool.

Holder

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Inscribed Circle IC	Height H	Width B	Overall Length LF	Cutting Edge Height HF	Head LH	Applicable Insert	Fig
TRGT R/L2020K05	★		*5*	*20*	*20*	*125*	*20*	*16*	RTGN 0508M0	1
TRGT R/L2020K06	★		*6*	*20*	*20*	*125*	*20*	*16*	RTGN 0608M0	1
TRGT R/L2525M07			*7*	*25*	*25*	*150*	*25*	*20*	RTGN 0711M0	1
TRGT R/L2525M08	★		*8*	*25*	*25*	*150*	*25*	*20*	RTGN 0811M0	1
TRGT R/L3225P09	★		*9*	*32*	*25*	*170*	*32*	*25*	RTGN 0914M0	1
	★		*10*	*32*	*25*	*170*	*32*	*25*	RTGN 1014M0	1
TRGT R/L3225P12			*12*	*32*	*25*	*170*	*32*	*25*	RTGN 1214M0	1

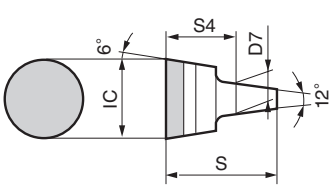
Inserts are not embedded into tool holders.

Insert (C B N - SUMIBORON)

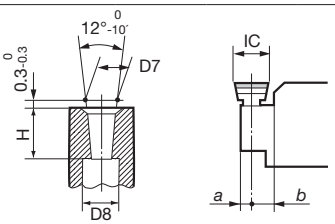
Dimensions (*mm*)

Cat. No.	BN2000	BNX20	BN7000	Inscribed Circle IC	Diameter D7	Thickness S	Thickness 2 S4	Fig
RTGN 0508M0		★		*5*	*2.5*	*7.5*	*3.5*	1
RTGN 0608M0		★		*6*	*3.5*	*7.5*	*3.5*	1
RTGN 0711M0		★		*7*	*3.5*	*11.0*	*5.0*	1
RTGN 0811M0		★		*8*	*4.5*	*11.0*	*5.0*	1
RTGN 0914M0		★		*9*	*5.5*	*14.0*	*6.0*	1
RTGN 1014M0		★		*10*	*5.5*	*14.0*	*6.0*	1
RTGN 1214M0		★		*12*	*7.5*	*14.0*	*6.0*	1

Fig 1



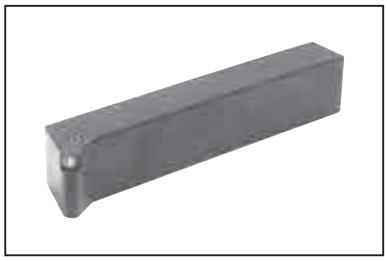
Insert Mounting Details



Supported Insert Diameter IC	H	D7	D8	*a*	*b*
5	*4.0*	*2.5*	*1.9*	*1.85*	*3.2*
6	*4.0*	*3.5*	*2.9*	*2.35*	*3.7*
7	*6.0*	*3.5*	*2.5*	*2.75*	*4.3*
8	*6.0*	*4.5*	*3.5*	*3.25*	*4.8*
9	*7.5*	*5.5*	*4.2*	*4.15*	*5.9*
10	*7.5*	*5.5*	*4.2*	*4.15*	*5.9*
12	*7.5*	*7.5*	*6.2*	*5.15*	*6.9*

• USA Stocked Item ★ Worldwide Warehouse Item ▲ USA Limited Availability Item

PR



- Lever lock clamping system
  - Easy operation; the lack of protrusions on the insert rake face allows smooth chip evacuation.
- Versatile round insert can be applied to various operations.

PRGC

External Profiling

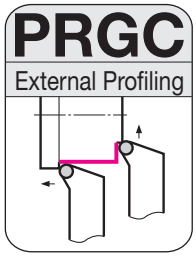
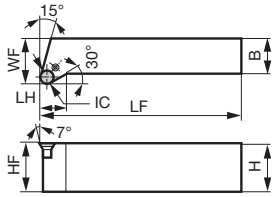


Fig 1



Holder

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Inscribed Circle IC	Height H	Width B	Overall Length LF	Cutting Edge WF	Edge Height HF	Head LH	Applicable Insert	Fig
PRGC R/L 3225P9	★	★	*9*	*32*	*25*	*170*	*32*	*32*	*18*	RCGA094	1

PRDC

For General External Turning

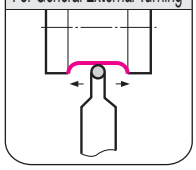
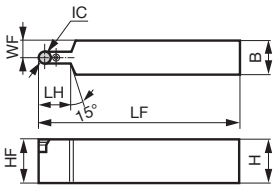


Fig 1



Holder

Dimensions (*mm*)

Cat. No.	Stock R	Stock L	Inscribed Circle IC	Height H	Width B	Overall Length LF	Cutting Edge WF	Edge Height HF	Head LH	Applicable Insert	Fig
PRDC N 3225P9		★	*9*	*32*	*25*	*170*	*12.5*	*32*	*25*	RCGA094	1

PRGN

For General External Turning

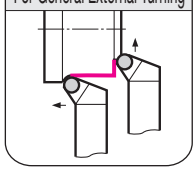
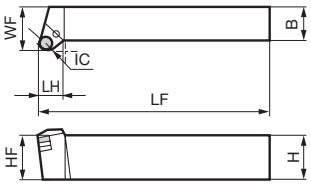


Fig 1



Holder

Dimensions (mm)

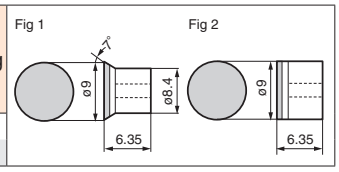
Cat. No.	Stock R	Stock L	Inscribed Circle IC	Height H	Width B	Overall Length LF	Cutting Edge WF	Edge Height HF	Head LH	Applicable Insert	Fig
PRGN R/L 3225P9	★	★	*9*	*32*	*25*	*170*	*32*	*32*	*10*	RNGA094	1

Inserts are not embedded into tool holders.

Insert (SUMIBORON)

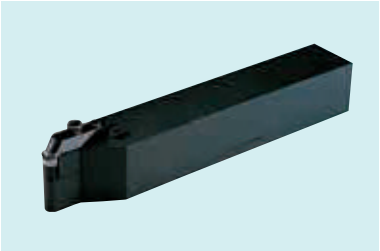
Dimensions (mm)

Cat. No.	BN2000	BNX20	BN350	BN7000	Fig
RCGA094	★				1
RNGA094	★	★			2



Please refer to C Section: ceramic holders CRDNN (C47) and CRSN(R/L) and methods for holding dimple lock inserts

BNRN



- Insert can be reground and used again
  - The same holder can be used for a reground insert by adjusting the slide locator with a clamp.
- Reliable holder design
  - The tip of the clamp is a cemented carbide chipbreaker that can withstand wear from chips.
  - Slide locator uses HSS for durability.

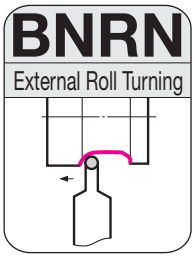
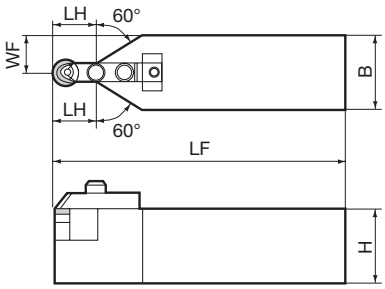


Fig 1



Body

Dimensions (*mm*)

Cat. No.	Stock	Height H	Width B	Overall Length LF	Cutting Edge WF	Head LH	Applicable Insert New Cat. No.	Applicable Insert (Regrindable range)	Fig
BNRN 3232-08-07		*32*	*32*	*200*	*16*	*13*	RBG08-B	8.0 to 7.0	1
BNRN 4038-10-09		*40*	*38*	*250*	*19*	*17*	RBG10-B	10.0 to 9.0	1
BNRN 4038-12-11		*40*	*38*	*250*	*19*	*20*	RBG12-B	12.0 to 11.0	1
BNRN 5050-14-12		*50*	*50*	*350*	*25*	*25*	*	14.0 to 12.0	1
BNRN 5050-16-14		*50*	*50*	*350*	*25*	*25*	RBG16-B	16.0 to 14.0	1
BNRN 5050-18-16		*50*	*50*	*350*	*25*	*30*	*	18.0 to 16.0	1
BNRN 5050-20-18		*50*	*50*	*350*	*25*	*30*	RBG20-B	20.0 to 18.0	1
BNRN 5050-22-20		*50*	*50*	*350*	*25*	*35*	*	22.0 to 20.0	1
BNRN 5050-24-22		*50*	*50*	*350*	*25*	*35*	*	24.0 to 22.0	1
BNRN 5050-26-24		*50*	*50*	*350*	*25*	*35*	RBG26-B	26.0 to 24.0	1

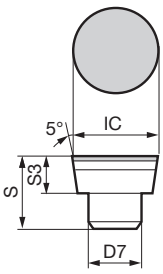
*Blank space indicates holders for reground inserts. Inserts are sold separately.

Insert (SUMIBORON)

Dimensions (mm)

Cat. No.	BN7000	Inscribed Circle IC	Diameter D7	Thickness 2 S3	Thickness S	Fig
RBG 08-B	★	*8.0*	*4.0*	*4.0*	*6.5*	1
RBG 10-B	★	*10.0*	*5.0*	*5.0*	*9.0*	1
RBG 12-B	★	*12.0*	*6.0*	*6.0*	*11.0*	1
RBG 16-B	★	*16.0*	*8.0*	*8.0*	*13.0*	1
RBG 20-B	★	*20.0*	*10.0*	*10.0*	*15.0*	1
RBG 26-B	★	*26.0*	*14.0*	*10.0*	*15.0*	1

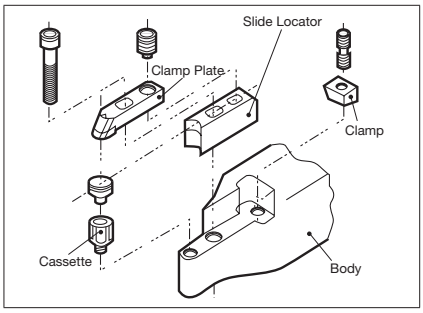
Fig 1



Parts

Applicable Holders	Slide Locator	Clamp	Cassette	Clamp Plate	Cap Screw	Set Screw	Double Screw	Wrench
BNRN 3232-08-07	BNRS R-08	BNRC-08	BNRE-08	BNRW-08	BX0425	BTD0609	WB5-18	LH025
BNRN 4038-10-09	BNRS R-10		BNRE-10					LH030
BNRN 4038-12-11	BNRS R-12	BNRC-12	BNRE-12	BNRW-12	BX0635	BTD0812	WB6-20	LH030 LH040 LH050
BNRN 5050-14-12	BNRS R-14		BNRE-14		BX0640		WB6-30	
BNRN 5050-16-14	BNRS R-16	BNRC-16	BNRE-16	BNRW-16	BX0640	BTD0812	WB8-30	LH040 LH050
BNRN 5050-18-16	BNRS R-18		BNRE-18				WB6-30	
BNRN 5050-20-18	BNRS R-20	BNRC-20	BNRE-20	BNRW-20			WB8-30	
BNRN 5050-22-20	BNRS R-22		BNRE-22				WB6-30	
BNRN 5050-24-22	BNRS R-24	BNRC-26	BNRE-24	BNRW-26	BX0840	BTD0818	WB6-30	LH040 LH060
BNRN 5050-26-24	BNRS R-26		BNRE-26				WB8-30	

Structure



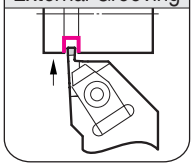
GWB Type

■ Features

- Vertically-mounted insert enhances tool rigidity
- Double clamping holder design improves stability during continuous and interrupted cutting. Can also be used for traverse cutting
- Long tool life for interrupted cutting applications with the Coated CBN-SUMIBORON BNC30G grade for grooving (BN2000 recommended for continuous cutting)
- Suited for grooving various types of hardened steel. Variety of widths available from .059 to .236" and 1.5 to 6.0mm

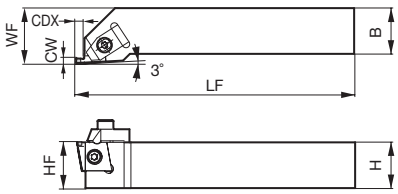
GWB

External Grooving



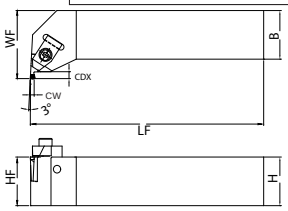
External CBN

Fig 1



Double Clamp
for Hardened Steel Shallow Grooves

Fig. 2



Dimensions (inch / *mm*)

Holder / Parts

	Cat. No.	Stock R	Stock L	Height H	Width B	Overall Length LF	Cutting Edge Distance WF	Cutting Edge Height HF	Width of Cut CW	Max. Groove Depth CDX	Group No.	Fig	Clamp	Cap Screw	N·m	Flat Screw	Spring	Wrench
Inch	**GWB R/L 165D4**	●	●	1.00	1.00	6.0 (6.039)	1.181	1.0	.059 ≤ CW ≤ .177	.138 to .197	1	1	TF72 (Right Hand) / TF73 (Left Hand)	BX0520T	**5.0**	BFTX0511N	GSP06	TRX20
Inch	**GWB R/L 165D6**	●	●	1.00	1.00	6.039	1.181	1.0	.059 ≤ CW ≤ .236	.197	2	1						
Inch 90° Series	**GWBS R/L 125D4**	●	●	.750	.750	6.000	.880	.750	.059 ≤ CW ≤ .177	.138 to .197	1	2						
Inch 90° Series	**GWBS R/L 165D4**	●	●	1.00	1.00	6.000	1.167	1.0	.059 ≤ CW ≤ .177	.138 to .197	1	2						
Inch 90° Series	**GWBS R/L 165D6**	●	●	1.00	1.00	6.000	1.167	1.0	.177 ≤ CW ≤ .236	.197	2	2						
Inch 90° Series	**GWBS R/L 205D4**	●	●	1.25	1.25	6.000	1.75	1.25	.059 ≤ CW ≤ .177	.138 to .197	1	2						
Metric	**GWB R/L 2525-45**	★	★	*25*	*25*	*151 (150)*	*30*	*25*	*1.5 ≤ CW ≤ 4.5*	*3.5 to 5.0*	1	1						
Metric	**GWB R/L 2525-60**	★	★	*25*	*25*	*151*	*30*	*25*	*4.5 < CW ≤ 6.0*	*5.0*	2	1						

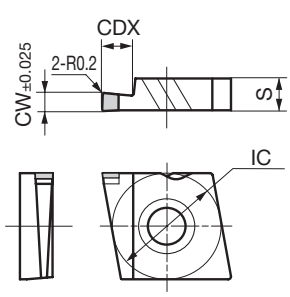
Dimensions in ( ) are for width of cut (CW) of 3.0 or less. GWBR holders take Right-Handed insert – GWBL take Left-Handed inserts. GWBSR takes Left-Handed insert and clamp, GWBSL take Right-Handed insert and clamp.

Insert (□SUMIBORON)

Dimensions (inch / *mm*)

Cat. No.	BN7000 R	BN7000 L	BN7500 R	BN7500 L	BN2000 R	BN2000 L	BNC30G R	BNC30G L	Width of Cut CW	Groove Depth CDX	Inscribed Circle IC	Thickness S	Group No.	Applicable Holder	Fig
CGA R/L 4062					●	●	●	●	.062	.1378	.625	.1875	1	GWB R/L 1□□D4	1
CGA R/L 4094					●	●	●	●	.094	.1575	.625	.1875	1	GWB R/L 2525-45	1
CGA R/L 4125					●	●	●	●	.125	.1969	.625	.1875	1		1
CGA R/L 6189					●	●	●	●	.189	.1969	.625	.250	2	GWB R/L 2525-60 / GWB R/L 1□□D6	1
CGA R/L 1504150	●	●	●	●	●	●	●	●	*1.5*	*3.5*	*15.875*	*4.76*	1	GWB R/L 1□□D4 / GWB R/L 2525-45	1
CGA R/L 1504200	●	●	●	●	●	●	●	●	*2.0*	*3.5*	*15.875*	*4.76*			1
CGA R/L 1504250					●	●	●	●	*2.5*	*4.0*	*15.875*	*4.76*			1
CGA R/L 1504300	●	●	●	●	●	●	●	●	*3.0*	*4.0*	*15.875*	*4.76*			1
CGA R/L 1504350					●	●	●	●	*3.5*	*5.0*	*15.875*	*4.76*			1
CGA R/L 1504400	●	●	●	●	●	●	●	●	*4.0*	*5.0*	*15.875*	*4.76*			1
CGA R/L 1504450					●	●	●	●	*4.5*	*5.0*	*15.875*	*4.76*			1
CGA R/L 1506500					●	●	●	●	*5.0*	*5.0*	*15.875*	*6.35*	2	GWB R/L 2525-60 / GWB R/L 1□□D6	1
CGA R/L 1506550					●	●	●	●	*5.5*	*5.0*	*15.875*	*6.35*			1
CGA R/L 1506600					●	●	●	●	*6.0*	*5.0*	*15.875*	*6.35*			1

Fig 1



* It is also possible to manufacture widths of cut other than those listed above (CW = 1.5 to 6.0mm).

Grade Features (See page L9 for details on BN7000 & BN7500)

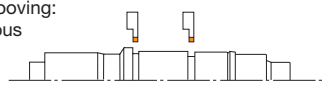
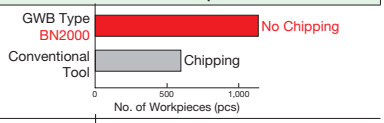
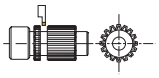
Grade	Application Range	Features	HV(GPa)	TRS(GPa)
BN2000	Continuous Grooving	General-purpose grade with superior wear resistance	31 to 34	1.0 to 1.1
BNC30G	Interrupted Grooving	Grade suited to interrupted grooving. Features tough substrate and special ceramic coating that exhibits both peel-off and wear resistance.	33 to 35	1.1 to 1.2

Recommended Cutting Conditions

Cutting Conditions	H Hardened Steel
Cutting Speed v_c (SFM)	260 to 400
Feed Rate f (IPR)	.0016 to .0032

* In order to avoid thermal cracking of the SUMIBORON cutting edge during interrupted cutting, ensure that the work material is thoroughly dry before cutting.

Application Examples

Tooling	Work Material	Tool Cat. No.	Cutting Condition	Tool Life Comparison
Shaft Grooving: Continuous  Required Surface Roughness for Groove Sides: Ra0.4μm	Carburised steel 58 to 62HRC	CGAR1504200 BN2000	v_c: 120m/min f : 0.05mm/rev Groove Depth: 2mm Dry	
Spline Grooving: Interrupted 	Carburised steel 58 to 62HRC	CGAR1504200 BNC30G	v_c: 100m/min f : 0.05mm/rev Groove Depth: 1.6mm Dry	

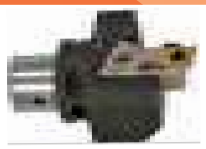
N·m Recommended Tightening Torque (N·m) • USA Stocked Item ★ Worldwide Warehouse Item ▲ USA Limited Availability Item

CGA PSC / BNGG

CGA PSC

■ Features & Benefits

- New double clamping system provides reliable grooving of hardened steel
- 80° tangentially mounted CGA style insert for improved rigidity
- Wide range of widths and grades for continuous and interrupted grooving operations
- New special coated CBN grade BNC30G extends tool life of insert



■ Cassette

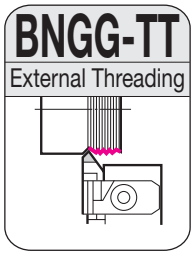
Cat. No. R / L	Stock R	Stock L	Grooving Width w (mm)	Grooving Depth a_r (mm)	Insert	Insert Screw	Tightening Torque (N·m)	Insert Wrench	Clamp	Cap Screw	Tightening Torque (N·m)	Clamp Wrench
GWBCM□45	★	★	1.5 - 2.0	3.5	CGA1504□□0 CGA4□□□	BFTX0511N	5.0	TRX20	CLWN01	BX0414	3.0	LH030
			2.5 - 3.0	4.0								
GWBCM□60	★	★	3.5 - 6.0	5.0	CGA1506□□0 CGA6□□□							

■ Holder

	Catalog Number	Stock		B	WF	LH	Torx Screw	Tightening Torque (N·m)	Wrench	Note
Holder (R/L)	PSC40GM00 R/L	★	★	40 mm	22 mm	82 mm	BFTX0619N	7.5	TRD25	Right handed Cassette goes with right handed holder
	PSC50GM00 R/L	★	★	50mm	27 mm	82 mm				Left handed Cassette goes with left handed holder
	PSC40GM90 R/L	★	★	40 mm	43 mm	52.5 mm				Right handed Cassette goes with left handed holder
	PSC50GM90 R/L	★	★	50 mm	48 mm	55 mm				Left handed Cassette goes with right handed holder

BNGG

External CBN



■ Features & Benefits

- Improved rigidity for longer tool life
  Strong clamping reduces insert breakage and holder chatter
- Enhanced tooling for 2mm fine grooves or threading
  Grooving and threading can be done by changing the support

Fig 1 (Grooving)

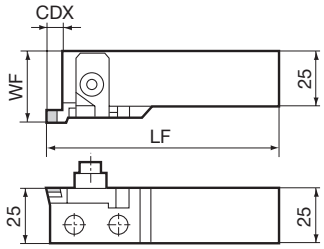
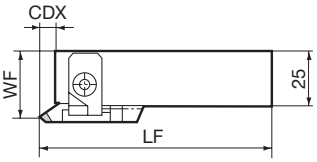


Fig. 2 (Threading)



Holder

Dimensions (inch/ mm)

	Cat. No.	Stock R	Stock L	Cutting Edge Distance WF	Groove Depth CDX	Overall Length LF	Applicable Insert	Shank Size	Fig
Grooving	BNGG R/L 160	●		1.250	.200	6.000	BNGNT	1.00 x 1.00	1
	BNGG R/L2525-200	★		30.5	4	150	BNGNT0200 R/L	25mm x 25mm	1
	BNGG R/L2525-250	★		30.5	4	150	BNGNT0250 R/L		1
	BNGG R/L2525-300	★		30.5	5	150	BNGNT0300 R/L		1
	BNGG R/L2525-400	★		30.5	6	151	BNGNT0400 R/L		1
	BNGG R/L2525-500	★		30.5	6	151	BNGNT0500 R/L		1
	BNGG R/L2525-600	★		30.5	7	152	BNGNT0600 R/L		1
	BNGG R/L2525-TT	★		28.5	5	150	BNTT1020 R/L, BNTT1530 R/L		2

Inserts are not embedded into tool holders.

* Holder body is universal. The anvil can be configured for different groove widths or threading by changing the support.

Insert (□SUMIBORON) • USA Stocked Item ★ Worldwide Warehouse Item ▲ USA Limited Availability Item

Dimensions (mm)

	Cat. No.	BN250 R	BN250 L	BNX20 R	BNX20 L	BN350 R	BN350 L	BNX25 R	BNX25 L	Width of Cut CW	Groove Depth CDX	Nose Radius RE	Overall Length L	Cutting Edge Distance WF3	Applicable Holder	Fig
Grooving	BNGNT0200 R/L	●				●				2.0	4.0	0.2	25	6.0	BNGG R/L 2525-200	1
	BNGNT0250 R/L	●				●				2.5	4.0	0.2	25	6.0	BNGG R/L 2525-250	1
	BNGNT0300 R/L	●				●				3.0	5.0	0.4	25	6.0	BNGG R/L 2525-300	1
	BNGNT0400 R/L	●				●				4.0	6.0	0.4	26	6.0	BNGG R/L 2525-400	1
	BNGNT0500 R/L	●				●				5.0	6.0	0.4	26	6.0	BNGG R/L 2525-500	1
	BNGNT0600 R/L	●				●				6.0	7.0	0.4	27	6.0	BNGG R/L 2525-600	1
Threading	BNTT1020 R/L	●								Pitch 1.0 to 2.0		0.14	25	4.0	BNGG R/L 2525-TT	2
	BNTT1530 R/L	●								Pitch 1.5 to 3.0		0.2	25	4.0		2

Fig. 1 (Grooving)

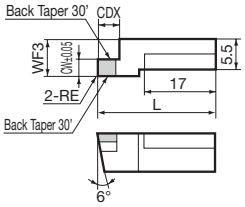
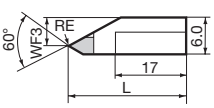


Fig. 2 (Threading)



Parts **Anvil Sold Separately**

Applicable Holder	Anvil	Clamp	Adjustment Screw	Spring	Cap Screw	Wrench	
BNGG R/L 160	BNGS R/L	BNGC R/L	FMJ	GSP06	BX0615 (For Clamp) BX0414 (For Support)	LH050 (For Clamp) LH030 (For Support)	1.8×45
BNGG R/L2525-200	BNGS R/L 200						
BNGG R/L2525-250	BNGS R/L 250						
BNGG R/L2525-300	BNGS R/L 300						
BNGG R/L2525-400	BNGS R/L 400						
BNGG R/L2525-500	BNGS R/L 500						
BNGG R/L2525-600	BNGS R/L 600						
BNGG R/L2525-TT	BNGS R/L TT						

Anvil Sold Separately BNGG R/L 160 does not include anvil, please order anvil according to insert being used

Recommended Cutting Conditions

• Grooving

Cutting Conditions	H Hardened Steel
Cutting Speed v_c (SFM)	250 – 400
Feed Rate f (ipr)	.001 - .0025

• Threading

Cutting Conditions	H Hardened Steel
Cutting Speed v_c (m/min)	250 – 400
Feed Rate f (in.)	Maximum Pitch .118

N·m Recommended Tightening Torque (N·m)

High-speed Finishing for Cast Iron

- High speed finishing cutter for gray cast iron milling that uses removable cartridges enabling simple, precise, run-out adjustment.
- Utilizes BN7000/BN700 grade insert with excellent wear and fracture resistance.
- Available in shell type and small diameter type with shank.

■ Features

- High-speed machining at v_c = up to 6,600 SFM.
- Surpasses Ra 32 µin. finished surface roughness.
- Safety structure for centrifugal force under high-speed cutting conditions.
- Runout is less than 10µm: just attach the cartridge.
- Easy runout adjustment using external setting.
- Running cost is reduced because of the economical insert.

■ Application Range

Grey Cast Iron (200 to 250HB) with pearlite matrix
and Grey cast iron (130 to 160HB) with ferrite matrix
[Example] Engine blocks, cylinder heads, etc.

■ Specifications

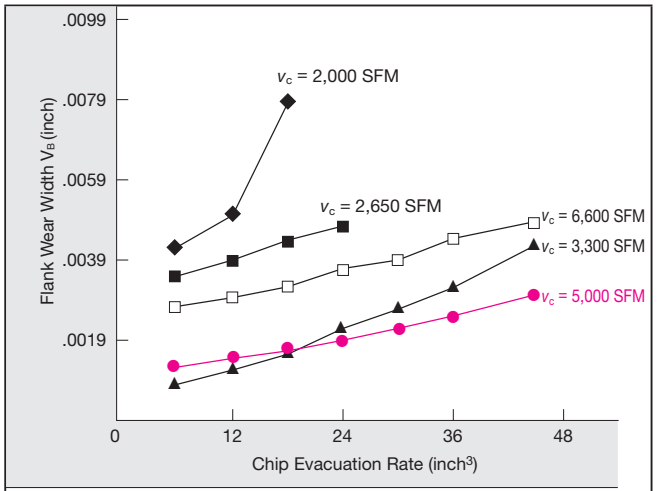
• Shell	ø80 to ø315mm (FMU Type)
With Shank	ø40 to ø63mm (FMU-E Type)
• Regular Blade	SNEW1203ADTR/L
• Low Thrust Blade	SNEW1203ADTR/L-S

■ Recommended Cutting Conditions

• Cutting Speed	v_c = 2,650 to 6,600 SFM
• Feed Rate	f_z = .004" to .012 IPT
• Depth of Cut	a_p = .020" or less
• Coolant	Dry

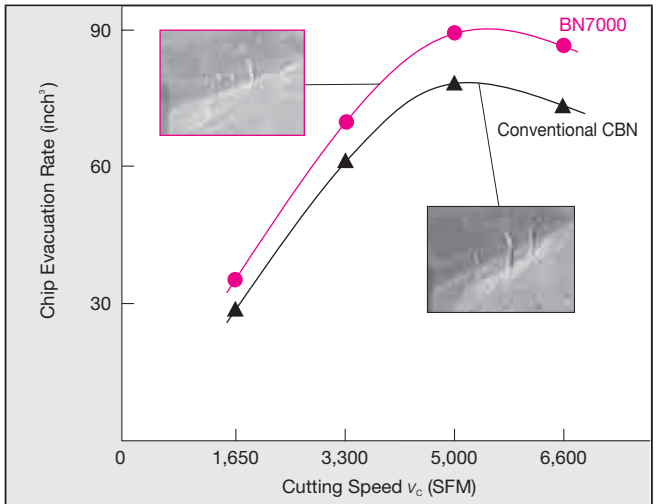
■ Cutting Performance

• Wear Diagram



Part Material: Grey Cast Iron240HB (Pearlite)
Cutting Speed: v_c = 2,000 to 6,600 SFM Feed Rate: f_z = .0059 IPT
Depth of Cut: a_p = .0197" , Dry Tool Grade: BN700

• Estimated Tool Life



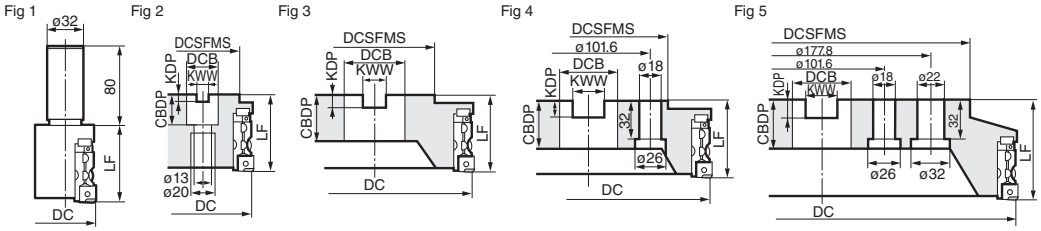
Part Material: Grey Cast Iron(Pearlite)
Cutting Speed: v_c = 1,650 to 6,600 SFM Feed Rate: f_z = .0079 IPT
Depth of Cut: a_p = .0118" Dry Tool Cat. No.: FMU4100R SNEW1203ADTR

Milling of ductile cast iron and alloy steel casting does not produce the best results. Dry cutting is recommended. Wet cutting will result in breakage of cutting edges in the early stages due to thermal cracking.

FMU / FMU-E Type

Rake Angle		
	Radial	2°
	Axial	8°

0.5mm 90°



Body

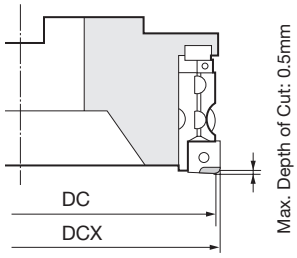
Dimensions (*mm*)

	Cat. No.	Stock	Dia. DC	Max. Dia. DCX	Boss DCSFMS	Overall Length LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Weight (kg)	Fig
Inch	**FMU4040ER**	★	***37***	*40*	-	*63*	-	-	-	-	*2*	*1.0*	1
	FMU4050ER	★	***47***	*50*	-	*63*	-	-	-	-	*3*	*1.2*	1
	FMU4063ER	★	***60***	*63*	*60*	*63*	***25.4***	*9.5*	*6*	*25*	*4*	*1.0*	2
	FMU4080R	★	***80***	*82.8*	*60*	*63*	***25.4***	*9.5*	*6*	*25*	*6*	*1.7*	2
	FMU4100R	★	***100***	*102.8*	*75*	*63*	***31.75***	*12.7*	*8*	*38*	*8*	*2.5*	3
	FMU4125R	★	***125***	*127.8*	*75*	*63*	***38.1***	*15.9*	*10*	*38*	*10*	*3.9*	3
	FMU4160R	★	***160***	*162.8*	*100*	*63*	***50.8***	*19.1*	*11*	*38*	*12*	*6.3*	3
	FMU4200R	★	***200***	*202.8*	*130*	*63*	***47.625***	*25.4*	*14*	*40*	*16*	*9.3*	4
	FMU4250R		***250***	*252.8*	*130*	*63*	***47.625***	*25.4*	*14*	*40*	*20*	*14.5*	4
	FMU4315R		***315***	*317.8*	*240*	*80*	***47.625***	*25.4*	*14*	*40*	*24*	*25.0*	5

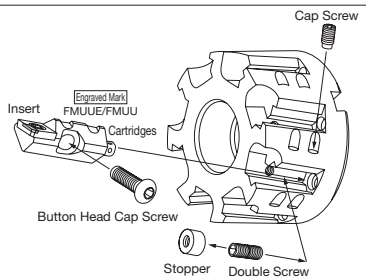
Inserts are sold separately. ★ Worldwide Warehouse item

Maximum Depth of Cut

Approach Angle : 0°
Axial Rake Angle : +8°
Radial Rake Angle : +2°



Structure

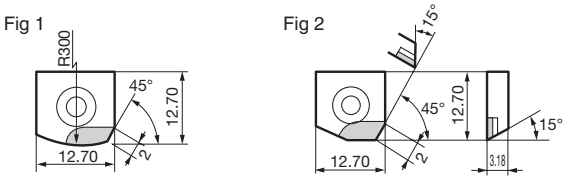


Insert

Dimensions (mm)

Grade		SUMIBORON		
Process	High-speed / Light	K	K	
	General-purpose	K	K	
	Roughing			
Cat. No.		BN7000	BN700	Fig
SNEW1203ADTR		•	•	1
SNEW1203ADTR-S		•	•	2

Part number suffix -S denotes a low-thrust insert.



Cartridges

Cartridges	Flat Screw		Adjustment Bolt	O-ring	Wrench	Wrench
		N·m			(For Flat Screws)	
FMUU(E)*	BFTX0509N	5.0	FMUJ	P3	TTX20	TH015

* FMU4040ER / 4050ER / 4063ER use FMUUE type cartridges.
* FMUU / FMUUE are pre-assembled with flat screws and adjustment screws (with O-rings attached).

Setting Gauge

FMU-SET (Sold Separately)

Parts

Bolt	Set Screw	Stopper	Double Screw	Wrench	Wrench	Wrench (Radial)
				(For Cartridges)	(For Cap Screws)	(For Stoppers)
BH0620*	BTD0609	FMUE	WB5-10	TH040	LH030	LH025

* FMU4040ER, 4050ER and 4063ER use BH0615 bolts.
* SUMI-P Anti-seizure cream included in the package.

Recommended Cutting Conditions

ISO	Part Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
K	Gray Cast Iron	250HB	2,650 - 6,600	0.004 - 0.012	BN7000(Dry)

Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

N·m Recommended Tightening Torque (N·m)

Rake Angle		
	Radial	-6° 45'
	Axial	-5° 45'

3mm 75°

Fig 1

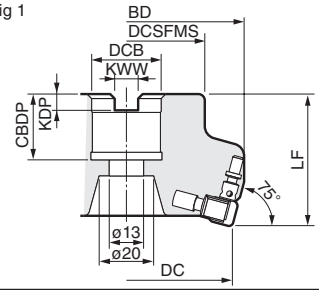
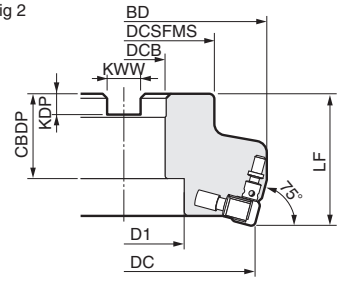


Fig 2



High-speed, High-efficiency Milling for Cast Iron

- High-Efficiency Milling of Gray Cast Iron
  - · Utilises solid SUMIBORON BNS800 for high-speed cutting of v_c = 60 SFM.
  - · High speed roughing with depth of cut up to 0.118"
  - · Wiper insert for high-speed finishing
- Low Cost
  - · Economical double-sided insert with 8 usable corners
  - · Insert can be reground and used again
- Simple Runout Adjustment Mechanism
  - · Simple design for insert direct mounting
  - · Easy yet precise runout precision adjustment

Body

Dimensions (mm)

	Cat. No.	Stock	Dia. DC	O.D. BD	Boss DCSFMS	Bolt D1	Height LF	Bore Dia. DCB	Keyway Width KWW	Keyway Depth KDP	Mounting Depth CBDP	Number of Teeth	Maximum Spindle Speed (min⁻¹)	Weight (kg)	Fig
Inch	**RM3080R**	●	**80**	90	60	-	50	**25.40**	9.5	6	25	6	9,000	1.6	1
	RM3100R	●	**100**	110	70	46	50	**31.75**	12.7	8	32	8	8,000	2.1	2
	RM3125R	●	**125**	135	80	59	63	**38.10**	15.9	10	38	10	7,000	3.9	2
	RM3160R	●	**160**	170	100	80	63	**50.80**	19.1	11	38	12	6,000	5.9	2

Inserts are sold separately.

Insert

●USA Stock Standard Item

Dimensions (mm)

Grade		SUMIBORON
Process	High-speed / Light	K
	General-purpose	K
	Roughing	K

Cat. No.	BNS800	Fig
SNGN090308	●	1
SNGN090312	●	1
SNEN090308W	●	2

Fig 1

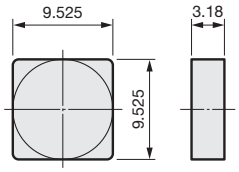
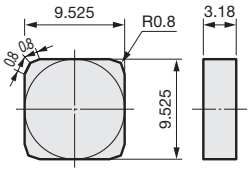
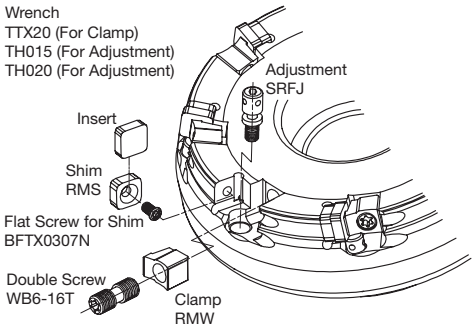


Fig 2 Wiper Insert





Parts

Clamp	Double Screw	Shim	Flat Screw for Shim		Adjustment Screw	Wrench (For Clamp)	Wrench (For Adjustment)	Wrench (For Adjustment)
RMW	WB6-16T	RMS	BFTX0307N	N·m 2.0	SRFJ	TTX20	TH015	TH020

N·m Recommended Tightening Torque (N·m)

⚠ CAUTION

- · Do not use inserts with different catalogue numbers, such as a mix of standard and wiper inserts, on a single cutter setting.
- · New and reground inserts cannot be mixed for use. Use either only new inserts or only reground inserts.
- · Inserts can only be reground once (inscribed circle dimension must be at least 9.125mm).

Recommended Cutting Conditions

ISO	Work Material	Hardness	Cutting Speed v_c (SFM) Min. - Max.	Feed Rate f_z (IPT) Min. - Max.	Insert Grade
K	Gray Cast Iron	250HB	2,625 - 5,000	0.002 - 0.008	BNS800 (Dry)

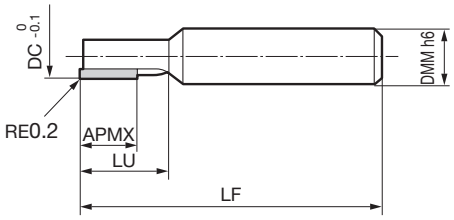
Note The cutting conditions above are a guide. Actual conditions will need to be adjusted according to machine rigidity, work clamp rigidity, depth of cut and other factors.

BNES

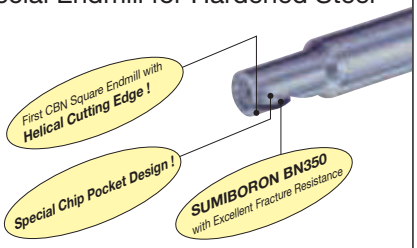
1 Flute | CBN | 15° Helix Angle | Side Milling

BNES PRODUCTS ARE MADE TO ORDER

Fig 1



●Special Endmill for Hardened Steel



Body

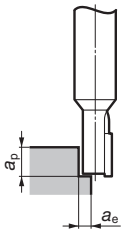
Dimensions (mm)

Cat. No.	Stock	Blade Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
BNES 1060		6.0	7.0	11.0	60	10	1
BNES 1080		8.0	10.0	14.0	70	10	1
BNES 1100		10.0	12.0	17.0	75	12	1
BNES 1120		12.0	14.0	20.0	80	12	1
BNES 1140		14.0	16.0	21.5	80	16	1
BNES 1160		16.0	18.0	24.0	80	16	1

Grade: BN350

Recommended Cutting Conditions

1. Use dry cutting (air blow) conditions.
2. Down cut (climb milling) is recommended.
3. Make overhang as short as possible and use a high-rigidity machine.



Surface Milling

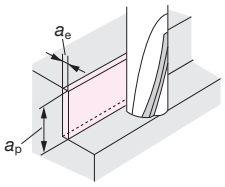
Part Material (Hardness)	High-Hardness Hardened Steel (50 to 57HRC)		
Cutting Conditions	Cutting Speed V_C 100 to 170m/min		
DC(mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Depth of Cut a_e (mm)
ø6 to 8	4,000 to 9,000	240 to 540	up to 0.1
ø10 to 12	2,700 to 5,400	180 to 360	up to 0.15
ø14 to 16	2,000 to 3,800	140 to 260	up to 0.2

Part Material (Hardness)	High-Hardness Hardened Steel (58 to 65HRC)		
Cutting Conditions	Cutting Speed V_C 80 to 150m/min		
DC(mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Depth of Cut a_e (mm)
ø6 to 8	3,200 to 8,000	150 to 370	up to 0.08
ø10 to 12	2,100 to 4,800	120 to 370	up to 0.12
ø14 to 16	1,600 to 3,400	110 to 230	up to 0.15

Performance

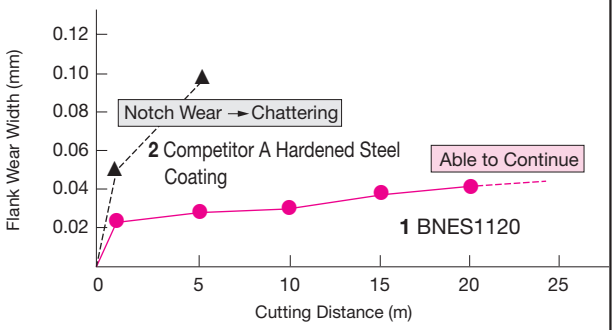
● Wear resistance enables high-efficiency machining

Tooling ●Side Milling



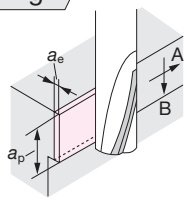
Cutting Conditions

●Work Material: SKD11 (Hardened) 60HRC
●Cutting Conditions: **1** v_c = 100m/min
v_f = 186mm/min
2 v_c = 40m/min
v_f = 186mm/min
Down-cut, Dry
a_p = 8mm, a_e = 0.05mm



● Finished surface roughness similar to grinding

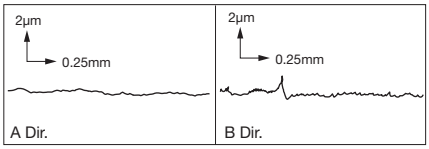
Tooling ●Side Milling



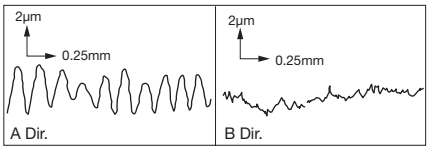
Cutting Conditions

●Work Material: SCr15
(Hardened) 55 to 58HRC
●Cutting Conditions: v_c = 130m/min
v_f = 310mm/min
Down-cut, Dry
a_p = 4mm, a_e = 0.05mm

1 BNES1080



2 Conventional Type (Straight Blade Type/ø8)

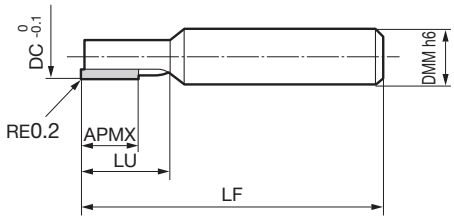


BNES Type

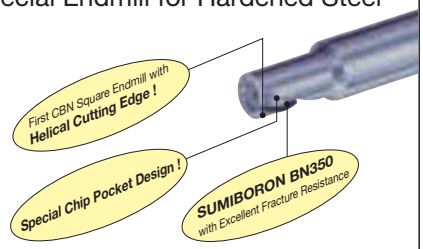
Pre-hardened Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Hardened Steel 60 to 65HRC

1 Flute | CBN | 15° Helix Angle | Side Milling

Fig 1



●Special Endmill for Hardened Steel



Body

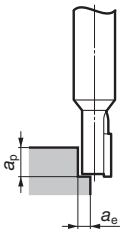
Dimensions (mm)

Cat. No.	Stock	Blade Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig
BNES 1060	★	6.0	7.0	11.0	60	10	1
BNES 1080	★	8.0	10.0	14.0	70	10	1
BNES 1100	★	10.0	12.0	17.0	75	12	1
BNES 1120	★	12.0	14.0	20.0	80	12	1
BNES 1140	★	14.0	16.0	21.5	80	16	1
BNES 1160	★	16.0	18.0	24.0	80	16	1

Grade: BN350

Recommended Cutting Conditions

1. Use dry cutting (air blow) conditions.
2. Down cut (climb milling) is recommended.
3. Make overhang as short as possible and use a high-rigidity machine.



Surface Milling

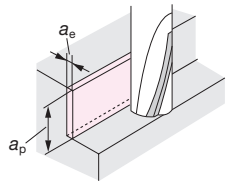
Part Material (Hardness)	High-Hardness Hardened Steel (50 to 57HRC)		
Cutting Conditions	Cutting Speed V_C 100 to 170m/min		
DC(mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Depth of Cut a_e (mm)
ø6 to 8	4,000 to 9,000	240 to 540	up to 0.1
ø10 to 12	2,700 to 5,400	180 to 360	up to 0.15
ø14 to 16	2,000 to 3,800	140 to 260	up to 0.2

Part Material (Hardness)	High-Hardness Hardened Steel (58 to 65HRC)		
Cutting Conditions	Cutting Speed V_C 80 to 150m/min		
DC(mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Depth of Cut a_e (mm)
ø6 to 8	3,200 to 8,000	150 to 370	up to 0.08
ø10 to 12	2,100 to 4,800	120 to 370	up to 0.12
ø14 to 16	1,600 to 3,400	110 to 230	up to 0.15

Performance

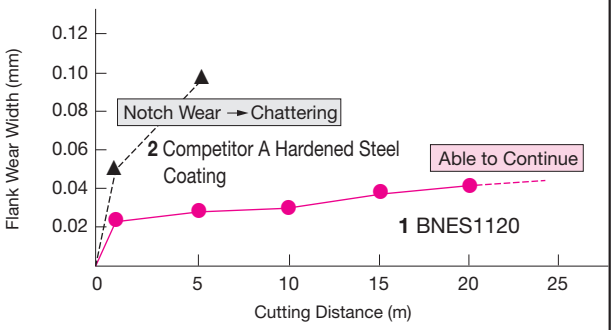
● Wear resistance enables high-efficiency machining

Tooling ●Side Milling



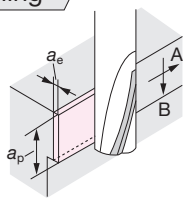
Cutting Conditions

●Work Material: SKD11 (Hardened) 60HRC
●Cutting Conditions: **1** v_c = 100m/min
v_f = 186mm/min
2 v_c = 40m/min
v_f = 186mm/min
Down-cut, Dry
a_p = 8mm, a_e = 0.05mm



● Finished surface roughness similar to grinding

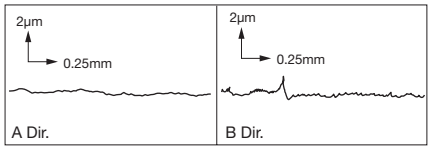
Tooling ●Side Milling



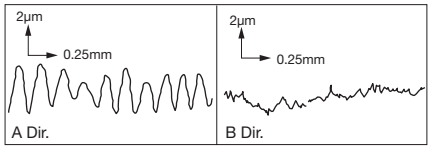
Cutting Conditions

●Work Material: SCr15
(Hardened) 55 to 58HRC
●Cutting Conditions: v_c = 130m/min
v_f = 310mm/min
Down-cut, Dry
a_p = 4mm, a_e = 0.05mm

1 BNES1080



2 Conventional Type
(Straight Blade Type/ø8)

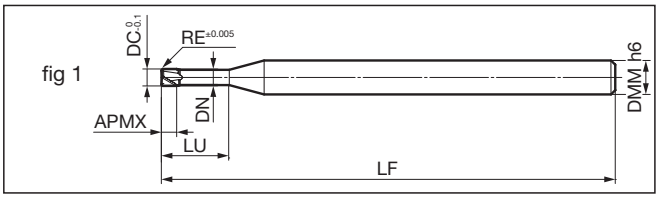


BNBR Type

Pre-hardened Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Hardened Steel 60 to 65HRC

2 Flutes | CBN | Corner r | Side Milling | Face Milling | Profiling

fig 1



Identification Code

BNBR 2 D050 R010 - 015 4

Series Code | Number of Teeth | Dia. | Nose Radius | Neck Length | Shank Dia.

Body

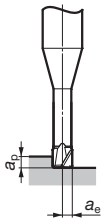
Dimensions (*mm*)

Cat. No.	Stock	Dia. DC	Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Wiper Edge	Fig
BNBR2D020R005-0054	★	0.2	0.05	0.1	0.5	50	0.17	4	No	1
BNBR2D030R005-0054	★	0.3	0.05	0.15	0.5	50	0.27	4	No	1
BNBR2D040R005-0054	★	0.4	0.05	0.2	0.5	50	0.37	4	No	1
BNBR2D050R005-0054	★	0.5	0.05	0.3	0.5	50	0.47	4	No	1
BNBR2D050R005-0154	★	0.5	0.05	0.3	1.5	50	0.47	4	No	1
BNBR2D050R005-0254	★	0.5	0.05	0.3	2.5	50	0.47	4	No	1
BNBR2D050R010-0154	★	0.5	0.10	0.3	1.5	50	0.47	4	No	1
BNBR2D050R010-0254	★	0.5	0.10	0.3	2.5	50	0.47	4	No	1
BNBR2D100R005-0304	★	1.0	0.05	0.7	3.0	50	0.97	4	Yes	1
BNBR2D100R005-0504	★	1.0	0.05	0.7	5.0	50	0.97	4	Yes	1
BNBR2D100R010-0304	★	1.0	0.10	0.7	3.0	50	0.97	4	Yes	1
BNBR2D100R010-0504	★	1.0	0.10	0.7	5.0	50	0.97	4	Yes	1
BNBR2D100R020-0304	★	1.0	0.20	0.7	3.0	50	0.97	4	Yes	1
BNBR2D100R020-0504	★	1.0	0.20	0.7	5.0	50	0.97	4	Yes	1
BNBR2D100R030-0304	★	1.0	0.30	0.7	3.0	50	0.97	4	Yes	1
BNBR2D100R030-0504	★	1.0	0.30	0.7	5.0	50	0.97	4	Yes	1
BNBR2D150R010-0454	★	1.5	0.10	1.2	4.5	50	1.47	4	Yes	1
BNBR2D150R010-0754	★	1.5	0.10	1.2	7.5	50	1.47	4	Yes	1
BNBR2D150R020-0454	★	1.5	0.20	1.2	4.5	50	1.47	4	Yes	1
BNBR2D150R020-0754	★	1.5	0.20	1.2	7.5	50	1.47	4	Yes	1
BNBR2D150R030-0454	★	1.5	0.30	1.2	4.5	50	1.47	4	Yes	1
BNBR2D150R030-0754	★	1.5	0.30	1.2	7.5	50	1.47	4	Yes	1
BNBR2D200R010-0604	★	2.0	0.10	1.5	6.0	50	1.97	4	Yes	1
BNBR2D200R020-0604	★	2.0	0.20	1.5	6.0	50	1.97	4	Yes	1
BNBR2D200R030-0604	★	2.0	0.30	1.5	6.0	50	1.97	4	Yes	1
BNBR2D200R050-0604	★	2.0	0.50	1.5	6.0	50	1.97	4	Yes	1

Grade: BNX20

Recommended Cutting Conditions

1. Use a machine with high rigidity for stable cutting.
2. Non-water soluble cutting oil is recommended. Supply as a mist or external coolant.
   Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions as necessary as machine rigidity and other conditions may vary.
5. Depths of cut shown in the table of conditions are maximum depths. Adjust the actual depth of cut to the desired machined surface roughness.



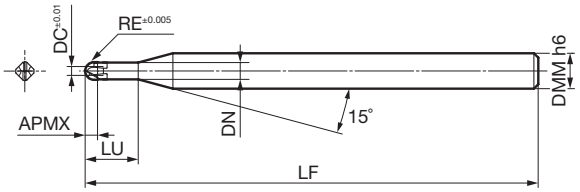
Part Material			STAVAX, NAK80, SKD61 (Up to 52HRC)				ELMAX, DC53, SKD11 Modified (Up to 62HRC)				YXR3, SKH (Up to 70HRC)			
DC (*mm*)	RE (*mm*)	LU (*mm*)	Spindle Speed (min^{-1})	Feed Rate (*mm/min*)	a_p (*mm*)	a_e (*mm*)	Spindle Speed (min^{-1})	Feed Rate (*mm/min*)	a_p (*mm*)	a_e (*mm*)	Spindle Speed (min^{-1})	Feed Rate (*mm/min*)	a_p (*mm*)	a_e (*mm*)
0.2	0.05	0.5	40,000	400	0.005	0.03	40,000	400	0.005	0.03	40,000	250	0.005	0.02
0.3	0.05	0.5	40,000	500	0.010	0.05	40,000	500	0.010	0.05	40,000	300	0.005	0.03
0.4	0.05	0.5	40,000	600	0.015	0.1	40,000	600	0.015	0.1	40,000	400	0.01	0.05
0.5	0.05	0.5	40,000	600	0.02	0.15	40,000	600	0.02	0.15	40,000	400	0.01	0.1
	0.05	1.5	40,000		0.02	0.1	40,000		0.02	0.1	35,000			0.05
	0.1		40,000				40,000				35,000			
	0.05	2.5	40,000		0.01	0.05	40,000		0.01	0.05	35,000			
	0.1		40,000				40,000				35,000			
1.0	0.05	3.0	35,000	800	0.03	0.3	35,000	800	0.03	0.2	30,000	600	0.01	0.1
	0.1		35,000				35,000				30,000			
	0.2		35,000				35,000				30,000			
	0.3		35,000				35,000				30,000			
	0.05	5.0	35,000		0.02	0.2	35,000		0.02	0.1	30,000	600	0.01	0.1
	0.1		35,000				35,000				30,000			
	0.2		35,000				35,000				30,000			
	0.3		35,000				35,000				30,000			
1.5	0.1	4.5	26,000	800	0.03	0.5	26,000	800	0.03	0.3	20,000	600	0.02	0.3
	0.2		26,000				26,000				20,000			
	0.3		26,000				26,000				20,000			
	0.1	7.5	26,000		0.03	0.5	26,000	800	0.03	0.3	20,000	600	0.02	0.3
	0.2		26,000				26,000				20,000			
	0.3		26,000				26,000				20,000			
2.0	0.1	6.0	20,000	800	0.03	0.7	20,000	800	0.03	0.7	15,000	600	0.03	0.7
	0.2		20,000				20,000				15,000			
	0.3		20,000				20,000				15,000			
	0.5		20,000				20,000				15,000			

BNBP Type

Pre-hardened Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Hardened Steel 60 to 65HRC

2 Flutes | CBN | Ballnose R | Side Milling | Face Milling | R-Grooving | Profiling

Fig 1



Body

Dimensions (*mm*)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Dia. DN	Shank Dia. DMM	Fig
BNBP2R020-0124	★	0.20	0.4	0.3	1.2	50	0.37	4	1
BNBP2R020-0126	★	0.20	0.4	0.3	1.2	50	0.37	6	1
BNBP2R020-0204	★	0.20	0.4	0.3	2.0	50	0.37	4	1
BNBP2R020-0304	★	0.20	0.4	0.3	3.0	50	0.37	4	1
BNBP2R020-0404	★	0.20	0.4	0.3	4.0	50	0.37	4	1
BNBP2R030-0154	★	0.30	0.6	0.4	1.5	50	0.57	4	1
BNBP2R030-0156	★	0.30	0.6	0.4	1.5	50	0.57	6	1
BNBP2R030-0304	★	0.30	0.6	0.4	3.0	50	0.57	4	1
BNBP2R030-0404	★	0.30	0.6	0.4	4.0	50	0.57	4	1
BNBP2R030-0504	★	0.30	0.6	0.4	5.0	50	0.57	4	1
BNBP2R030-0604	★	0.30	0.6	0.4	6.0	50	0.57	4	1
BNBP2R050-0254	★	0.50	1.0	0.6	2.5	50	0.97	4	1
BNBP2R050-0256	★	0.50	1.0	0.6	2.5	50	0.97	6	1
BNBP2R050-0304	★	0.50	1.0	0.6	3.0	50	0.97	4	1
BNBP2R050-0404	★	0.50	1.0	0.6	4.0	50	0.97	4	1
BNBP2R050-0604	★	0.50	1.0	0.6	6.0	50	0.97	4	1
BNBP2R050-0804	★	0.50	1.0	0.6	8.0	50	0.97	4	1
BNBP2R075-0404	★	0.75	1.5	0.9	4.0	50	1.47	4	1
BNBP2R075-0406	★	0.75	1.5	0.9	4.0	50	1.47	6	1
BNBP2R100-0554	★	1.00	2.0	1.4	5.5	50	1.97	4	1
BNBP2R100-0556	★	1.00	2.0	1.4	5.5	50	1.97	6	1
BNBP2R100-0804	★	1.00	2.0	1.4	8.0	50	1.97	4	1

Grade: BN350

Identification Code

BNBP 2 R030 - 015 4

Series Code | Number of Teeth | Ballnose Radius | Neck Length | Shank Dia.

Recommended Cutting Conditions

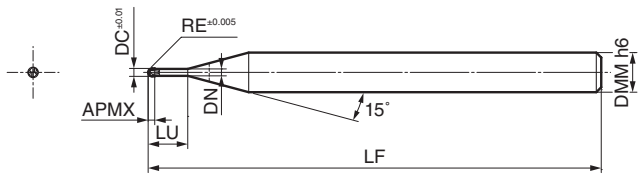
1. Use a machine with high rigidity for stable cutting.
2. Non-water soluble cutting oil is recommended. Supply as a mist or external coolant.
   Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions according to actual conditions as machine rigidity and other conditions may vary.
5. Depths of cut shown in the table of conditions are maximum depths. Adjust the actual depth of cut to the desired machined surface roughness.

Part Material		STAVAX, NAK80, SKD61 (Up to 52HRC)				ELMAX, DC53, SKD11 Modified (Up to 62HRC)				YXR3, SKH (Up to 70HRC)			
RE (*mm*)	LU (*mm*)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (*mm*)	p_f (*mm*)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (*mm*)	p_f (*mm*)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p (*mm*)	p_f (*mm*)
0.2	1.2	40,000	1,000	0.005	0.010	40,000	800	0.005	0.010	40,000	600	0.005	0.005
	2.0	40,000	800	0.005	0.010	40,000	600	0.005	0.010	40,000	400	0.005	0.005
	3.0	40,000	600	0.005	0.010	40,000	500	0.005	0.010	40,000	300	0.005	0.005
	4.0	40,000	500	0.005	0.010	40,000	400	0.005	0.005	40,000	200	0.005	0.005
0.3	1.5	40,000	1,600	0.020	0.020	40,000	1,400	0.010	0.020	40,000	1,200	0.010	0.020
	2.0	40,000	1,500	0.010	0.020	40,000	1,300	0.010	0.020	40,000	1,100	0.010	0.010
	3.0	40,000	1,400	0.010	0.020	40,000	1,200	0.010	0.020	40,000	1,000	0.010	0.010
	4.0	30,000	1,200	0.010	0.010	30,000	1,000	0.010	0.010	30,000	700	0.005	0.010
	5.0	30,000	800	0.010	0.010	30,000	700	0.005	0.010	30,000	600	0.005	0.005
	6.0	30,000	600	0.005	0.010	30,000	500	0.005	0.005	30,000	400	0.005	0.005
0.5	2.5	40,000	2,800	0.040	0.050	40,000	2,800	0.030	0.040	40,000	2,200	0.020	0.030
	3.0	40,000	2,600	0.040	0.050	40,000	2,600	0.030	0.040	40,000	2,100	0.020	0.030
	4.0	40,000	2,400	0.030	0.050	40,000	2,400	0.020	0.030	40,000	2,000	0.020	0.020
	6.0	25,000	1,500	0.020	0.030	25,000	1,500	0.010	0.020	25,000	1,300	0.010	0.010
	8.0	16,000	1,200	0.020	0.020	16,000	1,100	0.010	0.020	16,000	850	0.010	0.010
0.75	4.0	32,000	2,400	0.030	0.030	32,000	2,200	0.020	0.030	32,000	2,000	0.020	0.020
1.0	5.5	40,000	4,000	0.050	0.050	40,000	4,000	0.030	0.030	40,000	3,000	0.020	0.030
	8.0	32,000	3,000	0.030	0.050	32,000	2,600	0.020	0.030	32,000	2,200	0.010	0.020

BNBC Type

2 Flutes | CBN | Ballnose R | Side Milling | Face Milling | R-Grooving | Profiling

Fig 1



Body

Dimensions (mm)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Head Diameter DN	Shank Dia. DMM	Fig
BNBC 2R010-0034	★	0.1	0.2	0.2	0.3	50	0.17	4	1
BNBC 2R010-0104	★	0.1	0.2	0.2	1.0	50	0.17	4	1
BNBC 2R020-0054	★	0.2	0.4	0.3	0.5	50	0.37	4	1
BNBC 2R020-0204	★	0.2	0.4	0.3	2.0	50	0.37	4	1
BNBC 2R030-0104	★	0.3	0.6	0.4	1.0	50	0.57	4	1
BNBC 2R030-0304	★	0.3	0.6	0.4	3.0	50	0.57	4	1
BNBC 2R050-0304	★	0.5	1.0	0.6	3.0	50	0.97	4	1

Grade: BN700

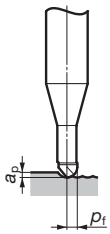
Identification Code

BNBC 2 R030 - 010 4

Series Code | Number of Teeth | Ballnose Radius | Neck Length | Shank Dia.

Recommended Cutting Conditions

1. Use a machine with high rigidity for stable cutting.
2. Non-water soluble cutting oil is recommended. Supply as a mist or external coolant.
   Take fire prevention precautions to avoid fire hazards caused by sparks igniting during machining or tool breakage.
3. Shorten overhang as much as possible.
4. Adjust cutting conditions according to actual conditions as machine rigidity and other conditions may vary.
5. Depths of cut shown in the table of conditions are maximum depths. Adjust the actual depth of cut to the desired machined surface roughness.



Surface Milling

PArt Material / Cutting Conditions / Cat. No.	Copper Alloy			
	Spindle Speed (min⁻¹)	Feed Rate (mm/min)	Standard Depth of Cut (mm) a_p	Standard Depth of Cut (mm) p_f
BNBC 2R010-0034	20,000 -50,000	350	0.01	0.02
BNBC 2R010-0104		350	0.007	0.015
BNBC 2R020-0054	20,000 -50,000	800	0.025	0.05
BNBC 2R020-0204		700	0.02	0.03
BNBC 2R030-0104	20,000 -50,000	1,400	0.05	0.15
BNBC 2R030-0304		1,200	0.04	0.1
BNBC 2R050-0304	20,000 -50,000	2,200	0.15	0.35

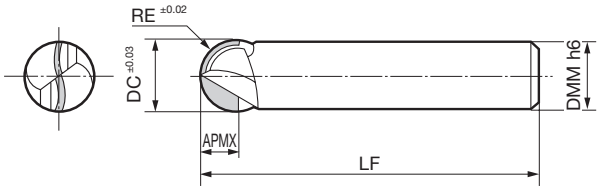
BNBS Type

Pre-hardened Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Hardened Steel 60 to 65HRC

2 Flutes | CBN | Ballnose R | Side Milling | Face Milling | R-Grooving | Profiling

- Combination of Special Grade and Spiral Cutting Edge Design:
  The combination of a special tough SUMIBORON grade with a unique cutting edge design is a breakthrough for high efficiency and smooth endmilling of hardened steels.

Fig 1



Body

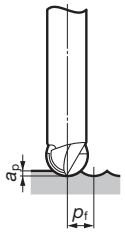
Dimensions (mm)

Cat. No.	Stock	Radius RE	Dia. DC	Cutting Edge Length APMX	Overall Length LF	Shank Dia. DMM	Fig
BNBS 2020S	★	*1.0*	*2.0*	*1.5*	*50*	*4*	1
BNBS 2030S	★	*1.5*	*3.0*	*2.0*	*60*	*6*	1
BNBS 2040S	★	*2.0*	*4.0*	*3.0*	*70*	*6*	1
BNBS 2060S	★	*3.0*	*6.0*	*4.5*	*80*	*6*	1
BNBS 2080S	★	*4.0*	*8.0*	*5.5*	*90*	*8*	1
BNBS 2100S	★	*5.0*	*10.0*	*6.5*	*100*	*10*	1
BNBS 2120S	★	*6.0*	*12.0*	*7.5*	*110*	*12*	1

Grade: BN350

Recommended Cutting Conditions

1. Use a high-rigidity machine and select a high cutting speed with a low feed rate.
2. Use dry cutting conditions.
3. Make overhang as short as possible.
4. If the work material hardness is lower than 50HRC, try the GSX Ballnose endmill .



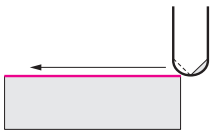
Radius Milling

Part Material / Cutting Conditions		Hardened Steel (50-57HRC)		Hardened Steel (58-65HRC)	
RE(*mm*)		Spindle Speed (min⁻¹)	Feed Rate *(mm/min)*	Spindle Speed (min⁻¹)	Feed Rate *(mm/min)*
1.0		26,000	*1,100*	22,000	*670*
1.5		18,000	*700*	15,000	*450*
2.0		13,000	*530*	11,000	*330*
3.0		8,800	*610*	7,400	*450*
4.0		6,600	*460*	5,600	*330*
5.0		5,300	*630*	4,500	*400*
6.0		4,400	*530*	3,700	*330*
Standard Depth of Cut	a_p	0.01DC		0.01DC	
	p_f	0.02DC		0.02DC	

Performance

Part Material: D2 Tool Steel (60HRC Hardness)

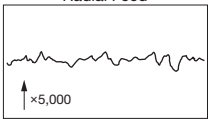
	BN350
Cutting Speed	825 SFM
Feed Rate *f*	.00157 IPT
Pitch Feed P_f	.0118”
Depth of Cut a_p	.0118”
Tool	BNBS2100S



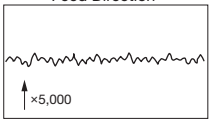
Results

Actual Cutting Length : 365 Linear Feet, v_B = .005 flank wear” → Continued Machining Possible
Finished Surface Roughness : Radial Feed Ry1.8μm,
Axial Feed Direction Ry2.2μm

Radial Feed



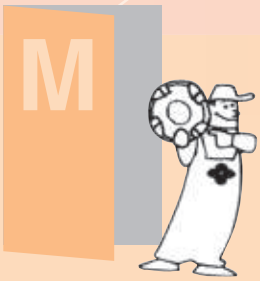
Feed Direction



PCD / Binderless PCD SUMICRYSTAL

M1 to M35

M



PCD - SUMIDIA

Grades	PCD - SUMIDIA® Series ····· M2
	PCD - SUMIDIA® Binderless NPD10 / SUMIDIA DA90 ····· M5
	PCD - SUMIDIA® DA1000 ····· M6
Inserts	PCD - SUMIDIA® BreakMaster LD / GD ····· M7
	PCD - SUMIDIA® BreakMaster DM ····· M8
	PCD - SUMIDIA® Insert Identification Table ····· M9
	Stock Table for PCD - SUMIDIA® Indexable Inserts ····· M10

M SUMICRYSTAL

SUMICRYSTAL ····· M30
SUMICRYSTAL PD / PDX ····· M31
SUMICRYSTAL UP ····· M32
SUMICRYSTAL UP (Half Cut) ····· M33
SUMICRYSTAL UPT ····· M34
SUMICRYSTAL CD ····· M35

Stock Markings and Symbols	
●: Standard stocked item ★: Worldwide Warehouse Item ▲: Limited Availability Item, made to order, or discontinued (please confirm stock availability).	Blank: Made-to-order item — mark: Not available

PCD Inserts

■ General Features

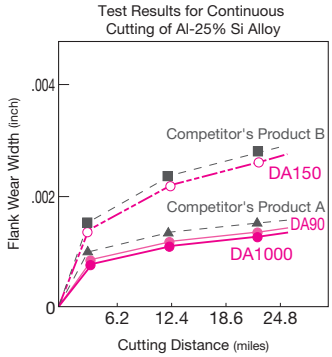
Sumitomo PCD - SUMIDIA® sintered diamond series has 4 grades (DA90, DA150, DA2200, DA1000) with individual features depending on the optimum combination of diamond particle size and binder, as well as the NPD10 grade (nano-polycrystalline diamond) where nano-order diamond particles are directly bound with high strength without using binders.
PCD is suited for a wide range of applications from machining of aluminum alloy to machining of hard brittle materials and cemented carbide.

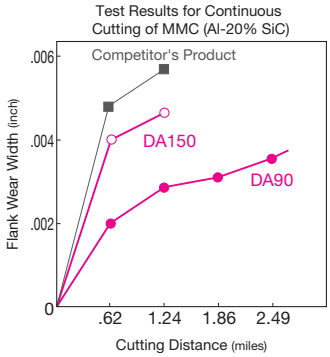
■ Grades, Features and Applications

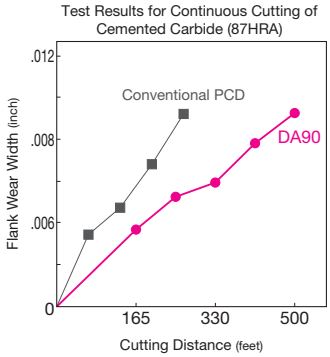
Grade		Features	Applications	Average grain size of diamond particles (μm)	Hardness HK (GPa)	Transverse Rupture Strength (GPa)
SUMIDIA Binderless	NPD10	100% diamond structure that directly binds nano-order diamond particles with high strength. Demonstrates optimum wear and fracture resistance as well as the best edge sharpness.	· Finishing of Cemented Carbide · Machining of Hard Brittle Material (Ceramics)	up to 0.05	120 to 130	≈ 3.15
SUMIDIA®	DA1000	High-density sintered grade made of ultra-fine grained diamond that demonstrates excellent wear and fracture resistance as well as edge sharpness.	· Machining of High-Silicon Aluminum Alloy · Rough, Interrupted and Finishing Machining of Aluminum Alloy · Woodcraft or Wooden Board Cutting/ Facing · General Finishing of Non-Ferrous Metals	up to 0.5	50 to 60	≈ 2.60
	DA2200	Sintered grade made of ultra-fine grained diamond that demonstrates optimum wear and fracture resistance and excellent edge sharpness.	· Rough, Interrupted and Finishing Machining of Aluminum Alloy · Woodcraft or Wooden Board Cutting/ Facing	0.5	45 to 55	≈ 2.45
	DA150	Grade with micro-grained sintered diamond particles. With strong diamond particle bonding, it has an excellent balance of machinability and wear resistance.	· General Finishing of Non-Ferrous Metals · Finishing of Semi-Sintered Ceramics and Mold-Extruded Products · FRP, Hard Rubber & Carbon Cutting · Wooden or Inorganic Board Cutting/Facing	5	50 to 60	≈ 1.95
	DA90	Contains coarser diamond particles than other grades, giving it good wear resistance suitable for the machining of carbides and high-silicon aluminum. Shows the highest diamond content for excellent wear resistance.	· Machining of High-Silicon Aluminum Alloy · Machining of Aluminum Composite (MMC) · Green or Semi-Sintered Cemented Carbide & Ceramic Roughing · Machining of Sintered Ceramics/Stone/ Rock	up to 50	50 to 65	≈ 1.10

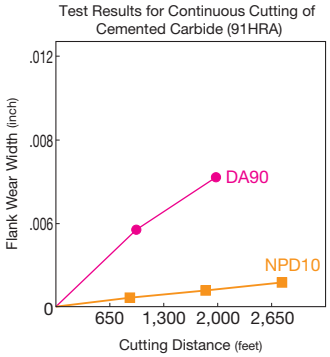
Transverse rupture strength measured with test piece equivalent to insert PCD layer

■ Performance









Part Material : Al-25% Si alloy
Tool Cat. No. : SPG421
Holder : FP11R
Cutting Conditions : v_c=1,640 SFM, f=0.004 IPR, a_p=5.1" Dry

Part Material : MMC (Al-20%SiC)
Tool Cat. No. : CNMX432
Holder : PCLN2525
Cutting Conditions : v_c=1,150 SFM, f=0.008 IPR, a_p=4.5" Wet

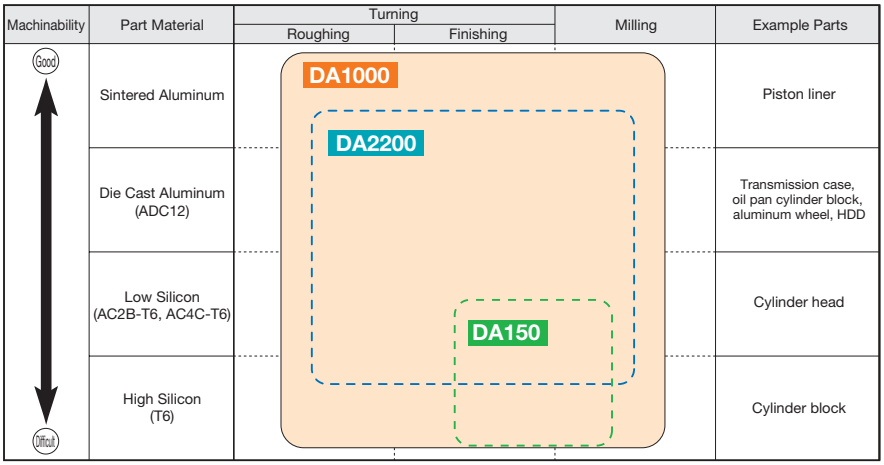
Part Material : Cemented carbide (87HRA)
Tool Cat. No. : NF-DCMA21.51
Cutting Conditions : v_c = 65 SFM, f = 0.004 IPR, a_p = 5.1" Wet

Part Material : Cemented carbide (91HRA)
Tool Cat. No. : DCMA32.51RH (NPD10) NF-DCMW11T304 (DA90)
Cutting Conditions : v_c = 65 SFM, f = 0.002 IPR, a_p = 1.27" Dry

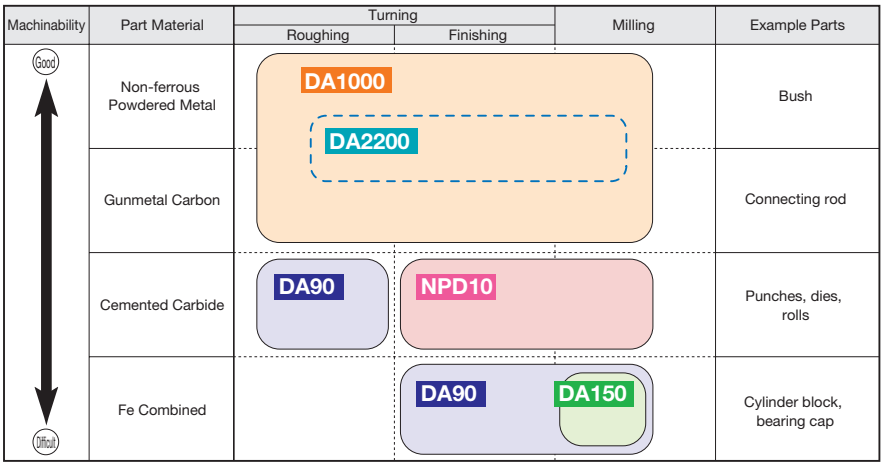
PCD Inserts

■ Application Range

● Aluminum



● Non-aluminum



■ Recommended Cutting Conditions

Part Material	Cutting Speed v_c(SFM)	Feed Rate f(IPR)	Depth of Cut a_p(inch)
Aluminum Alloy	up to 9,850	up to 0.008	up to 0.12
Copper Alloy	up to 3,300	up to 0.008	up to 0.12
Reinforced Plastics	up to 3,300	up to 0.016	up to 0.079
Wooden or Inorganic Board (cutting, etc.)	up to 13,100	up to 0.016	—
Cemented Carbide	up to 100	up to 0.008	up to 0.0197
Carbon	330 to 1,970	0.04	0.079

■ PCD (SUMIDIA) Grinding Method

Functions		Description
Grinding Machine	—	(1) A special-purpose high-rigidity grinding machine. (2) Capable of wet grinding operations.
Grinding Wheel	Abrasive Grain	Diamond
	Grain Size	Rough Grinding: 400 mesh, Finish Grinding: 800 to 1,500 mesh
	Bond	Vitrified or Metal Bond Dedicated for Polycrystalline Diamond Tool
	Concentration	100 to 125
	Dressing	Use a WA stick with a mesh of about 400.
Grinding Conditions	Peripheral Speed	2,600 to 3,300 SFM
	Table Rocking	30 to 60 cycle/min
	Grinding Fluid	Water-soluble Grinding Fluid (Solution Type)
Others	—	(1) The rake face is generally lapped. (2) Inspect for edge chipping using a microscope with a magnification of 30 to 50 times. (3) Machining of non-ferrous metals requires a sharp cutting edge. (4) Surfaces that were cut by EDM should have more than 0.002" ground off.

*Please contact us for details on regrinding of NPD10.

PCD - SUMIDIA Binderless Inserts

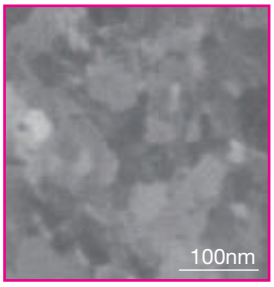
Nano-Polycrystalline Diamond

■ General Features

Nano-polycrystalline diamond is polycrystalline diamond that directly binds nano-order diamond particles with high strength without using any binders. This proprietary Sumitomo material is harder than polycrystalline diamond with a binder, achieving excellent wear resistance and fracture resistance.
Binderless PCD tools use this super-high-performance nano-polycrystalline diamond material in their cutting edges.

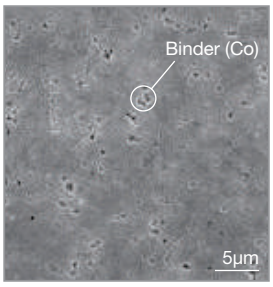
■ Comparison of Structures

Nano-Polycrystalline Diamond Tool SEM Profile



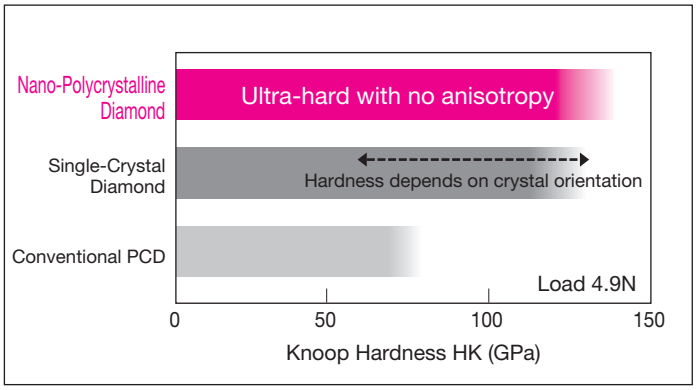
Diamond particles (30 to 50nm)

Conventional PCD SEM Profile



Diamond particles (1 to 10μm)

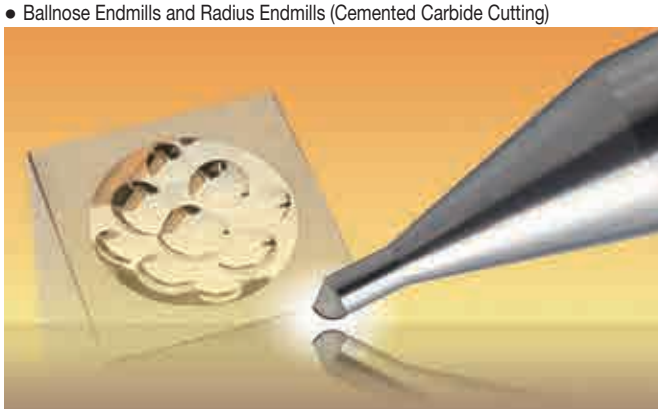
■ Hardness



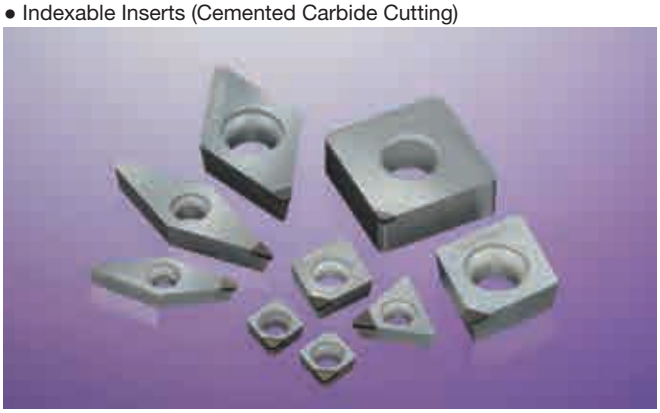
PCD - SUMIDIA - Binderless

■ Application Examples

● Ballnose Endmills and Radius Endmills (Cemented Carbide Cutting)

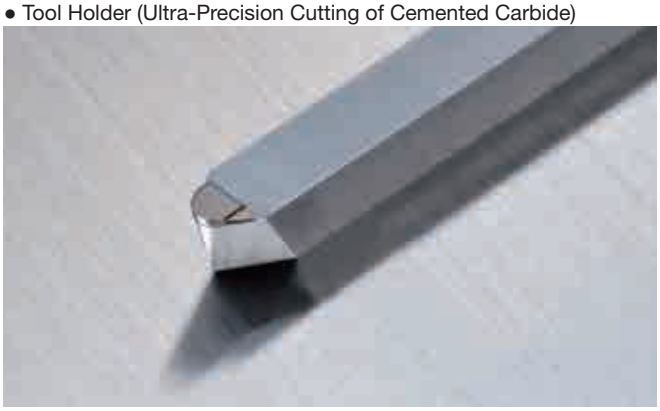


● Indexable Inserts (Cemented Carbide Cutting)



● Drill (Drilling of Ceramics)

● Tool Holder (Ultra-Precision Cutting of Cemented Carbide)



NPD10/DA90

■ General Features

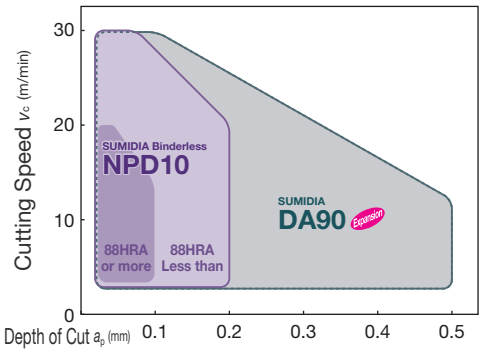
NPD10 is made from high-hardness nano-polycrystalline diamond. This is a pure diamond material, but unlike single-crystal diamonds, it has no anisotropy.
It achieves extended tool life and machining accuracy superior to conventional diamond tools when machining hard brittle materials such as cemented carbide.

DA90 is a PCD - polycrystalline diamond grade in which coarse diamond particles have been sintered to form a dense structure. The high diamond content, with high wear resistance, makes it ideal for roughing of cemented carbide and hard brittle material.
Optimized design and mass production technology have been developed, achieving the same performance as conventional tools with higher cost-performance.

■ Features

- Ideal for Finishing of Hard Brittle Materials Including Cemented Carbide (NPD10)
  High-precision cutting of cemented carbide thanks to the outstanding wear resistance of nano-polycrystalline diamond
- Superior dimensional tolerance maintained for a long time (NPD10)
  Tool replacement count can be drastically reduced compared to conventional diamond tools, enabling work efficiency to be improved and total costs to be reduced.
- Ideal for Roughing of Hard Brittle Materials Including Cemented Carbide (DA90)
  Stable tool life in sintered surface machining of cemented carbide and roughing of hard brittle materials thanks to the outstanding wear resistance of the coarse-grained polycrystalline diamond
- Uses PCD - SUMIDIA NF Insert (DA90)
  Optimized design and mass production technology have been developed, achieving the same performance as conventional tools with higher cost-performance.

■ Application Range (Cemented Carbide Machining)



■ Applications of NPD10 and DA90 (Cemented Carbide)

Grade	SUMIDIA Binderless NPD10		SUMIDIA DA90	
Dimensional Tolerance	◎	Best	△	The first recommendation is NPD10
Tool Life (Wear Resistance)	◎	Best a_p = 0.008" or below f = 0.004 IPR or below recommended	○	a_p = 0.008" or above can also be used
Sintered surface machining of cemented carbide	×	Impossible	◎	Best
Machined surface quality	◎	Best	△	The first recommendation is NPD10

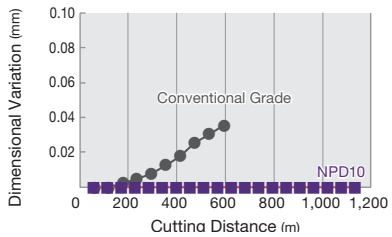
■ Recommended Cutting Conditions (Cemented Carbide Machining)

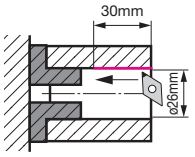
Part Material				Grade	Cutting Conditions		
Class		Hardness (HRA)	Our Grades		Cutting Speed v_c (SFM)	Feed Rate f (IPR)	Depth of Cut a_p (Inch)
VM, VC	40	88 or more	G5, D2	NPD10	15 - 65	.0012 - .0027	.0012 - .0027
VM, VC	70, 60, 50	83 less than 88	G7, G6	NPD10	15 - 100	.0012 - .0079	.0012 - .0079
VM, VC	—	83 or more	G7, G6 G5, D2	DA90	15 - 100	.0012 - .0079	.0012- .0197

Min. - Max. Coolant: Dry (NPD10)/Wet (DA90)

■ Machining Precision (NPD10)

Internal machining of cemented carbide: VM30 (91HRA)



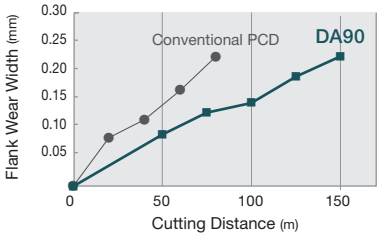


NPD10 shows no dimensional variation even after 1,100m of cutting.

Part Material : Cemented carbide: VM30 (91HRA)
Tool Cat. No. : DCMA32.51RH
Cutting Conditions : v_c=65 SFM, f=0.002 IPR, a_p=0.002" Dry

■ Wear Resistance (DA90)

External machining of cemented carbide: VC50 (87HRA)



Part Material : Cemented carbide: VC50 (87HRA)
Tool : NF-DCMA21.51
Cutting Conditions : v_c=65 SFM, f=0.004 IPR, a_p=0.008" Wet

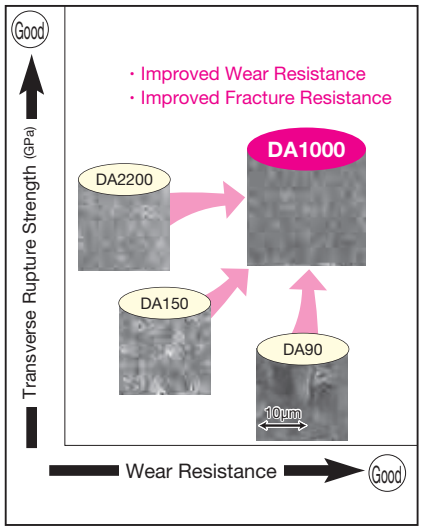
DA1000

■ Features

Ultra-high-density sintered ultra-fine grained diamond

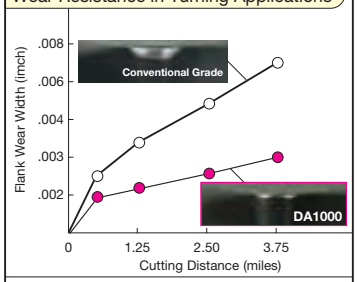
- Significantly improved surface roughness on machined surfaces
- Excellent wear resistance and strength
- High-performance, high-precision, high-efficiency machining of all aluminum and non-ferrous alloys

■ Position of DA1000

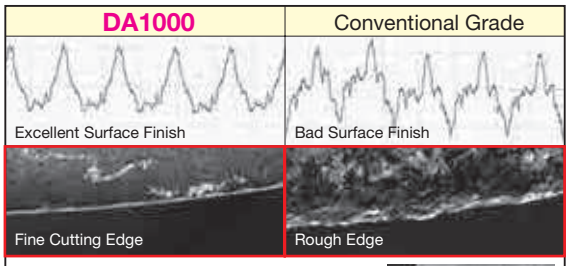


■ Cutting Performance

Wear Resistance in Turning Applications



Part Material : 17% Si-Al Alloy
Tool Cat. No. : TPG321
Cutting Conditions : v_c =2,600 SFM, f =0.005 IPR
a_p =0.0197" Wet



Part Material : 17% Si-Al Alloy
Tool Cat. No. : TPGA322
Cutting Conditions : v_c=3,300 SFM, f =0.006 IPR
a_p = 0.008" Wet

■ NF Insert

The NF PCD insert uses optimized design and improved mass production techniques that maintain good performance of DA1000 yet offer higher cost efficiency. It makes the most of the PCD - SUMIDIA DA1000 grade, with excellent fracture and wear resistance and good work material finished surface roughness.

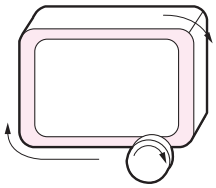
NF Insert Cutting Edge SEM Profile

High-precision cutting edge quality

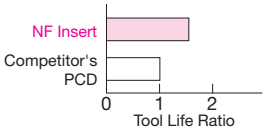
- Total cost effectiveness with high performance and lower price
  - ・Optimum design utilizing improved mass production techniques provides a lower cost.
  - ・Regrindable type results in huge total cost reduction.
- Wide lineup from general turning to milling
  - ・Wide range of items in stock for small diameter boring and external turning to milling.
  - ・Negative/positive type inserts that can be used on standard lever-lock and pin-lock type holder are also in stock.

■ Application Examples

● Milling of Aluminum Alloy Oil Pump Cover

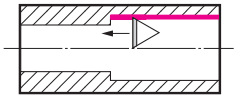


Results:
1.5 times longer tool life than competitors' PCD, with higher cost performance.

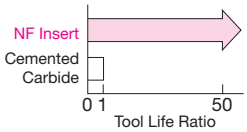


Part Material : A383 Aluminum, Tool Cat. No.: NF-TEEN32R
Cutting Conditions : v_c = 9,850 SFM, f_z = 0.0024 IPR, a_p = 0.008" Wet

● Boring of Aluminum Valve Bore



Results:
No initial breakage, tool life is more than 50 times that of carbides.



Part Material : A383 Aluminum, Tool Cat. No.: NF-TPG221P
Cutting Conditions : v_c = 1,750 SFM, f = 0.00197 IPR, a_p = 0.008" Wet

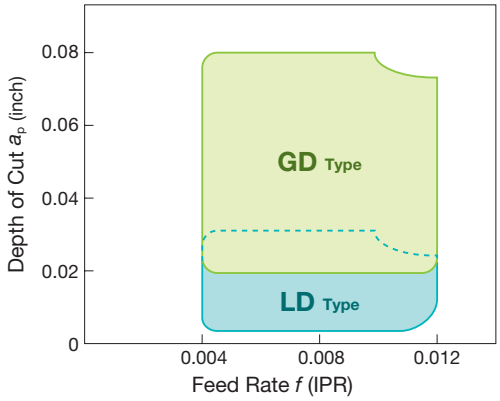
LD / GD

■ Features

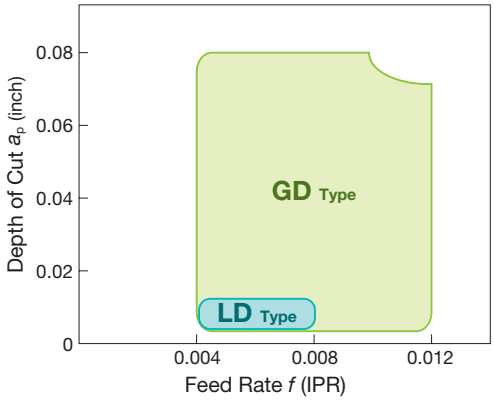
- PCD insert with chipbreaker
- Provides excellent chip control in medium finishing and finishing of aluminum alloy.
- Solves chip control problems and dramatically improves work efficiency.
- Achieves long, stable tool life by employing high-toughness grade DA1000.

■ Application Range

- Wrought Aluminum Alloy (6061)



- Cast Aluminum Alloy (A383)



LD Type Chipbreaker for Finishing

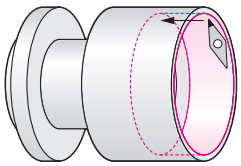
Provides excellent chip control in finishing

■ Cutting Performance

For Wrought Aluminum Alloy Machining

- Machining Details: Internal Diameter Machining of Machine Components

Provides good chip control at shallow depths of cut for wrought materials



Break Master LD Type

Without Chipbreaker

Part Material: 6061 Aluminum, Tool Cat. No.: NF-VCMT220.5LD (DA1000)
Cutting Conditions : v_c = 650 SFM, f = 0.008 IPR , a_p = 0.004" Wet

GD Type Chipbreaker for Medium Finishing

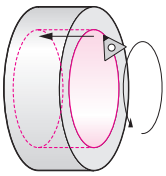
Provides excellent chip control in medium finishing

■ Cutting Performance

For Aluminum Alloy Casting Machining

- Machining Details: Internal Diameter Machining of Transmission Components

Finely breaks chips in machining of cast materials



Break Master GD Type

Without Chipbreaker

Part Material: A383 Aluminum, Tool Cat. No.: NF-TPMT221GD (DA1000)
Cutting Conditions : v_c = 1,312 SFM, f = 0.009 IPR, a_p = 0.087" Wet

Note: Regrinding this product will adversely affect chip control performance.

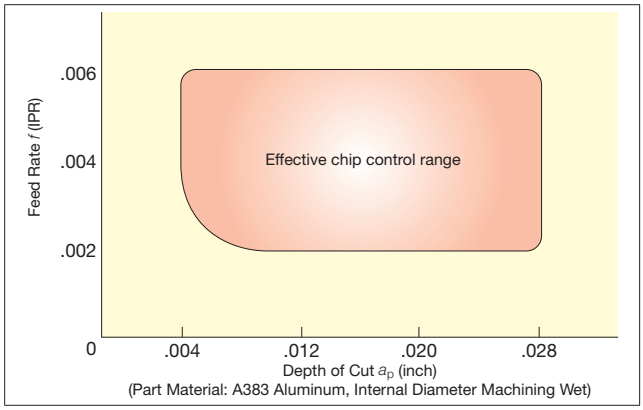
DM

■ Features

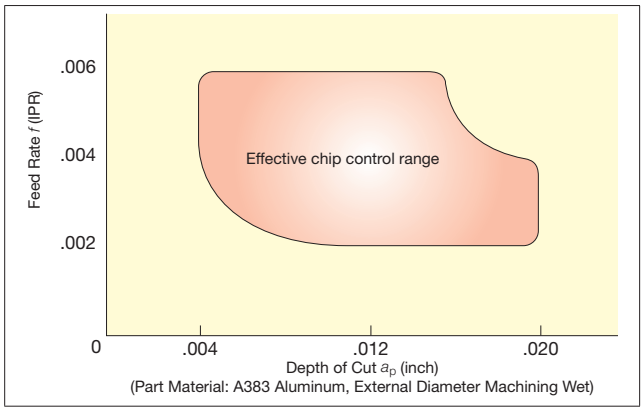
- Economy One-Use Type
  Familiar to users of CBN - SUMIBORON one-use inserts, now available in PCD - SUMIDIA.
- Cutting Edge with Built-in Chipbreaker for Effective Chip Control
  DM Type chipbreaker solves chip control problems and greatly improves efficiency.

■ Application Range

- For Internal Diameter Machining



- External Turning & Facing (Insert Shape: 55°/80° Diamond Type)



■ Chip Control

- Chips Created by Break Master DM Type

- Chips with No Chipbreaker

■ Application Examples

Machining Details	Cutting Conditions	Results
Internal Boring	Part Material: Aluminum Alloy (AC2A-T6) v_c = 985 SFM f = 0.0024 IPR a_p = 0.014" Wet	With the required finished surface roughness of Ra = 1μm or less, the chips curled at lengths of 2mm or so, and did not remain within the work material.

■ Recommended Cutting Conditions

- Internal Diameter Machining (Insert Shape: Triangular Type)

Feed Rate *f*	Depth of Cut a_p	Coolant
up to .006 IPR	up to 0.028"	Wet

- External Profiling (Insert Shape: 55°/80° Diamond Type)

Feed Rate *f*	Depth of Cut a_p	Coolant
up to .006 IPR	up to 0.0197"	Wet

For facing, depth of cut should be less than 0.016".

■ Series

Machining Details	Internal Diameter Machining	External Turning and Facing
Cartridge Unit	NU-TPMR22	—
	NU-TPMR32	—
Tool Holder	NU-TPMT63	NU-CCMT21.5
	NU-TPMT1.81.5	NU-CCMT32.5
	NU-TPMT21.5	NU-DCMT31.5
	NU-TPMT22	NU-DCMT32.5
	NU-TPMT33	—

PCD Insert Nominals

ANSI — **CNMA 432**

ISO — **CNMA 120408 B**

(1) (2)

Regrindable Type

(1) Insert ISO Code
(ISO Standard Classification) ☞ B2, B3

(2) Additional Information
Refer to Table 1

Chart 1 (2) Additional Information

Symbol	Code Description
R	Right Hand
L	Left Hand
B	All-PCD Rake Face Type
-WF	Edge with Special Land for Aluminum Wheel Gloss Finishing
RH	Honing (Edge Treatment)

ANSI — **NF - CNMA 432 P**

Single Corner Type — **NF - CNMA 120408 P**

(1) (2) (3)

(1) Type Code
Refer to Table 2

(2) Insert ISO Code
(ISO Standard Classification) ☞ B2, B3

(3) Additional Information
Refer to Table 3

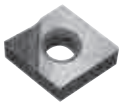
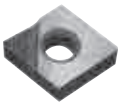
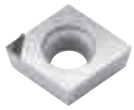
Chart 2 (1) Type Code

Symbol	Code Description
NF	NF Insert ☞ M6
NU	Single-Use Insert (Disposable)

Chart 3 (3) Additional Information

Symbol	Code Description
L	Left Hand
P	Full-Length Cutting Edge Type
N-LD	Chipbreaker Type (Neutral) ☞ M7
N-GD	
R-DM	Chipbreaker Type (Right Hand) ☞ M8
L-DM	Chipbreaker Type (Left Hand) ☞ M8

Insert Shape

Full-top PCD Type	Edge with Special Land for Aluminum Wheel Gloss Finishing	NF Insert	Single-Use Insert	Full-Length Cutting Edge Type	Chipbreaker Type
					

C 80° Diamond

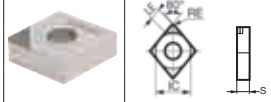
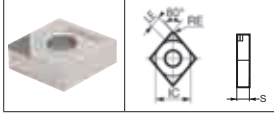
(Legend) General Cutting ●: 1st Recommendation

Recommended Application		DA90	DA150	DA1000	DA2200
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

Neg.

CNMA43●

Dimensions (inch)				
	Inscribed Circle IC	.5000	Hole Dia.	.2031
	Thickness S	.1875		

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
	CNMA432	CNMA120408	.0315	.2205				●
	CNMA432H	CNMA120408H	.0315	.2205				●
	NF-CNMA432	NF-CNMA120408	.0315	.2205			●	●
	NF-CNMA432H	NF-CNMA120408H	.0315	.2205				●

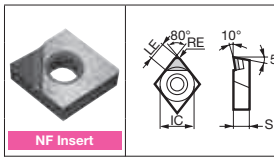
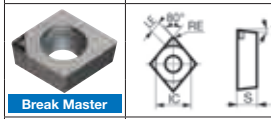
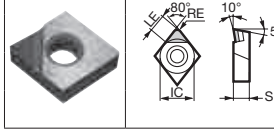
Neg.-Pos.

CNMX43●

Dimensions (inch)				
	Inscribed Circle IC	.5000	Hole Dia.	.2031
	Thickness S	.1875		

Applicable External Holders ☞ C5 to C10

Applicable Internal Holders ☞ E12 to E14

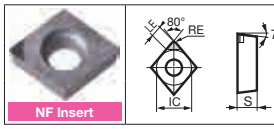
Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-CNMX430.5	NF-CNMX120402	.0079	.2244			★	★
	NF-CNMX431	NF-CNMX120404	.0157	.2244			●	●
	NF-CNMX432	NF-CNMX120408	.0315	.2205			●	●
	NF-CNMX433	NF-CNMX120412	.0472	.2126			★	★
Break Master	NF-CNMX431LD	NF-CNMX120404N-LD	.0157	.2244			●	
	NF-CNMX432LD	NF-CNMX120408N-LD	.0315	.2205			●	
	NF-CNMX433LD	NF-CNMX120412N-LD	.0472	.2126			●	
 Break Master	NF-CNMX431GD	NF-CNMX120404N-GD	.0157	.2244			●	
	NF-CNMX432GD	NF-CNMX120408N-GD	.0315	.2205			●	
	NF-CNMX433GD	NF-CNMX120412N-GD	.0472	.2126			●	
	CNMX430.5	CNMX120402	.0079	.2244			★	
	CNMX431	CNMX120404	.0157	.2244			★	●
	CNMX432	CNMX120408	.0315	.2205			★	●
	CNMX433	CNMX120412	.0472	.2205				●

7° Pos.

CCMA03X1●●

Dimensions (inch)				
	Inscribed Circle IC	.1378	Hole Dia.	.0748
	Thickness S	.0551		

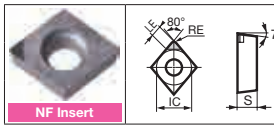
Applicable Internal Holders ☞ E31, E32

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-CCMA03X102	NF-CCMW03X102	.0079	.0433	●			
	NF-CCMA03X104	NF-CCMW03X104	.0157	.0433	●			

CCMA04X1●●

Dimensions (inch)				
	Inscribed Circle IC	.1693	Hole Dia.	.0906
	Thickness S	.0709		

Applicable Internal Holders ☞ E31, E32

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-CCMA04X102	NF-CCMW04X102	.0079	.0591	●			
	NF-CCMA04X104	NF-CCMW04X104	.0157	.0591	●			

C 80° Diamond

7° Pos.

CC■■21.5●

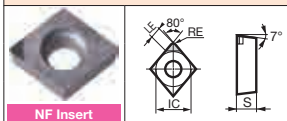
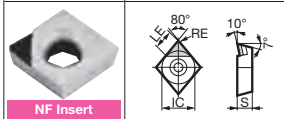
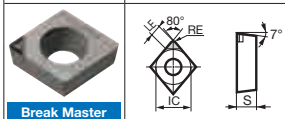
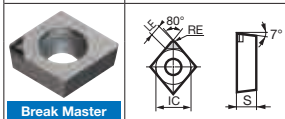
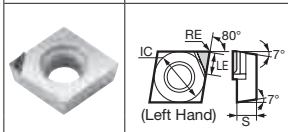
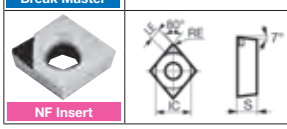
Dimensions (inch)	Inscribed Circle IC	.2500	Hole Dia.	.1102
	Thickness S	.0937		

Applicable External Holders ☞ C34
Applicable Internal Holders ☞ E30 to E33

(Legend) General Cutting ◕: 1st Recommendation

Recommended Application				
N Non-Ferrous Metal			◕	
Carbide / Hard Brittle Material	◕			

Dimensions (inch)

Shape		Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	PCD (SUMIDIA) DA90	DA150	DA1000	DA2200
 NF Insert		NF-CCMA21.50.5	NF-CCMW060202	.0079	.0945	●			
		NF-CCMA21.51	NF-CCMW060204	.0157	.0945	●			
 NF Insert		NF-CCMX21.50	NF-CCMT060201	.0039	.1102			●	●
		NF-CCMX21.50.5	NF-CCMT060202	.0079	.1102			●	●
		NF-CCMX21.51	NF-CCMT060204	.0157	.1102			●	●
 Break Master		NF-CCMT21.50.5LD	NF-CCMT060202N-LD	.0079	.1142			●	
		NF-CCMT21.51LD	NF-CCMT060204N-LD	.0157	.1142			●	
 Break Master		NF-CCMT21.50.5GD	NF-CCMT060202N-GD	.0079	.1142			●	
		NF-CCMT21.51GD	NF-CCMT060204N-GD	.0157	.1142			●	
 Break Master		NU-CCMT21.50.5R-DM	NU-CCMT060202R-DM	.0079	.0984		★		
		NU-CCMT21.50.5L-DM	NU-CCMT060202L-DM	.0079	.0984		★		
		NU-CCMT21.51R-DM	NU-CCMT060204R-DM	.0157	.0984		★		
		NU-CCMT21.51L-DM	NU-CCMT060204L-DM	.0157	.0984		★		
 NF Insert		NF-CCGA21.50	NF-CCGW060201	.0039	.0945			●	
		NF-CCGA21.50.5	NF-CCGW060202	.0079	.0945			●	
		NF-CCGA21.51	NF-CCGW060204	.0157	.0945			●	

C 80° Diamond

(Legend) General Cutting ●: 1st Recommendation

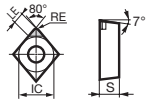
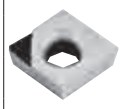
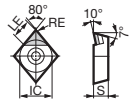
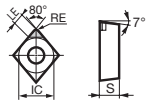
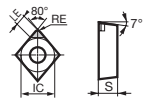
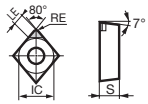
Recommended Application				
N Non-Ferrous Metal			●	
Carbide / Hard Brittle Material	●			

7° Pos.

CC■■32.5●

Dimensions (inch)				
	Inscribed Circle IC	.3750	Hole Dia.	.1732
	Thickness S	.1563		

Applicable External Holders ☞ C34
Applicable Internal Holders ☞ E30 to E33

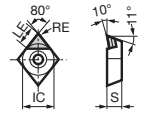
Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert 	NF-CCMA32.50.5	NF-CCMW09T302	.0079	.0945	★			
	NF-CCMA32.51	NF-CCMW09T304	.0157	.0945	★			
	NF-CCMA32.52	NF-CCMW09T308	.0315	.0906	●			
 NF Insert 	NF-CCMX32.50	NF-CCMT09T301	.0039	.1102			★	
	NF-CCMX32.50.5	NF-CCMT09T302	.0079	.1102			●	●
	NF-CCMX32.51	NF-CCMT09T304	.0157	.1102			●	●
	NF-CCMX32.52	NF-CCMT09T308	.0315	.1063			●	●
Break Master 	NF-CCMT32.50.5LD	NF-CCMT09T302N-LD	.0079	.1142			●	
	NF-CCMT32.51LD	NF-CCMT09T304N-LD	.0157	.1142			●	
	NF-CCMT32.52LD	NF-CCMT09T308N-LD	.0315	.1102			●	
Break Master 	NF-CCMT32.50.5GD	NF-CCMT09T302N-GD	.0079	.1142			●	
	NF-CCMT32.51GD	NF-CCMT09T304N-GD	.0157	.1142			●	
	NF-CCMT32.52GD	NF-CCMT09T308N-GD	.0315	.1102			●	
NF Insert 	NF-CCGA32.50.5	NF-CCGW09T302	.0079	.0945			●	
	NF-CCGA32.51	NF-CCGW09T304	.0157	.0945			●	
	NF-CCGA32.52	NF-CCGW09T308	.0315	.0906			●	

11° Pos.

CPMX21.5●

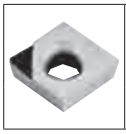
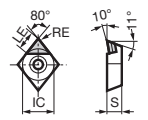
Dimensions (inch)				
	Inscribed Circle IC	.2500	Hole Dia.	.1102
	Thickness S	.0937		

Applicable Internal Holders ☞ E35 to E37

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert 	NF-CPMX21.51	NF-CPMT060204	.0157	.0945			●	●
	NF-CPMX21.52	NF-CPMT060208	.0315	.0866			●	●

CPMX2.51.5●

Dimensions (inch)				
	Inscribed Circle IC	.3126	Hole Dia.	.1339
	Thickness S	.0937		

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 	CPMX2.51.50.5	CPMT080202	.0079	.1654			★	●
	CPMX2.51.51	CPMT080204	.0157	.1654			★	●
	CPMX2.51.52	CPMT080208	.0315	.1614			★	●

C 80° Diamond

11° Pos.

(Legend) General Cutting ●: 1st Recommendation

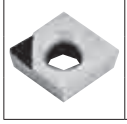
Recommended Application		DA90	DA150	DA1000	DA2200
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

Dimensions (inch) | PCD (SUMIDIA)

CPMX32●

Dimensions (inch)				
	Inscribed Circle IC	.3750	Hole Dia.	.1732
	Thickness S	.1250		

Applicable Internal Holders ☞ E35 to E37

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-CPMX320.5	NF-CPMT090302	.0079	.1102			●	
	NF-CPMX321	NF-CPMT090304	.0157	.1102			●	●
	NF-CPMX322	NF-CPMT090308	.0315	.1063			●	●
	CPMX320.5	CPMT090302	.0079	.1102				●
	CPMX321	CPMT090304	.0157	.1102				●

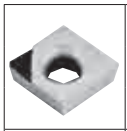
CPGA32●

Dimensions (inch)				
	Inscribed Circle IC	.3750	Hole Dia.	.1732
	Thickness S	.1250		

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-CPGA321	NF-CPGW090304	.0157	.1102			●	
	NF-CPGA322	NF-CPGW090308	.0315	.1063			●	

CP■■32.5●

Dimensions (inch)				
	Inscribed Circle IC	.3750	Hole Dia.	.1732
	Thickness S	.1563		

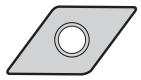
Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
	CPEW32.52PDFR	CPEW09T308PDFR	.0315	.2205				●
NF Insert	NF-CPMX32.51	NF-CPMT09T304	.0157	.1102			●	●
	NF-CPMX32.52	NF-CPMT09T308	.0315	.1063			●	●

CPG42●

Dimensions (inch)				
	Inscribed Circle IC	.5000	Hole Dia.	—
	Thickness S	.1250		

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
	CPG422	CPGN120308	.0315	.2205				●

D 55° Diamond



(Legend) General Cutting ●: 1st Recommendation

Recommended Application		DA90	DA150	DA1000	DA2200
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

Dimensions (inch) PCD (SUMIDIA)

Neg.

DNMA43●

Dimensions (inch)	Inscribed Circle IC	.5000	Hole Dia.	.2205
	Thickness S	.1875		

Applicable External Holders ☞ C10 to C12
Applicable Internal Holders ☞ E15 to E19

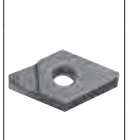
Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
	DNMA432	DNMA150408	.0315	.0787				●
	DNMA432H	DNMA150408H	.0315	.0787				●
NF Insert	NF-DNMA432	NF-DNMA150408	.0315	.0787	★			●
	NF-DNMA432H	NF-DNMA150408H	.0315	.0787				●
	NF-DNMA433	NF-DNMA150412	.0472	.0787	★			

Neg.-Pos.

DNMX43●

Dimensions (inch)	Inscribed Circle IC	.5000	Hole Dia.	.2031
	Thickness S	.1875		

Applicable External Holders ☞ C10 to C12
Applicable Internal Holders ☞ E15 to E19

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-DNMX430.5	NF-DNMX150402	.0079	.2520			●	●
	NF-DNMX431	NF-DNMX150404	.0157	.2441			●	●
	NF-DNMX432	NF-DNMX150408	.0315	.2283			●	●
	NF-DNMX433	NF-DNMX150412	.0472	.2126			★	★
	DNMX430.5	DNMX150402	.0079	.2520			★	
	DNMX431	DNMX150404	.0157	.2441		●	★	●
	DNMX432	DNMX150408	.0315	.2283		●	★	●
	DNMX433	DNMX150412	.0472	.2126		●	★	●
Break Master	NF-DNMX430.5LD	NF-DNMX150402N-LD	.0079	.2520			●	
	NF-DNMX431LD	NF-DNMX150404N-LD	.0157	.2441			●	
	NF-DNMX432LD	NF-DNMX150408N-LD	.0315	.2283			●	
Break Master	NF-DNMX430.5GD	NF-DNMX150402N-GD	.0079	.2520			●	
	NF-DNMX431GD	NF-DNMX150404N-GD	.0157	.2441			●	
	NF-DNMX432GD	NF-DNMX150408N-GD	.0315	.2283			●	
	NF-DNMX433GD	NF-DNMX150412N-GD	.0472	.2126			●	

7° Pos.

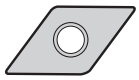
DCM■21●

Dimensions (inch)	Inscribed Circle IC	.2500	Hole Dia.	.1102
	Thickness S	.0937		

Applicable External Holders ☞ C35
Applicable Internal Holders ☞ E38 to E41

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-DCMA21.50.5	NF-DCMW070202	.0079	.1024	★			
	NF-DCMA21.51	NF-DCMW070204	.0157	.0945	★			
NF Insert	NF-DCMX21.50	NF-DCMT070201	.0039	.1181			●	●
	NF-DCMX21.50.5	NF-DCMT070202	.0079	.1181			●	●
	NF-DCMX21.51	NF-DCMT070204	.0157	.1102			●	●
Break Master	NF-DCMT21.50.5LD	NF-DCMT070202N-LD	.0079	.1220			●	
	NF-DCMT21.51LD	NF-DCMT070204N-LD	.0157	.1142			●	

D 55° Diamond



7° Pos.

DCM■21●

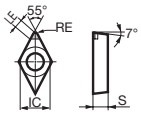
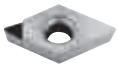
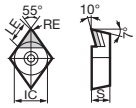
Dimensions (inch)	Inscribed Circle IC	.2500	Hole Dia.	.1102
	Thickness S	.0937		

Applicable External Holders ☞ C35

Applicable Internal Holders ☞ E38 to E41

(Legend) General Cutting ●: 1st Recommendation

Recommended Application					
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

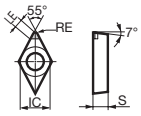
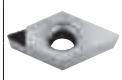
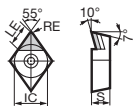
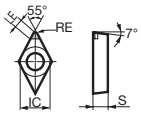
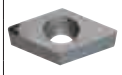
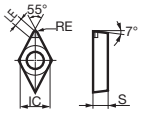
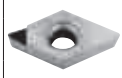
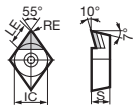
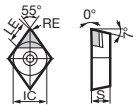
Shape		Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
Break Master		NF-DCMT21.50.5GD	NF-DCMT070202N-GD	.0079	.1220			●	
		NF-DCMT21.51GD	NF-DCMT070204N-GD	.0157	.1142			●	
		DCMX21.50	DCMT070201	.0039	.1693				●
		DCMX21.50.5	DCMT070202	.0079	.1654				●
		DCMX21.51	DCMT070204	.0157	.1575				●

DC■■32.5●

Dimensions (inch)	Inscribed Circle IC	.3750	Hole Dia.	.1732
	Thickness S	.1563		

Applicable External Holders ☞ C35

Applicable Internal Holders ☞ E38 to E41

NF Insert		NF-DCMA32.50.5	NF-DCMW11T302	.0079	.1024	★			
		NF-DCMA32.51	NF-DCMW11T304	.0157	.0945	★			
		NF-DCMA32.52	NF-DCMW11T308	.0315	.0787	★			
 NF Insert		NF-DCMX32.50	NF-DCMT11T301	.0039	.1181			●	●
		NF-DCMX32.50.5	NF-DCMT11T302	.0079	.1181			●	●
		NF-DCMX32.51	NF-DCMT11T304	.0157	.1102			●	●
		NF-DCMX32.52	NF-DCMT11T308	.0315	.0945			●	●
Break Master		NF-DCMT32.50.5LD	NF-DCMT11T302N-LD	.0079	.1220			●	
		NF-DCMT32.51LD	NF-DCMT11T304N-LD	.0157	.1142			●	
		NF-DCMT32.52LD	NF-DCMT11T308N-LD	.0315	.0984			●	
 Break Master		NF-DCMT32.50.5GD	NF-DCMT11T302N-GD	.0079	.1220			●	
		NF-DCMT32.51GD	NF-DCMT11T304N-GD	.0157	.1142			●	
		NF-DCMT32.52GD	NF-DCMT11T308N-GD	.0315	.0984			●	
		DCMX32.50	DCMT11T301	.0039	.1693				●
		DCMX32.50.5	DCMT11T302	.0079	.1654				●
		DCMX32.51	DCMT11T304	.0157	.1575				●
NF Insert		NF-DCGA32.50.5	NF-DCGW11T302	.0079	.1024			●	
		NF-DCGA32.51	NF-DCGW11T304	.0157	.0945			●	
		NF-DCGA32.52	NF-DCGW11T308	.0315	.0787			●	

S Square

Neg.

SNMA43●

Dimensions (inch)				
	Inscribed Circle IC	.5000	Hole Dia.	.1875
	Thickness S	.2031		

Applicable External Holders ☞ C14 to C19
Applicable Internal Holders ☞ E20 to E22

7° Pos.

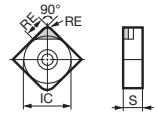
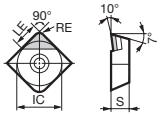
SCM■2.51●

Dimensions (inch)				
	Inscribed Circle IC	.3125	Hole Dia.	.1339
	Thickness S	.0937		

Applicable External Holders ☞ D31

(Legend) General Cutting ●: 1st Recommendation

Recommended Application					
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

Shape		Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	PCD (SUMIDIA) DA90	DA150	DA1000	DA2200
NF Insert		NF-SNMA432	NF-SNMA120408	.0315	.0945	★			
		NF-SNMA433	NF-SNMA120412	.0472	.0945	★			
NF Insert		NF-SCMX2.51.50	NF-SCMT070201	.0039	.1181			★	
		NF-SCMX2.51.50.5	NF-SCMT070202	.0079	.1181			★	
		NF-SCMX2.51.51	NF-SCMT070204	.0157	.1181			★	

S Square

11° Pos.

(Legend) General Cutting ◕: 1st Recommendation

Recommended Application					
	N Non-Ferrous Metal			◕	
	Carbide / Hard Brittle Material	◕			

SPG32●

Dimensions (inch)				
	Inscribed Circle IC	.3750	Hole Dia.	—
	Thickness S	.1250		

Applicable Internal Holders ☞ E45

Applicable Cartridge: CE

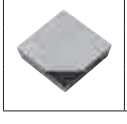
Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-SPG321	NF-SPGN090304	.0157	.1890			★	●
	NF-SPG322	NF-SPGN090308	.0315	.1890			★	★

SPG42●

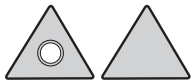
Dimensions (inch)				
	Inscribed Circle IC	.5000	Hole Dia.	—
	Thickness S	.1250		

Applicable External Holders ☞ C52

Applicable Cartridge: CE

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-SPG421	NF-SPGN120304	.0157	.1890			★	
	NF-SPG422	NF-SPGN120308	.0315	.1890			★	●
	SPG421	SPGN120304	.0157	.1890				●
	SPG422	SPGN120308	.0315	.1890				●

T Triangular



(Legend) General Cutting ◉: 1st Recommendation

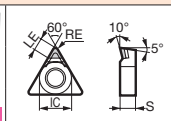
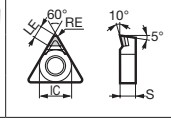
Recommended Application	N Non-Ferrous Metal		◉	
	Carbide / Hard Brittle Material	◉		

Neg.-Pos.

TNMX33●

Dimensions (inch)	Inscribed Circle IC	.3750	Hole Dia.	.1500
	Thickness S	.1875		

Applicable External Holders ☞ C20 to C26
Applicable Internal Holders ☞ E23 to E25

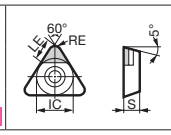
Shape		Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert		NF-TNMX330.5	NF-TNMX160402	.0079	.1457			●	●
		NF-TNMX331	NF-TNMX160404	.0157	.1417			●	●
		NF-TNMX332	NF-TNMX160408	.0315	.1299			●	●
		TNMX330.5	TNMX160402	.0079	.1457			★	
		TNMX331	TNMX160404	.0157	.1417			★	★
		TNMX332	TNMX160408	.0315	.1299			★	★

5° Pos.

TBG■52●

Dimensions (inch)	Inscribed Circle IC	.1563	Hole Dia.	.0866
	Thickness S	.0626		

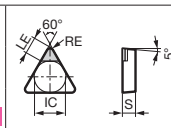
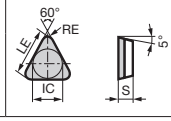
Applicable Internal Holders ☞ E46, E51, E52

NF Insert		NF-TBGD520.5	NF-TBGW060102	.0079	.0906			●	●
		NF-TBGD521	NF-TBGW060104	.0157	.0866			●	●

TBGE52●

Dimensions (inch)	Inscribed Circle IC	.1563	Hole Dia.	—
	Thickness S	.0626		

Applicable Internal Holders ☞ E74

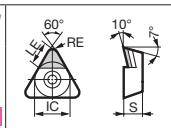
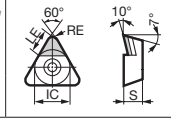
NF Insert		NF-TBGE520.5	NF-TBGN060102	.0079	.0827			★	●
		NF-TBGE521	NF-TBGN060104	.0157	.0787			★	★
		TBGE520.5B	TBGN060102B	.0079	.2559		●	★	●
		TBGE521B	TBGN060104B	.0157	.2441		★	●	

7° Pos.

TCMX1.81.5●

Dimensions (inch)	Inscribed Circle IC	.2189	Hole Dia.	.0984
	Thickness S	.0937		

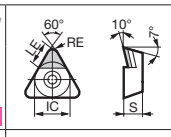
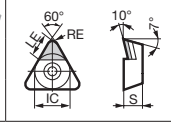
Applicable External Holders ☞ D32

NF Insert		NF-TCMX1.81.50.5	NF-TCMT090202	.0079	.1142			●	
		NF-TCMX1.81.51	NF-TCMT090204	.0157	.1102			●	●
		TCMX1.81.50.5	TCMT090202	.0079	.1063				●
		TCMX1.81.51	TCMT090204	.0157	.1024				●

TCMX21.5●

Dimensions (inch)	Inscribed Circle IC	.2500	Hole Dia.	.1102
	Thickness S	.0937		

Applicable External Holders ☞ D32

NF Insert		NF-TCMX21.50	NF-TCMT110201	.0039	.1181			●	
		NF-TCMX21.50.5	NF-TCMT110202	.0079	.1142			●	●
		NF-TCMX21.51	NF-TCMT110204	.0157	.1102			●	●
		TCMX21.50	TCMT110201	.0039	.1102				●
		TCMX21.51	TCMT110204	.0157	.1024				●

T Triangular

11° Pos.

(Legend) General Cutting ●: 1st Recommendation

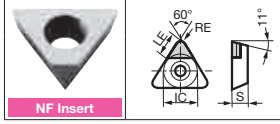
Recommended Application					
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

Dimensions (inch) | PCD (SUMIDIA)

TPG■63●

Dimensions (inch)	Inscribed Circle IC	.1875	Hole Dia.	.0945
	Thickness S	.0937		

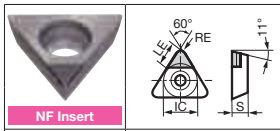
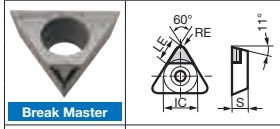
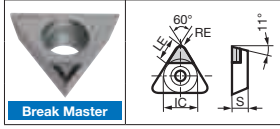
Applicable Internal Holders ☞ E48, E50 to E52

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-TPGD630	NF-TPGW080201	.0039	.1220			★	★
	NF-TPGD630.5	NF-TPGW080202	.0079	.1181			●	●
	NF-TPGD631	NF-TPGW080204	.0157	.1142			●	

TPM■63●

Dimensions (inch)	Inscribed Circle IC	.1875	Hole Dia.	.0945
	Thickness S	.0937		

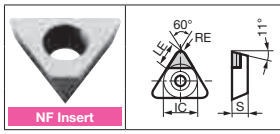
Applicable Internal Holders ☞ E48, E50 to E52

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-TPMA630.5	NF-TPMW080202	.0079	.0984	★			
	NF-TPMA631	NF-TPMW080204	.0157	.0945	★			
 Break Master	NF-TPMT630.5LD	NF-TPMT080202N-LD	.0079	.1142			●	
	NF-TPMT631LD	NF-TPMT080204N-LD	.0157	.1102			●	
 Break Master	NF-TPMT631GD	NF-TPMT080204N-GD	.0157	.1102			●	

TPGA1.81.5●

Dimensions (inch)	Inscribed Circle IC	.2189	Hole Dia.	.1102
	Thickness S	.0937		

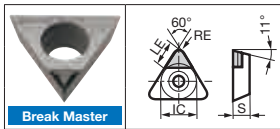
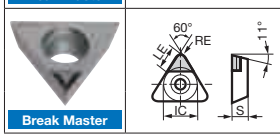
Applicable Internal Holders ☞ E48, E50

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-TPGA1.81.50.5	NF-TPGW090202	.0079	.1220			●	
	NF-TPGA1.81.51	NF-TPGW090204	.0157	.1142			●	●

TPMT1.81.5●

Dimensions (inch)	Inscribed Circle IC	.2189	Hole Dia.	.1102
	Thickness S	.0937		

Applicable Internal Holders ☞ E48, E50

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 Break Master	NF-TPMT1.81.50.5LD	NF-TPMT 090202N-LD	.0079	.1220			●	
	NF-TPMT1.81.51LD	NF-TPMT 090204N-LD	.0157	.1142			●	
 Break Master	NF-TPMT1.81.50.5GD	NF-TPMT 090202N-GD	.0079	.1220			●	
	NF-TPMT1.81.51GD	NF-TPMT 090204N-GD	.0157	.1142			●	

T Triangular

11° Pos.

(Legend) General Cutting ●: 1st Recommendation

Recommended Application		DA90	DA150	DA1000	DA2200
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

Dimensions (inch) | PCD (SUMIDIA)

TPGA21.5●

Dimensions (inch)				
	Inscribed Circle IC	.2500	Hole Dia.	.1102
	Thickness S	.0937		

Applicable Holder: Special Holder

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-TPGA21.50	NF-TPGW110201	.0039	.1220			●	●
	NF-TPGA21.50.5	NF-TPGW110202	.0079	.1181			●	
	NF-TPGA21.51	NF-TPGW110204	.0157	.1142			●	●

TPMT21.5●

Dimensions (inch)				
	Inscribed Circle IC	.2500	Hole Dia.	.1102
	Thickness S	.0937		

Applicable Holder: Special Holder

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
Break Master	NF-TPMT21.50.5LD	NF-TPMT110202N-LD	.0079	.1220			●	
	NF-TPMT21.51LD	NF-TPMT110204N-LD	.0157	.1142			●	
Break Master	NF-TPMT21.50.5GD	NF-TPMT110202N-GD	.0079	.1220			●	
	NF-TPMT21.51GD	NF-TPMT110204N-GD	.0157	.1142			●	

TPGA22●

Dimensions (inch)				
	Inscribed Circle IC	.2500	Hole Dia.	.1339
	Thickness S	.1250		

Applicable Internal Holders ☞ E48 to E52

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-TPGA220	NF-TPGW110301	.0039	.1220			★	
	NF-TPGA220.5	NF-TPGW110302	.0079	.1181			●	●
	NF-TPGA221	NF-TPGW110304	.0157	.1142			●	●
	NF-TPGA222	NF-TPGW110308	.0315	.1063			●	●
	TPGA220	TPGW110201	.0039	.1457				●
	TPGA220.5	TPGW110302	.0079	.1457				●
	TPGA221	TPGW110304	.0157	.1417		●		●
	TPGA222	TPGW110308	.0315	.1299		★		●

TPM■22●

Dimensions (inch)				
	Inscribed Circle IC	.2500	Hole Dia.	.1339
	Thickness S	.1250		

Applicable Internal Holders ☞ E48 to E52

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-TPMA220.5	NF-TPMW110302	.0079	.0984	★			
	NF-TPMA221	NF-TPMW110304	.0157	.0945	★			
	NF-TPMA222	NF-TPMW110308	.0315	.0827	★			
NF Insert	NF-TPMX220	NF-TPMT110301	.0039	.1220			●	
	NF-TPMX220.5	NF-TPMT110302	.0079	.1142			●	●
	NF-TPMX221	NF-TPMT110304	.0157	.1102			●	●
	NF-TPMX222	NF-TPMT110308	.0315	.0984			●	●
Break Master	NF-TPMT220.5LD	NF-TPMT110302N-LD	.0079	.1220			●	
	NF-TPMT221LD	NF-TPMT110304N-LD	.0157	.1142			●	
	NF-TPMT222LD	NF-TPMT110308N-LD	.0315	.1063			●	
Break Master	NF-TPMT221GD	NF-TPMT110304N-GD	.0157	.1142			●	
	NF-TPMT222GD	NF-TPMT110308N-GD	.0315	.1063			●	

T Triangular

11° Pos.

(Legend) General Cutting ◉: 1st Recommendation

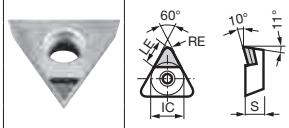
Recommended Application	N Non-Ferrous Metal			◉	
	Carbide / Hard Brittle Material	◉			

TPM■22●

Dimensions (inch)	Inscribed Circle IC	.2500	Hole Dia.	.1339
	Thickness S	.1250		

Applicable Internal Holders ☞ E48 to E52

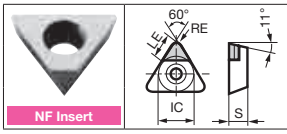
Dimensions (inch) | PCD (SUMIDIA)

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
	TPMX22V	TPMT110300	.0000	.1457				●
	TPMX221	TPMT110304	.0157	.1378				●

TPGA32●

Dimensions (inch)	Inscribed Circle IC	.3750	Hole Dia.	.1732
	Thickness S	.1250		

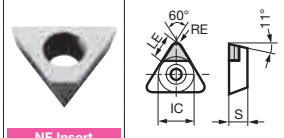
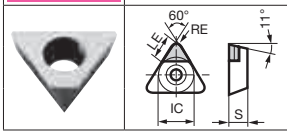
Applicable Internal Holders ☞ E48 & E49

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-TPGA320.5	NF-TPGW160302	.0079	.1220			●	●
	NF-TPGA321	NF-TPGW160304	.0157	.1142			●	●
	NF-TPGA322	NF-TPGW160308	.0315	.1063			●	●

TPGA33●

Dimensions (inch)	Inscribed Circle IC	.3750	Hole Dia.	.1732
	Thickness S	.1875		

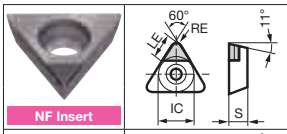
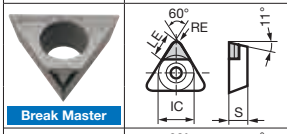
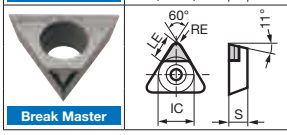
Applicable Internal Holders ☞ E48, E51 to E52

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-TPGA330	NF-TPGW160401	.0039	.1220			★	●
	NF-TPGA330.5	NF-TPGW160402	.0079	.1181				●
	NF-TPGA331	NF-TPGW160404	.0157	.1142			●	●
	NF-TPGA332	NF-TPGW160408	.0315	.1063			●	
	TPGA331	TPGW160404	.0157	.1378		●		●
	TPGA332	TPGW160408	.0315	.1299				●

TPM■33●

Dimensions (inch)	Inscribed Circle IC	.3750	Hole Dia.	.1732
	Thickness S	.1875		

Applicable Internal Holders ☞ E48, E51 to E52

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-TPMA330.5	NF-TPMW160402	.0079	.0984	★			
	NF-TPMA331	NF-TPMW160404	.0157	.0945	★			
	NF-TPMA332	NF-TPMW160408	.0315	.0827	★			
 Break Master	NF-TPMT330.5LD	NF-TPMT160402N-LD	.0079	.1220			●	
	NF-TPMT331LD	NF-TPMT160404N-LD	.0157	.1142			●	
	NF-TPMT332LD	NF-TPMT160408N-LD	.0315	.1063			●	
 Break Master	NF-TPMT330.5GD	NF-TPMT160402N-GD	.0079	.1220			●	
	NF-TPMT331GD	NF-TPMT160404N-GD	.0157	.1142			●	
	NF-TPMT332GD	NF-TPMT160408N-GD	.0315	.1063			●	

T Triangular

11° Pos.

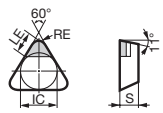
TPG1.81.5●

Dimensions (inch)				
	Inscribed Circle IC	.2189	Hole Dia.	—
	Thickness S	.0937		

Applicable Cartridge: CP

(Legend) General Cutting ●: 1st Recommendation

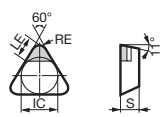
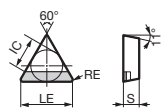
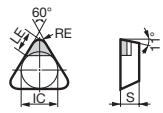
Recommended Application					
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

Shape		Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
				Dimensions (inch)		PCD (SUMIDIA)			
NF Insert		NF-TPG1.81.50.5	NF-TPGN090202	.0079	.1220			★	
		NF-TPG1.81.51	NF-TPGN090204	.0157	.1181			★	●

TPG22●

Dimensions (inch)				
	Inscribed Circle IC	.2500	Hole Dia.	—
	Thickness S	.1250		

Applicable Internal Holders ☞ E49

Shape		Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert		NF-TPG220.5	NF-TPGN110302	.0079	.1181			●	
		NF-TPG221	NF-TPGN110304	.0157	.1142			●	●
		NF-TPG222	NF-TPGN110308	.0315	.1063			●	●
NF Insert		NF-TPG221P	NF-TPGN110304P	.0157	.4094			★	★
		NF-TPG222P	NF-TPGN110308P	.0315	.3858			★	★
		TPG221	TPGN110304	.0157	.1417		●		●
		TPG222	TPGN110308	.0315	.1299		●		●

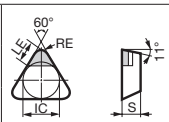
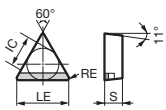
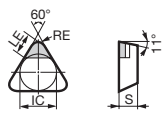
Part number suffix P: Full-Length Cutting Edge

TPG32●

Dimensions (inch)				
	Inscribed Circle IC	.3750	Hole Dia.	—
	Thickness S	.1250		

Applicable External Holders ☞ C53

Applicable Internal Holders ☞ E49 & E52

Shape		Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert		NF-TPG320.5	NF-TPGN160302	.0079	.1181			●	●
		NF-TPG321	NF-TPGN160304	.0157	.1142			●	
		NF-TPG322	NF-TPGN160308	.0315	.1063			●	●
NF Insert		NF-TPG321P	NF-TPGN160304P	.0157	.6260			★	★
		TPG321	TPGN160304	.0157	.1417		●		●
		TPG322	TPGN160308	.0315	.1299		●		●
		TPG323	TPGN160312	.0472	.1181	●			●

T Triangular

(Legend) General Cutting ◕: 1st Recommendation

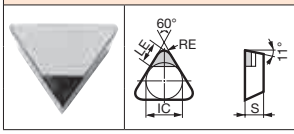
Recommended Application				
N Non-Ferrous Metal			◕	
Carbide / Hard Brittle Material	◕			

Dimensions (inch) | PCD (SUMIDIA)

11° Pos.

TPG43●

Dimensions (inch)				
	Inscribed Circle IC	.5000	Hole Dia.	—
	Thickness S	.1875		

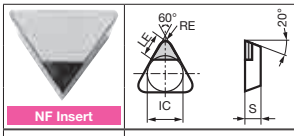
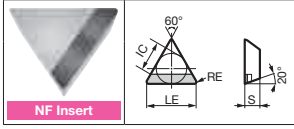
Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
	TPG431	TPGN220404	.0157	.1417				●
	TPG432	TPGN220408	.0315	.1299				●

20° Pos.

TEGN22●

Dimensions (inch)				
	Inscribed Circle IC	.2500	Hole Dia.	—
	Thickness S	.1250		

Applicable Cartridge: CE

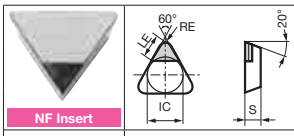
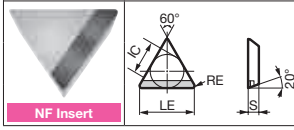
Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-TEGN220.5	NF-TEGN110302	.0079	.1220			★	
	NF-TEGN221	NF-TEGN110304	.0157	.1142			★	
	NF-TEGN222	NF-TEGN110308	.0315	.1063			★	
 NF Insert	NF-TEGN221P	NF-TEGN110304P	.0157	.4094			★	
	NF-TEGN222P	NF-TEGN110308P	.0315	.3858			★	

Part number suffix P: Full-Length Cutting Edge

TEGN32●

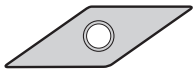
Dimensions (inch)				
	Inscribed Circle IC	.3750	Hole Dia.	—
	Thickness S	.1250		

Applicable Cartridge: CE

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-TEGN320.5	NF-TEGN160302	.0079	.1181			★	
	NF-TEGN321	NF-TEGN160304	.0157	.1142			★	
 NF Insert	NF-TEGN321P	NF-TEGN160304P	.0157	.6260			★	

Part number suffix P: Full-Length Cutting Edge

V 35° Diamond



(Legend) General Cutting ●: 1st Recommendation

Recommended Application		DA90	DA150	DA1000	DA2200
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

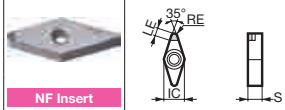
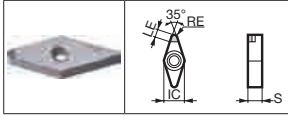
Dimensions (inch) | PCD (SUMIDIA)

Neg.

VNMA33●

Dimensions (inch)	Inscribed Circle IC	.3750	Hole Dia.	.1500
	Thickness S	.1875		

Applicable External Holders ☞ C29 to C31

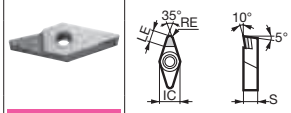
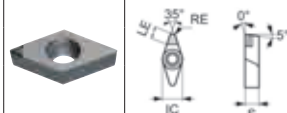
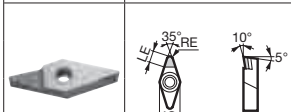
Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-VNMA332	NF-VNMA160408	.0315	.0748	★		●	●
	NF-VNMA333	NF-VNMA160412	.0472	.0669	●		●	
	NF-VNMA333H	NF-VNMA160412H	.0472	.0669				●
	VNMA333H	VNMA160412H	.0472	.1850	●			●

Neg.-Pos.

VNMX33●

Dimensions (inch)	Inscribed Circle IC	.3750	Hole Dia.	.1500
	Thickness S	.1875		

Applicable External Holders ☞ C29 to C31

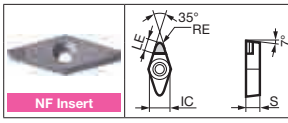
Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-VNMX330.5	NF-VNMX160402	.0079	.2717			●	●
	NF-VNMX331	NF-VNMX160404	.0157	.2520			●	●
	NF-VNMX332	NF-VNMX160408	.0315	.2205			●	●
	NF-VNMX333	NF-VNMX160412	.0472	.1850			★	●
 Break Master	NF-VNMX330.5LD	NF-VNMX160402N-LD	.0079	.2717			●	
	NF-VNMX331LD	NF-VNMX160404N-LD	.0157	.2520			●	
	NF-VNMX332LD	NF-VNMX160408N-LD	.0315	.2205			●	
Break Master	NF-VNMX330.5GD	NF-VNMX160402N-GD	.0079	.2717			●	
	NF-VNMX331GD	NF-VNMX160404N-GD	.0157	.2520			●	
	NF-VNMX332GD	NF-VNMX160408N-GD	.0315	.2205			●	
	VNMX330.5	VNMX160402	.0079	.2717		★	★	
	VNMX331	VNMX160404	.0157	.2520		●	★	●
	VNMX332	VNMX160408	.0315	.2205		●	★	●
	VNMX333	VNMX160412	.0472	.1850		●	★	●

7° Pos.

VCMA63●

Dimensions (inch)	Inscribed Circle IC	.1875	Hole Dia.	.0906
	Thickness S	.0937		

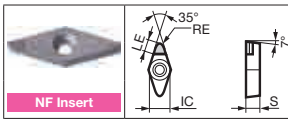
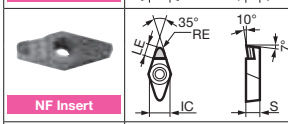
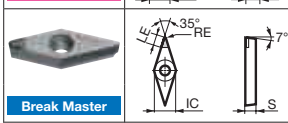
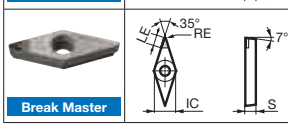
Applicable Internal Holders ☞ E59, E60

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-VCMA630.5	NF-VCMW080202	.0079	.1260	★			
	NF-VCMA631	NF-VCMW080204	.0157	.1102	★			

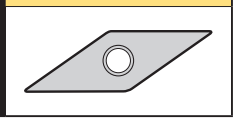
VCM■22●

Dimensions (inch)	Inscribed Circle IC	.2500	Hole Dia.	.1102
	Thickness S	.1252		

Applicable External Holders ☞ C41 & C43
Applicable Internal Holders ☞ E58 to E60

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
 NF Insert	NF-VCMA220.5	NF-VCMW110302	.0079	.1260	★			
	NF-VCMA221	NF-VCMW110304	.0157	.1102	★			
 NF Insert	NF-VCMX220	NF-VCMT110301	.0039	.1378			●	●
	NF-VCMX220.5	NF-VCMT110302	.0079	.1339			●	●
	NF-VCMX221	NF-VCMT110304	.0157	.1181			●	●
 Break Master	NF-VCMT220.5LD	NF-VCMT110302N-LD	.0079	.1496			●	
	NF-VCMT221LD	NF-VCMT110304N-LD	.0157	.1339			●	
 Break Master	NF-VCMT220.5GD	NF-VCMT110302N-GD	.0079	.1496			●	
	NF-VCMT221GD	NF-VCMT110304N-GD	.0157	.1339			●	

V 35° Diamond



(Legend) General Cutting ●: 1st Recommendation

Recommended Application					
	N Non-Ferrous Metal			●	
	Carbide / Hard Brittle Material	●			

7° Pos.

VCM■33●

Dimensions (inch)				
	Inscribed Circle IC	.3750	Hole Dia.	.1732
	Thickness S	.1875		

Applicable External Holders ☞ C41 to C43
Applicable Internal Holders ☞ E58

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
NF Insert	NF-VCMA330.5	NF-VCMW160402	.0079	.1457	●			
	NF-VCMA331	NF-VCMW160404	.0157	.1299	●			
	NF-VCMA332	NF-VCMW160408	.0315	.0945	★		●	●
	NF-VCMA333	NF-VCMW160412	.0472	.0827	★		●	
	VCMA333	VCMW160412	.0472	.1929				●
NF Insert	NF-VCMX331	NF-VCMT160404	.0157	.2559			●	●
	NF-VCMX332	NF-VCMT160408	.0315	.2205			●	●
	NF-VCMX333	NF-VCMT160412	.0472	.1811			●	●
Break Master	NF-VCMT331LD	NF-VCMT160404N-LD	.0157	.2559			●	
	NF-VCMT332LD	NF-VCMT160408N-LD	.0315	.2205			●	
	NF-VCMT333LD	NF-VCMT160412N-LD	.0472	.1890			●	
Break Master	NF-VCMT331GD	NF-VCMT160404N-GD	.0157	.2559			●	
	NF-VCMT332GD	NF-VCMT160408N-GD	.0315	.2205			●	
	NF-VCMT333GD	NF-VCMT160412N-GD	.0472	.1890			●	
	VCMX332	VCMT160408	.0315	.2283			★	
	VCMX333	VCMT160412	.0472	.1929			★	●
	VCMX333WF	VCMT160412-WF	.0472	.1929			★	●

VCM■2205●

Dimensions (inch)				
	Inscribed Circle IC	.5000	Hole Dia.	.2165
	Thickness S	.2189		

Applicable External Holders ☞ C59

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
	VCMT220520	VCMT220520	.0787	.1969			★	
	VCMT220530	VCMT220530	.1181	.1969			★	

11° Pos.

VPMA44●

Dimensions (inch)				
	Inscribed Circle IC	.5000	Hole Dia.	—
	Thickness S	.2500		

Shape	Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	DA90	DA150	DA1000	DA2200
	VPMA443	VPMW220612	.0472	.1929				●
	VPMA443WF	VPMW220612WF	.0472	.1929				●

W Trigon

5° Pos.

WBMX52●

Dimensions (inch)	Inscribed Circle IC	.1563	Hole Dia.	.0866
	Thickness S	.0626		

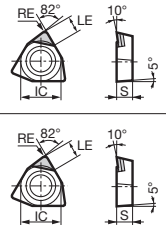
Applicable Internal Holders ☞ E61, E62

(Legend) General Cutting ●: 1st Recommendation

Recommended Application				
N Non-Ferrous Metal			●	
Carbide / Hard Brittle Material	●			

★: Worldwide Warehouse Item

Dimensions (inch)

Shape		Sumitomo Cat. No.	ISO Cat. No.	Nose Radius RE	Effective Cutting Edge Length LE	PCD (SUMIDIA) DA90	DA150	DA1000	DA2200
NF Insert		NF-WBMX520L	NF-WBMT060101L	.0039	.0709			★	
		NF-WBMX520.5L	NF-WBMT060102L	.0079	.0709			★	
		NF-WBMX521L	NF-WBMT060104L	.0157	.0669			★	
		WBMX520L	WBMT060101L	.0039	.0709				●
		WBMX520.5L	WBMT060102L	.0079	.0709				●
		WBMX521L	WBMT060104L	.0157	.0669				●

PCD-SUMIDIA
Brazed

PCD

DABB-C

Stop-Boring, Through-Boring and Back Chamfering

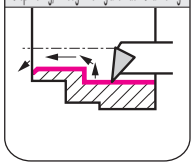
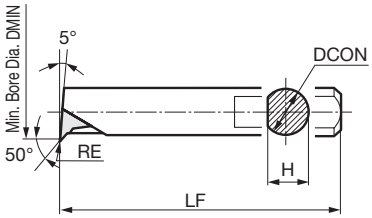


Fig 1



Holder (PCD-SUMIDIA)

Dimensions (mm)

Cat. No.	DA2200	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Nose Radius RE	Applicable Sleeve	Fig
DABB025CR	★	3.0	2.5	2.2	60	0.1	HBB2516	1
DABB035CR	★	4.0	3.5	3.2	60	0.1	HBB3516	1
DABB045CR	★	5.0	4.5	4.1	80	0.1	HBB4516	1
DABB060CR	★	7.0	6.0	5.2	80	0.1	HBB616	1

DABB-N

Stop-Boring, Through-Boring and Necking

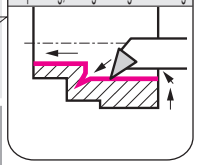
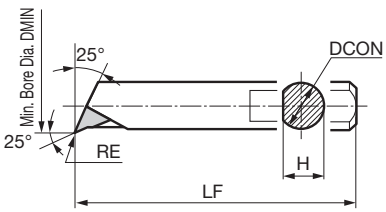


Fig 1



Holder (PCD-SUMIDIA)

Dimensions (mm)

Cat. No.	DA2200	Min. Bore Dia. DMIN	Diameter DCON	Height H	Overall Length LF	Nose Radius RE	Applicable Sleeve	Fig
DABB025NR	★	3.0	2.5	2.2	60	0.1	HBB2516	1
DABB035NR	★	4.0	3.5	3.2	60	0.1	HBB3516	1
DABB045NR	★	5.0	4.5	4.1	80	0.1	HBB4516	1
DABB060NR	★	7.0	6.0	5.2	80	0.1	HBB616	1

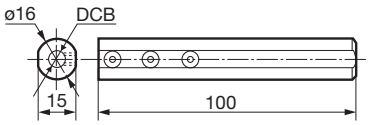
Sleeve

Dimensions (mm)

Cat. No.	Stock	Bore Dia. DCB	Fig	Set Screw	Wrench
HBB2516	★	2.5	1	BT0404	LH020
HBB3516	★	3.5	1		
HBB4516	★	4.5	1		
HBB616	★	6.0	1		

(For Hex Socket)

Fig 1



HBX sleeve can also be used.

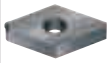
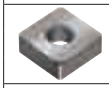
SUMIDIA - Binderless PCD Inserts

■ PCD - SUMIDIA Binderless NPD10 Neg.

(Legend) Continuous Cutting ●: 1st Recommendation

Recommended Application: Carbide / Hard Brittle Material ●

Dimensions (*inch*)

Shape	Sumitomo Cat. No.	ISO Cat. No.	NPD10	Cutting Edge Length	Inscribed Circle IC	Thickness S	Hole Dia. D1	Nose Radius RE
	DNMA432RH	DNMA150408RH	★	.071	.500	.187	.203	.032
	DNMA433RH	DNMA150412RH	★	.071				.047
	SNMA432RH	SNMA120408RH	★	.067	.500	.187	.203	.032
	SNMA433RH	SNMA120412RH	★	.067				.047
	VNMA332RH	VNMA160408RH	★	.071	.037	.187	.150	.032
	VNMA333RH	VNMA160412RH	★	.060				.047

■ PCD- SUMIDIA DA90 Neg. NF

(Legend) General Cutting ◒: 1st Recommendation

Recommended Application: N Non-Ferrous Metal; Carbide / Hard Brittle Material ◒

Dimensions (*inch*)

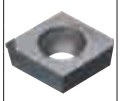
Shape	Sumitomo Cat. No.	ISO Cat. No.	DA90	Cutting Edge Length	Inscribed Circle IC	Thickness S	Hole Dia. D1	Nose Radius RE
	NF-DNMA432	NF-DNMA150408	★	.079	.500	.187	.203	.031
	NF-DNMA433	NF-DNMA150412	★	.079				.047
	NF-SNMA432	NF-SNMA120408	★	.094	.50	.187	.203	.031
	NF-SNMA433	NF-SNMA120412	★	.094				.047
	NF-VNMA332	NF-VNMA160408	★	.075	.375	.187	.150	.031
	NF-VNMA333	NF-VNMA160412	★	.067				.047

Pos.

(Legend) Continuous Cutting ●: 1st Recommendation

Recommended Application: Carbide / Hard Brittle Material ●

Dimensions (*mm*)

Shape	Relief Angle	Sumitomo Cat. No.	ISO Cat. No.	NPD10	Cutting Edge Length	Inscribed Circle IC	Thickness S	Hole Dia. D1	Nose Radius RE
	7°	CCMW03X102RH	CCMW03X102RH	★	.051	.138	.055	.075	.008
		CCMW03X104RH	CCMW03X104RH	★	.051				.014
		CCMW04X102RH	CCMW04X102RH	★	.067	.169	.071	.091	.008
		CCMW04X104RH	CCMW04X104RH	★	.067				.014
		CCMA21.50.5RH	CCMW060202RH	★	.067	.250	.094	.110	.008
		CCMA21.51RH	CCMW060204RH	★	.067				.014
		CCMA32.50.5RH	CCMW09T302RH	★	.067	.375	.156	.173	.008
		CCMA32.51RH	CCMW09T304RH	★	.067				.014
		CCMA32.52RH	CCMW09T308RH	★	.063				.031
	7°	DCMA21.50.5RH	DCMW070202RH	★	.083	.250	.094	.110	.008
		DCMA21.51RH	DCMW070204RH	★	.079				.014
		DCMA32.50.5RH	DCMW11T302RH	★	.083	.375	.156	.173	.008
		DCMA32.51RH	DCMW11T304RH	★	.075				.014
		DCMA32.52RH	DCMW11T308RH	★	.063				.031
	11°	TPMA630.5RH	TPMW080202RH	★	.047	.188	.094	.091	.008
		TPMA631RH	TPMW080204RH	★	.039				.014
		TPMA220.5RH	TPMW110302RH	★	.059	.250	.125	.134	.008
		TPMA221RH	TPMW110304RH	★	.051				.014
		TPMA222RH	TPMW110308RH	★	.039				.031
		TPMA330.5RH	TPMW160402RH	★	.087	.375	.188	.173	.008
		TPMA331RH	TPMW160404RH	★	.079				.014
		TPMA332RH	TPMW160408RH	★	.063				.031
	7°	VCMA630RH	VCMW080201RH	★	.087	.188	.094	.091	.004
		VCMA630.5RH	VCMW080202RH	★	.075				.008
		VCMA631RH	VCMW080204RH	★	.059				.014
		VCMA220.5RH	VCMW110302RH	★	.083	.250	.125	.110	.008
		VCMA221RH	VCMW110304RH	★	.067				.014
		VCMA330.5RH	VCMW160402RH	★	.083	.375	.188	.173	.008
		VCMA331RH	VCMW160404RH	★	.067				.014
		VCMA332RH	VCMW160408RH	★	.071				.031
		VCMA333RH	VCMW160412RH	★	.059				.047

The R portion of the cutting edge is cylindrical shaped.

Pos. NF

(Legend) General Cutting ◒: 1st Recommendation

Recommended Application: N Non-Ferrous Metal; Carbide / Hard Brittle Material ◒

Dimensions (*mm*)

Shape	Relief Angle	Cat. No.		DA90	Cutting Edge Length	Inscribed Circle IC	Thickness S	Hole Dia. D1	Nose Radius RE
	7°	NF-CCMA03X102	NF-CCMW03X102	★	.043	.138	.055	.075	.008
		NF-CCMA03X104	NF-CCMW03X104	★	.043				.014
		NF-CCMA04X102	NF-CCMW04X102	★	.059	.169	.071	.091	.008
		NF-CCMA04X104	NF-CCMW04X104	★	.059				.014
		NF-CCMA21.50.5	NF-CCMW060202	★	.094	.250	.094	.110	.008
		NF-CCMA21.51	NF-CCMW060204	★	.094				.014
		NF-CCMA32.50.5	NF-CCMW09T302	★	.094	.375	.156	.173	.008
		NF-CCMA32.51	NF-CCMW09T304	★	.094				.014
		NF-CCMA32.52	NF-CCMW09T308	★	.091				.031
	7°	NF-DCMA21.50.5	NF-DCMW070202	★	.102	.250	.094	.110	.008
		NF-DCMA21.51	NF-DCMW070204	★	.094				.014
		NF-DCMA32.50.5	NF-DCMW11T302	★	.102	.375	.156	.173	.008
		NF-DCMA32.51	NF-DCMW11T304	★	.094				.014
		NF-DCMA32.52	NF-DCMW11T308	★	.079				.031
	11°	NF-TPMA630.5	NF-TPMW080202	★	.098	.188	.094	.091	.008
		NF-TPMA631	NF-TPMW080204	★	.094				.014
		NF-TPMA220.5	NF-TPMW110302	★	.098	.250	.125	.134	.008
		NF-TPMA221	NF-TPMW110304	★	.094				.014
		NF-TPMA222	NF-TPMW110308	★	.083				.031
		NF-TPMA330.5	NF-TPMW160402	★	.098	.375	.188	.173	.008
		NF-TPMA331	NF-TPMW160404	★	.094				.014
		NF-TPMA332	NF-TPMW160408	★	.083				.031
	7°	NF-VCMA630.5	NF-VCMW080202	★	.126	.188	.094	.091	.008
		NF-VCMA0631	NF-VCMW080204	★	.110				.014
		NF-VCMA220.5	NF-VCMW110302	★	.126	.250	.125	.110	.008
		NF-VCMA221	NF-VCMW110304	★	.110				.014
		NF-VCMA330.5	NF-VCMW160402	★	.146	.375	.188	.173	.008
		NF-VCMA331	NF-VCMW160404	★	.130				.014
		NF-VCMA332	NF-VCMW160408	★	.094				.031
		NF-VCMA333	NF-VCMW160412	★	.083				.047

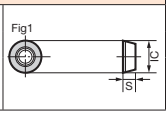
The R portion of the cutting edge is cylindrical shaped.

★: Worldwide Warehouse Item

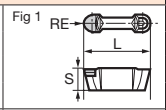
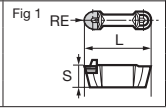
For Turning

Round Insert

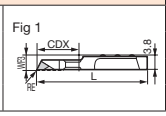
Dimensions (inch)

Shape		Sumitomo Cat. No.	ISO Cat. No.	PCD (SUMIDIA) DA90	DA150	DA1000	DA2200	Inscribed Circle IC	Thickness S	Cutting Edge Length LE	Nose Radius RE	Hole Dia.	Fig	Applicable Holder
		**RPGW0803M0**	**RPGW0803M0**			★		.3150	.1252	—	—	.1299	1	SEC-RP Profiling Tool Holders for Aluminum Wheel Machining (RP02 (Made-to-order item))

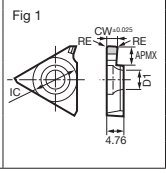
Dogbone Insert

Shape		Sumitomo Cat. No.	ISO Cat. No.	DA90	DA150	DA1000	DA2200	Overall Length L	Thickness S	Nose Radius RE			Fig	Applicable Holder
		**MDE3RN7** **MDE4R**	**MDE3RN7** **MDE4R**				★ ★	1.0236 1.1811	.3346 .3346	.1181 .1575			1 1	SEC-GD Profiling Tool Holders for Aluminum Wheel Machining (GDE) →C60 to C61
		**MDE3RN7-AW** **MDE4R-AW**	**MDE3RN7-AW** **MDE4R-AW**				★ ★	1.0236 1.1811	.3346 .3346	.1181 .1575			1 1	

Very Small Dia. Boring Insert

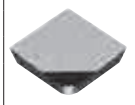
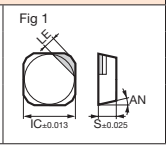
Shape		Sumitomo Cat. No.	ISO Cat. No.	DA90	DA150	DA1000	DA2200	Min. Bore Dia. DMIN	WF3	Nose Radius RE	L	CDX	Fig	Applicable Holder
		**KBMXR0311-10** **KBMXR0411-10** **KBMXR0511-10**	**KBMXR0311-10** **KBMXR0411-10** **KBMXR0511-10**				★ ★ ★	.1181 .1575 .1969	.1614 .1693 .1772	.0039 .0039 .0039	1.1220 1.1220 1.1220	.4331 .4331 .4331	1 1 1	Very Small Dia. Boring Bar (CKB) →E66

Grooving Insert

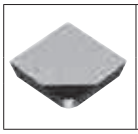
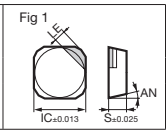
Shape		Sumitomo Cat. No.	ISO Cat. No.	DA90	DA150	DA1000	DA2200	Inscribed Circle IC	Width of Cut CW	Nose Radius RE	Max. Groove Depth APMX	Hole Dia. D1	Fig	Applicable Holder
		**TGAR4125** **TGAR4150** **TGAR4200** **TGAR4250** **TGAR4300** **TGAR4350** **TGAR4400**	**TGAR4125** **TGAR4150** **TGAR4200** **TGAR4250** **TGAR4300** **TGAR4350** **TGAR4400**				★ ★ ★ ★ ★ ★ ★	.5000 .5000 .5000 .5000 .5000 .5000 .5000	.0492 .0591 .0787 .0984 .1181 .1378 .1575	.0039 .0039 .0039 .0039 .0039 .0039 .0039	.0787 .1378 .1378 .1575 .1575 .1969 .1969	.2165 .2165 .2165 .2165 .2165 .2165 .2165	1 1 1 1 1 1 1	Grooving Tools (GWC, GWCS, GWCI) →F43

For Milling

For ACE MILL APG

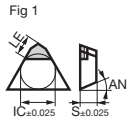
Shape		Sumitomo Cat. No.	ISO Cat. No.	PCD (SUMIDIA) DA90	DA150	DA1000	DA2200	Inscribed Circle IC	Thickness S	Cutting Edge Length LE	Relief Angle AN	Fig	Applicable Cutter / Endmill
		**NF-SDC42R** **SDC42R**	**NF-SDC42R** **SDCN1203R**			★ ★	★ ●	.5000 .5000	.1252 .1252	.1181 .1181	.5906 .5906	1 1	APG →H256

For ACE MILL FPG / Multi Use Endmill FPE

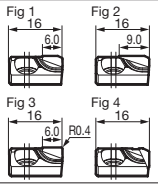
		**NF-SDKN42M** **SDKN42M**	**NF-SDKN42M** **SDKN1203M**		★	★		.5000 .5000	.1252 .1252	.1181 .1181	.5906 .5906	1 1	FPG →H259 FPE

For Milling

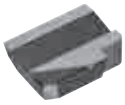
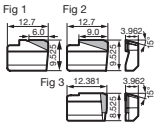
For ACE MILL CHG / Multi Use Endmill CHE

Shape		Sumitomo Cat. No.	ISO Cat. No.	DA90	DA150	DA1000	DA2200	Inscribed Circle IC	Thickness S	Cutting Edge Length LE	Relief Angle AN	Fig	Applicable Cutter / Endmill
		NF-TEEN22R	NF-TEEN22R			★		.2500	.1252	.1929			CHG →H257 CHE →H255
		NF-TEEN32R	NF-TEEN32R			●	●	.3750	.1252	.1929	.7874	1	
		NF-TEEN43R	NF-TEEN43R				●	.5000	.1874	.1890			
		TEEN22R	TEEN22R			★		.2500	.1252	.1929			
		TEEN32R	TEEN32R				●	.3750	.1252	.1929	.7874	1	
		TEEN43R	TEEN43R		★			.5000	.1874	.1890			

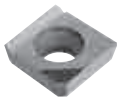
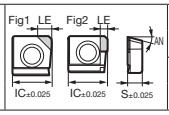
For High-Efficiency Cutter for Aluminum Alloys ALNEX ANX

		ANB1600R-L	ANB1600R-L			●				.2362		1	ANX →H213 - H220
		ANB1600R-G	ANB1600R-G			●				.2362			
		ANB1600R-H	ANB1600R-H			●				.2362			
		ANB1600R-GX	ANB1600R-GX			★				.3543		2	
		ANB1604R	ANB1604R			●				.2362		3	
		ANB1608R	ANB1608R			★				.2362		3	
		ANB1600R-W	ANB1600R-W			●				—		4	

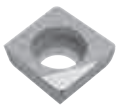
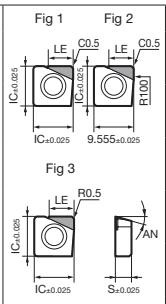
For High-Efficiency Cutter for Aluminum Alloys HF

		NF-LDEN12T3ZDFR-L	NF-LDEN12T3ZDFR-L			●							HF →H221 - H226
		NF-LDEN12T3ZDFR-G	NF-LDEN12T3ZDFR-G			●		—	—	.2362	—	1	
		NF-LDEN12T3ZDTR-H	NF-LDEN12T3ZDTR-H			●							
		NF-LDEN12T3ZDFR-GX	NF-LDEN12T3ZDFR-GX			●		—	—	.3543	—	2	
		NF-LDEN12T3ZDFR-W	NF-LDEN12T3ZDFR-W			●		—	—	—	—	3	

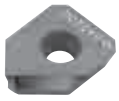
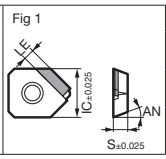
For High-Speed Cutter for Aluminum Alloys RF (Insert)

		NF-SNEW1204ADFR	NF-SNEW1204ADFR			●	●	.5000	.1874	.1850	.5906	1	RF →H227-228
		NF-SNEW120404ADFR-H	NF-SNEW120404ADFR-H			★				.3740			
		NF-SNEW1204ADFR-W	NF-SNEW1204ADFR-W			●	●	.5000	.1874	.0906	.5906	2	

For Small Diameter Cutter for Aluminum Alloys SRF

		NF-SNEW09T3ADTR	NF-SNEW09T3ADTR			●	●	.3750	.1559	.2362	.5906	1	SRF →H229 - H230
		NF-SNEW09T3ADTR-U	NF-SNEW09T3ADTR-U			●		.3750	.1559	.2362	.5906	2	
		NF-SNEW09T3ADTR-R	NF-SNEW09T3ADTR-R			●		.3750	.1559	.2362	.5906	3	

For WaveMill WGC & WGX

		NF-XEEW13T3AGFRW	NF-XEEW13T3AGFR-W			●		.5276	.1563	.0984	.7874	1	WGC →H254

■ General Features

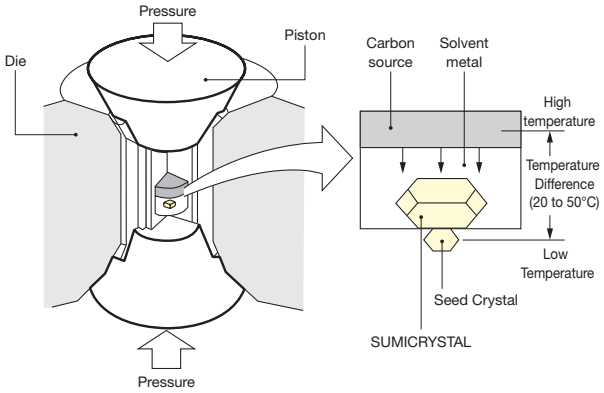
SUMICRYSTAL is the world's first commercially available large-grained high-purity single-crystal diamond, developed by Sumitomo.
Thorough quality control has achieved stable quality, making SUMICRYSTAL ideal as an industrial material.

■ Production Method

The synthetic single-crystal diamond SUMICRYSTAL is synthesized in a super high pressure chamber from 5 to 6GPa and high temperatures from 1,300 to 1,600°C. The temperature difference between the raw carbon and the seed crystal is used to grow the diamond on the seed crystal. Through this stringent control of pressures and temperatures, a more stable structure with minimal impurities can be obtained.

● Inside a super high pressure chamber

Synthetic Conditions
Pressure: 5 to 6GPa
Temperature: 1,300 to 1,600°C

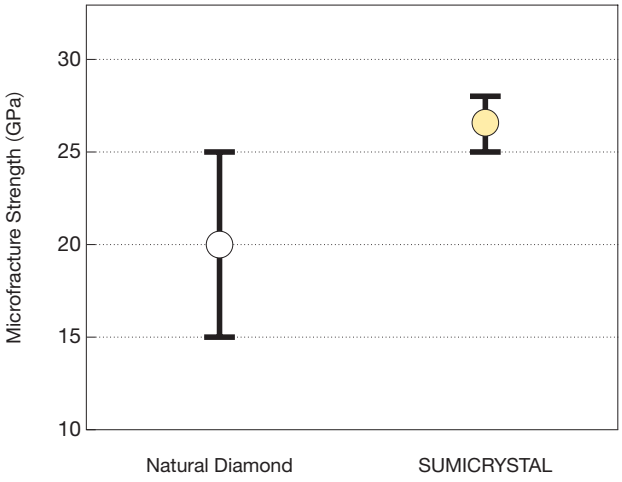


■ Properties

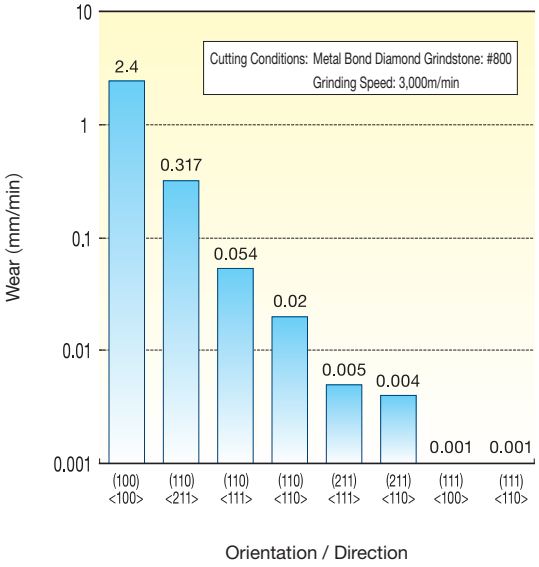
SUMICRYSTAL has 4 main advantages over natural diamond.

1) Structural advantage: Natural diamond is rounded and the crystal orientation is difficult to determine with the naked eye. SUMICRYSTAL, however, has a distinct crystal face which makes the identification much easier.
2) Uniformity: Due to the strictly controlled conditions in which the crystals are grown, uniform quality is obtained consistently.
3) Availability: Unlike the limited supply of natural diamonds, SUMICRYSTAL can be mass produced.
4) SUMICRYSTAL diamond type Ib, which is used for tools, has mechanical and thermal properties equal to or even greater than natural diamond, while containing trace amounts of nitrogen impurities.

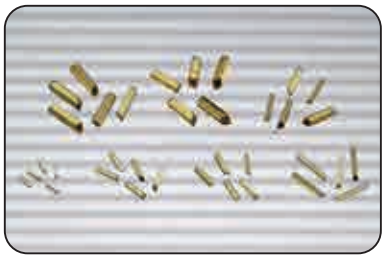
● Microfracture Strength of Synthetic Diamond



● Orientation and Wear Resistance



PD / PDX



■ General Features

SUMICRYSTAL PD and PDX are single-crystal synthetic diamonds processed into thin prism shapes for use as dresser blanks. Their stable performance and long tool life improve dressing precision.

SUMICRYSTAL PD

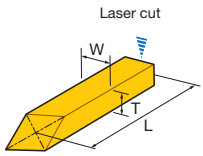
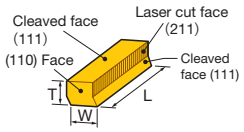
■ Features

● Revolutionary Elongated Shape

(1) Improved retention strength prevents diamonds from falling out.
(2) Consistent cross-section prevents deterioration.
(3) Uniform crystal orientation promotes stable tool life.

■ Standard Cat. No. (PD)

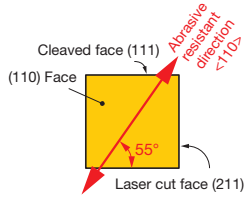
Dimensions (mm)

Shape	Cat. No.	Stock	T	W	L
 · 'L' is the distance between the centre points of both ends. · Both upper and lower (111) faces are cleaved.	PD 0220	●	$0.2^{\pm0.05}$	$0.2^{\pm0.05}$	2.0 to 2.5
	PD 0420	●	$0.4^{\pm0.05}$	$0.4^{\pm0.05}$	2.0 to 2.5
	PD 0630K	●	$0.6^{\pm0.1}$	$0.6^{\pm0.1}$	3.0 to 4.0
	PD 0640K	●			4.0 to 5.0
	PD 0650K	●			5.0 up
	PD 0830K	●	$0.8^{\pm0.1}$	$0.8^{\pm0.1}$	3.0 to 4.0
	PD 0840K	●			4.0 to 5.0
	PD 0850K	●			5.0 up
	PD 1130K	●	$1.1^{\pm0.1}$	$1.1^{\pm0.1}$	3.0 to 4.0
	PD 1140K	●			4.0 to 5.0
 Single cleaved side face with pre-determined abrasive resistant direction.	PD 0630TK	●	$0.6^{\pm0.1}$	$0.6^{\pm0.1}$	3.0 to 4.0
	PD 0640TK	●			4.0 to 5.0
	PD 0830TK	●	$0.8^{\pm0.1}$	$0.8^{\pm0.1}$	3.0 to 4.0
	PD 0840TK	●			4.0 to 5.0
	PD 1130TK	●	$1.1^{\pm0.1}$	$1.1^{\pm0.1}$	3.0 to 4.0
	PD 1140TK	●			4.0 to 5.0

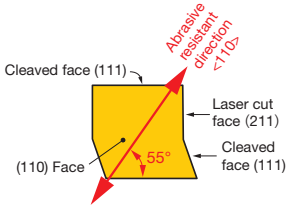
* 1 Sizes other than those indicated above can be ordered. ● mark: Standard stocked item
* 2 These products may have fine impurities within Sumitomo's prescribed range.
* 3 The laser cut faces among other product areas may have chipping within Sumitomo's prescribed range.

■ PD Crystal Orientation

PD

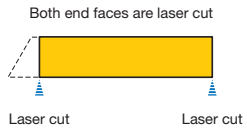


PD-T



■ KK Type

Apart from the standard items listed above, PD is also available in the KK type with both end faces laser-cut.



· When ordering, include "K" after the standard catalogue number. (Example: PD○○○○KK, PD○○○○TKK)

· PD0220 and 0420 are not available in the KK type.

SUMICRYSTAL PDX

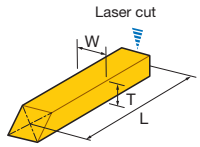
■ Features

● Compared to conventional tools (PD), the product has different face crystal orientation.

(1) Crystal orientation (211) provides better tool life than conventional PD blanks.
(2) Parallel abrasive resistant faces (111) facilitate blank setting during manufacturing of dressers.

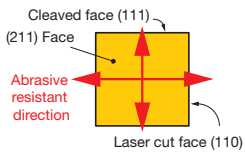
■ Standard Cat. No. (PDX)

Dimensions (mm)

Shape	Cat. No.	Stock	T	W	L
 · 'L' is the distance between the centre points of both ends. · Both upper and lower (111) faces are cleaved.	PDX 0220	●	$0.2^{\pm0.05}$	$0.2^{\pm0.05}$	$2.0^{\pm0.1}$
	PDX 0320	●	$0.3^{\pm0.05}$	$0.3^{\pm0.05}$	
	PDX 0420	●	$0.4^{\pm0.05}$	$0.4^{\pm0.05}$	
	PDX 0630	●	$0.6^{\pm0.1}$	$0.6^{\pm0.1}$	$3.0^{\pm0.5}$
	PDX 0640	●			$4.0^{\pm0.5}$
	PDX 0830	●	$0.8^{\pm0.1}$	$0.8^{\pm0.1}$	$3.0^{\pm0.5}$
	PDX 0840	●			$4.0^{\pm0.5}$
	PDX 1130	●	$1.1^{\pm0.1}$	$1.1^{\pm0.1}$	$3.0^{\pm0.5}$
	PDX 1140	●			$4.0^{\pm0.5}$

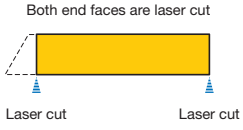
* 1 Sizes other than those indicated above can be ordered. ● mark: Standard stocked item
* 2 These products may have fine impurities within Sumitomo's prescribed range.
* 3 The laser cut faces among other product areas may have chipping within Sumitomo's prescribed range.

■ PDX Crystal Orientation



■ K Type

Apart from the standard items listed above, PDX is also available in the K type with both end faces laser-cut.



· When ordering, include "K" after the standard catalogue number. (Example: PDX○○○○K)

· PDX0220, 0320 and 0420 are not available in the K type.

UP

■ General Features

Of today's sophisticated cutting-edge technologies, ultra-precision machining processes such as those used for optical element molds are seeing particularly rapid development.
SUMICRYSTAL UP blanks have high performance and reliability, making them optimally suited to these applications.

■ Features

(1) High quality with very low variance.
Stable wear resistance with excellent resistance to cutting edge chipping.
(2) Minimal stock removal during cutting edge formation.
Uniform shape facilitates cutting edge formation.

■ Standard Type

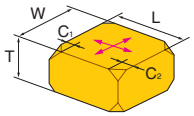
Rectangular parallel type with 6 (100) faces.

■ Economy Type

Peripheral growth faces and top are not cut. Benefits include large volume and low cost.

■ Standard Cat. No. (Standard Type)

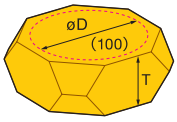
Dimensions (mm)

Shape	Cat. No.	Stock	L	W	C_1,C_2	T
 The red arrows indicate the direction for easy grinding. Crystal face orientations are all (100) except the corners.	UP 282512		2.8 to 3.5	2.5 to 3.5	up to 0.8	1.2±0.1
	UP 282515		2.8 to 3.5	2.5 to 3.5	up to 0.8	1.5±0.1
	UP 303015		3.0 to 3.5	3.0 to 3.5	up to 0.3	1.5±0.1
	UP 301415		3.0 to 3.5	1.4 to 1.7	up to 0.3	1.5±0.1
	UP 333014		3.3 to 4.0	3.0 to 4.0	up to 0.9	1.4±0.1
	UP 333017		3.3 to 4.0	3.0 to 4.0	up to 0.9	1.7±0.1
	UP 353514		3.5 to 4.0	3.5 to 4.0	up to 0.4	1.4±0.1
	UP 353517		3.5 to 4.0	3.5 to 4.0	up to 0.4	1.7±0.1
	UP 351717		3.5 to 4.0	1.7 to 2.0	up to 0.4	1.7±0.1

*1 Sizes other than those indicated above can be ordered. Blank: Made-to-order item
*2 These products may have fine impurities, chipping, etc. within Sumitomo's prescribed range.

■ Standard Cat. No. (Economy Type)

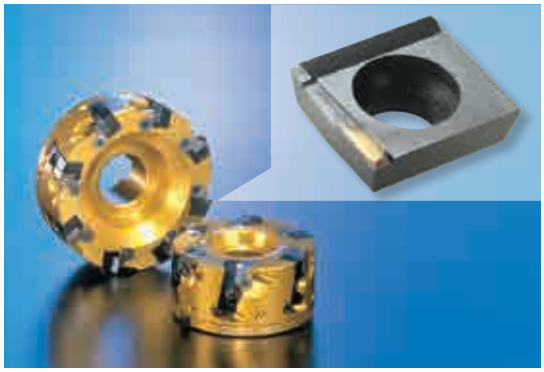
Dimensions (mm)

Shape	Cat. No.	Stock	øD Minimum guaranteed dimensions	T
	UP 2010		2.0	1.0
	UP 2012			1.2
	UP 2510		2.5	1.0
	UP 2512			1.2
	UP 2515			1.5
	UP 3010		3.0	1.0
	UP 3012			1.2
	UP 3015			1.5
	UP 3510		3.5	1.0
	UP 3512			1.2
	UP 3515			1.5
	UP 4010		4.0	1.0
	UP 4012			1.2
	UP 4015			1.5
	UP 4020			2.0
	UP 4510		4.5	1.0
	UP 4512			1.2
	UP 4515			1.5
	UP 4520			2.0
	UP 5010		5.0	1.0
	UP 5012			1.2
	UP 5015			1.5
	UP 5020			2.0

*1 Sizes other than those indicated above can be ordered. Blank: Made-to-order item
*2 Fine impurities, chipping, etc. within Sumitomo's prescribed range may be present in the minimum guaranteed dimensions of these products.
*3 Impurities, chipping, etc. outside the inspection range may be present outside the minimum guaranteed dimensions of these products.
*4 Some products have ground top surfaces.

● Cutting Tools Using SUMICRYSTAL UP

Wiper Insert for High-Efficiency Cutter for Aluminum Alloy RF Type →M46



* This product was jointly developed with A.L.M.T. Corp.

SUMICRYSTAL SC10 (Wiper Insert)

- SUMICRYSTAL, a single-crystal diamond produced with SEH's original super-high pressure technology, is used for the cutting edge.
- Edge sharpness is retained better than sintered diamonds, greatly reducing burr formation.

SUMICRYSTAL (Single-Crystal Diamond) Surface machined with SC10 wiper insert

Surface machined with SUMIDIA (Sintered Diamond) wiper insert

UP (Half-Cut Product)

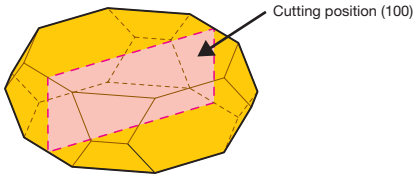
■ General Features

SUMICRYSTAL UP Half Cut products are materials for holders consisting of the UP Economy type material cut in half along the (100) or (110) faces.

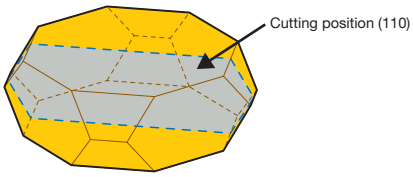
■ Features

(1) Grinding during tool production minimizes the volume removed, reducing machining loss.
(2) Similar shape to the completed tool, reducing material costs.
(3) The cut surface is a smooth laser surface.

■ Type cut along (100) face

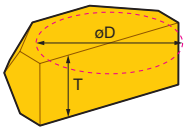


■ Type cut along (110) face



■ Standard Cat. No. (Type Cut Along (100) Face)

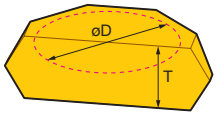
Dimensions (mm)

Shape	Cat. No.	Stock	øD Minimum guaranteed dimensions	T
	UP 2010 (100) 1/2		2.0	1.0
	UP 2012 (100) 1/2			1.2
	UP 2510 (100) 1/2		2.5	1.0
	UP 2512 (100) 1/2			1.2
	UP 2515 (100) 1/2			1.5
	UP 3010 (100) 1/2		3.0	1.0
	UP 3012 (100) 1/2			1.2
	UP 3015 (100) 1/2			1.5
	UP 3510 (100) 1/2		3.5	1.0
	UP 3512 (100) 1/2			1.2
	UP 3515 (100) 1/2			1.5
	UP 4010 (100) 1/2		4.0	1.0
	UP 4012 (100) 1/2			1.2
	UP 4015 (100) 1/2			1.5
	UP 4020 (100) 1/2			2.0
	UP 4510 (100) 1/2		4.5	1.0
	UP 4512 (100) 1/2			1.2
	UP 4515 (100) 1/2			1.5
	UP 4520 (100) 1/2			2.0
	UP 5010 (100) 1/2		5.0	1.0
	UP 5012 (100) 1/2			1.2
	UP 5015 (100) 1/2			1.5
	UP 5020 (100) 1/2			2.0

*1 Sizes other than those indicated above can be ordered. Blank: Made-to-order item
*2 Fine impurities, chipping, etc. within Sumitomo's prescribed range may be present in the minimum guaranteed dimensions of these products.
*3 Impurities, chipping, etc. outside the inspection range may be present outside the minimum guaranteed dimensions of these products.
*4 Some products have ground top surfaces.

■ Standard Cat. No. (Type Cut Along (110) Face)

Dimensions (mm)

Shape	Cat. No.	Stock	øD Minimum guaranteed dimensions	T
	UP 2010 (110) 1/2		2.0	1.0
	UP 2012 (110) 1/2			1.2
	UP 2510 (110) 1/2		2.5	1.0
	UP 2512 (110) 1/2			1.2
	UP 2515 (110) 1/2			1.5
	UP 3010 (110) 1/2		3.0	1.0
	UP 3012 (110) 1/2			1.2
	UP 3015 (110) 1/2			1.5
	UP 3510 (110) 1/2		3.5	1.0
	UP 3512 (110) 1/2			1.2
	UP 3515 (110) 1/2			1.5
	UP 4010 (110) 1/2		4.0	1.0
	UP 4012 (110) 1/2			1.2
	UP 4015 (110) 1/2			1.5
	UP 4020 (110) 1/2			2.0
	UP 4510 (110) 1/2		4.5	1.0
	UP 4512 (110) 1/2			1.2
	UP 4515 (110) 1/2			1.5
	UP 4520 (110) 1/2			2.0
	UP 5010 (110) 1/2		5.0	1.0
	UP 5012 (110) 1/2			1.2
	UP 5015 (110) 1/2			1.5
	UP 5020 (110) 1/2			2.0

*1 Sizes other than those indicated above can be ordered. Blank: Made-to-order item
*2 Fine impurities, chipping, etc. within Sumitomo's prescribed range may be present in the minimum guaranteed dimensions of these products.
*3 Impurities, chipping, etc. outside the inspection range may be present outside the minimum guaranteed dimensions of these products.
*4 Some products have ground top surfaces.

UPT

■ General Features

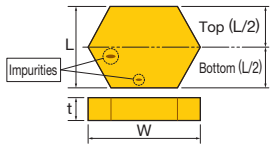
SUMICRYSTAL UPT is a material for holders with a 2-point surface ((110) face) as the main surface.

■ Features

(1) 2-point surface ((110) face) enables use for the same applications as with holders using conventional natural diamonds.
(2) Distinctive shape minimizes the volume removed to make the cutting edge, enabling efficient machining.

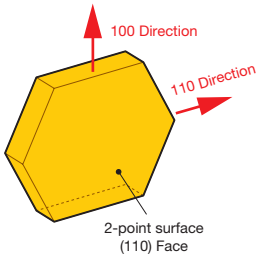
■ Standard Items

Dimensions (mm)

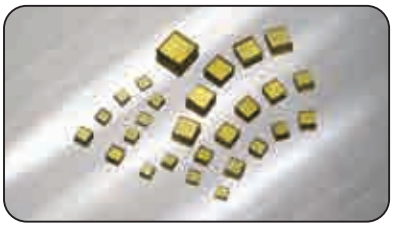
Shape	Cat. No.	Stock	W	L	T
	**UPT 3010**		3.0	2.5	$1.0^{\pm 0.1}$
	UPT 3012				$1.2^{\pm 0.1}$
	UPT 4010		4.0	3.0	$1.0^{\pm 0.1}$
	UPT 4012				$1.2^{\pm 0.1}$

*1 Sizes other than those indicated above can be ordered. Blank: Made-to-order item
*2 Fine impurities, chipping, etc. within Sumitomo's prescribed range may be present at the top (1/2).
*3 Impurities, chipping, etc. outside the inspection range may be present at the bottom (L/2).

■ UPT Crystal Orientation



CD



■ General Features

SUMICRYSTAL CD has optimized crystal orientation and shape as a material for wire drawing dies. Realizing excellent performance through high quality and stability.

■ Features

(1) High quality with very low variance.
High-quality crystal with minimal impurities, chipping and distortion is used to achieve high, stable wear resistance. It also eliminates the need for inspection and selection of raw stones required for natural diamond.

(2) High fracture strength
Resistant to fracture and cracking during wire drawing.

(3) Accurate crystal orientation
(111) is used on the top and bottom surface, limiting crystal misorientation, which causes variance in tool life, to within 1°.

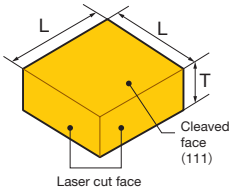
(4) No grinding needed for top and bottom surface
The top and bottom surface are cleaved to form parallel surfaces, eliminating the need for grinding of the top and bottom surface.

■ Standard Type

The outside is machined by laser, achieving a consistent shape for easy setting. Mounting pressure is applied evenly, ensuring sufficient strength even for small volume. Ideal for applications with limited dimensions, such as nozzles and wire guides.

■ Standard Items

Dimensions (mm)

Shape	Cat. No.	Stock	L	T
	**CD 1006(111)**		$1.0^{\pm0.1}$	$0.6^{\pm0.1}$
	CD 1008(111)		$1.0^{\pm0.1}$	$0.8^{\pm0.1}$
	CD 1210(111)		$1.2^{\pm0.1}$	$1.0^{\pm0.1}$
	CD 1411(111)		$1.4^{\pm0.1}$	$1.1^{\pm0.1}$
	CD 1512(111)		$1.5^{\pm0.1}$	$1.2^{\pm0.1}$
	CD 1814(111)		$1.8^{\pm0.1}$	$1.4^{\pm0.1}$
	CD 2016(111)		$2.0^{\pm0.1}$	$1.6^{\pm0.1}$
	CD 2318(111)		$2.3^{\pm0.1}$	$1.8^{\pm0.1}$
	CD 2520(111)		$2.5^{\pm0.1}$	$2.0^{\pm0.1}$

Blank: Made-to-order item

*1 Sizes other than those indicated above can be ordered.
*2 These products may have fine impurities, chipping, etc. within Sumitomo's prescribed range.

MEMO

Parts, Adapters & Holders

N

N1 to N34

Parts

Screws N2
Eccentric Pins N4
Lever Pins and Shims N5
Shims / Clamps / Rings N7
Shim Pins / Nuts / Drawing Pins / Wrenches N8
Optional Hardware: Shims / Screws / Pins N10

ADAPTERS & HOLDERS

Holder and Collet Highlights N11
Adapters & Holders: Milling Chucks N12
ER Collet Chucks N14
Straight Shank Synchro Chucks N15
ER Collets: Inch & Metric N16
GB Collets N17
Shrink Fit System N18
Endmill Holders N23
Shellmill Holders N25

Hardware

ER Collet Nut N27
Sealing Discs N28
Drive Keys and Locking Screws N30
Wrenches N32
Accessories N33

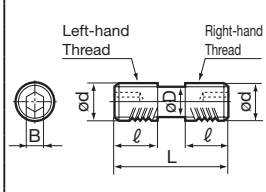
PSZ TURN

Blanks & Parts N34

Stock Markings and Symbols	●: Standard stocked item ★: Worldwide Warehouse Item ▲: Limited Avaibility Item, made to order, or discontinued (please confirm stock availability).	Blank: Made-to-order item — mark: Not available

■ Screws

Double Screw



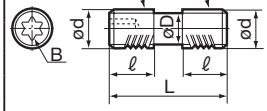
*: Wrench hole on the left-hand thread side only.

Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
* WB4-8	●	M4	0.7	7.5	3	3.0	2	—
WB5-10	●	M5	0.8	10	4	3.8	2.5	—
WB5-12	●	M5	0.8	12	5	3.8	2.5	—
WB6-10	●	M6	1.0	10	3.5	4.5	3	—
WB6-13	●	M6	1.0	13	5	4.5	3	—
WB6-16	●	M6	1.0	16	6	4.5	3	—
WB6-20	●	M6	1.0	20	8.5	4.5	3	—
WB6-30	●	M6	1.0	30	12	4.5	3	—
WB6E-13	●	M6	1.0	13	5	4.5	2.78	—
WB8-20	●	M8	1.25	20	8.5	6.2	4	—
WB8-24	●	M8	1.25	24	8.5	6.2	4	—
WB8-30	●	M8	1.25	30	11.5	6.2	4	—
WB8F-20	●	M8	1.0	20	8.5	6.2	4	—
WB8F-30	●	M8	1.0	30	11.5	6.2	4	—
WB10-19	●	M10	1.5	19	8	7.9	5	—
WB10-26	●	M10	1.5	26	11	7.9	5	—
WB10-35	●	M10	1.5	35	13	7.9	5	—

Double Screw (Single Torx)

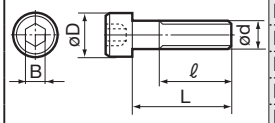
Part number suffix: T indicates right-hand thread, TL indicates left-hand thread

Part number suffix: T indicates left-hand thread, TL indicates right-hand thread



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
WB6-13T	●	M6	1.0	13	5	4.5	T20	—
WB6-16T	●	M6	1.0	16	6	4.5	T20	—
WB6-20T	●	M6	1.0	20	8.5	4.5	T20	—
WB6-20TL	●	M6	1.0	20	8.5	4.5	T20	—
WB7-15T	●	M7	1.0	15	5.5	5	T25	—
WB7-20T	●	M7	1.0	20	8.5	5	T25	—
WB7F-15T	●	M7	0.75	15	5.5	5	T25	—
WB7F-20TL	●	M7	0.75	20	8.5	5.5	T25	—
WB8-22T	●	M8	1.25	22	8.5	6.2	T27	—
WB8-22TL	●	M8	1.25	22	8.5	6.2	T27	—
WB8-30T	●	M8	1.25	30	11.5	6.2	T27	—
WB8-30TL		M8	1.25	30	11.5	6.2	T27	—
WB8R-16T	●	M8	1.25	14	5.5	6.2	T27	—
WB8L-16T	●	M8	1.25	14	5.5	6.2	T27	—

Cap Screw (Hexagonal Hole)



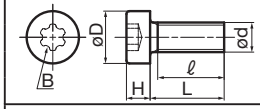
Torx Hole Type

Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
BX0304	●	M3	0.5	4	Full Thread	5.5	2.5	—
BX0308	●	M3	0.5	8	Full Thread	5.5	2.5	—
BX0315	●	M3	0.5	15	Full Thread	5.5	2.5	—
BX0320	●	M3	0.5	20	Full Thread	5.5	2.5	—
BX0408	●	M4	0.7	8	Full Thread	7	3	—
BX0410	●	M4	0.7	10	Full Thread	7	3	—
BX0414	●	M4	0.7	14	Full Thread	7	3	—
BX0425	●	M4	0.7	25	20	7	3	—
BX0508	●	M5	0.8	8	Full Thread	8.5	4	—
BX0510	●	M5	0.8	10	Full Thread	8.5	4	—
BX0512	●	M5	0.8	12	Full Thread	8.5	4	—
BX0515	●	M5	0.8	15	Full Thread	8.5	4	—
BX0520	●	M5	0.8	20	Full Thread	8.5	4	5.0
* BX0520T	●	M5	0.8	20	16	8.5	T20	—
BX0610	●	M6	1.0	10	Full Thread	10	5	—
BX0615	●	M6	1.0	15	Full Thread	10	5	—
BX0620	●	M6	1.0	20	Full Thread	10	5	—
BX0622	●	M6	1.0	22	18	10	5	—
BX0625	●	M6	1.0	25	18	10	5	—
BX0820	●	M8	1.25	20	Full Thread	13	6	—
BX0830	●	M8	1.25	30	22	13	6	—
BX0845	●	M8	1.25	45	—	13	6	—
BX0850	●	M8	1.25	50	—	13	6	—
BX1035	●	M10	1.5	35	26	16	8	—
BX1060	●	M10	1.5	60	—	16	8	—
BX1230	●	M12	1.75	30	Full Thread	18	10	—
BX1260	●	M12	1.75	60	—	18	10	—
BX1265	●	M12	1.75	66	—	18	10	—
BX1660	●	M16	2.0	60	—	24	14	—
BX2065	●	M20	2.5	65	—	30	17	—
EHBX0512	●	M5	0.8	12	10.5	8	4	—
* FADR	●	M7	1.0	10	7	10.5	T25	—

*With Torx Hole

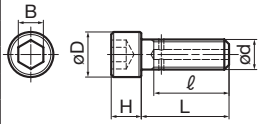
■ Screws

Cap Screw (Torx Plus)



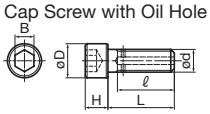
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	H	B	N·m
BXA0310IP	●	M3	0.5	7.5	Full Thread	5.3	2.4	10IP	2.0

Cap Screw with Oil Hole



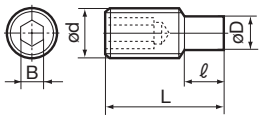
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	H	B	N·m
BXH0825-D13	●	M8	1.25	25	Full Thread	13	8	6	—
BXH1030-D16	●	M10	1.5	30	Full Thread	16	10	8	—
BXH1235-D18	●	M12	1.75	35	Full Thread	18	12	10	—

Cap Screw with Oil Hole



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	H1	H2	B	N·m
BXH1235-D33	●	M12	1.75	35	Full Thread	33	10	2	10	—
BXH1635-D40	●	M16	2.0	35	30	40	10	—	14	—
BXH2036-D50	●	M20	2.5	36	29	50	14	4	17	—

Set Screw (Hexagonal Hole)



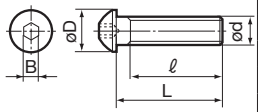
Torx Hole Type

"T" after the part number indicates "Torx hole"

Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
BTD0408	●	M4	0.7	8	2	2.8	2	—
BTD0410	●	M4	0.7	10	2	2.8	2	—
BTD0412	●	M4	0.7	12	2	2.8	2	—
BTD0508	●	M5	0.8	8	2	3.5	2.5	—
BTD05F09	●	M5	0.5	9	2	4	T15	—
BTD0510	●	M5	0.8	10	3	3.5	2.5	—
BTD0518	●	M5	0.8	18	4	3.5	2.5	—
BTD0607	●	M6	1.0	7	2	4	3	—
BTD0609	●	M6	1.0	9	2	4	3	—
BTD0615	●	M6	1.0	15	5	4	3	—
BTD0618	●	M6	1.0	18	5	4	3	—
BTD0620	●	M6	1.0	20	5	4	3	—
BTD0812	●	M8	1.25	12	2	5	4	—
BTD0818	●	M8	1.25	18	6	5	4	—
BTD0820	●	M8	1.25	20	6	5	4	—
BTD0825	●	M8	1.25	25	8.5	5	4	—
BTD0830	●	M8	1.25	30	10	5	4	—
BTD0615T	●	M6	1.0	15	5	4.3	T20	—
BTD0620T	▲	M6	1.0	20	5	4	T20	—
BTD0825T	●	M8	1.25	25	8.5	5	T27	—
BTD0830T	●	M8	1.25	30	10	5	T27	—

Button Head Cap Screw

Hexagonal Hole Type



Torx Hole Type

"T" after the part number indicates "Torx hole"

★: Same wrench hole (B) on the screw end
*: Left-hand threads

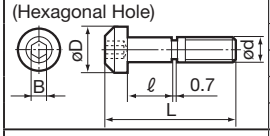
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
BH0304	●	M3	0.5	4	Full Thread	5.5	2	—
BH0305	●	M3	0.5	5	Full Thread	5.5	2	—
BH0306	●	M3	0.5	6	Full Thread	5.5	2	—
FBUP3-A0-9 (equiv. BH0308)	●	M3	0.5	8	Full Thread	5.5	2	1.0
BH0310	●	M3	0.5	10	Full Thread	5.5	2	—
BH0315	●	M3	0.5	15	Full Thread	5.5	2	—
BH03504	●	M3.5	0.6	4	Full Thread	7	2	—
BH0408	●	M4	0.7	8	Full Thread	6	2.5	—
BH0410T	●	M4	0.7	10	8	7.5	T15	—
BH0415	●	M4	0.7	15	Full Thread	7.5	2.5	4.0
BH0510	●	M5	0.8	10	Full Thread	9.5	3	—
BH0516	●	M5	0.8	16	14.4	9.5	3	—
BH0615	●	M6	1.0	15	Full Thread	10.5	4	—
BH0616	●	M6	1.0	16	14	10.5	4	—
BH0620	●	M6	1.0	20	Full Thread	10.5	4	5.0
★ BH0824R	●	M8	1.25	24	20	12	4	—
★ * BH0824L	●	M8	1.25	24	20	12	4	—
BH0825	●	M8	1.25	25	22.5	14	5	—
★ BH0830R	●	M8	1.25	30	26	12	4	—
★ * BH0830L	●	M8	1.25	30	26	12	4	—
BH0832	●	M8	1.25	32	29.5	14	5	—
★ BH1030R	●	M10	1.5	30	26	14	5	—
★ * BH1030L	●	M10	1.5	30	26	14	5	—
★ BH1036R	●	M10	1.5	36	32	14	5	—
★ * BH1036L	●	M10	1.5	36	32	14	5	—

▲mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability.)

N·m Recommended tightening torque (N·m)

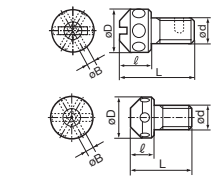
■ Screws

Special Cap Screw (Hexagonal Hole)



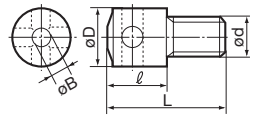
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
BHA0525	●	M5	0.8	25.5	9	8.5	3	—
BHA0625	●	M6	1.0	30	11	10.5	4	—
BHE0407	●	M4	0.7	9.5	2	5.7	2.5	1.8
BHE0510	●	M5	0.8	13	3	7.7	3	2.7

Axial Adjustment Bolt



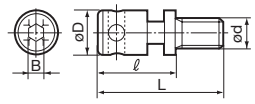
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
AJM4FT	●	M4	0.5	12	5	7.3	2	—
AJM4F	●	M4	0.5	12	5	8	2	—
AJM5F	●	M5	0.5	13	5	9	2	—
AJM6	●	M6	1.0	18	6	10	2.9	—

Axial Adjustment Bolt



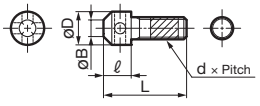
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
RFJ	●	M4	0.7	12	6	6	2	—

Adjustment Bolt



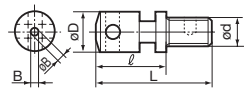
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
SRFJ	●	M4	0.7	17	10.5	6	2	—

Axial Adjustment Bolt



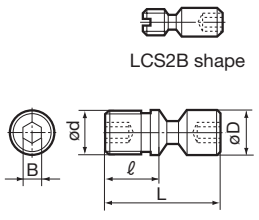
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
FMJ	●	M4	0.5	15	5	6	3	—

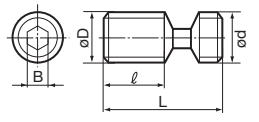
Adjustment Bolt



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
FMUJ	●	M4	0.7	17	10.5	6	1	—

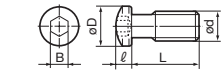
Lever Lock Bolt





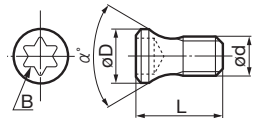
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
LCS2B	●	M3	0.5	10	3.05	3.6	2	—
LCS3S	●	M6	1.0	15	10	6	2.5	—
LCS3	●	M6	1.0	17	10	6	2.5	—
LCS4	●	M8	1.0	21	10	8	3	—
LCS5	●	M8	1.0	25	12	8	3	—
LCS6	●	M10	1.0	27.2	14.4	9.8	4	—
LCS4CA	●	M8	1.0	17.5	10	8	3	—
LCS5CA	▲	M8	1.0	20.5	12	8	3	—
LCS8	●	M12	1.0	36	18.3	11.8	5	—
LCS10	●	M5	0.8	14.5	8.5	5	2	—
LCS12	●	M6	1.0	17	9.6	6	2.5	—
LCS16	●	M6	1.0	21	13.6	6	2.5	—
LCS20	●	M8	1.0	23.5	13.2	8	3.0	—
LCS25	●	M10	1.0	30	17.4	10	4.0	—
LCS32	●	M12	1.0	36	19.3	12	5.0	—
LCS3TE	●	M6	1.0	15.5	8.5	6	2.5	—
LCS33NT	●	M5	0.8	12	6.2	—	2	—

Fastener Bolt



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
FBH0512	●	M5	0.8	12	3.1	7.3	3	—
FBX0811	●	M8	1.25	11.1	4.9	8.5	4	—
FBX0817	●	M8	1.25	17.1	4.9	8.5	4	—

Torx Flat Head Screw

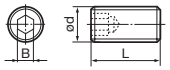


Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	α°	N·m
BFT2045T06	●	M2	0.4	4.5	2.7	T6	60	—
BFT2506T08	●	M2.5	0.45	6	3.45	T8	60	—
BFTY02205	●	M2.2	0.45	5	3.05	T7	60	—
BFTY02206	●	M2.2	0.45	5.6	3.05	T7	60	1.0

■ Screws

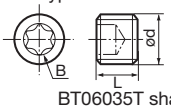
Set Screw

Hexagonal Hole Type



BT0507K shape

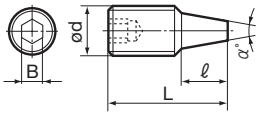
Torx Hole Type



BT06035T shape

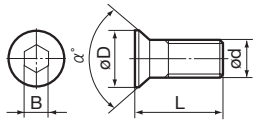
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	—	B	—	N·m
BT0306	●	M3	0.5	6	—	1.5	—	—
BT0310	●	M3	0.5	10	—	1.5	—	—
BT0404	●	M4	0.7	4	—	2	—	—
BT0406	●	M4	0.7	6	—	2	—	—
BT0408	●	M4	0.7	8	—	2	—	—
BT0412	●	M4	0.7	12	—	2	—	—
BT0506	●	M5	0.8	6	—	2.5	—	—
BT0507K	●	M5	0.8	7	—	2.5	—	—
BT0510	●	M5	0.8	10	—	2.5	—	—
BT0610	●	M6	1.0	10	—	3	—	—
BT0612	●	M6	1.0	12	—	3	—	—
BT0620	●	M6	1.0	20	—	3	—	—
BT06035T	●	M6	1.0	3.5	—	T15	—	—

Set Screw (Hexagonal Hole)



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	—	B	α°	N·m
BTT0407	●	M4	0.5	7	2.6	—	2	60	—
BTT0411	●	M4	0.5	11	2.6	—	2	60	—
BTT0511	●	M5	0.8	11	5	—	2	20	—
BTT0615		M6	1.0	15	6	—	2.5	20	—

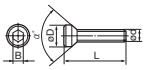
Flat Head Screw (Hexagonal Hole)



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	α°	N·m
ST-1192	●	M8	1.25	20	13.8	14.1	70°	—
CLB-1393	●	M3	0.5	7	4	5.5	90°	—
ST-1394	●	M4	—	8.6	6.1	6.9	90°	—
CLB-1394	●	M4	—	8.6	6.1	6.9	90°	—
CLB-1695	●	M5	0.8	23.6	20	8.3	90°	—
CLB-1696	●	M6	1	29	25	10	90°	—
FBUP1-A0-8	●	M3	0.5	6	4.4	2	82	1.0
FBUP2-A0-8	●	M3	0.5	10	5.5	2	82	1.0
FBUP3-A0-8	●	M3.5	0.6	12	7	2	82	1.0
FBUP4-A0-8	●	M5	0.8	15	9.3	3	82	2.7
BFX0307R	●	M3	0.5	7	4	2	60	1.0
BFX0407R	●	M4	0.7	6.5	5.8	2.5	90	1.8
BFX0410R	●	M4	0.7	9.5	5.8	2.5	90	1.8
* BFX0410L	●	M4	0.7	9.5	5.8	2.5	90	1.8
BFX0508	●	M5	0.8	8	7.5	3	90	2.7
BFX0511R	●	M5	0.8	10.5	7.5	3	90	2.7
* BFX0511L	●	M5	0.8	10.5	7.5	3	90	2.7
BFX0611R	●	M6	1.0	11	9.5	3	90	2.7

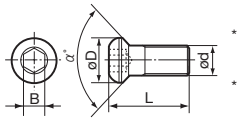
*: Left-hand threads

Special Cap Screw (Hexagonal Hole)



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	α°	N·m
BXF0520R	●	M5	0.8	25	8.5	4	90	7.0
BXF0616	●	M6	1.0	16	9	4	90	—

Button Head Flat Screw

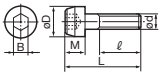


Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	α°	N·m
* BHF0203L	●	M2	0.4	4	3	1.5	90	—
BHF0306R	●	M3	0.5	6.3	4.2	2	90	1.0
* BHF0306L	●	M3	0.5	6.3	4.2	2	90	—
BHF0308R	●	M3	0.5	8	4.2	2	90	1.0
* BHF0308L	●	M3	0.5	8	4.2	2	90	—
BHF0407	●	M4	0.7	8.5	6	3	90	—
BHF0410	●	M4	0.7	11.5	6	3	90	—
BHF0623	●	M6	1.0	23	12	4	90	7.0

*: Left-hand threads

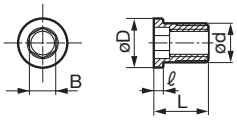
R: right-hand thread, L: left-hand thread

Cap Screw



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	M	N·m
QBX120	●	M12	1.75	54	30	22	10	14	—
QBX160	●	M16	2.0	56	30	28	14	16	—

Special Hollow Screw



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
BW0507F	●	M5	0.5	7	1.2	6.3	3.5	—
BW0609F	●	M6	0.75	9	1.5	7.7	4	—
ST-1750		M5x0.5	M3.5x0.6	5.5	8.5	6.2	—	—
ST-1760		M6x0.75	0.75	5.5	10	7.7	—	—
ST-1764		M5	0.8	5.8	8	6.3	—	—
ST-1766		M6	1	6.5	10	7.5	—	—
ST-1768		M6	1	13.3	15.5	10.4	—	—
ST-1770		M6	1	11	15	11.9	—	—

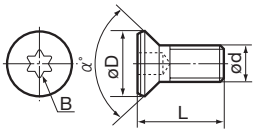
▲mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability.)

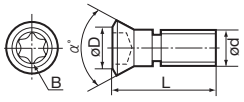
N·m Recommended tightening torque (N·m)

Screws / Eccentric Pins

■ Screws

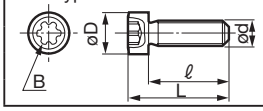
Torx Flat Head Screw





Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	α°	N·m
ST-1150	★	M5	0.8	13.5	10	T9	90°	—
ST-1160	★	M6	1	13.5	9.5	T20	90°	—
ST-1180	★	M8	1	13.5	9.5	T25	90°	—
ST-1182	★	M8	1	13.5	9.5	T25	60°	—
ST-1225	★	M2.5	0.45	7	4	T7	55°	—
ST-1230	★	M3.5		9.5	6.5	T15	55°	—
ST-1240	★	M4	0.7	11	6.2	T15	55°	—
ST-1335	★	M3.5	0.6	12	7.2	T20	55°	—
ST-1540	★	M4	0.5	14.1	7.9	T15	60°	—
BFN0206T	●	M2	0.4	5.5	3.3	T8	90	1.1
BFN0306T	●	M3	0.5	6	4.2	T10	90	—
BFN0307T	●	M3	0.5	7	4.2	T10	90	2.0
BFN0410T	●	M4	0.7	9.5	5.6	T10	90	2.0
BFN0511T	●	M5	0.8	10.5	7.3	T20	90	—
BFN0611T	●	M6	1.0	11	9.3	T25	90	—
BFS0205T	●	M2	0.4	5.5	3	T8	60	1.1
BFTX016033	●	M1.6	0.35	3.3	2.6	T6	60	0.2
BFTX02507	●	M2.5	0.45	6.5	3.45	T8	60	—
BFTX02508	●	M2.5	0.45	7.5	3.45	T8	60	—
BFTX03508	●	M3.5	0.6	8	5.1	T10	52	2.0
BFTX03584	●	M3.5	0.6	7.4	5.2	T15	60	3.0
BFTX03588	●	M3.5	0.6	8.8	5.2	T15	60	3.4
BFTX0408	●	M4	0.7	8	5.5	T15	60	—
BFTX0414	●	M4	0.7	14.5	5.5	T15	60	3.0
BFTX01604N	●	M1.6	0.35	4.2	2.4	T6	60	0.2
BFTX0203N	●	M2	0.4	3	2.7	T6	60	0.5
BFTX0204N	●	M2	0.4	4.3	2.7	T6	60	0.5
BFTX02205N	●	M2.2	0.45	4.5	3	T6	60	0.5
BFTX02505N	●	M2.5	0.45	4.5	3.45	T8	60	1.1
BFTX02506N	●	M2.5	0.45	5.5	3.45	T8	60	1.5
BFTX0305N	●	M3	0.5	5.3	4.2	T10	60	2.0
BFTX0306N	●	M3	0.5	5.8	4.2	T10	60	2.0
BFTX0307N	●	M3	0.5	6.5	4.2	T10	60	2.0
BFTX03085N	●	M3	0.5	8.5	5.4	T10	60	—
BFTX0309N	●	M3	0.5	9	4.2	T10	60	—
BFTX0312N	●	M3	0.5	12	5.4	T10	60	—
BFTX03509N	●	M3.5	0.6	8.5	4.9	T10	60	—
BFTX0406N	●	M4	0.7	6	5.6	T15	60	—
BFTX0407N	●	M4	0.7	7	5.6	T15	60	3.0
BFTX0409N	●	M4	0.7	9	5.6	T15	60	3.4
BFTX0412N	●	M4	0.7	12	5.5	T15	60	3.0
BFTX0509N	●	M5	0.8	9	7	T20	60	5.0
BFTX0511N	●	M5	0.8	11.5	7	T20	60	5.0
BFTX0513N	●	M5	0.8	13	7	T20	60	5.0
BFTX0515N	●	M5	0.8	15	7	T20	60	—
BFTX0615N	●	M6	1.0	15	9	T25	60	5.0
BFTX0619N	●	M6	1.0	19	9.3	T25	60	5.0
BFTX0203A	●	M2	0.4	3	2.7	T6	90	0.5
BFTX0204A	●	M2	0.4	4.3	2.7	T6	90	0.5
BFTX0305A	●	M3	0.5	5.3	4.3	T10	90	—
BFTX0306A	●	M3	0.5	5.8	4.3	T10	90	2.0
BFTX0307A	●	M3	0.5	6.8	4.3	T10	90	2.0
BFTX0407A	●	M4	0.7	7.3	5.6	T15	90	3.4
BFTX0410A	●	M4	0.7	10.3	5.6	T15	90	3.4
BFTX0509A	●	M5	0.8	9.3	6.9	T20	90	5.0
BFTX0204NS	●	M2	0.4	4.4	3.2	T1.8	82	0.7
BFTX0205NS	●	M2	0.4	5.5	3.2	T1.8	90	0.7
BFTX02506NS	●	M2.5	0.45	6.8	3.6	T2.2	90	1.4
BFTX0307NS	●	M3	0.5	7.8	4.2	T2.9	90	3
BFTX02206NT	●	M2.2	0.45	6	3.2	T1.8	60	0.7
BFTX02507NT	●	M2.5	0.45	7	3.6	T2.2	60	1.4
BFTX0408NT	●	M4	0.7	8	5.8	T3.6	60	5
BFTX0410NT	●	M4	0.7	10	5.8	T3.6	60	5
BFTX02508NV	●	M2.5	0.45	7.5	3.45	T8	60	1.5

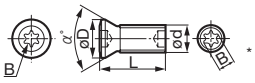
Special Cap Screw BXD Type



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
BFF2506T08	●	M2.5	0.8	7.5	6	3.45	T8	—
BFF3505T10	●	M3.5	0.6	6.6	5	5	T10	—
BFF4510T15	●	M4.5	0.75	12.1	10.5	5.9	T15	—

■ Screws

Torx Screw (Torx Double Ended)

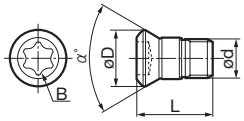


*: Left-hand threads

Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	α°	N·m
BFTX0410T8R	●	M4	0.7	9.6	5.6	T8	60	1.1
BFTX0410T8L	●							1.1

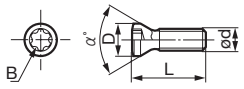
R: right-hand thread, L: left-hand thread

Precision Screw (Torx) <For Ballnose Endmills>



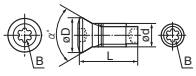
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	α°	N·m
BFTG0408F	●	M4	0.5	7.5	5.7	T15	61	3.4
BFTG0409F	●	M4	0.5	8.4	6.15	T15	61	3.4
BFTG0513F	●	M5	0.5	13	6.8	T20	61	5.0
BFTG0617F	●	M6	0.75	16.5	8	T25	61	7.5
BFTG0621F	●	M6	0.75	21	9.5	T25	61	7.5
BFTG0825F	●	M8	0.75	24.5	12	T25	61	7.5

Torx Screw



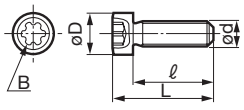
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	α°	N·m
BFTX01804IP	●	M1.8	0.35	3.7	2.45	6IP	60	—
BFTX02505IP	●	M2.5	0.45	4.5	3.45	8IP	60	—
BFTX02506IP	●	M2.5	0.45	5.5	3.45	8IP	60	—
BFTX0305 IP	●	M3	0.5	5.3	3.8	8IP	60	2.0
BFTX0306 IP	●	M3	0.5	6	3.8	8IP	60	2.0
BFTX0307 IP	●	M3	0.5	7	4.3	10IP	55	2.0
BFTX0308IP	●	M3	0.5	8	3.8	8IP	60	—
BFTX03510IP08	●	M3.5	0.6	10	5.3	8IP	60	—
BFTX03510IP15	●	M3.5	0.6	10	5.3	15IP	60	—
BFTX03512 IP	●	M3.5	0.6	11.5	5.3	15IP	60	3.0
BFTX03584IP	●	M3.5	0.6	7.4	5.2	15IP	60	—
BFTX0407 IP	●	M4	0.7	8	5.6	15IP	60	3.0
BFTX0409 IP	●	M4	0.7	9	5.6	15IP	60	3.0
BFTX0412 IP	●	M4	0.7	12	5.5	15IP	60	3.0
BFTX0418IP	●	M4	0.7	18	5.5	15IP	60	—
BFTX04513IP20	●	M4.5	0.75	13.1	6.8	20IP	60	—
BFTX0511IP	●	M5	0.8	11.5	7	20IP	60	—
BFTX0513IP	●	M5	0.8	13	7	20IP	60	—
BFTX0615IP	●	M6	1.0	15	9	25IP	60	—

Flat Screw (Torx Plus Double Ended)



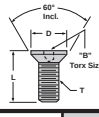
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	α°	N·m
BFTX0410NSW	●	M4	0.7	10	5.8	2.2	90	1.4
BFTX0410NTW	●	M4	0.7	10	5.85	2.2	60	1.4
BFTX0412NTW	●	M4	0.7	12	5.85	2.2	60	1.4

Cap Screw (Torx Plus)



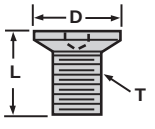
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D	B	N·m
BXD02208 IP	●	M2.2	0.45	7.5	5.7	3.5	8 IP	—
BXD02509 IP	●	M2.5	0.45	9	7	4.1	10 IP	—
BXD03011 IP	●	M3	0.5	10.5	8	4.9	15 IP	—
BXD03512 IP	●	M3.5	0.6	11.5	8.8	5.5	15 IP	—
BXD04014 IP	●	M4	0.7	12.5	9.5	6	20 IP	—
BXD04515 IP	●	M4.5	0.75	14.3	10.8	6.8	25 IP	—

Torx Insert Screws



Sumitomo Cat. No.	D	T	L	B
ST21.5	.130	M2.5x.45	.217	T-8
ST32.5	.213	M4x.7	.315	T-15

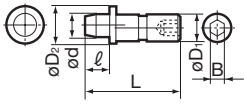
Shim Screws



Sumitomo Cat. No.	Insert I.C.	D	L	H	T
S34	.375	.24	.31	.078	10-32
S46	.500	.30	.50	.094	1/4-28
S58	.625	.40	.62	.125	5/16-24
S68	.750	.46	.62	.140	3/8-24

■ Eccentric Pins

For Boring Bar



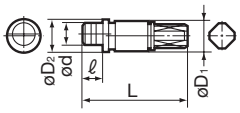
Cat. No.	Stock	Dimensions (mm) d	D_1	D_2	L	ℓ	B	N·m
CPB43	●	4.5	5.5	7	19	5	3	—
CPB44T	●	4.5	5.5	7	22	5	3	—
CPB45T	●	4.5	5.5	7	27	5	3	—
CPB43S	●	4.5	5.5	7	16	5	3	—
CPB32C	●	3.3	4.1	5.5	14	3.4	2.5	—
CPB32	●	3.4	4.1	5.5	14	3.4	2.5	—
CPB33	●	3.4	4.1	5.5	17	3.4	2.5	—
CPB34	●	3.4	4.1	5.5	14	5	2.5	—
CPB35	●	3.4	4.1	5.5	17	5	2.5	—
CPB42	●	4.5	5.5	7	14	5	3	—
CPB45	●	4.5	5.5	7	23	5	3	—
CPB64	●	6.8	8.2	10.5	24	6.6	4	—

N·m Recommended Tightening Torque (N·m)

Eccentric Pins, Lever Pins and Shims

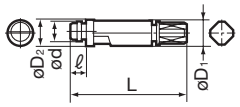
■ Eccentric Pins

For 30 Type Holders



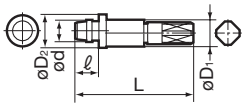
Cat. No.	Stock	Dimensions (mm) d	D_1	D_2	L	ℓ	—	N·m
P432U	●	5.025	7	7.5	21	4.9	—	—
P433U	●	5.025	7	7.5	24	4.9	—	—
P434U	●	5.025	7	7.5	30	4.9	—	—
P221US	●	2.11	3.5	4	18	3.3	—	—
P321US	●	3.635	5	5.5	18	3.3	—	—
P322US	●	3.635	5	5.5	21	3.3	—	—
P323US	●	3.635	5	5.5	24	3.3	—	—
P332US	●	3.635	5	5.5	21	4.9	—	—
P333US	●	3.635	5	5.5	24	4.9	—	—
P334US	●	3.635	5	5.5	30	4.9	—	—

For 30 Type Holders



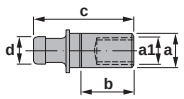
Cat. No.	Stock	Dimensions (mm) d	D_1	D_2	L	ℓ	—	N·m
P433W	●	5.025	7	7.8	24	4.9	—	—
P434W	●	5.025	7	7.8	30	4.9	—	—
P323WS	●	3.635	5	5.8	24	3.3	—	—
P333WS	●	3.635	5	5.8	24	4.9	—	—
P334WS	●	3.635	5	5.8	30	4.9	—	—

For 60 Type Holders



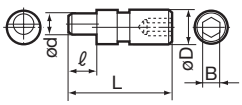
Cat. No.	Stock	Dimensions (mm) d	D_1	D_2	L	ℓ	—	N·m
CPZ322	●	3.4	4.1	4.9	22	3.3	—	—
CPZ332	●	3.4	4.1	5.5	23	5	—	—
CPZ333	▲	3.4	4.1	5.5	25	5	—	—
CPZ333V	●	3.4	4.1	5.5	29	5	—	—
CPZ334	●	3.4	4.1	5.5	32	5.5	—	—
CPZ334V	●	3.4	4.1	5.5	35	5	—	—
CPZ433	●	4.5	5.5	7	26	5	—	—
CPZ434	●	4.5	5.5	7	32	5	—	—
CPZ435	▲	4.5	5.5	7	39	5	—	—
CPZ645	●	6.8	8.2	10.5	39	6.6	—	—

Pins



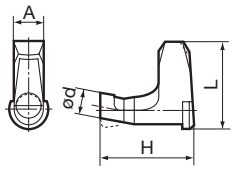
Cat. No.	Stock	Dimensions (mm) a	a1	b	c	d	—	N·m
PN-1642	●	4.5	M3x0.5	7.6	13.2	3.7	—	—
PN-1661	●	6	M4x0.7	5.6	13.5	5	—	—

For Cartridge BU

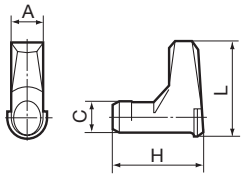


Cat. No.	Stock	Dimensions (mm) d	D	D_2	L	ℓ	B	N·m
CPU304C	●	3.3	5.5	—	10	3.5	3	—

■ Lever Pins



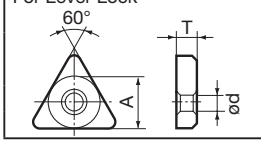
Cat. No.	Stock	Dimensions (mm) A	H	L	d	—	—	N·m
LCL06	●	2.5	6.28	7	2	—	—	—
LCL09	●	3.4	9.3	10.75	3	—	—	—
LCL10	●	3.4	11.8	10.8	3	—	—	—
LCL12	●	3.7	13.4	12.9	3.5	—	—	—
LCL16	●	4.6	17.6	18.4	4.4	—	—	—
LCL20	●	6	18.9	20.4	5.6	—	—	—



Cat. No.	Stock	Dimensions (mm) A	H	L	C	—	—	N·m
LCL3S	●	3.7	10.6	10	3.6	—	—	—
LCL4S	●	4.7	14	14.55	4.4	—	—	—
LCL3	●	3.7	12	10	3.6	—	—	—
LCL4	●	4.7	14	14.55	4.7	—	—	—
LCL5	●	6	17	17.1	6	—	—	—
LCL6	●	7.5	21	20.5	7.5	—	—	—
LCL8	●	8.6	25.4	25.4	8.6	—	—	—
LCL33NT	●	3.2	9.4	10	3.2	—	—	—

■ Shims

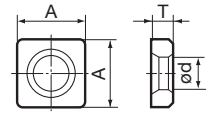
For Lever Lock



Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
LST317	●	9.5	2.7	5.2	—	—	—	—
LST42	●	12.65	3.18	6.9	—	—	—	—

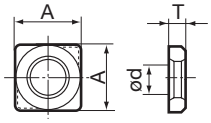
■ Shims

For Lever Lock



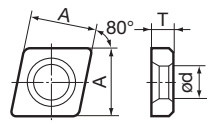
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
LSS32	●	9.48	3.18	5	—	—	—	—
LSS42	●	12.65	3.18	6.9	—	—	—	—
LSS53	●	15.85	4.76	7.9	—	—	—	—
LSS63	●	19	4.76	10	—	—	—	—
LSS84	●	25.35	6.35	13.2	—	—	—	—

For Lever Lock



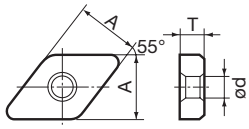
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
LSS42B	●	12.65	3.18	6.9	—	—	—	—

For Lever Lock



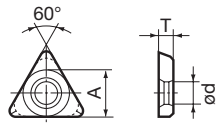
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
LSC317	●	9.5	2.7	5.2	—	—	—	—
LSC32	●	9.48	3.18	5	—	—	—	—
LSC42	●	12.65	3.18	6.9	—	—	—	—
LSC53	●	15.85	4.76	7.9	—	—	—	—
LSC63	●	19	4.76	10	—	—	—	—

For Lever Lock



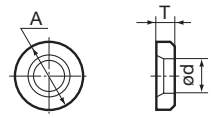
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
LSD317	●	9.5	2.7	5.2	—	—	—	—
LSD42	●	12.65	3.18	6.9	—	—	—	—

For Lever Lock



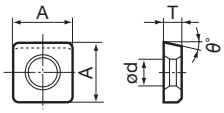
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
LST317CA	●	9.33	2.7	5	—	—	—	—
LST42CA	●	12.5	3.2	6.7	—	—	—	—

For Lever Lock



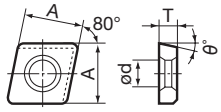
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
LSR817	●	8.4	2.7	5.2	—	—	—	—
LSR10	●	8.4	3.18	4.7	—	—	—	—
LSR12	●	10	3.18	4.7	—	—	—	—
LSR16	●	13.5	4.76	6.3	—	—	—	—
LSR20	●	17.2	4.76	7.9	—	—	—	—
LSR25	●	22	6.35	9.5	—	—	—	—
LSR32	●	28	6.35	12.7	—	—	—	—

For Lever Lock



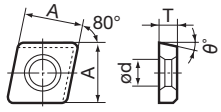
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	θ°	N·m
LSS42CA	●	12.5	3.2	6.7	—	—	8	—
LSS53CA	●	15.68	4.8	7.7	—	—	10	—

For Lever Lock



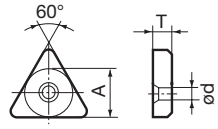
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	θ°	N·m
LSC53CA	●	15.68	4.8	7.7	—	—	10	—

For Lever Lock



Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	θ°	N·m
LSC42B	●	12.65	3.18	6.9	—	—	8	—

For 20 & 40 Type Holders



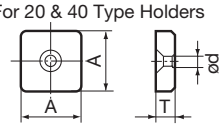
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
STND323	●	9.3	3.18	3.4	—	—	—	—
STND433	●	12.5	4.76	3.4	—	—	—	—

N·m Recommended Tightening Torque (N·m)

▲mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability.)

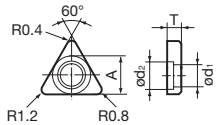
■ Shims

For 20 & 40 Type Holders



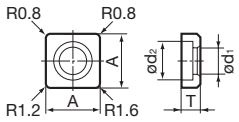
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
SSND423	●	12.5	3.18	3.4	—	—	—	—
SSND433	●	12.5	4.76	3.4	—	—	—	—
SSND533	●	15.65	4.76	3.4	—	—	—	—

For 30 Type Holders



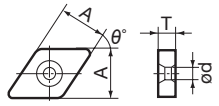
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	—	—	N·m
EST32	●	9.53	3.18	5.5	5.9	—	—	—
EST43	●	12.7	4.76	7.5	7.9	—	—	—

For 30 Type Holders



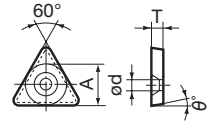
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	—	—	N·m
ESS42	●	12.7	3.18	7.5	7.9	—	—	—

For 40 Type Holders



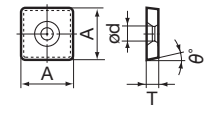
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	θ°	N·m
SCND433	●	12.65	4.76	3.4	—	—	80	—
SDND433	●	12.65	4.76	3.4	—	—	55	—
SEND423	●	12.5	3.18	3.4	—	—	75	—

For 40 Type Holders



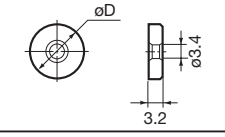
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	θ°	N·m
STPD322	●	8.4	3.18	3.4	—	—	6	—
STPD422	●	11	3.18	3.4	—	—	6	—
STPL42	●	11	3.18	3.4	—	—	6	—

For 40 Type Holders



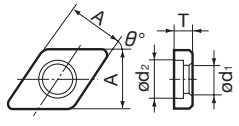
Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	θ°	N·m
SSPD422	●	11.6	3.18	3.4	—	—	6	—
SSPD522	●	14.1	3.18	3.4	—	—	6	—

For 40 Type Holders



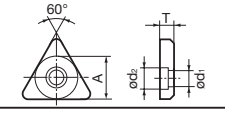
Cat. No.	Stock	Dimensions (mm) D	—	—	—	—	—	N·m
SRND42	●	12.7	—	—	—	—	—	—

For 60 Type Holders



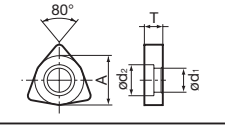
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	—	θ°	N·m
SVW322	●	9.5	3.18	4.7	6.5	—	35	—
SFW423	●	12.65	3.18	6.2	8	—	50	—
SFW433	●	12.65	4.76	6.2	8	—	50	—
SDW323	●	9.5	3.18	4.7	6.5	—	55	—
SDW423	●	12.65	3.18	6.2	8	—	55	—
SCW323	●	9.5	3.18	4.8	6.5	—	80	—
SCW423	●	12.65	3.18	6.2	8	—	80	—
SCW635	●	19	4.76	9	11.5	—	80	—

For M Type Holders
For Boring Bar



Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	—	—	N·m
STW323	●	9.5	3.18	4.7	6.5	—	—	—
STW434	●	12.65	4.76	6.2	8	—	—	—

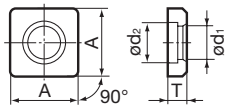
For M Type Holders



Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	—	—	N·m
SWW433	●	12.65	4.76	6.2	8	—	—	—

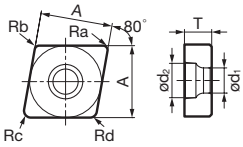
■ Shims

For Boring Bar



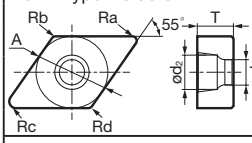
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	—	—	N·m
SSW423	●	12.65	3.18	6.2	8	—	—	—
SSW635	●	19	4.76	9	11.5	—	—	—

For D Type Holders



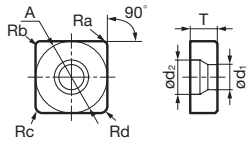
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	Ra	Rb	Rc	Rd	N·m
CNS1204	●	12.57	4.76	4.4	6	0.8	0.8	1.2	1.2	—
CNS1606	●	15.75	4.76	5.5	7.5	1.2	1.2	1.2	1.2	—
CNS1906	●	18.70	6.35	5.5	7.5	1.6	1.6	1.2	1.2	—
CNS2509	●	25.27	6.35	6.6	9.5	2.4	2.4	2.4	2.4	—
CNS1204-R24	●	12.57	4.76	4.4	6	2	0.8	2.4	1.2	—

For D Type Holders



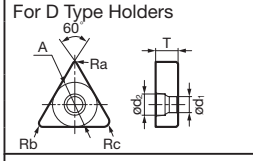
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	Ra	Rb	Rc	Rd	N·m
DNS1504	●	12.57	6.35	4.4	6	0.8	0.8	1.2	0.8	—
DNS1506	●	12.57	4.76	4.4	6	0.8	0.8	1.2	0.8	—
DNS1504-R24	●	12.57	6.35	4.4	6	2	0.8	2.4	0.8	—

For D Type Holders



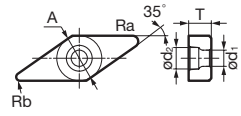
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	Ra	Rb	Rc	Rd	N·m
SNS1204	●	12.57	4.76	4.4	6	0.8	0.8	1.2	1.2	—
SNS1506	●	15.75	4.76	5.5	7.5	1.2	1.2	1.2	1.2	—
SNS1906	●	18.92	6.35	5.5	7.5	1.2	1.2	1.2	1.2	—
SNS2507	●	25.27	7.93	6.6	9.5	2.4	2.4	2.4	2.4	—
SNS2509	●	25.27	6.35	6.6	9.5	2.4	2.4	2.4	2.4	—

For D Type Holders



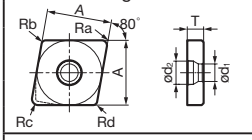
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	Ra	Rb	Rc	N·m
TNS1604	●	9.45	4.76	3.4	4.5	0.4	0.8	1.2	—
TNS1604-R24	●	9.45	4.76	3.4	4.5	1.6	2	2.4	—

For D Type Holders



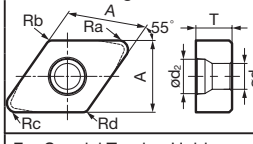
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	Ra	Rb	N·m
VNS1604	●	9.45	4.76	3.4	4.5	1.2	0.8	—

For X-Bar Negative Insert



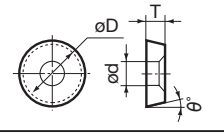
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	Ra	Rb	Rc	Rd	N·m
CNS1203B	●	12.57	3.18	3.4	4.5	1.2	0.8	1.2	0.8	—
CNS1204B	●	12.57	4.76	4.4	6	1.2	0.8	1.2	0.8	—

For X-Bar Negative Insert



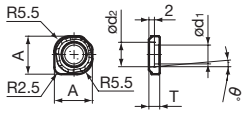
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	Ra	Rb	Rc	Rd	N·m
DNS1104B	●	9.45	4.76	3.4	4.5	1.2	0.8	1.2	0.8	—
DNS1506B	●	12.57	4.76	4.4	6	1.2	0.8	1.2	0.8	—
DNS1504B	●	12.57	6.35	4.4	6	1.2	0.8	1.2	0.8	—

For Special Turning Holder



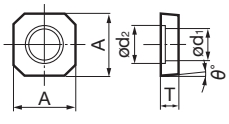
Cat. No.	Stock	Dimensions (mm) D	T	d	—	—	θ°	N·m
SRPH163	●	14	3.2	5.3	—	—	11	—
SRPH203	●	18	3.2	6.3	—	—	11	—

For Sumi Dual Mill DGC Type



Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	—	θ°	N·m
DGCS13R	●	13.7	3.9	6.8	8.8	—	5	—

For WaveMill WGC/WGX Type



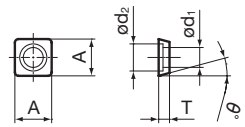
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	—	θ°	N·m
WGCS13R	●	10.7	3	5.5	7.5	—	5	—

N·m Recommended tightening torque (N·m)

Shims, Clamps, & Rings

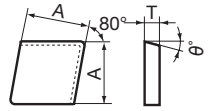
■ Shims

For WaveMill WFX Type



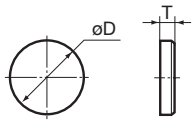
Cat. No.	Stock	Dimensions (mm) A	T	d_1	d_2	—	θ°	N·m
WFXS4R	●	10.2	3	5.5	7.5	—	15	—

For CCLC Holder



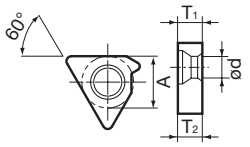
Cat. No.	Stock	Dimensions (mm) A	T	—	—	—	θ°	N·m
SCN204	●	8.7	2.04	—	—	—	7	—

For BNR Holder



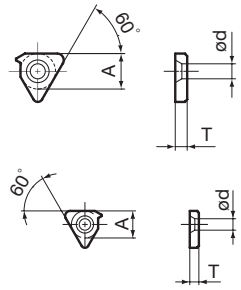
Cat. No.	Stock	Dimensions (mm) D	T	—	—	—	—	N·m
BNRS120	●	11.2	4	—	—	—	—	—

For LTER (Threading)



Cat. No.	Stock	Dimensions (mm) A	T_1	T_2	d	—	—	N·m
LSTE31-0	●	9.5	2.7	2.7	5.2	—	—	—
LSTE31-1	●	9.5	2.67	2.91	5.2	—	—	—
LSTE31-2	●	9.5	2.64	3.11	5.2	—	—	—
LSTE42-0	●	12.65	3.18	3.18	7	—	—	—
LSTE42-1	▲	12.65	3.14	3.45	7	—	—	—
LSTE42-2	▲	12.65	3.09	3.71	7	—	—	—

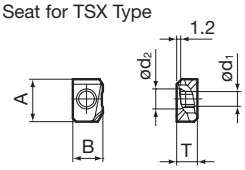
For SSTE/SSTI (Threading)



Cat. No.	Stock	Dimensions (mm) A	T	d	—	—	—	N·m
YE3	●	9.5	3.2	4	—	—	—	—
YI3	●	9.5	3.2	4	—	—	—	—

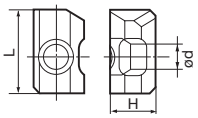
■ Clamps and Seats

Seat for TSX Type



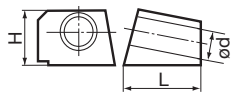
Cat. No.	Stock	Dimensions (mm) A	B	T	d_1	d_2	—	N·m
TSXS13R	●	12.7	9	6.2	4.4	6	—	—

Seat for PWS



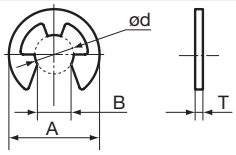
Cat. No.	Stock	Dimensions (mm) d	L	H	—	—	—	N·m
PWSS4R	●	4.6	15	8	—	—	—	—

Clamp for CPG



Cat. No.	Stock	Dimensions (mm) d	L	H	—	—	—	N·m
PTW40R	●	M8	17	12.514	—	—	—	—
PTW41L	●	M8	17	12.675	—	—	—	—
PTW41R	●	M8	17	12.675	—	—	—	—

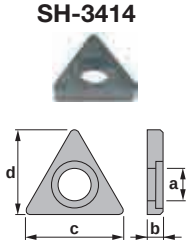
■ Rings



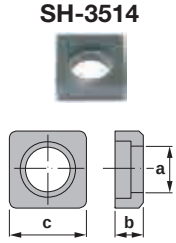
Cat. No.	Stock	Dimensions (mm) A	B	T	d	—	—	N·m
ER03	●	7	2.6	0.6	3	—	—	—
ER04	●	9	3.5	0.6	4	—	—	—
ER05	●	11	4.3	0.6	5	—	—	—

■ Shims

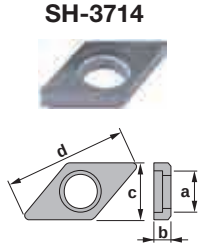
SH-3414



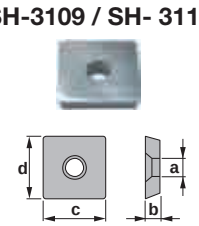
SH-3514



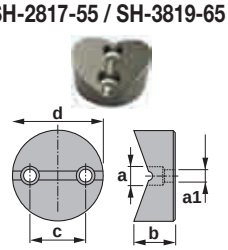
SH-3714



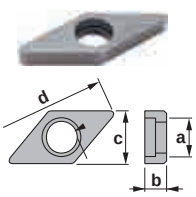
SH-3109 / SH- 3112



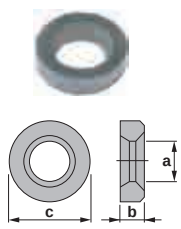
SH-2817-55 / SH-3819-65



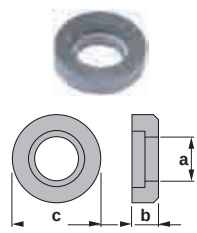
SH-3718



SH-3919 / SH- 3925



SH-3814



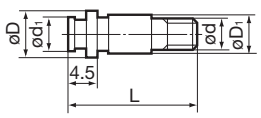
Cat. No.	Stock	Dimensions (mm) a	a1	b	c	d	—	N·m
SH-3414	●	5.3		3.18	13.55	11.9	—	—
TCMT Shim								
SH-3514	●	6.6		3.96	11.4	—	—	—
SCMT Shim								
SH-3714	●	6.6		3.18	8.5	17.4	—	—
DCGT Shim								
SH-2817-55	●	4.5	3	8.8	7	13.55	—	—
RCGX Shim								
SH-3819-65	●	4.5	3	10.56	8.4	16.55	—	—
RCGX Shim								
SH-3718	●	6.7		3.18	8.4	26	—	—
VCMT Shim								
SH-3109	●	2.3		3.18	8.14	8.14	—	—
SPMT Shim								
SH-3112	●	2.3		3.18	11.3	11.3	—	—
SPMT Shim								
SH-3919	●	9.6		4.76	18.4	—	—	—
RNMG Shim								
SH-3925	●	12.9		6.35	24.8	—	—	—
RNMG Shim								
SH-3814	●	5.3		3.18	10.6	—	—	—
RNMG Shim								

N·m Recommended tightening torque (N·m)
▲mark: To be replaced by a new product, made to order, or discontinued (please confirm stock availability.)

Shim Pins / Nuts / Drawing Pins / Wrenches

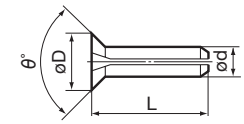
■ Shim Pins

For M Type Holders



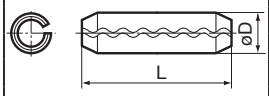
Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	D_1	d_1	N·m
MP317	●	M4	0.7	15.5	6	4	3.7	—
MP317S	●	M4	0.7	15.5	6	4	3.56	—
MP320	●	M4	0.7	19.5	6	4	3.7	—
MP320S	●	M4	0.7	19.5	6	4	3.56	—
MP416	●	M5	0.8	14	7.5	6	5	—
MP420	●	M5	0.8	20	7.5	6	5	—
MP432	●	M5	0.8	32	7.5	6	5	—

For Light Endmill FMS Type



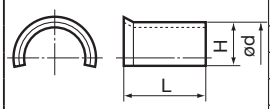
Cat. No.	Stock	Dimensions (mm) d	—	L	D	θ°	—	N·m
SPP308	●	3.2	—	8	4.8	60°	—	—

For 20 & 40 Type Holders



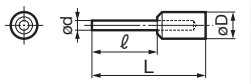
Cat. No.	Stock	Dimensions (mm) —	—	L	D	—	—	N·m
SPP3	●	—	—	14	3.2	—	—	—

For 70 Type Holders



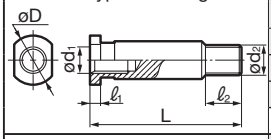
Cat. No.	Stock	Dimensions (mm) d	H	L	—	—	—	N·m
LSP3	●	5	3.3	5.5	—	—	—	—
LSP4	●	6.7	4	7	—	—	—	—
LSP5	●	7.7	4.5	8.5	—	—	—	—
LSP6	●	9.85	6	11.1	—	—	—	—
LSP8	●	13.05	10	12	—	—	—	—
LSP10	●	5	3.3	6.5	—	—	—	—
LSP16	●	6.6	4.5	9	—	—	—	—
LSP20	●	8.2	5.5	9	—	—	—	—
LSP25	●	9.8	6.5	11	—	—	—	—
LSP32	●	13	10	12	—	—	—	—

Pin for MINI Tool Holder



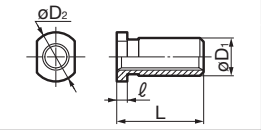
Cat. No.	Stock	Dimensions (mm) d	D	L	ℓ	—	—	N·m
LP04	●	0.4	1.1	4.7	3	—	—	—
LP06	●	0.4	1.1	6	5	—	—	—
LP07	●	0.4	1.1	7.7	3.5	—	—	—

SEC-SV Type or Boring Bars



Cat. No.	Stock	Dimensions (mm) d_1	d_2	L	D	ℓ_1	ℓ_2	N·m
VP20	●	M3.5	M4	12	6.5	≥4.5	≥4.5	—
VP25	●	M3.5	M4	17	6.5	≥4.5	≥4.5	—
VP32	●	M3.5	M4	24	6.5	≥4.5	≥4.5	—

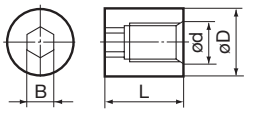
SEC-SV Type or Boring Bars



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	ℓ	D_1	D_2	N·m
VP32B	●	M3.5	0.6	8	1.4	5	6.5	—
VP40B	●	M3.5	0.6	11.5	1.4	5	6.5	—

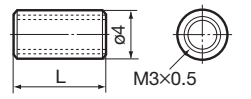
■ Nuts

For M Type Holders



Cat. No.	Stock	Dimensions (mm) d	L	D	B	—	—	N·m
CPM32N	●	M4	7.5	7	3	—	—	—
CPM43N	●	M5	8.5	7	3	—	—	—
CPM43S	●	M5	6	7	3	—	—	—

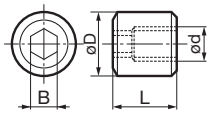
For BNB Holder



Cat. No.	Stock	Dimensions (mm) L	—	—	—	—	—	N·m
BNBW-4	●	4	—	—	—	—	—	—
BNBW-7	●	7	—	—	—	—	—	—

■ Nuts

For BNB Holder



Cat. No.	Stock	Dimensions (mm) d	Pitch	L	D	B	—	N·m
CPV33N	●	M4	0.5	6	6	2.5	—	—

■ Drawing Pins

Fig1

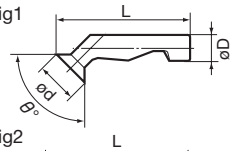


Fig2

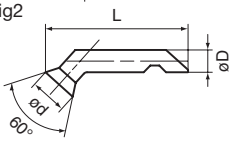
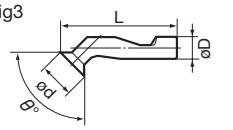


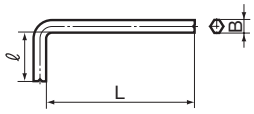
Fig3



Cat. No.	Stock	Dimensions (mm) d	D	L	θ°	—	Shape	N·m
SR083	●	5	2.9	20	60	—	Fig1	—
SR104	●	5.5	3.4	21	60	—		
SR124	●	6	3.9	24	60	—		
SR164	●	8.2	5	32	60	—		
SR204	●	9.2	6	41	60	—		
SR164Q	●	8.2	5	32	60	—	Fig2	—
SW43B	●	7.7	4.9	27.5	90	—	Fig3	—
SR134B	●	6	3.9	22.5	60	—		

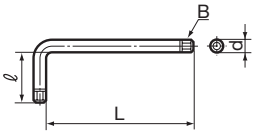
■ Wrenches

L-Shaped Wrench (Hex)



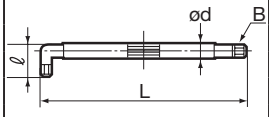
Cat. No.	Stock	Dimensions (mm) B	L	ℓ	—	—	—	N·m
LH015	●	1.5	45	14	—	—	—	—
LH020	●	2	50	16	—	—	—	—
LH025	●	2.5	56	18	—	—	—	—
LH030	●	3	63	20	—	—	—	—
LH035	●	3.5	22	68	—	—	—	—
LH040	●	4	70	25	—	—	—	—
LH050	●	5	80	28	—	—	—	—
LH060	●	6	90	32	—	—	—	—
LH100	●	10	112	40	—	—	—	—
LH020NT	★	2	50	16	—	—	—	—
LH025NT	★	2.5	56	6	—	—	—	—
LH030NT	★	3	63	20	—	—	—	—
LH5/64	★	5/64"	51	17.3	—	—	—	—
LH3/32	★	3/32"	57	19	—	—	—	—
LH1/8	★	1/8"	66.6	22.7	—	—	—	—
LH9/64	★	9/64"	70	24.5	—	—	—	—
LH3/16	★	3/16"	82.5	30.7	—	—	—	—

L-Shaped Wrench (Torx)



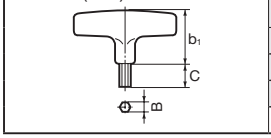
Cat. No.	Stock	Dimensions (mm) B	d	L	ℓ	—	—	N·m
LT08-06	●	T8	2.3	42.5	6	—	—	—
LT15-10	●	T15	2.8	62	10	—	—	—
LT15	●	T15	3.26	54	17.9	—	—	—
LT20	●	T20	3.9	57.2	19.1	—	—	—
LT25	●	T25	4.4	60.3	20.2	—	—	—
LT27	●	T27	4.96	63.5	21.5	—	—	—

Wrench (Torx)



Cat. No.	Stock	Dimensions (mm) B	d	L	ℓ	—	—	N·m
LT25NT	●	3.6	4	65	10	—	—	—

Wrench (Hex)

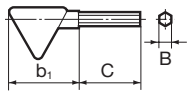


Cat. No.	Stock	Dimensions (mm) B	b_1	C	—	—	—	N·m
TH030	●	3	48	28	—	—	—	—
TH040	●	4	48	37	—	—	—	—
TH050	●	5	48	45	—	—	—	—

N·m Recommended tightening torque (N·m)

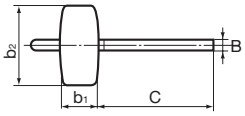
■ Wrenches

T-Shaped Wrench (Hex)



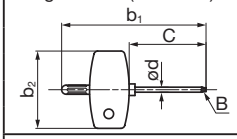
Cat. No.	Stock	Dimensions (mm) B	b1	C	—	—	—	N·m
TH015	●	1.5	35	30	—	—	—	—
TH020	●	2	35	39	—	—	—	—
TH025	●	2.5	35	39	—	—	—	—

Wing Wrench (Hex)



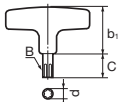
Cat. No.	Stock	Dimensions (mm) B	C	b1	b2	—	—	N·m
TSW040	●	4	60	20	40	—	—	—

Wing Wrench (Torx Plus)



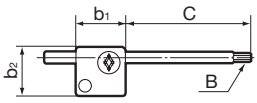
Cat. No.	Stock	Dimensions (mm) B	d	C	b1	b2	—	N·m
TRXW10IP	●	10IP	2.6	40	75	40	—	—

T-Shaped Wrench (Torx)



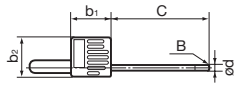
Cat. No.	Stock	Dimensions (mm) B	d	C	b1	—	—	N·m
TTX15W	●	T15	4	97	28	—	—	—
TTX20	●	T20	3.9	58	47	—	—	—
TT25	●	T25	4.4	27	48	—	—	—
TT27	●	T27	5	41	48	—	—	—

Torx Wrench



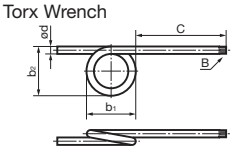
Cat. No.	Stock	Dimensions (mm) B	C	b1	b2	—	—	N·m
TRX06	●	T6	35.5	15	15	—	—	—
TRX08	●	T8	38.5	19	19	—	—	—
TRX10	●	T10	42.1	22	22	—	—	—
TRX15	●	T15	46	22	27	—	—	—
TRX20	●	T20	49	22	30	—	—	—

Torx Wrench



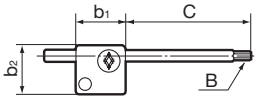
Cat. No.	Stock	Dimensions (mm) d	C	b1	b2	B	—	N·m
RT06	●	2	35	15	15	1.8	—	—
RT08	●	3	38	20	20	2.2	—	—

Torx Wrench



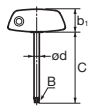
Cat. No.	Stock	Dimensions (mm) d	C	b1	b2	B	—	N·m
RT10	●	3	37	20	20	2.9	—	—

Torx Plus Wrench



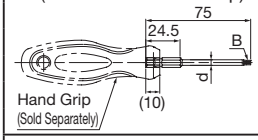
Cat. No.	Stock	Dimensions (mm) B	C	b1	b2	—	—	N·m
TRX06 IP	●	6IP	34	15	15	—	—	—

T-Shaped Wrench (Torx Plus)



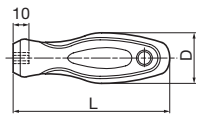
Cat. No.	Stock	Dimensions (mm) B	d	C	b1	—	—	N·m
TTR15 IP	●	15IP	4	80	25.5	—	—	—

Bit (Removable Wrench Tip)



Cat. No.	Stock	Dimensions (mm) B	d	—	—	—	—	N·m
TRB10IP	●	10IP	4	—	—	—	—	—
TRB15IP	●	15IP	4	—	—	—	—	—
TRB20IP	●	20IP	4.5	—	—	—	—	—
TRB25IP	●	25IP	5	—	—	—	—	—

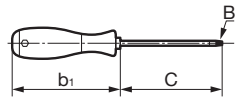
Hand Grip (Removable Handle)



Cat. No.	Stock	Dimensions (mm) D	L	Remarks	N·m
HPS1015	●	32	99.4	For 10IP and 15IP	—
HPL2025	●	35.5	110.3	For 20IP and 25IP	—

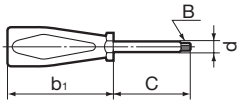
■ Wrenches

Torx Plus Wrench (Screwdriver Type)



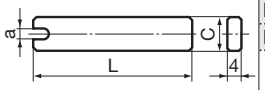
Cat. No.	Stock	Dimensions (mm) B	C	b1	—	—	—	N·m
TRDR08 IP	●	8IP	60	104	—	—	—	—
TRDR10 IP	●	10IP	80	111	—	—	—	—
TRDR15 IP	●	15IP	80	111	—	—	—	—
TRDR20 IP	●	20IP	100	118	—	—	—	—
TRDR25 IP	●	25IP	100	118	—	—	—	—

Torx Wrench (Screwdriver Type)



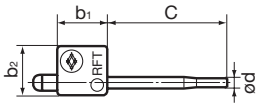
Cat. No.	Stock	Dimensions (mm) B	d	C	b1	—	—	N·m
TRD07	●	T7	2	45	70	—	—	—
TRD08	●	T8	2.3	55	70	—	—	—
TRD15	●	T15	3.3	70	100	—	—	—
TRD20	●	T20	3.9	100	90	—	—	—
TRD25	●	T25	5.3	80	110	—	—	—

Key Wrench



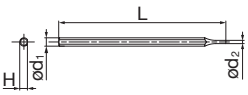
Cat. No.	Stock	Dimensions (mm) L	a	C	—	—	—	N·m
KY25	●	45	2.5	10	—	—	—	—
KY40	●	60	4	13	—	—	—	—

Socket Wrench (Wrench for Axial Adjustment Operation)



Cat. No.	Stock	Dimensions (mm) d	C	b1	b2	—	—	N·m
RFT	●	1.7	35	15	15	—	—	—

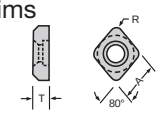
Socket Wrench



Cat. No.	Stock	Dimensions (mm) d1	d2	L	H	—	—	N·m
ANT	●	5	2	100	4.5	—	—	—

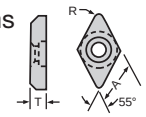
N·m Recommended tightening torque (N·m)

80° Diamond Shims



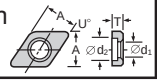
Sumitomo Cat. No.	A Insert I.C.	T	R
ICSN322	.500	.1875	.031
ICSN433	.500	.1875	.047
ICSN533	.625	.1875	.047
ICSN633	.750	.1875	.047

55° Diamond Shims



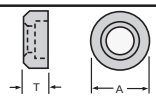
Sumitomo Cat. No.	A Insert I.C.	T	R
IDSN322	.375	.125	.031
IDSN433	.500	.1875	.047
IDSN443	.500	.250	.047
IDSN533	.625	.1875	.047

55°Diamond Shim



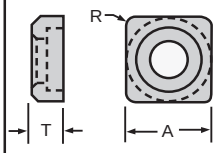
Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	0°
SDW423	12.65	3.18	6.2	8.0	–	55

Round Shims



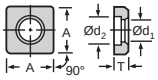
Sumitomo Cat. No.	A Insert I.C.	T	R
IRSN43	.500	.1875	–
IRSN44	.500	.250	–

Square Shims



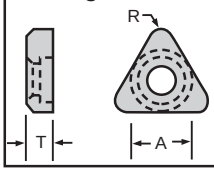
Sumitomo Cat. No.	A Insert I.C.	T	R
ISSN433	.500	.1875	.047
ISSN443	.500	.250	.047
ISSN533	.625	.1875	.047
ISSN543	.625	.250	.047
ISSN633	.750	.1875	.047
ISSN643	.750	.250	.047

Square Shims



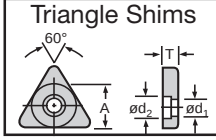
Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	–
SSW423	12.65	3.18	6.2	8	–	–
SSW433	12.65	4.76	6.2	8		
SSW534	15.85	4.76	7.8	9.7		
SSW635	19	4.76	9	11.5	–	–

Triangle Shims



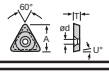
Sumitomo Cat. No.	A Insert I.C.	T	R
ITSN323	.375	.125	.047
ITSN333	.375	.1875	.047
ITSN423	.500	.125	.047
ITSN433	.500	.1875	.047
ITSN534	.625	.1875	.0625

Triangle Shims



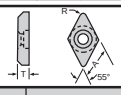
Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	–
STW323	9.5	3.18	4.7	6.5	–	–
STW333	9.5	4.76	4.7	6.5	–	–
STW434	12.65	4.76	6.2	8	–	–
STW534	15.85	4.76	7.8	9.7	–	–

Triangle Shims



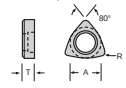
Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	u°
STPD322	8.4	3.18	3.4	–	–	6
STPD422	11.0	3.18	3.4	–	–	6

35° Diamond Shims



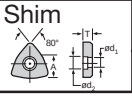
Sumitomo Cat. No.	A Insert I.C.	T	R
IVSN322	.375	.125	.031
IVSN432	.500	.1875	.031
IVSN433	.500	.1875	.047

Trigon Shims



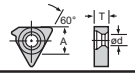
Sumitomo Cat. No.	A Insert I.C.	T	R
IWSN322	.375	.125	.031
IWSN433	.500	.1875	.1875

Trigon Shim



Sumitomo Cat. No.	Size (mm)					
	A	T	d1	d2	–	–
SWW433	12.65	4.76	6.2	8	–	–
SWW544	15.85	5.15	7.8	9.7	–	–

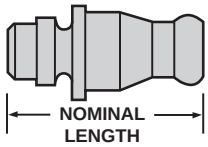
Threading Shim



Sumitomo Cat. No.	Size (mm)					
	A	T	d	–	–	–
LSTE31-0	9.5	2.7	5.2	–	–	–

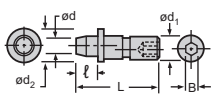
Lock Pins Negative Rake

(Top & Bottom Lock)



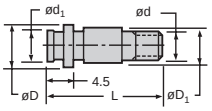
Sumitomo Cat. No.	Insert I.C.	Nominal Length	Hex Wrench	Use With Seat
BWP-46	.500	.578	.094	Yes
NL-23	.250	.328	.0625	No
NL-33	.375	.344	.078	No
NL-33L	.375	.406	.078	No
NL-34	.375	.453	.078	Yes
NL-34L	.375	.516	.078	Yes
NL-44	.500	.516	.094	No
NL-46	.500	.672	.094	Yes
NL-46L	.500	.734	.094	Yes
NL-58	.625	.859	.125	Yes
NL-68	.750	.859	.141	Yes

Cam Pin



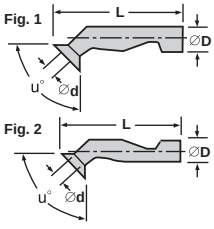
Sumitomo Cat. No.	Size (mm)					
	d	d_1	d_2	L	ℓ	B
CPB33	3.4	4.1	5.5	17	3.4	2.5
CPB43	4.5	5.5	7	19	5	3
CPB43S	4.5	5.5	7	16	5	3
CPB44T	4.5	5.5	7	22	5	3

Cam Pin



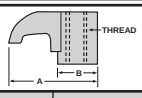
Sumitomo Cat. No.	Size (mm)					
	d	Pitch	L	D	D_1	d_1
MP416	M5	0.8	14	7.5	6	5
MP420	M5	0.8	20	7.5	6	5
MP531	M6	1.0	19.7	9.5	7	6.26
MP534	M6	1.0	26.1	9.5	7	6.76

Clamp Stud



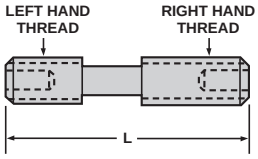
Sumitomo Cat. No.	Size (mm)				
	d	D	L	u°	Shape
SR104B	3	3.4	21	60	Fig. 1
SW43B	4	4.9	27.5	90	Fig. 2
SW42L	4	4.9	22	90	Fig. 2
SW43	4	4.9	27.5	90	Fig. 2
SW53L	4.8	5.9	28.3	90	Fig. 2
SW53R	4.8	5.9	28.3	90	Fig. 2
SW54	4.8	5.9	35.5	90	Fig. 2
SW54B	4.8	5.9	35.5	90	Fig. 2
SW64L	5.5	6.9	33.8	90	Fig. 2
SW64R	5.5	6.9	33.8	90	Fig. 2
SW65	5.5	6.9	44.5	90	Fig. 2
SW65B	5.5	6.9	44.5	90	Fig. 2

Finger Clamp



Sumitomo Cat. No.	A	Thread	B
CL19	.550	10-32	.310
CL6	.580	10-32	.310
CL7	.640	10-32	.310
CL20	.730	1/4-28	.375
CL9	.750	5/16-24	.430
CL12	.880	5/16-24	.430
CL30	1.000	5/16-24	.430

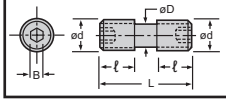
Differential Clamp Screws



Inch

Catalog Number	Thread	L	Wrench Size
XNS35	10-32	.59	3/32
XNS36	10-32	.75	3/32
XNS47	1/4-28	.81	1/8
XNS48	1/4-28	1.00	1/8
XNS58	5/16-24	1.00	5/32
XNS59	5/16-24	1.125	5/32
XNS510	5/16-24	1.25	5/32

Differential Clamp Screw



Sumitomo Cat. No.	Size (mm)					
	d	pitch	L	ℓ	D	B
WB613	M6	1.0	13	5	4.5	3
WB616	M6	1.0	16	6	4.5	3
WB820	M8	1.25	22	8.5	6.2	T27
WB8F20	M8	1.0	20	8.5	6.2	4
WB8F30	M8	1.0	3.0	11.5	6.2	4

Items on this page may be discontinued,
please call us at 1 (847) 635-0044 to confirm availability.

CNC Holders

Our CNC Holder line provides options for all industry-standard sizes and congurations for collet chucks, end mill holders, shell mill holders, hi-power milling chucks, and face mill holders.

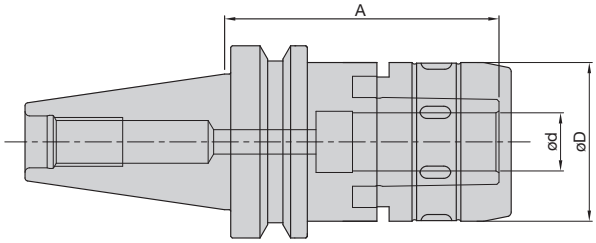
Each product represents the latest technology, and reflects our commitment to quality and innovation. We also support our products with unmatched application expertise and customer service.

Induction Shrink-Fit System

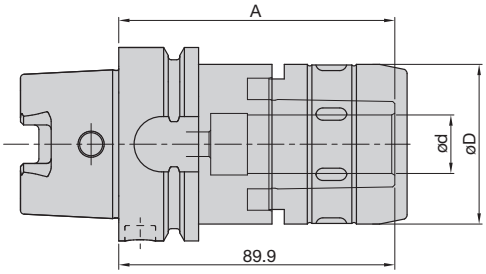
The finest shrink fit holders available. Precise manufacturing and exclusive “Counter Bore” technology optimize the advantages of using shrink fit tooling. These holders ensure the best part finish quality, longer tool life, and higher feed rates and speeds. All of this is accomplished due to micrometer accuracy in runout, high cutting tool rigidity and extremely high clamping forces.

Tightening Fixtures

Our tightening fixtures are the best and simplest in the world. You gain immediate access to both the working and taper ends. Less handling just means fewer chances of costly holders being dropped and damaged.

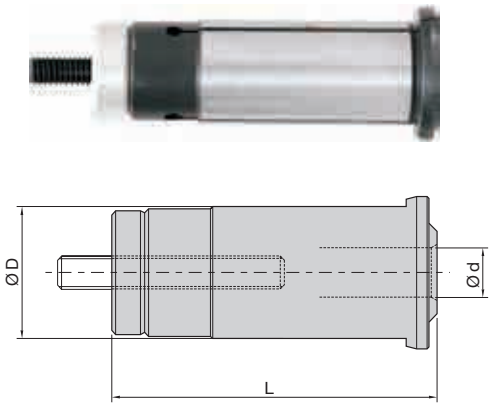


Milling Chucks					
Catalog Number	Dimensions				
	d (*mm*)	d (inch)	D (*mm*)	A (*mm*)	A (inch)
CAT40	Balanced to G6.3 @ 8,000 RPM				
SHPMC0.750-3.54-CAT40	*19.05*	0.75	*52*	*89.9*	3.54
SHPMC1.000-3.54-CAT40	*25.4*	1.00	*58*	*89.9*	3.54
SHPMC1.250-4.25-CAT40	*31.75*	1.25	*66*	*108.0*	4.25
SHPMC25-90-CAT40	*25*	–	*58*	*90*	–
SHPMC32-105-CAT40	*32*	–	*66*	*105*	–
CAT50	Balanced to G6.3 @ 8,000 RPM				
SHPMC0.750-3.54-CAT50	*19.05*	0.75	*52*	*89.9*	3.54
SHPMC0.750-6.50-CAT50	*19.05*	0.75	*52*	*165.1*	6.50
SHPMC1.000-3.54-CAT50	*25.4*	1.00	*58*	*89.9*	3.54
SHPMC1.000-5.31-CAT50	*25.4*	1.00	*58*	*134.9*	5.31
SHPMC1.250-4.13-CAT50	*31.75*	1.25	*66*	*104.9*	4.13
SHPMC1.250-5.31-CAT50	*31.75*	1.25	*66*	*134.9*	5.31
SHPMC2.000-4.72-CAT50	*50.8*	2.00	*103*	*119.9*	4.72
SHPMC2.000-5.90-CAT50	*50.8*	2.00	*103*	*149.9*	5.90
SHPMC32-105-CAT50	*32*	–	*58*	*105*	–
SHPMC50-135-CAT50	*50*	–	*103*	*135*	–
BT30	Balanced to G6.3 @ 8,000 RPM				
SHPMC0.750-3.54-BT30	*19.05*	0.75	*52*	*89.9*	3.54
SHPMC20-90-BT30	*20*	–	*52*	*90*	–
SHPMC25-90-BT30	*25*	–	*58*	*90*	–
SHPMC32-105-BT30	*32*	–	*66*	*105*	–



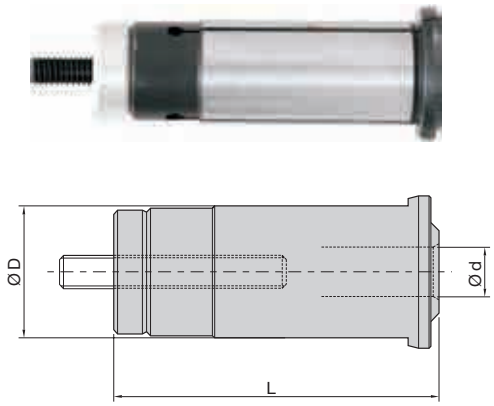
HSK Milling Chucks					
Catalog Number	Dimensions				
	d (*mm*)	d (inch)	D (*mm*)	A (*mm*)	A (inch)
HSK-A63	Balanced to G6.3 @ 8,000 RPM				
SHPMC0.750-3.54-HSKA63	*19.05*	0.75	*52*	*89.9*	3.54
SHPMC1.000-4.13-HSKA63	*25.4*	1.00	*58*	*104.9*	4.13
SHPMC1.250-4.72-HSKA63	*31.75*	1.25	*66*	*119.9*	4.72
SHPMC20-90-HSKA63	*20*	–	*52*	*90*	–
SHPMC25-105-HSKA63	*25*	–	*58*	*105*	–
SHPMC32-135-HSKA63	*32*	–	*66*	*135*	–
HSK-A100	Balanced to G6.3 @ 15,000 RPM				
SHPMC0.750-3.94-HSKA100	–	0.750	*52*	–	3.94
SHPMC1.000-4.53-HSKA100	–	1.000	*58*	–	4.53
SHPMC1.250-5.31-HSKA100	–	1.250	*66*	–	5.31
SHPMC20-100-HSKA100	*20*	–	*52*	*100*	–
SHPMC25-115-HSKA100	*25*	–	*58*	*115*	–
SHPMC32-135-HSKA100	*32*	–	*66*	*135*	–

Adjustable Straight Collets for Milling Chucks (Metric)



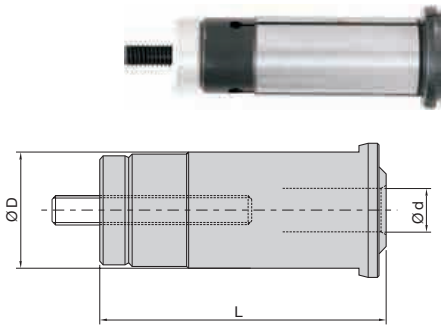
Catalog Number	Dimensions (*mm*)		
	D	d	L
SSC20-6	20	6	63
SSC20-8	20	8	63
SSC20-10	20	10	63
SSC20-12	20	12	63
SSC20-16	20	16	63
SSC25-6	25	6	73
SSC25-8	25	8	73
SSC25-10	25	10	73
SSC25-12	25	12	73
SSC25-16	25	16	73
SSC25-18	25	18	73
SSC25-20	25	20	73
SSC32-6	32	6	79
SSC32-8	32	8	79
SSC32-10	32	10	79
SSC32-12	32	12	79
SSC32-16	32	16	79
SSC32-18	32	18	79
SSC32-20	32	20	79
SSC32-25	32	25	79

Adjustable Straight Collets for Milling Chucks (Inch)



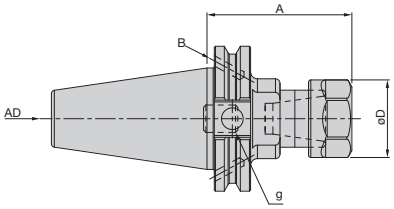
Catalog Number	Dimensions (inch)		
	D	d	L
SSC 0.750-0.250	0.750	0.250	2.48
SSC 0.750-0.312	0.750	0.312	2.48
SSC 0.750-0.375	0.750	0.375	2.48
SSC 0.750-0.437	0.750	0.437	2.48
SSC 0.750-0.500	0.750	0.500	2.48
SSC 0.750-0.562	0.750	0.562	2.48
SSC 0.750-0.625	0.750	0.625	2.48
SSC 1.000-0.250	1.000	0.250	2.87
SSC 1.000-0.312	1.000	0.312	2.87
SSC 1.000-0.375	1.000	0.375	2.87
SSC 1.000-0.437	1.000	0.437	2.87
SSC 1.000-0.500	1.000	0.500	2.87
SSC 1.000-0.562	1.000	0.562	2.87
SSC 1.000-0.625	1.000	0.625	2.87
SSC 1.000-0.750	1.000	0.750	2.87
SSC 1.250-0.250	1.250	0.250	3.11
SSC 1.250-0.312	1.250	0.312	3.11
SSC 1.250-0.375	1.250	0.375	3.11
SSC 1.250-0.437	1.250	0.437	3.11
SSC 1.250-0.500	1.250	0.500	3.11
SSC 1.250-0.562	1.250	0.562	3.11
SSC 1.250-0.625	1.250	0.625	3.11
SSC 1.250-0.750	1.250	0.750	3.11
SSC 1.250-0.875	1.250	0.875	3.11
SSC 1.250-1.000	1.250	1.000	3.11

Adjustable Straight Collets for Milling Chucks (Metric to Inch)



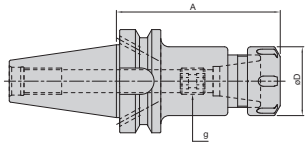
Catalog Number	Dimensions		
	D	d	L
SSC32-0.375	32	0.375	3.11
SSC32-0.500	32	0.500	3.11
SSC32-0.625	32	0.625	3.11
SSC32-0.750	32	0.750	3.11
SSC32-1.000	32	1.000	3.11

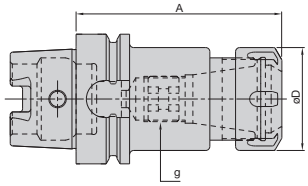
ER Collet Chucks



ER Collet Chucks - CAT40						Balanced to G6.3 @ 20,000 RPM
Catalog Number	Dimensions					
	Collet Type	Range (mm)	D (mm)	A (mm)	A (inch)	g
CAT40						
SCCH-ER16-2.50-CAT40	ER16	1–10	28	63.5	2.50	M10
SCCH-ER16-5.00-CAT40	ER16	1–10	28	127.0	5.00	M10
SCCH-ER20-2.50-CAT40	ER20	1–13	34	63.5	2.50	M12
SCCH-ER20-6.00-CAT40	ER20	1–13	34	152.4	6.00	M12
SCCH-ER25-2.50-CAT40	ER25	2–16	42	63.5	2.50	M16
SCCH-ER25-6.00-CAT40	ER25	2–16	42	152.4	6.00	M16
SCCH-ER32-2.75-CAT40	ER32	2–20	50	69.9	2.75	M22x1.5
SCCH-ER32-6.00-CAT40	ER32	2–20	50	152.4	6.00	M22x1.5
SCCH-ER40-3.00-CAT40	ER40	3–26	63	76.2	3.00	M22x1.5
SCCH-ER40-6.00-CAT40	ER40	3–26	63	152.4	6.00	M22x1.5

ER Collet Chucks - CAT50						Balanced to G6.3 @ 20,000 RPM
Catalog Number	Dimensions					
	Collet Type	Range (mm)	D (mm)	A (mm)	A (inch)	g
CAT50						
SCCH-ER16-2.50-CAT50	ER16	1–10	28	63.5	2.50	M10
SCCH-ER16-4.00-CAT50	ER16	1–10	28	101.6	4.00	M10
SCCH-ER16-6.00-CAT50	ER16	1–10	28	152.4	6.00	M10
SCCH-ER20-2.50-CAT50	ER20	1–13	34	63.5	2.50	M12
SCCH-ER20-4.00-CAT50	ER20	1–13	34	101.6	4.00	M12
SCCH-ER20-6.00-CAT50	ER20	1–13	34	152.4	6.00	M12
SCCH-ER25-2.50-CAT50	ER25	2–16	42	63.5	2.50	M16
SCCH-ER25-4.00-CAT50	ER25	2–16	42	101.6	4.00	M16
SCCH-ER25-6.00-CAT50	ER25	2–16	42	152.4	6.00	M16
SCCH-ER32-2.75-CAT50	ER32	2–20	50	69.9	2.75	M22x1.5
SCCH-ER32-4.00-CAT50	ER32	2–20	50	101.6	4.00	M22x1.5
SCCH-ER32-6.00-CAT50	ER32	2–20	50	152.4	6.00	M22x1.5
SCCH-ER40-3.00-CAT50	ER40	3–26	63	76.2	3.00	M22x1.5
SCCH-ER40-4.00-CAT50	ER40	3–26	63	101.6	4.00	M22x1.5
SCCH-ER40-6.00-CAT50	ER40	3–26	63	152.4	6.00	M22x1.5

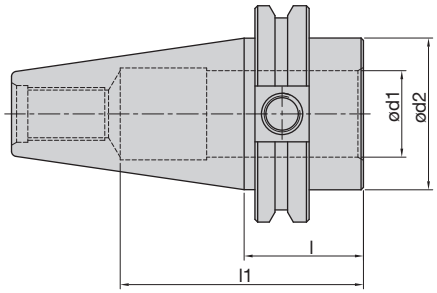




ER Collet Chucks						Balanced to G6.3 @ 20,000 RPM
Catalog Number	Dimensions					
	Collet Type	Range (mm)	D (mm)	A (mm)	A (inch)	g
BT30						
SCCH-ER16-100-BT30	ER16	1–10	28	100	3.94	M10
SCCH-ER16-150-BT30	ER16	1–10	28	150	5.90	M10
SCCH-ER16-70-BT30	ER16	1–10	28	70	2.76	M10
SCCH-ER20-100-BT30	ER20	1–13	34	100	3.94	M12
SCCH-ER20-70-BT30	ER20	1–13	34	70	2.76	M12
SCCH-ER25-100-BT30	ER25	2–16	42	100	3.94	M12
SCCH-ER25-70-BT30	ER25	2–16	42	70	2.76	M12
SCCH-ER32-100-BT30	ER32	2–20	50	100	3.94	M22x1.5
SCCH-ER32-70-BT30	ER32	2–20	50	70	2.76	M12
SCCH-ER40-100-BT30	ER40	3–26	63	100	3.89	M22x1.5
BT40						
SCCH-ER16-100-BT40	ER16	1–10	28	100	3.94	M10
SCCH-ER16-160-BT40	ER16	1–10	28	160	6.30	M10
SCCH-ER16-70-BT40	ER16	1–10	28	70	2.76	M10
SCCH-ER20-100-BT40	ER20	1–13	34	100	3.94	M12
SCCH-ER20-160-BT40	ER20	1–13	34	160	6.30	M12
SCCH-ER20-70-BT40	ER20	1–13	34	70	2.76	M12
SCCH-ER25-100-BT40	ER25	2–16	42	100	3.94	M16
SCCH-ER25-160-BT40	ER25	2–16	42	160	6.30	M16
SCCH-ER25-70-BT40	ER25	2–16	42	70	2.76	M16
SCCH-ER32-100-BT40	ER32	2–20	50	100	3.94	M22x1.5
SCCH-ER32-160-BT40	ER32	2–20	50	160	6.30	M22x1.5
SCCH-ER32-70-BT40	ER32	2–20	50	70	2.76	M22x1.5
SCCH-ER40-100-BT40	ER40	3–26	63	100	3.94	M22x1.5
SCCH-ER40-160-BT40	ER40	3–26	63	160	6.30	M22x1.5
SCCH-ER40-80-BT40	ER40	3–26	63	80	3.15	M22x1.5

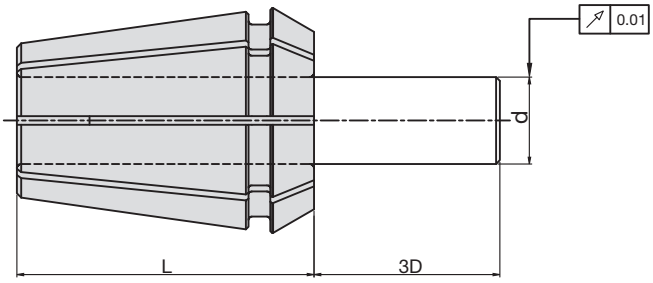
HSK ER Collet Chuck Holders						Balanced to G6.3 @ 20,000 RPM
Catalog Number	Dimensions					
	Collet Type	Range (mm)	D (mm)	A (mm)	A (inch)	g
HSK-A63						
SCCH-ER16M-100-HSKA63	ER16	1–10	28	100	3.94	M10
SCCH-ER16M-160-HSKA63	ER16	1–10	28	160	6.3	M10
SCCH-ER20-100-HSKA63	ER20	1–13	34	100	3.94	M12
SCCH-ER20M-160-HSKA63	ER20	1–13	34	160	6.3	M12
SCCH-ER25-100-HSKA63	ER25	2–16	42	100	3.94	M16
SCCH-ER25M-160-HSKA63	ER25	2–16	42	160	6.3	M16
SCCH-ER32-100-HSKA63	ER32	2–20	50	100	3.94	M22x1.5
SCCH-ER32-160-HSKA63	ER32	2–20	50	160	6.3	M22x1.5
SCCH-ER40-120-HSKA63	ER40	3–26	63	120	4.72	M22x1.5
SCCH-ER40-160-HSKA63	ER40	3–26	63	160	6.3	M22x1.5
HSK-A100						
SCCH-ER16M-100-HSKA100	ER16M	1–10	22	100	3.94	M10
SCCH-ER20-100-HSKA100	ER20	1–13	34	100	3.94	M12
SCCH-ER25-100-HSKA100	ER25	2–16	42	100	3.94	M16
SCCH-ER32-100-HSKA100	ER32	2–20	50	100	3.94	M22X1.5
SCCH-ER40-120-HSKA100	ER40	3–26	63	120	4.72	M22x1.5
SCCH-ER16M-160-HSKA100	ER16M	1–10	22	160	6.3	M10
SCCH-ER20-160-HSKA100	ER20	1–13	34	160	6.3	M12
SCCH-ER25-160-HSKA100	ER25	2–16	42	160	6.3	M16
SCCH-ER32-160-HSKA100	ER32	2–20	50	160	6.3	M22X1.5
SCCH-ER40-160-HSKA100	ER40	3–26	63	160	6.3	M22x1.5

Straight Shank Synchro Chucks



Straight Shank Synchro Chucks					
Catalog Number	Spindle Type	Dimensions			
		d1 (in)	d2(mm)	l1 (mm)	l (in)
SSSC-CT40-1.000	CAT40	1	45	68.5	1.375
SSSC-CT50-1.000	CAT50	1	70	84.5	1.375
SSSC-CT50-1.500	CAT50	1.5	70	84.5	1.375
SSSC-BT40-1.000	BT40	1	45	68.5	1.062
SSSC-BT50-1.000	BT50	1	70	84.5	1.875
SSSC-BT50-1.500	BT50	1.5	70	84.5	1.875

ER Collets - Inch & *Metric*



Spring Collets ER16 (Inch)

Catalog Number	Dimensions (inch) D	L	d
ER16-1/16	0.669	1.063	0.043-0.062
ER16-3/32	0.669	1.063	0.054-0.093
ER16-1/8	0.669	1.063	0.086-0.125
ER16-5/32	0.669	1.063	0.117-0.156
ER16-3/16	0.669	1.063	0.148-0.187
ER16-7/32	0.669	1.063	0.179-0.218
ER16-1/4	0.669	1.063	0.211-0.250
ER16-9/32	0.669	1.063	0.242-0.281
ER16-5/16	0.669	1.063	0.273-0.312
ER16-11/32	0.669	1.063	0.304-0.343
ER16-3/8	0.669	1.063	0.336-0.375
ER16-13/32	0.669	1.063	0.367-0.406
ER16 12pc. Collet Set	–	–	–

ER20(Inch)

ER20-1/8	0.827	1.22	0.086-0.125
ER20-3/16	0.827	1.22	0.148-0.187
ER20-1/4	0.827	1.22	0.211-0.250
ER20-5/16	0.827	1.22	0.273-0.312
ER20-3/8	0.827	1.22	0.336-0.375
ER20-7/16	0.827	1.22	0.398-0.437
ER20-1/2	0.827	1.22	0.461-0.500
ER20 7pc. Collet Set	–	–	–

ER25 (Inch)

ER25-1/8	1.024	1.378	0.086-0.125
ER25-3/16	1.024	1.378	0.148-0.187
ER25-1/4	1.024	1.378	0.211-0.250
ER25-5/16	1.024	1.378	0.273-0.312
ER25-3/8	1.024	1.378	0.336-0.375
ER25-7/16	1.024	1.378	0.398-0.437
ER25-1/2	1.024	1.378	0.461-0.500
ER25-9/16	1.024	1.378	0.523-0.562
ER25-5/8	1.024	1.378	0.586-0.625
ER25 9pc. Collet Set	–	–	–

Spring Collets ER32(Inch)

Catalog Number	Dimensions (inch) D	L	d
ER32-1/8	1.299	1.575	0.086-0.125
ER32-3/16	1.299	1.575	0.148-0.187
ER32-1/4	1.299	1.575	0.211-0.250
ER32-5/16	1.299	1.575	0.273-0.312
ER32-3/8	1.299	1.575	0.336-0.375
ER32-7/16	1.299	1.575	0.398-0.437
ER32-1/2	1.299	1.575	0.461-0.500
ER32-9/16	1.299	1.575	0.523-0.562
ER32-5/8	1.299	1.575	0.586-0.625
ER32-11/16	1.299	1.575	0.648-0.687
ER32-3/4	1.299	1.575	0.711-0.750
ER32 12pc Collet Set	–	–	–

ER40 (Inch)

ER40-1/8	1.614	1.811	0.086-0.125
ER40-3/16	1.614	1.811	0.148-0.187
ER40-1/4	1.614	1.811	0.211-0.250
ER40-5/16	1.614	1.811	0.273-0.312
ER40-3/8	1.614	1.811	0.336-0.375
ER40-7/16	1.614	1.811	0.398-0.437
ER40-1/2	1.614	1.811	0.461-0.500
ER40-9/16	1.614	1.811	0.523-0.562
ER40-5/8	1.614	1.811	0.586-0.625
ER40-11/16	1.614	1.811	0.648-0.687
ER40-3/4	1.614	1.811	0.711-0.750
ER40-7/8	1.614	1.811	0.836-0.875
ER40-1.0	1.614	1.811	0.961-1.000
ER40 14pc. Collet Set	–	–	–

Spring Collets ER16 (*Metric*)

Catalog Number	Dimensions (*mm*) D	L	d
ER16-1.0	*17*	*27*	*1.0-0.5*
ER16-1.5	*17*	*27*	*1.5-1.0*
ER16-2.0	*17*	*27*	*2.0-1.5*
ER16-2.5	*17*	*27*	*2.5-2.0*
ER16-3.0	*17*	*27*	*3.0-2.5*
ER16-3.5	*17*	*27*	*3.5-3.0*
ER16-4.0	*17*	*27*	*4.0-3.5*
ER16-4.5	*17*	*27*	*4.5-4.0*
ER16-5.0	*17*	*27*	*5.0-4.5*
ER16-5.5	*17*	*27*	*5.5-5.0*
ER16-6.0	*17*	*27*	*6.0-5.5*
ER16-6.5	*17*	*27*	*6.5-6.0*
ER16-7.0	*17*	*27*	*7.0-6.5*
ER16-7.5	*17*	*27*	*7.5-7.0*
ER16-8.0	*17*	*27*	*8.0-7.5*
ER16-8.5	*17*	*27*	*8.5-8.0*
ER16-9.0	*17*	*27*	*9.0-8.5*
ER16-9.5	*17*	*27*	*9.5-9.0*
ER16-10.0	*17*	*27*	*10.0-9.5*
ER16 10pc. Collet Set	–	–	–

ER20 (*Metric*)

ER20-1.0	*21*	*31*	*1.0-0.5*
ER20-2.0	*21*	*31*	*2.0-1.5*
ER20-3.0	*21*	*31*	*3.0-2.5*
ER20-4.0	*21*	*31*	*4.0-3.5*
ER20-5.0	*21*	*31*	*5.0-4.5*
ER20-6.0	*21*	*31*	*6.0-5.5*
ER20-7.0	*21*	*31*	*7.0-6.5*
ER20-8.0	*21*	*31*	*8.0-7.5*
ER20-9.0	*21*	*31*	*9.0-8.5*
ER20-10.0	*21*	*31*	*10.0-9.5*
ER20-11.0	*21*	*31*	*11.0-10.5*
ER20-12.0	*21*	*31*	*12.0-11.5*
ER20-13.0	*21*	*31*	*13.0-12.5*
ER20 12pc. Collet Set	–	–	–

ER25 (*Metric*)

ER25-2.0	*26*	*35*	*2.0-1.5*
ER25-3.0	*26*	*35*	*3.0-2.5*
ER25-4.0	*26*	*35*	*4.0-3.5*
ER25-5.0	*26*	*35*	*5.0-4.5*
ER25-6.0	*26*	*35*	*6.0-5.5*
ER25-7.0	*26*	*35*	*7.0-6.5*
ER25-8.0	*26*	*35*	*8.0-7.5*
ER25-9.0	*26*	*35*	*9.0-8.5*
ER25-10.0	*26*	*35*	*10.0-9.5*
ER25-11.0	*26*	*35*	*11.0-10.5*
ER25-12.0	*26*	*35*	*12.0-11.5*
ER25-13.0	*26*	*35*	*13.0-12.5*
ER25-14.0	*26*	*35*	*14.0-13.5*
ER25-15.0	*26*	*35*	*15.0-14.5*
ER25-16.0	*26*	*35*	*16.0-15.5*
ER25 15pc. Collet Set	–	–	–

Spring Collets ER32 (*Metric*)

Catalog Number	Dimensions (mm) D	L	d
ER32-2.0	33	40	2.0-1.5
ER32-3.0	33	40	3.0-2.5
ER32-4.0	33	40	4.0-3.5
ER32-5.0	33	40	5.0-4.5
ER32-6.0	33	40	6.0-5.5
ER32-7.0	33	40	7.0-6.5
ER32-8.0	33	40	8.0-7.5
ER32-9.0	33	40	9.0-8.5
ER32-10.0	33	40	10.0-9.5
ER32-11.0	33	40	11.0-10.5
ER32-12.0	33	40	12.0-11.5
ER32-13.0	33	40	13.0-12.5
ER32-14.0	33	40	14.0-13.5
ER32-15.0	33	40	15.0-14.5
ER32-16.0	33	40	16.0-15.5
ER32-17.0	33	40	17.0-16.5
ER32-18.0	33	40	18.0-17.5
ER32-19.0	33	40	19.0-18.5
ER32-20.0	33	40	20.0-19.5
ER32 18pc. Collet Set	–	–	–

ER40 (*Metric*)

ER40-3.0	*41*	*46*	*3.0-2.5*
ER40-4.0	*41*	*46*	*4.0-3.5*
ER40-5.0	*41*	*46*	*5.0-4.5*
ER40-6.0	*41*	*46*	*6.0-5.5*
ER40-7.0	*41*	*46*	*7.0-6.5*
ER40-8.0	*41*	*46*	*8.0-7.5*
ER40-9.0	*41*	*46*	*9.0-8.5*
ER40-10.0	*41*	*46*	*10.0-9.5*
ER40-11.0	*41*	*46*	*11.0-10.5*
ER40-12.0	*41*	*46*	*12.0-11.5*
ER40-13.0	*41*	*46*	*13.0-12.5*
ER40-14.0	*41*	*46*	*14.0-13.5*
ER40-15.0	*41*	*46*	*15.0-14.5*
ER40-16.0	*41*	*46*	*16.0-15.5*
ER40-17.0	*41*	*46*	*17.0-16.5*
ER40-18.0	*41*	*46*	*18.0-17.5*
ER40-19.0	*41*	*46*	*19.0-18.5*
ER40-20.0	*41*	*46*	*20.0-19.5*
ER40-21.0	*41*	*46*	*21.0-20.5*
ER40-22.0	*41*	*46*	*22.0-21.5*
ER40-23.0	*41*	*46*	*23.0-22.5*
ER40-24.0	*41*	*46*	*24.0-23.5*
ER40-25.0	*41*	*46*	*25.0-24.5*
ER40-26.0	*41*	*46*	*26.0-25.5*
ER40 23pc. Collet Set	–	–	–

GB Collects- Inch & *Metric*

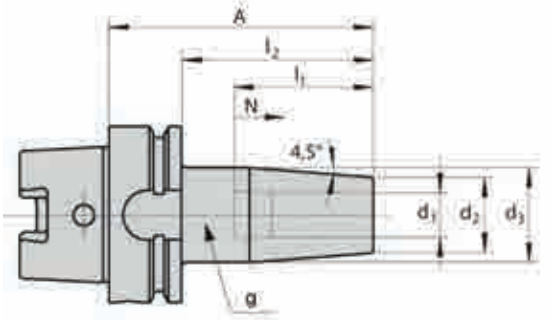
GB Collects - Inch

Dimensions				Product Code					
Shank d (in)	Square SW (in)	l2 (*mm*)	Pipe Tap	ER11-GB	ER16-GB	ER20-GB	ER25-GB	ER32-GB	ER40-GB
0.141	0.11	*18*		ER110141GB	ER160141GB				
0.168	0.131	*18*			ER160168GB	ER200168GB	ER250168GB	ER320168GB	
0.194	0.152	*18*			ER160194GB	ER200194GB	ER250194GB	ER320194GB	
0.22	0.165	*18*			ER160220GB	ER200220GB	ER250220GB	ER320220GB	
0.255	0.191	*18*			ER160255GB	ER200255GB	ER250255GB	ER320255GB	ER400255GB
0.318	0.238	*22*			ER160318GB	ER200318GB	ER250318GB	ER320318GB	ER400318GB
0.323	0.242	*22*				ER200323GB	ER250323GB	ER320323GB	ER400323GB
0.367	0.275	*22*				ER200367GB	ER250367GB	ER320367GB	ER400367GB
0.381	0.286	*22*				ER200381GB	ER250381GB	ER320381GB	ER400381GB
0.429	0.322	*25*					ER250429GB	ER320429GB	ER400429GB
0.437	0.328	*25*	3				ER250437GB	ER320437GB	ER400437GB
0.48	0.36	*25*					ER250480GB	ER320480GB	ER400480GB
0.5542	0.406	*25*						ER320542GB	ER400542GB
0.562	0.421	*25*	3					ER320562GB	ER400562GB
0.59	0.442	*25*						ER320590GB	ER400592GB
0.652	0.489	*25*						ER320652GB	ER400652GB
0.687	0.515	*25*	3						ER400687GB
0.697	0.523	*25*							ER400697GB
0.7	0.531	*25*	3						ER400700GB
0.76	0.57	*25*							ER400760GB
0.8	0.6	*28*							ER400800GB

GB Collects - *Metric*

Dimensions				Product Code					
Shank d (*mm*)	Square SW(*mm*)	l2 (*mm*)	STD	ER11-GB	ER16-GB	ER20-GB	ER25-GB	ER32-GB	ER40-GB
2.8	*2.1*	*12*	DIN	ER11280GB					
3.5	*2.7*	*14*	DIN	ER11350GB					
4	*3*	*14*	DIN	ER11400GB					
4	*3.15/3.2*	*18*	ISO,JIS	ER11450GB	ER16400GB	ER20400GB	ER25400GB	ER32400GB	
4.5	*3.4*	*18*	DIN	ER11600GB	ER16450GB	ER20450GB	ER25450GB	ER32450GB	
5	*4*	*18*	ISO,JIS		ER16550GB-JIS	ER20550GB-JIS	ER25550GB-JIS	ER32550GB-JIS	
5.5	*4.3*	*18*	DIN		ER16550GB	ER20550GB	ER25550GB	ER32550GB	
5.5	*4.5*	*18*	JIS		ER16550GB	ER20550GB	ER25550GB	ER32550GB	
6	*4.5*	*18*	JIS		ER16600GB	ER20600GB	ER25600GB	ER32600GB	ER40600GB-JIS
6	*4.9*	*18*	DIN		ER16600GB-JIS	ER20600GB-JIS	ER25600GB-JIS	ER32600GB-JIS	ER40600GB-DIN
6.2	*5*	*18*	JIS		ER16620GB-JIS	ER20620GB-JIS	ER25620GB-JIS	ER32620GB-JIS	ER40620GB
6.3	*5*	*18*	ISO,JIS		ER16630GB	ER20630GB	ER25630GB	ER32630GB	ER40630GB
7	*5.5*	*18*	DIN, JIS		ER16700GB	ER20700GB	ER25700GB	ER32700GB	ER40700GB
7.1	*5.6*	*18*	ISO,JIS		ER16710GB	ER20710GB	ER25710GB	ER32710GB	ER40710GB
8	*6.2/6.3*	*22*	DIN,ISO		ER16800GB	ER20800GB	ER25800GB	ER32800GB	ER40800GB
8.5	*6.5*	*22*	JIS		ER16850GB-JIS	ER20850GB-JIS	ER25850GB-JIS	ER32850GB-JIS	ER40850GB
9	*7.0/7.1*	*22*	DIN,ISO		ER16900GB	ER20900GB	ER25900GB	ER32900GB	ER40900GB
10	*8*	*25*	DIN,ISO			ER2010.00GB	ER2510.00GB	ER3210.00GB	ER4010.00GB
10.5	*8*	*25*	JIS			ER2010.50GB-JIS	ER2510.50GB-JIS	ER3210.50GB	ER4010.50GB
11	*9*	*25*	DIN			ER2011.00GB	ER2511.00GB	ER3211.00GB	ER4011.00GB
1.2	*9*	*25*	ISO			ER2011.20GB	ER2511.20GB	ER3211.20GB	ER4011.20GB
12	*9*	*25*	DIN				ER2512.00GB	ER3212.00GB	ER4012.00GB
12.5	*10*	*25*	ISO,JIS				ER2512.50GB	ER3212.50GB	ER4012.50GB
14	*11.0/11.2*	*25*	DIN,JIS,ISO				ER2514.00GB	ER3214.00GB	ER4014.00GB
15	*12*	*25*	JIS				ER2515.00GB-JIS	ER3215.00GB	ER4015.00GB
16	*12*	*25*	DIN				ER2516.00GB	ER3216.00GB	ER4016.00GB
17	*13*	*25*	JIS					ER3217.00GB	ER4017.00GB
18	*14.0/14.5*	*25*	DIN,ISO					ER3218.00GB	ER4018.00GB
20	*16*	*28*	DIN,ISO					ER3220.00GB	ER4020.00GB
22	*18*	*28*	DIN						ER4022.00GB

HSK-A63 | ThermoGrip® Standard



HSK-A63 | ThermoGrip® Standard - Inch

Catalog Number	Dimensions (inch)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0318-80-HSKA63	0.125	3.15	0.83	1.06	1.42	0.39	M6
ST0476-80-HSKA63	0.187	3.15	0.83	1.06	1.42	0.39	M6
ST0635-80-HSKA63	0.250	3.15	0.83	1.06	1.42	0.39	M5
ST0953-85-HSKA63	0.375	3.34	0.95	1.26	1.65	0.39	M8x1
ST1270-90-HSKA63	0.500	3.54	1.06	1.34	1.85	0.39	M10x1
ST1588-95-HSKA63	0.625	3.74	1.06	1.34	1.97	0.39	M12x1
ST1905-100-HSKA63	0.750	3.94	1.30	1.65	2.05	0.39	M16x1
LONG PROJECTION							
ST0318-120-HSKA63	0.125	4.72	0.83	1.06	1.42	0.39	M6
ST0476-120-HSKA63	0.187	4.72	0.83	1.06	1.42	0.39	M6
ST0635-120-HSKA63	0.250	4.72	0.83	1.06	1.42	0.39	M5
ST0953-120-HSKA63	0.375	4.72	0.95	1.26	1.65	0.39	M8x1
ST1270-120-HSKA63	0.500	4.72	1.06	1.34	1.85	0.39	M10x1
ST1588-120-HSKA63	0.625	4.72	1.06	1.34	1.97	0.39	M12x1
ST2540-120-HSKA63	1.000	4.72	1.73	2.09	2.44	0.39	M16x1
ST3175-120-HSKA63	1.250	4.72	1.73	2.09	2.28	0.39	M16x1
EXTRA LONG PROJECTION							
ST0318-160-HSKA63	0.125	6.30	0.83	1.26	1.42	0.39	M6
ST0476-160-HSKA63	0.187	6.30	0.83	1.26	1.42	0.39	M6
ST0635-160-HSKA63	0.250	6.30	0.83	1.26	1.42	0.39	M5
ST0953-160-HSKA63	0.375	6.30	0.95	1.34	1.65	0.39	M8x1
ST1270-160-HSKA63	0.500	6.30	1.06	1.65	1.85	0.39	M10x1
ST1588-160-HSKA63	0.625	6.30	1.06	1.65	1.97	0.39	M12x1
ST1905-160-HSKA63	0.750	6.30	1.30	2.01	2.05	0.39	M16x1
ST2540-160-HSKA63	1.000	6.30	1.73	2.09	2.44	0.39	M16x1
ST3175-160-HSKA63	1.250	6.30	1.73	2.09	2.28	0.39	M16x1

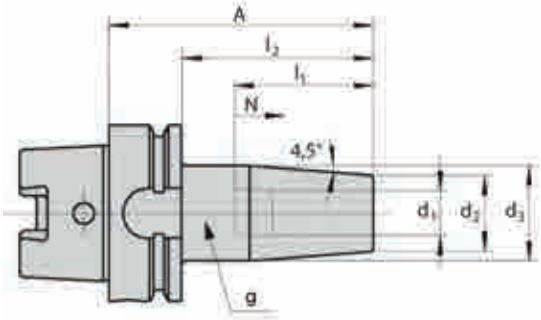
All holders can be run with internal coolant
Please Order Coolant Tube separately
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

HSK-A63 | ThermoGrip® Standard - *Metric*

Catalog Number	Dimensions (*mm*)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0300-80-HSKA63	3	80	15	20	20	5	M6
ST0400-80-HSKA63	4	80	15	20	20	5	M6
ST0500-80-HSKA63	5	80	15	20	25	5	M6
ST0600-80-HSKA63	6	80	21	27	36	10	M5
ST0800-80-HSKA63	8	80	21	27	36	10	M6
ST1000-85-HSKA63	10	85	24	32	42	10	M8x1
ST1200-90-HSKA63	12	90	24	32	47	10	M10x1
ST1400-90-HSKA63	14	90	27	34	47	10	M10x1
ST1600-95-HSKA63	16	95	27	34	50	10	M12x1
ST1800-95-HSKA63	18	95	33	42	50	10	M12x1
ST2000-100-HSKA63	20	100	33	42	52	10	M16x1
ST2500-115-HSKA63	25	115	44	53	58	10	M16x1
LONG PROJECTION							
ST0600-120-HSKA63	6	120	21	27	36	10	M5
ST0800-120-HSKA63	8	120	21	27	36	10	M6
ST1000-120-HSKA63	10	120	24	32	42	10	M8x1
ST1200-120-HSKA63	12	120	24	32	47	10	M10x1
ST1400-120-HSKA63	14	120	27	34	47	10	M10x1
ST1600-120-HSKA63	16	120	27	34	50	10	M12x1
ST1800-120-HSKA63	18	120	33	42	50	10	M12x1
ST2000-120-HSKA63	20	120	33	42	52	10	M16x1
ST3200-120-HSKA63	32	120	44	53	58	10	M16x1
EXTRA LONG PROJECTION							
ST0600-160-HSKA63	6	160	21	32	36	10	M5
ST0800-160-HSKA63	8	160	21	32	36	10	M6
ST1000-160-HSKA63	10	160	24	34	42	10	M8x1
ST1200-160-HSKA63	12	160	24	34	47	10	M10x1
ST1400-160-HSKA63	14	160	27	42	47	10	M10x1
ST1600-160-HSKA63	16	160	27	42	50	10	M12x1
ST1800-160-HSKA63	18	160	33	51	50	10	M12x1
ST2000-160-HSKA63	20	160	33	51	52	10	M16x1
ST2500-160-HSKA63	25	160	44	53	58	10	M16x1
ST3200-160-HSKA63	32	160	44	53	62	10	M16x1

All holders can be run with internal coolant
Please Order Coolant Tube separately
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

HSK-A100 | ThermoGrip® Standard



HSK-A100 | ThermoGrip® Standard-Inch

Catalog Number	Dimensions (inch)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0635-85-HSKA100	0.250	3.35	0.83	1.06	1.42	0.39	M5
ST0953-90-HSKA100	0.375	3.54	0.94	1.26	1.65	0.39	M8X1
ST1270-95-HSKA100	0.500	3.74	1.06	1.34	1.85	0.39	M10X1
ST1588-95-HSKA100	0.625	3.94	1.06	1.34	1.97	0.39	M12X1
ST1905-105-HSKA100	0.750	4.13	1.30	1.65	2.05	0.39	M16X1
LONG PROJECTION							
ST0635-120-HSKA100	0.250	4.72	0.83	1.06	1.42	0.39	M5
ST0953-120-HSKA100	0.375	4.72	0.94	1.26	1.65	0.39	M8X1
ST1270-120-HSKA100	0.500	4.72	1.06	1.34	1.85	0.39	M10X1
ST1588-120-HSKA100	0.625	4.72	1.06	1.34	1.97	0.39	M12X1
ST1905-120-HSKA100	0.750	4.72	1.30	1.65	2.05	0.39	M16X1
ST2540-120-HSKA100	1.000	4.72	1.73	2.09	2.44	0.39	M16X1
ST3175-120-HSKA100	1.250	4.72	1.73	2.09	2.44	0.39	M16X1
EXTRA LONG PROJECTION							
ST0635-160-HSKA100	0.250	6.30	0.83	1.26	1.42	0.39	M5
ST0953-160-HSKA100	0.375	6.30	0.94	1.34	1.65	0.39	M8X1
ST1270-160-HSKA100	0.500	6.30	1.06	1.65	1.85	0.39	M10X1
ST1588-160-HSKA100	0.625	6.30	1.06	1.65	1.97	0.39	M12X1
ST1905-160-HSKA100	0.750	6.30	1.30	2.01	2.05	0.39	M16X1
ST2540-160-HSKA100	1.000	6.30	1.73	2.36	2.44	0.39	M16X1

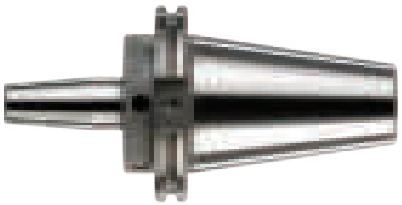
All holders can be run with internal coolant
Please Order Coolant Tube separately
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

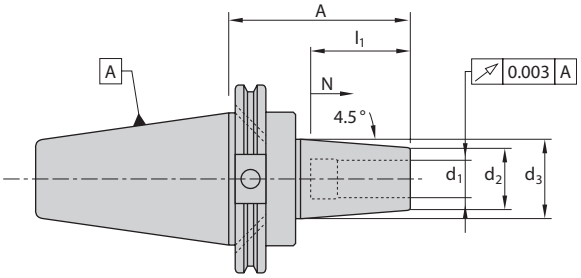
HSK-A100 | ThermoGrip® Standard-*Metric*

Catalog Number	Dimensions (*mm*)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0600-85-HSKA100	6	85	21	27	36	10	M5
ST0800-85-HSKA100	8	85	21	27	36	10	M6
ST1000-90-HSKA100	10	90	24	32	42	10	M8x1
ST1200-95-HSKA100	12	95	24	32	47	10	M10x1
ST1400-95-HSKA100	14	95	27	34	50	10	M10x1
ST1600-100-HSKA100	16	100	27	34	50	10	M12x1
ST1800-100-HSKA100	18	100	33	42	50	10	M12x1
ST2000-105-HSKA100	20	105	33	42	52	10	M16x1
ST2500-115-HSKA100	25	115	44	53	58	10	M16x1
LONG PROJECTION							
ST0600-120-HSKA100	6	120	21	27	36	10	M5
ST0800-120-HSKA100	8	120	21	27	36	10	M6
ST1000-120-HSKA100	10	120	24	32	42	10	M8x1
ST1200-120-HSKA100	12	120	24	32	47	10	M10x1
ST1400-120-HSKA100	14	120	27	34	50	10	M10x1
ST1600-120-HSKA100	16	120	27	34	50	10	M12x1
ST1800-120-HSKA100	18	120	33	42	50	10	M12x1
ST2000-120-HSKA100	20	120	33	42	52	10	M16x1
ST2500-120-HSKA100	25	120	44	53	58	10	M16x1
ST3200-120-HSKA100	32	120	44	53	62	10	M16x1
EXTRA LONG PROJECTION							
ST0600-160-HSKA100	6	160	21	32	36	10	M5
ST0800-160-HSKA100	8	160	21	32	36	10	M6
ST1000-160-HSKA100	10	160	24	34	42	10	M8x1
ST1200-160-HSKA100	12	160	24	34	47	10	M10x1
ST1400-160-HSKA100	14	160	27	42	47	10	M10x1
ST1600-160-HSKA100	16	160	27	42	50	10	M12x1
ST1800-160-HSKA100	18	160	33	51	52	10	M12x1
ST2000-160-HSKA100	20	160	33	51	52	10	M16x1
ST2500-160-HSKA100	25	160	44	53	58	10	M16x1
ST3200-160-HSKA100	32	160	44	53	62	10	M16x1

All holders can be run with internal coolant
Please Order Coolant Tube separately
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

CAT40 | ThermoGrip® Standard





CAT40 | ThermoGrip® Standard-Inch

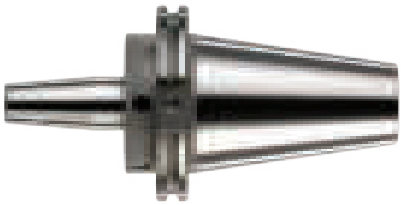
Catalog Number	Dimensions (inch)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0318-95-CAT40	0.125	3.74	0.59	0.79	0.79	0.20	M6
ST0476-95-CAT40	0.187	3.74	0.59	0.79	0.79	0.20	M6
ST0635-95-CAT40	0.250	3.74	0.83	1.06	1.42	0.39	M5
ST0953-95-CAT40	0.375	3.74	0.95	1.26	1.65	0.39	M8x1
ST1270-95-CAT40	0.500	3.74	1.06	1.34	1.85	0.39	M10x1
ST1588-95-CAT40	0.625	3.74	1.06	1.34	1.97	0.39	M12x1
ST1905-95-CAT40	0.750	3.74	1.30	1.65	2.05	0.39	M16x1
ST2540-100-CAT40	1.000	3.94	1.73	2.09	2.44	0.39	M16x1
ST3175-100-CAT40	1.250	3.94	1.73	2.09	2.44	0.39	M16x1
LONG PROJECTION							
ST0318-120-CAT40	0.125	4.73	0.59	0.79	0.79	0.20	M6
ST0476-120-CAT40	0.187	4.73	0.59	0.79	0.79	0.20	M6
ST0635-120-CAT40	0.250	4.73	0.83	1.06	1.42	0.39	M5
ST0953-120-CAT40	0.375	4.73	0.95	1.26	1.65	0.39	M8x1
ST1270-120-CAT40	0.500	4.73	1.06	1.34	1.85	0.39	M10x1
ST1588-120-CAT40	0.625	4.73	1.06	1.34	1.97	0.39	M12x1
ST1905-120-CAT40	0.750	4.73	1.30	1.65	2.05	0.39	M16x1
ST2540-120-CAT40	1.000	4.73	1.73	2.09	2.44	0.39	M16x1
ST3175-120-CAT40	1.25	4.73	1.73	2.09	2.44	0.39	M16x1
EXTRA LONG PROJECTION							
ST0318-160-CAT40	0.125	6.30	0.59	0.79	0.79	0.20	M6
ST0476-160-CAT40	0.187	6.30	0.59	0.79	0.79	0.20	M6
ST0635-160-CAT40	0.250	6.30	0.83	1.26	1.42	0.39	M5
ST0953-160-CAT40	0.375	6.30	0.95	1.34	1.65	0.39	M8x1
ST1270-160-CAT40	0.500	6.30	1.06	1.65	1.85	0.39	M10x1
ST1588-160-CAT40	0.625	6.30	1.06	1.65	1.97	0.39	M12x1
ST1905-160-CAT40	0.750	6.30	1.30	1.75	2.05	0.39	M16x1
ST2540-160-CAT40	1.000	6.30	1.73	2.09	2.44	0.39	M16x1
ST3175-160-CAT40	1.250	6.30	1.73	2.09	2.44	0.39	M16x1

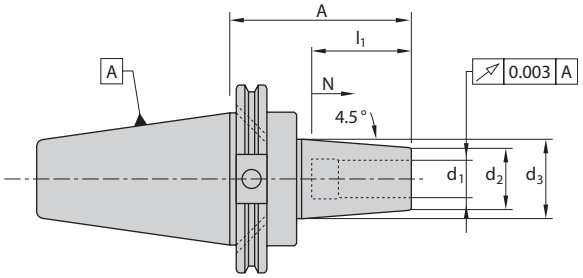
CAT40 | ThermoGrip® Standard- *Metric*

Catalog Number	Dimensions (*mm*)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0300-95-CAT40	3	95	15	20	20	5	M6
ST0400-95-CAT40	4	95	15	20	20	5	M6
ST0500-95-CAT40	5	95	15	20	25	5	M6
ST0600-95-CAT40	6	95	21	27	36	10	M5
ST0800-95-CAT40	8	95	21	27	36	10	M6
ST1000-95-CAT40	10	95	24	32	42	10	M8x1
ST1200-95-CAT40	12	95	24	32	47	10	M10x1
ST1400-95-CAT40	14	95	27	34	47	10	M10x1
ST1600-95-CAT40	16	95	27	34	50	10	M12x1
ST1800-95-CAT40	18	95	33	42	50	10	M12x1
ST2000-95-CAT40	20	95	33	42	52	10	M16x1
ST2500-100-CAT40	25	100	44	53	58	10	M16x1
ST3200-100-CAT40	32	100	44	53	62	10	M16x1
LONG PROJECTION							
ST0600-120-CAT40	6	120	21	27	36	10	M5
ST0800-120-CAT40	8	120	21	27	36	10	M6
ST1000-120-CAT40	10	120	24	32	42	10	M8x1
ST1200-120-CAT40	12	120	24	32	47	10	M10x1
ST1400-120-CAT40	14	120	27	34	47	10	M10x1
ST1600-120-CAT40	16	120	27	34	50	10	M12x1
ST1800-120-CAT40	18	120	33	42	50	10	M12x1
ST2000-120-CAT40	20	120	33	42	52	10	M16x1
ST2500-120-CAT40	25	120	44	53	58	10	M16x1
ST3200-120-CAT40	32	120	44	53	62	10	M16x1
EXTRA LONG PROJECTION							
ST0600-160-CAT40	6	160	21	32	36	10	M5
ST0800-160-CAT40	8	160	21	32	36	10	M6
ST1000-160-CAT40	10	160	24	34	42	10	M8x1
ST1200-160-CAT40	12	160	24	34	47	10	M10x1
ST1400-160-CAT40	14	160	27	42	47	10	M10x1
ST1600-160-CAT40	16	160	27	42	50	10	M12x1
ST1800-160-CAT40	18	160	33	44	50	10	M12x1
ST2000-160-CAT40	20	160	44	53	52	10	M16x1
ST2500-160-CAT40	25	160	44	53	58	10	M16x1
ST3200-160-CAT40	32	160	44	53	62	10	M16x1

NOTE: All Holders Have 5-8-11 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option standard
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

CAT50 | ThermoGrip® Standard





CAT50 | ThermoGrip® Standard-INCH

Catalog Number	Dimensions (inch)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0635-95-CAT50	0.250	3.74	0.83	1.06	1.42	0.39	M5
ST0953-95-CAT50	0.375	3.74	0.95	1.26	1.65	0.39	M8x1
ST1270-95-CAT50	0.500	3.74	1.06	1.34	1.85	0.39	M10x1
ST1588-95-CAT50	0.625	3.74	1.06	1.34	1.97	0.39	M12x1
ST1905-95-CAT50	0.750	3.74	1.30	1.65	2.05	0.39	M16x1
ST2540-105-CAT50	1.000	4.13	1.73	2.09	2.44	0.39	M16x1
ST3175-105-CAT50	1.250	4.13	1.73	2.09	2.44	0.39	M16x1
EXTRA LONG PROJECTION							
ST0635-160-CAT50	0.250	6.30	0.83	1.26	1.42	0.39	M5
ST0953-160-CAT50	0.375	6.30	0.95	1.34	1.65	0.39	M8x1
ST1270-160-CAT50	0.500	6.30	1.06	1.65	1.85	0.39	M10x1
ST1588-160-CAT50	0.625	6.30	1.06	1.65	1.97	0.39	M12x1
ST1905-160-CAT50	0.750	6.30	1.30	2.01	2.05	0.39	M16x1
ST2540-160-CAT50	1.000	6.30	1.73	2.36	2.44	0.39	M16x1
ST3175-160-CAT50	1.250	6.30	1.73	2.36	2.44	0.39	M16x1

NOTE: All Holders Have 1-8 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option standard
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

CAT50 | ThermoGrip® Standard-*Metric*

Catalog Number	Dimensions (*mm*)						
	d_1	A	d_2	d_3	l_1	N	g
STANDARD PROJECTION							
ST0600-95-CAT50	*6*	*95*	*21*	*27*	*36*	*10*	M5
ST0800-95-CAT50	*8*	*95*	*21*	*27*	*36*	*10*	M6
ST1000-95-CAT50	*10*	*95*	*24*	*32*	*42*	*10*	M8x1
ST1200-95-CAT50	*12*	*95*	*24*	*32*	*47*	*10*	M10x1
ST1400-95-CAT50	*14*	*95*	*27*	*34*	*47*	*10*	M10x1
ST1600-95-CAT50	*16*	*95*	*27*	*34*	*50*	*10*	M12x1
ST1800-95-CAT50	*18*	*95*	*33*	*42*	*50*	*10*	M12x1
ST2000-95-CAT50	*20*	*95*	*33*	*42*	*52*	*10*	M16x1
ST2500-105-CAT50	*25*	*105*	*44*	*53*	*58*	*10*	M16x1
ST3200-105-CAT50	*32*	*105*	*44*	*53*	*62*	*10*	M16x1
EXTRA LONG PROJECTION							
ST0600-160-CAT50	*6*	*160*	*21*	*32*	*36*	*10*	M5
ST0800-160-CAT50	*8*	*160*	*21*	*32*	*36*	*10*	M6
ST1000-160-CAT50	*10*	*160*	*24*	*34*	*42*	*10*	M8x1
ST1200-160-CAT50	*12*	*160*	*24*	*34*	*47*	*10*	M10x1
ST1400-160-CAT50	*14*	*160*	*27*	*42*	*47*	*10*	M10x1
ST1600-160-CAT50	*16*	*160*	*27*	*42*	*50*	*10*	M12x1
ST1800-160-CAT50	*18*	*160*	*33*	*51*	*50*	*10*	M12x1
ST2000-160-CAT50	*20*	*160*	*33*	*51*	*52*	*10*	M16x1
ST2500-160-CAT50	*25*	*160*	*44*	*60*	*58*	*10*	M16x1
ST3200-160-CAT50	*32*	*160*	*44*	*60*	*62*	*10*	M16x1

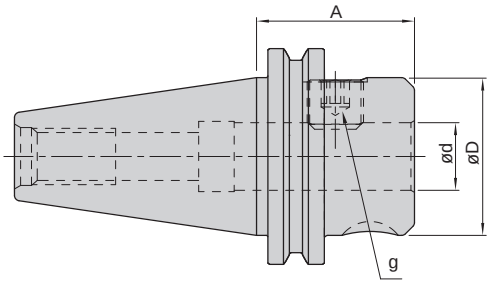
NOTE: All Holders Have 1-8 UNC Thread for Retention Knob & DIN FORM B Flange Coolant Delivery Option standard
NOTE: Tool Shank Tolerance must be h6 or better, h4 for holders with ID smaller than 5mm

ThermoGrip® Machine: ISG3430TWK-11-WS

This processor controlled ISG3430TWK-11-WS unit is simple to use. All that needs to be done is to select the tool diameter range. After the induction coil is positioned around the tool holder, push the start button and the coil heats the tool holder sufficiently. When heat cycle is completed, move the coil upward away from tool. Raise the cooling sleeve and press the cooling button, allowing the tool to cool in seconds.

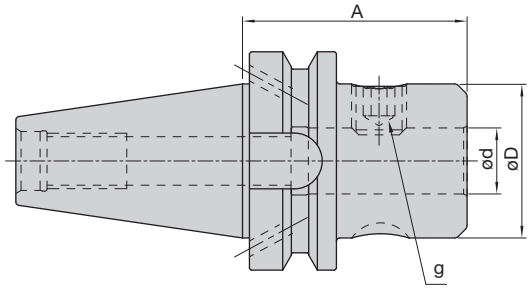
ISG3430TWK-11-WS: It is a universal heat-shrinking unit for the professional use of heat-shrinking technology. With its unique coil changing system, the power transfer adjusted to different clamping chucks is guaranteed within a short period of time. Compared to other systems, this makes it possible to clamp the smallest diameter tools. This allows for a constant preparation of a high number of tools. Guaranteed.

ThermoGrip® Machine: ISG3430TWK-11-WS			
Catalog No.	ISG3430TWK-11-WS	Max Tool Length	400mm 15.75”
Dimensions D x W x H	800mm x 560mm x 950mm 31.5” x 22” x 38”	Max Cooling Length	160mm 6.3”
Clamping Range SC	6-32mm 1/8”-1-1/4”	Cooling Type	Liquid/ emulsion
Clamping Range HSS	6-32mm 1/4”-1-1/4”	Cooling Time	20 Seconds
Coil	Quick Change	Geometry Independent Cooling	Yes
Electric Current Supply	3x480V-16A	Max Machine Interface	HSK 100 CAT50
Power kW	11 kW	Required Accessories	setting pot
Weight	115 lbs	Optional Accessories	setting pot



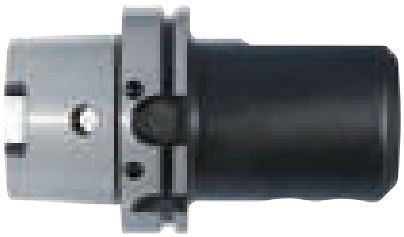
CAT40	Balanced to G6.3 @ 8,000 RPM			
Catalog Number	Dimensions			
	d (inch)	D (*mm*)	A (inch)	g
SSEH-0.125-1.38-CAT40	0.125	*17.5*	1.38	6-32 UNC
SSEH-0.125-4.50-CAT40	0.125	*17.5*	4.50	6-32 UNC
SSEH-0.187-1.38-CAT40	0.187	*17.5*	1.38	8-32 UNC
SSEH-0.187-2.50-CAT40	0.187	*17.5*	2.50	8-32 UNC
SSEH-0.187-4.50-CAT40	0.187	*17.5*	4.50	8-32 UNC
SSEH-0.250-1.38-CAT40	0.250	*19.8*	1.38	1-4-28 UNF
SSEH-0.250-2.50-CAT40	0.250	*19.8*	2.50	1-4-28 UNF
SSEH-0.250-4.50-CAT40	0.250	*19.8*	4.50	1-4-28 UNF
SSEH-0.312-1.38-CAT40	0.312	*25.4*	1.38	5-16-24 UNF
SSEH-0.312-2.50-CAT40	0.312	*25.4*	2.50	5-16-24 UNF
SSEH-0.312-4.50-CAT40	0.312	*25.4*	4.50	5-16-24 UNF
SSEH-0.375-1.38-CAT40	0.375	*25.4*	1.38	3-8-24 UNF
SSEH-0.375-2.50-CAT40	0.375	*25.4*	2.50	3-8-24 UNF
SSEH-0.375-4.50-CAT40	0.375	*25.4*	4.50	3-8-24 UNF
SSEH-0.375-6.50-CAT40	0.375	*25.4*	6.50	3-8-24 UNF
SSEH-0.437-1.75-CAT40	0.437	*35.1*	1.75	7-16-20 UNF
SSEH-0.437-4.50-CAT40	0.437	*35.1*	4.50	7-16-20 UNF
SSEH-0.500-1.75-CAT40	0.500	*35.1*	1.75	7-16-20 UNF
SSEH-0.500-2.62-CAT40	0.500	*35.1*	2.62	7-16-20 UNF
SSEH-0.500-4.62-CAT40	0.500	*35.1*	4.62	7-16-20 UNF
SSEH-0.500-6.62-CAT40	0.500	*35.1*	6.62	7-16-20 UNF
SSEH-0.625-1.75-CAT40	0.625	*38.1*	1.75	1-2-20 UNF
SSEH-0.625-3.75-CAT40	0.625	*38.1*	3.75	1-2-20 UNF
SSEH-0.625-5.75-CAT40	0.625	*38.1*	5.75	1-2-20 UNF
SSEH-0.750-1.75-CAT40	0.750	*44.5*	1.75	5-8-18 UNF
SSEH-0.750-3.75-CAT40	0.750	*44.5*	3.75	5-8-18 UNF
SSEH-0.750-5.75-CAT40	0.750	*44.5*	5.75	5-8-18 UNF
SSEH-0.875-1.75-CAT40	0.875	*50.8*	1.75	5-8-18 UNF
SSEH-0.875-4.00-CAT40	0.875	*50.8*	4.00	5-8-18 UNF
SSEH-0.875-6.00-CAT40	0.875	*50.8*	6.00	5-8-18 UNF
SSEH-1.000-1.75-CAT40	1.000	*50.8*	1.75	3-4-16 UNF
SSEH-1.000-4.00-CAT40	1.000	*50.8*	4.00	3-4-16 UNF
SSEH-1.000-6.00-CAT40	1.000	*50.8*	6.00	3-4-16 UNF
SSEH-1.250-2.00-CAT40	1.250	*63.5*	2.00	3-4-16 UNF
SSEH-1.250-4.25-CAT40	1.250	*63.5*	4.25	3-4-16 UNF
SSEH-1.250-6.25-CAT40	1.250	*63.5*	6.25	3-4-16 UNF
SSEH-1.500-4.62-CAT40	1.500	*69.9*	4.62	3-4-16 UNF
SSEH-1.500-6.62-CAT40	1.500	*69.9*	6.62	3-4-16 UNF

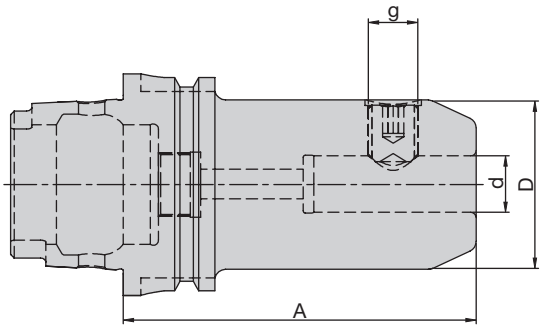
CAT50	Balanced to G6.3 @ 8,000 RPM			
Catalog Number	Dimensions			
	d (inch)	D (*mm*)	A (inch)	g
SSEH-0.187-2.50-CAT50	0.187	*17.5*	2.50	8-32 UNC
SSEH-0.187-4.50-CAT50	0.187	*17.5*	4.50	8-32 UNC
SSEH-0.187-6.50-CAT50	0.187	*17.5*	6.50	8-32 UNC
SSEH-0.250-2.50-CAT50	0.250	*19.8*	2.50	1-4-28 UNF
SSEH-0.250-4.50-CAT50	0.250	*19.8*	4.50	1-4-28 UNF
SSEH-0.250-6.50-CAT50	0.250	*19.8*	6.50	1-4-28 UNF
SSEH-0.312-2.50-CAT50	0.312	*25.4*	2.50	5-16-24 UNF
SSEH-0.312-4.50-CAT50	0.312	*25.4*	4.50	5-16-24 UNF
SSEH-0.312-6.50-CAT50	0.312	*25.4*	6.50	5-16-24 UNF
SSEH-0.375-2.50-CAT50	0.375	*25.4*	2.50	3-8-24 UNF
SSEH-0.375-4.50-CAT50	0.375	*25.4*	4.50	3-8-24 UNF
SSEH-0.375-6.50-CAT50	0.375	*25.4*	6.50	3-8-24 UNF
SSEH-0.375-8.50-CAT50	0.375	*25.4*	8.50	3-8-24 UNF
SSEH-0.437-2.50-CAT50	0.437	*35.1*	2.50	7-16-20 UNF
SSEH-0.500-2.62-CAT50	0.500	*35.1*	2.62	7-16-20 UNF
SSEH-0.500-4.62-CAT50	0.500	*35.1*	4.62	7-16-20 UNF
SSEH-0.500-6.62-CAT50	0.500	*35.1*	6.62	7-16-20 UNF
SSEH-0.500-8.50-CAT50	0.500	*35.1*	8.50	7-16-20 UNF
SSEH-0.625-3.75-CAT50	0.625	*38.1*	3.75	1-2-20 UNF
SSEH-0.625-5.75-CAT50	0.625	*38.1*	5.75	1-2-20 UNF
SSEH-0.625-7.75-CAT50	0.625	*38.1*	7.75	1-2-20 UNF
SSEH-0.750-3.75-CAT50	0.750	*44.5*	3.75	5-8-18 UNF
SSEH-0.750-5.75-CAT50	0.750	*44.5*	5.75	5-8-18 UNF
SSEH-0.750-7.75-CAT50	0.750	*44.5*	7.75	5-8-18 UNF
SSEH-0.750-10.00-CAT50	0.750	*44.5*	10.00	5-8-18 UNF
SSEH-0.875-3.75-CAT50	0.875	*50.8*	3.75	5-8-18 UNF
SSEH-0.875-5.75-CAT50	0.875	*50.8*	5.75	5-8-18 UNF
SSEH-0.875-7.75-CAT50	0.875	*50.8*	7.75	5-8-18 UNF
SSEH-1.000-4.00-CAT50	1.000	*50.8*	4.00	3-4-16 UNF
SSEH-1.000-6.00-CAT50	1.000	*50.8*	6.00	3-4-16 UNF
SSEH-1.000-8.00-CAT50	1.000	*50.8*	8.00	3-4-16 UNF
SSEH-1.000-10.00-CAT50	1.000	*50.8*	10.00	3-4-16 UNF
SSEH-1.250-4.00-CAT50	1.250	*63.5*	4.00	3-4-16 UNF
SSEH-1.250-6.00-CAT50	1.250	*63.5*	6.00	3-4-16 UNF
SSEH-1.250-8.00-CAT50	1.250	*63.5*	8.00	3-4-16 UNF
SSEH-1.250-10.00-CAT50	1.250	*63.5*	10.00	3-4-16 UNF
SSEH-1.500-4.00-CAT50	1.500	*69.9*	4.00	3-4-16 UNF
SSEH-1.500-6.00-CAT50	1.500	*69.9*	6.00	3-4-16 UNF
SSEH-1.500-8.00-CAT50	1.500	*69.9*	8.00	3-4-16 UNF
SSEH-2.000-5.62-CAT50	2.000	*95.3*	5.62	1-14 UNS
SSEH-2.000-9.62-CAT50	2.000	*95.3*	9.62	1-14 UNS



BT30	Balanced to G6.3 @ 8,000 RPM			
Catalog Number	Dimensions			
	d (inch)	D (*mm*)	A (inch)	g
SSEH-0.125-2.36-BT30	0.125	*17.5*	2.36	6-32 UNC
SSEH-0.188-2.36-BT30	0.187	*17.5*	2.36	8-32 UNC
SSEH-0.250-2.36-BT30	0.250	*19.8*	2.36	1-4-28 UNF
SSEH-0.312-2.36-BT30	0.312	*25.4*	2.36	5-16-24 UNF
SSEH-0.375-2.36-BT30	0.375	*25.4*	2.36	3-8-24 UNF
SSEH-0.500-2.36-BT30	0.500	*35.1*	2.36	7-16-20 UNF
SSEH-0.625-2.36-BT30	0.625	*38.1*	2.36	1-2-20 UNF
SSEH-0.750-2.36-BT30	0.750	*44.5*	2.36	5-8-18 UNF

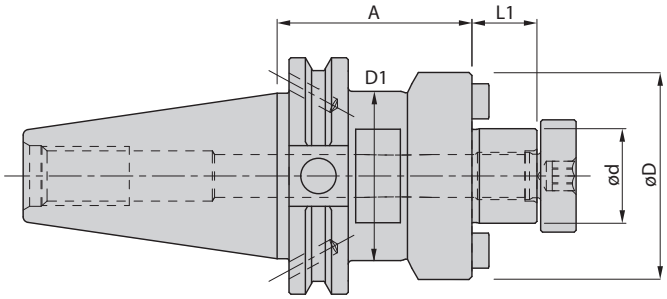
BT40	Balanced to G6.3 @ 8,000 RPM			
Catalog Number	Dimensions			
	d (inch)	D (*mm*)	A (inch)	g
SSEH-0.250-2.55-BT40	0.250	*19.8*	2.55	1-4-28 UNF
SSEH-0.312-2.55-BT40	0.312	*25.4*	2.55	5-16-24 UNF
SSEH-0.375-2.55-BT40	0.375	*25.4*	2.55	3-8-24 UNF
SSEH-0.500-2.55-BT40	0.500	*35.1*	2.55	7-16-20 UNF
SSEH-0.500-4.00-BT40	0.500	*35.1*	4.00	7-16-20 UNF
SSEH-0.625-2.55-BT40	0.625	*38.1*	2.55	1-2-20 UNF
SSEH-0.750-2.55-BT40	0.750	*44.5*	2.55	5-8-18 UNF
SSEH-0.875-3.35-BT40	0.875	*50.8*	3.35	5-8-18 UNF
SSEH-1.000-3.74-BT40	1.000	*50.8*	3.74	3-4-16 UNF
SSEH-1.000-5.00-BT40	1.000	*50.8*	5.00	3-4-16 UNF
SSEH-1.250-3.35-BT40	1.250	*63.5*	3.35	3-4-16 UNF





HSK-A63 End Mill Holder	Balanced to G6.3 @ 20,000 RPM			
Catalog Number Holders with Weldon Notch DIN1835-B	Dimensions			
	d (inch)	D (inch)	A (inch)	g
SSEH-0.250"-3.94"/HSK-A63	0.250	1.00	3.94	1/4-28UNF
SSEH-0.375"-3.94"/HSK-A63	0.375	1.10	3.94	3/8-24UNF
SSEH-0.500"-3.94"/HSK-A63	0.500	1.65	3.94	7/16-20UNF
SSEH-0.625"-3.94"/HSK-A63	0.625	1.89	3.94	1/2-20UNF
SSEH-0.750"-3.94"/HSK-A63	0.750	2.05	3.94	5/8-18UNF
SSEH-1.00"-4.33"/HSK-A63	1.000	2.60	4.33	3/4-16UNF
SSEH-1.250"-4.33"/HSK-A63	1.250	2.83	4.33	3/4-16UNF

HSK-A100 End Mill Holders	Balanced to G6.3 @ 20,000 RPM			
Catalog Number Holders with Weldon Notch DIN1835-B	Dimensions			
	d (inch)	D (inch)	A (inch)	g
SSEH-0.250"-3.15"/HSK-A100	0.250	0.78	3.15"	1/4-28UNF-8
SSEH-0.312"-3.15"/HSK-A100	0.312	1.00	3.15"	5/16-24UNF-10
SSEH-0.312"-6.30"/HSK-A100	0.312	1.00	6.30"	5/16-24UNF-10
SSEH-0.375"-3.15"/HSK-A100	0.375	1.00	3.15"	3/8-24UNF-9
SSEH-0.375"-6.30"/HSK-A100	0.375	1.00	6.30"	3/8-24UNF-9
SSEH-0.500"-3.15"/HSK-A100	0.500	1.38	3.15"	7/16-20UNF-12
SSEH-0.500"-6.30"/HSK-A100	0.500	1.38	6.30"	7/16-20UNF-12
SSEH-0.625"-3.94"/HSK-A100	0.625	1.50	3.94"	1/2-20UNF-14
SSEH-0.625"-6.30"/HSK-A100	0.625	1.50	6.30"	1/2-20UNF-14
SSEH-0.750"-3.94"/HSK-A100	0.750	1.75	3.94"	5/8-18UNF-14
SSEH-0.750"-6.30"/HSK-A100	0.750	1.75	6.30"	5/8-18UNF-14
SSEH-1.000"-3.94"/HSK-A100	1.000	2.00	3.94"	3/4-16UNF-14
SSEH-1.000"-6.30"/HSK-A100	1.000	2.00	6.30"	3/4-16UNF-14
SSEH-1.250"-3.94"/HSK-A100	1.250	2.50	3.94"	3/4-16UNF-14
SSEH-1.250"-6.30"/HSK-A100	1.250	2.50	6.30"	3/4-16UNF-14



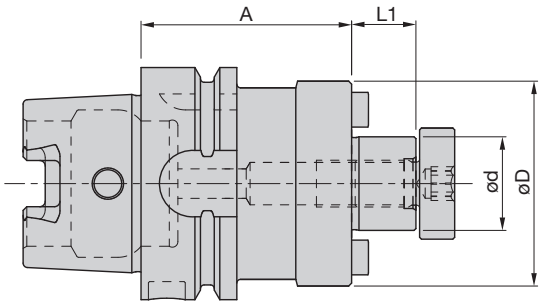
Shell Mill Holder — Balanced to G6.3 @ 8,000 RPM

Catalog Number	Dimensions						
	d (mm)	d (inch)	D (mm)	A (mm)	A (inch)	L_1 (mm)	D_1 (mm)
CAT40							
SSMH-0.500-1.38-CAT40	12.7	0.50	36.6	35.1	1.38	14.2	25.4
SSMH-0.500-3.50-CAT40	12.7	0.50	36.6	88.9	3.50	14.2	25.4
SSMH-0.750-1.38-CAT40	19.1	0.75	44.4	35.1	1.38	17.5	28.7
SSMH-0.750-3.50-CAT40	19.1	0.75	44.4	88.9	3.50	17.5	28.7
SSMH-0.750-6.00-CAT40	19.1	0.75	44.4	152.4	6.00	17.5	28.7
SSMH-1.000-1.75-CAT40	25.4	1.00	55.6	44.5	1.75	17.5	40.1
SSMH-1.000-2.06-CAT40	25.4	1.00	55.6	52.3	2.06	17.5	40.1
SSMH-1.000-4.00-CAT40	25.4	1.00	55.6	101.6	4.00	17.5	40.1
SSMH-1.000-6.00-CAT40	25.4	1.00	55.6	152.4	6.00	17.5	40.1
SSMH-1.250-2.12-CAT40	31.8	1.25	69.9	53.8	2.12	17.5	50.3
SSMH-1.250-4.00-CAT40	31.8	1.25	69.9	101.6	4.00	17.5	50.3
SSMH-1.500-2.41-CAT40	38.1	1.50	85.9	61.2	2.41	23.9	60.7
SSMH-1.500-4.00-CAT40	38.1	1.50	85.9	101.6	4.00	23.9	60.7
CAT50							
SSMH-0.500-1.50-CAT50	12.7	0.50	36.6	38.1	1.50	14.2	25.4
SSMH-0.500-3.50-CAT50	12.7	0.50	36.6	88.9	3.50	14.2	25.4
SSMH-0.500-5.50-CAT50	12.7	0.50	36.6	139.7	5.50	14.2	25.4
SSMH-0.750-1.50-CAT50	19.1	0.75	44.5	38.1	1.50	17.5	28.7
SSMH-0.750-3.50-CAT50	19.1	0.75	44.5	88.9	3.50	17.5	28.7
SSMH-0.750-5.50-CAT50	19.1	0.75	44.5	139.7	5.50	17.5	28.7
SSMH-0.750-7.00-CAT50	19.1	0.75	44.5	177.8	7.00	17.5	28.7
SSMH-0.750-9.00-CAT50	19.1	0.75	44.5	228.6	9.00	17.5	28.7
SSMH-1.000-10.00-CAT50	25.4	1.00	55.6	254.0	10.00	17.5	40.1
SSMH-1.000-2.00-CAT50	25.4	1.00	55.6	50.8	2.00	17.5	40.1
SSMH-1.000-4.00-CAT50	25.4	1.00	55.6	101.6	4.00	17.5	40.1
SSMH-1.000-6.00-CAT50	25.4	1.00	55.6	152.4	6.00	17.5	40.1
SSMH-1.000-8.00-CAT50	25.4	1.00	55.6	203.2	8.00	17.5	40.1
SSMH-1.250-1.50-CAT50	31.8	1.25	69.9	38.1	1.50	17.5	50.3
SSMH-1.250-3.50-CAT50	31.8	1.25	69.9	88.9	3.50	17.5	50.3
SSMH-1.250-5.50-CAT50	31.8	1.25	69.9	139.7	5.50	17.5	50.3
SSMH-1.250-7.00-CAT50	31.8	1.25	69.9	177.8	7.00	17.5	50.3
SSMH-1.250-9.00-CAT50	31.8	1.25	69.9	228.6	9.00	17.5	50.3
SSMH-1.500-2.40-CAT50	38.1	1.50	85.9	61.0	2.40	23.9	60.7
SSMH-1.500-4.00-CAT50	38.1	1.50	85.9	101.6	4.00	23.9	60.7
SSMH-1.500-6.00-CAT50	38.1	1.50	85.9	152.4	6.00	23.9	60.7
SSMH-1.500-8.00-CAT50	38.1	1.50	85.9	203.2	8.00	23.9	60.7
SSMH-2.000-2.40-CAT50	50.8	2.00	123.9	61.0	2.40	23.9	77.2
SSMH-2.000-4.00-CAT50	50.8	2.00	123.9	101.6	4.00	23.9	77.2
SSMH-2.000-6.00-CAT50	50.8	2.00	123.9	152.4	6.00	23.9	77.2
SSMH-2.000-8.00-CAT50	50.8	2.00	123.9	203.2	8.00	23.9	77.2
SSMH-2.500-2.40-CAT50*	63.5	2.50	123.9	61.0	2.40	28.5	92.2
SSMH-2.500-4.00-CAT50*	63.5	2.50	123.9	101.6	4.00	28.5	92.2

*: Cap Screws need to be puchased separately

Shell Mill Holders — Balanced to G6.3 @ 8,000 RPM

Catalog Number	Dimensions						
	d (mm)	d (inch)	D (mm)	A (mm)	A (inch)	L_1 (mm)	D_1 (mm)
BT30							
SSMH-0.500-1.18-BT30	12.7	0.50	36.6	30.0	1.18	14.2	25.4
SSMH-0.750-1.18-BT30	19.1	0.75	44.5	30.0	1.18	17.5	28.7
SSMH-1.000-1.77-BT30	25.4	1.00	55.6	45.0	1.77	17.5	40.1
SSMH-16-40-BT30	16	–	38	40	–	17	–
SSMH-22-40-BT30	22	–	48	40	–	19	–
SSMH-27-40-BT30	27	–	58	40	–	21	–
BT40							
SSMH-0.500-4.00-BT40	12.7	0.50	36.6	101.6	4.00	14.2	25.4
SSMH-0.750-1.77-BT40	19.1	0.75	44.5	45.0	1.77	17.5	28.7
SSMH-0.750-4.00-BT40	19.1	0.75	44.5	101.6	4.00	17.5	28.7
SSMH-0.750-6.00-BT40	19.1	0.75	44.5	152.4	6.00	17.5	28.7
SSMH-1.000-1.77-BT40	25.4	1.00	55.6	45.0	1.77	17.5	40.1
SSMH-1.000-4.00-BT40	25.4	1.00	55.6	101.6	4.00	17.5	40.1
SSMH-1.000-6.00-BT40	25.4	1.00	55.6	152.4	6.00	17.5	40.1
SSMH-1.250-2.36-BT40	31.8	1.25	69.9	59.9	2.36	17.5	50.3
SSMH-1.250-5.00-BT40	31.8	1.25	69.9	127.0	5.00	17.5	50.3
SSMH-1.500-2.36-BT40	38.1	1.50	85.9	59.9	2.36	23.9	60.7
SSMH-1.500-5.00-BT40	38.1	1.50	85.9	127.0	5.00	23.9	60.7
SSMH-16-100-BT40	16	–	38	100	–	17	–
SSMH-16-40-BT40	16	–	38	40	–	17	–
SSMH-22-100-BT40	22	–	48	100	–	19	–
SSMH-22-160-BT40	22	–	48	160	–	19	–
SSMH-22-40-BT40	22	–	48	40	–	19	–
SSMH-27-100-BT40	27	–	58	100	–	21	–
SSMH-27-160-BT40	27	–	58	160	–	21	–
SSMH-27-40-BT40	27	–	58	40	–	21	–
SSMH-32-100-BT40	32	–	78	100	–	24	–
SSMH-32-50-BT40	32	–	78	50	–	24	–
SSMH-40-100-BT40	40	–	88	100	–	27	–
SSMH-40-50-BT40	40	–	88	50	–	27	–



Shell Mill Holders	Balanced to G2.5 @ 15,000 RPM					
Catalog Number	Dimensions					
	d (*mm*)	d (inch)	D (*mm*)	A (*mm*)	A (inch)	L_1 (*mm*)
HSK63						
SSMH-0.500-2.00-HSKA63	*12.7*	0.50	*36.6*	*50.8*	2.00	*14.2*
SSMH-0.750-2.00-HSKA63	*19.1*	0.75	*44.5*	*50.8*	2.00	*17.5*
SSMH-1.000-2.25-HSKA63	*25.4*	1.00	*55.6*	*57.2*	2.25	*17.5*
SSMH-1.250-2.25-HSKA63	*31.8*	1.25	*69.9*	*57.2*	2.25	*17.5*
SSMH-1.500-2.25-HSKA63	*38.1*	1.50	*58.9*	*57.2*	2.25	*23.9*
SSMH-16-100-HSKA63	*16*	–	*38*	*100*	3.94	*17*
SSMH-16-50-HSKA63	*16*	–	*38*	*50*	1.97	*17*
SSMH-22-100-HSKA63	*22*	–	*48*	*100*	3.94	*19*
SSMH-22-50-HSKA63	*22*	–	*48*	*50*	1.97	*19*
SSMH-27-100-HSKA63	*27*	–	*58*	*100*	3.94	*21*
SSMH-27-60-HSKA63	*27*	–	*58*	*60*	2.36	*21*
SSMH-32-100-HSKA63	*32*	–	*78*	*100*	3.94	*24*
SSMH-32-60-HSKA63	*32*	–	*78*	*60*	2.36	*24*
SSMH-40-100-HSKA63	*40*	–	*88*	*100*	3.94	*27*
SSMH-40-60-HSKA63	*40*	–	*88*	*60*	2.36	*27*

Clamping Nut – ER to DIN 6499 – Balanced

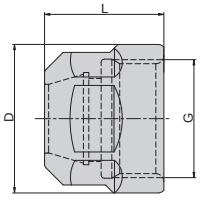


Fig. 1

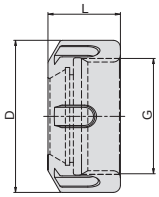
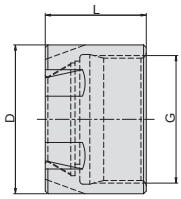


Fig. 2

Catalog Number	Dimensions (*mm*)				Fig
	Size	D	L	G	
ER16-DIN6499	1-10	*28.0*	*17.5*	M22x1.5	1
ER20-DIN6499	1-13	*34.0*	*19.0*	M25x1.5	1
ER25-DIN6499	2-16	*42.0*	*20.0*	M32x1.5	2
ER32-DIN6499	2-20	*50.0*	*22.5*	M40x1.5	2
ER40-DIN6499	3-26	*63.0*	*25.5*	M50x1.5	2

Clamping Nut – "Mini" ER



Catalog Number	Dimensions (*mm*)				Fig
	Size	D	L	G	
ER11M	1-7	*16.0*	*11.3*	M13x0.75	-
ER16M	1-10	*22.0*	*17.0*	M19x1.0	-
ER20M	1-13	*28.0*	*19.0*	M24x1.0	-
ER25M	2-16	*35.0*	*20.0*	M30x1.0	-

Clamping Nut – ER for Sealing Discs

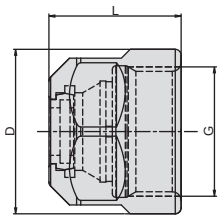


Fig. 1

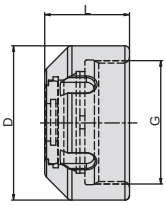


Fig. 2

Catalog Number	Dimensions (*mm*)				Fig
	Size	D	L	G	
ER16-IC	1-10	*28.0*	*22.5*	M22x1.5	1
ER20-IC	1-13	*34.0*	*24.0*	M25x1.5	1
ER25-IC	2-16	*42.0*	*25.0*	M32x1.5	2
ER32-IC	2-20	*50.0*	*27.5*	M40x1.5	2
ER40-IC	3-26	*63.0*	*30.5*	M50x1.5	2

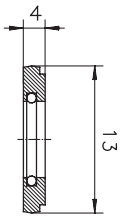


Fig
SD ER 16

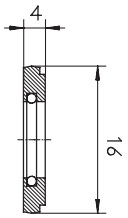


Fig
SD ER 20

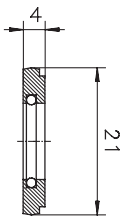


Fig
SD ER 25

Sealing Discs for ER-IC Clamping Nuts		
Catalog Number	Dimensions	
	Sealing Capacity (*mm*)	Sealing Capacity (inch)
Sealing Discs for ER16-IC Clamping Nuts (Inch & Metric)		
SD-ER16-3.0-2.5mm	*3.0-2.5*	0.1181"-0.0984"
SD-ER16-3.5-3.0mm	*3.5-3.0*	0.1378"-0.1181"
SD-ER16-4.0-3.5mm	*4.0-3.5*	0.1575"-0.1378"
SD-ER16-4.5-4.0mm	*4.5-4.0*	0.1772"-0.1575"
SD-ER16-5.0-4.5mm	*5.0-4.5*	0.1969"-0.1772"
SD-ER16-5.5-5.0mm	*5.5-5.0*	0.2165"-0.1969"
SD-ER16-6.0-5.5mm	*6.0-5.5*	0.2362"-0.2160"
SD-ER16-6.5-6.0mm	*6.5-6.0*	0.2559"-0.2362"
SD-ER16-7.0-6.5mm	*7.0-6.5*	0.2756"-0.2559"
SD-ER16-7.5-7.0mm	*7.5-7.0*	0.2953"-0.2756"
SD-ER16-8.0-7.5mm	*8.0-7.5*	0.3150"-0.2953"
SD-ER16-8.5-8.0mm	*8.5-8.0*	0.3347"-0.3150"
SD-ER16-9.0-8.5mm	*9.0-8.5*	0.3543"-0.3347"
SD-ER16-9.5-9.0mm	*9.5-9.0*	0.3740"-0.3543"
SD-ER16-10.0-9.5mm	*10.0-9.5*	0.3937"-0.3740"
Sealing Discs for ER20-IC Clamping Nuts (Inch & Metric)		
SD-ER20-3.0-2.5mm	*3.0-2.5*	0.1181"-0.0984"
SD-ER20-3.5-3.0mm	*3.5-3.0*	0.1378"-0.1181"
SD-ER20-4.0-3.5mm	*4.0-3.5*	0.1575"-0.1378"
SD-ER20-4.5-4.0mm	*4.5-4.0*	0.1772"-0.1575"
SD-ER20-5.0-4.5mm	*5.0-4.5*	0.1969"-0.1772"
SD-ER20-5.5-5.0mm	*5.5-5.0*	0.2165"-0.1969"
SD-ER20-6.0-5.5mm	*6.0-5.5*	0.2362"-0.2160"
SD-ER20-6.5-6.0mm	*6.5-6.0*	0.2559"-0.2362"
SD-ER20-7.0-6.5mm	*7.0-6.5*	0.2756"-0.2559"
SD-ER20-7.5-7.0mm	*7.5-7.0*	0.2953"-0.2756"
SD-ER20-8.0-7.5mm	*8.0-7.5*	0.3150"-0.2953"
SD-ER20-8.5-8.0mm	*8.5-8.0*	0.3347"-0.3150"
SD-ER20-9.0-8.5mm	*9.0-8.5*	0.3543"-0.3347"
SD-ER20-9.5-8.0mm	*9.5-9.0*	0.3740"-0.3543"
SD-ER20-10.0-9.5mm	*10.0-9.5*	0.3937"-0.3740"
SD-ER20-10.5-10mm	*10.5-10.0*	0.4134"-0.3937"
SD-ER20-11.0-10.5mm	*11.0-10.5*	0.4330"-0.4134"
SD-ER20-11.5-11.0mm	*11.5-11.0*	0.4528"-0.4330"
SD-ER20-12.0-11.5mm	*12.0-11.5*	0.4724"-0.4528"
SD-ER20-12.5-12.0mm	*12.5-12.0*	0.4921"-0.4724"
SD-ER20-13.0-12.5mm	*13.0-12.5*	0.5118"-0.4921"
Sealing Discs for ER25-IC Clamping Nuts (Inch & Metric)		
SD-ER25-3.0-2.5mm	*3.0-2.5*	0.1181"-0.0984"
SD-ER25-3.5-3.0mm	*3.5-3.0*	0.1378"-0.1181"
SD-ER25-4.0-3.5mm	*4.0-3.5*	0.1575"-0.1378"
SD-ER25-4.5-4.0mm	*4.5-4.0*	0.1772"-0.1575"
SD-ER25-5.0-4.5mm	*5.0-4.5*	0.1969"-0.1772"
SD-ER25-5.5-5.0mm	*5.5-5.0*	0.2165"-0.1969"
SD-ER25-6.0-5.5mm	*6.0-5.5*	0.2362"-0.2160"
SD-ER25-6.5-6.0mm	*6.5-6.0*	0.2559"-0.2362"
SD-ER25-7.0-6.5mm	*7.0-6.5*	0.2756"-0.2559"
SD-ER25-7.5-7.0mm	*7.5-7.0*	0.2953"-0.2756"
SD-ER25-8.0-7.5mm	*8.0-7.5*	0.3150"-0.2953"
SD-ER25-8.5-8.0mm	*8.5-8.0*	0.3347"-0.3150"
SD-ER25-9.0-8.5mm	*9.0-8.5*	0.3543"-0.3347"
SD-ER25-9.5-9.0mm	*9.5-9.0*	0.3740"-0.3543"
SD-ER25-10.0-9.5mm	*10.0-9.5*	0.3937"-0.3740"
SD-ER25-10.5-10.0mm	*10.5-10.0*	0.4134"-0.3937"
SD-ER25-11.0-10.5mm	*11.0-10.5*	0.4330"-0.4134"
SD-ER25-11.5-11.0mm	*11.5-11.0*	0.4528"-0.4330"
SD-ER25-12.0-11.5mm	*12.0-11.5*	0.4724"-0.4528"
SD-ER25-12.5-12.0mm	*12.5-12.0*	0.4921"-0.4724"
SD-ER25-13.0-12.5mm	*13.0-12.5*	0.5118"-0.4921"
SD-ER25-13.5-13.0mm	*13.5-13.0*	0.5315"-0.5118"
SD-ER25-14.0-13.5mm	*14.0-13.5*	0.5512"-0.5315"
SD-ER25-14.5-14.0mm	*14.5-14.0*	0.5709"-0.5512"
SD-ER25-15.0-14.5mm	*15.0-14.5*	0.5905"-0.5709"
SD-ER25-15.5-15.0mm	*15.5-15.0*	0.6102"-0.5905"
SD-ER25-16.0-15.5mm	*16.0-15.5*	0.6300"-0.6102"

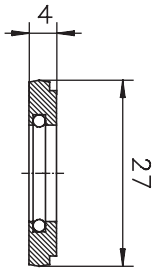


Fig
SD ER 32

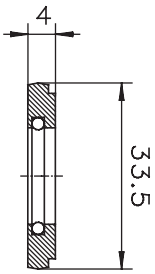
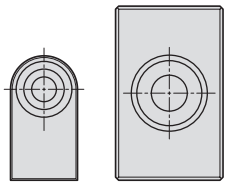


Fig
SD ER 40

Sealing Discs for ER-IC Clamping Nuts		
Catalog Number	Dimensions	
	Sealing Capacity (*mm*)	Sealing Capacity (inch)
Sealing Discs for ER32-IC Clamping Nuts (Inch & Metric)		
SD-ER32-3.0-2.5mm	*3.0-2.5*	0.1181"-0.0984"
SD-ER32-3.5-3.0mm	*3.5-3.0*	0.1378"-0.1181"
SD-ER32-4.0-3.5mm	*4.0-3.5*	0.1575"-0.1378"
SD-ER32-4.5-4.0mm	*4.5-4.0*	0.1772"-0.1575"
SD-ER32-5.0-4.5mm	*5.0-4.5*	0.1969"-0.1772"
SD-ER32-5.5-5.0mm	*5.5-5.0*	0.2165"-0.1969"
SD-ER32-6.0-5.5mm	*6.0-5.5*	0.2362"-0.2160"
SD-ER32-6.5-6.0mm	*6.5-6.0*	0.2559"-0.2362"
SD-ER32-7.0-6.5mm	*7.0-6.5*	0.2756"-0.2559"
SD-ER32-7.5-7.0mm	*7.5-7.0*	0.2953"-0.2756"
SD-ER32-8.0-7.5mm	*8.0-7.5*	0.3150"-0.2953"
SD-ER32-8.5-8.0mm	*8.5-8.0*	0.3347"-0.3150"
SD-ER32-9.0-8.5mm	*9.0-8.5*	0.3543"-0.3347"
SD-ER32-9.5-9.0mm	*9.5-9.0*	0.3740"-0.3543"
SD-ER32-10.0-9.5mm	*10.0-9.5*	0.3937"-0.3740"
SD-ER32-10.5-10.0mm	*10.5-10.0*	0.4134"-0.3937"
SD-ER32-11.0-10.5mm	*11.0-10.5*	0.4330"-0.4134"
SD-ER32-11.5-11.0mm	*11.5-11.0*	0.4528"-0.4330"
SD-ER32-12.0-11.5mm	*12.0-11.5*	0.4724"-0.4528"
SD-ER32-12.5-12.0mm	*12.5-12.0*	0.4921"-0.4724"
SD-ER32-13.0-12.5mm	*13.0-12.5*	0.5118"-0.4921"
SD-ER32-13.5-13.0mm	*13.5-13.0*	0.5315"-0.5118"
SD-ER32-14.0-13.5mm	*14.0-13.5*	0.5512"-0.5315"
SD-ER32-14.5-14.0mm	*14.5-14.0*	0.5709"-0.5512"
SD-ER32-15.0-14.5mm	*15.0-14.5*	0.5905"-0.5709"
SD-ER32-15.5-15.0mm	*15.5-15.0*	0.6102"-0.5905"
SD-ER32-16.0-15.5mm	*16.0-15.5*	0.6300"-0.6102"
SD-ER32-16.5-16.0mm	*16.5-16.0*	0.6496"-0.6300"
SD-ER32-17.0-16.5mm	*17.0-16.5*	0.6693"-0.6496"
SD-ER32-19.0-18.5mm	*19.0-18.5*	0.7480"-0.7284"
SD-ER32-19.5-19.0mm	*19.5-19.0*	0.7677"-0.7480"
SD-ER32-20.0-19.5mm	*20.0-19.5*	0.7874"-0.7677"

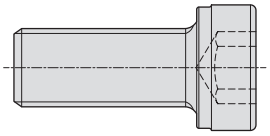
Sealing Discs for ER-IC Clamping Nuts		
Catalog Number	Dimensions	
	Sealing Capacity (*mm*)	Sealing Capacity (inch)
Sealing Discs for ER40-IC Clamping Nuts (Inch & Metric)		
SD-ER40-3.0-2.5mm	*3.0-2.5*	0.1181"-0.0984"
SD-ER40-3.5-3.0mm	*3.5-3.0*	0.1378"-0.1181"
SD-ER40-4.0-3.5mm	*4.0-3.5*	0.1575"-0.1378"
SD-ER40-4.5-4.0mm	*4.5-4.0*	0.1772"-0.1575"
SD-ER40-5.0-4.5mm	*5.0-4.5*	0.1969"-0.1772"
SD-ER40-5.5-5.0mm	*5.5-5.0*	0.2165"-0.1969"
SD-ER40-6.0-5.5mm	*6.0-5.5*	0.2362"-0.2160"
SD-ER40-6.5-6.0mm	*6.5-6.0*	0.2559"-0.2362"
SD-ER40-7.0-6.5mm	*7.0-6.5*	0.2756"-0.2559"
SD-ER40-7.5-7.0mm	*7.5-7.0*	0.2953"-0.2756"
SD-ER40-8.0-7.5mm	*8.0-7.5*	0.3150"-0.2953"
SD-ER40-8.5-8.0mm	*8.5-8.0*	0.3347"-0.3150"
SD-ER40-9.0-8.5mm	*9.0-8.5*	0.3543"-0.3347"
SD-ER40-9.5-9.0mm	*9.5-9.0*	0.3740"-0.3543"
SD-ER40-10.0-9.5mm	*10.0-9.5*	0.3937"-0.3740"
SD-ER40-10.5-10.0mm	*10.5-10.0*	0.4134"-0.3937"
SD-ER40-11.0-10.5mm	*11.0-10.5*	0.4330"-0.4134"
SD-ER40-11.5-11.0mm	*11.5-11.0*	0.4528"-0.4330"
SD-ER40-12.0-11.5mm	*12.0-11.5*	0.4724"-0.4528"
SD-ER40-12.5-12.0mm	*12.5-12.0*	0.4921"-0.4724"
SD-ER40-13.0-12.5mm	*13.0-12.5*	0.5118"-0.4921"
SD-ER40-13.5-13.0mm	*13.5-13.0*	0.5315"-0.5118"
SD-ER40-14.0-13.5mm	*14.0-13.5*	0.5512"-0.5315"
SD-ER40-14.5-14.0mm	*14.5-14.0*	0.5709"-0.5512"
SD-ER40-15.0-14.5mm	*15.0-14.5*	0.5905"-0.5709"
SD-ER40-15.5-15.0mm	*15.5-15.0*	0.6102"-0.5905"
SD-ER40-16.0-15.5mm	*16.0-15.5*	0.6300"-0.6102"
SD-ER40-16.5-16.0mm	*16.5-16.0*	0.6496"-0.6300"
SD-ER40-17.0-16.5mm	*17.0-16.5*	0.6693"-0.6496"
SD-ER40-17.5-17.0mm	*17.5-17.0*	0.6890"-0.6693"
SD-ER40-18.0-17.5mm	*18.0-17.5*	0.7087"-0.6890"
SD-ER40-18.5-18.0mm	*18.5-18.0*	0.7284"-0.7087"
SD-ER40-19.0-18.5mm	*19.0-18.5*	0.7480"-0.7284"
SD-ER40-19.5-19.0mm	*19.5-19.0*	0.7677"-0.7480"
SD-ER40-20.0-19.5mm	*20.0-19.5*	0.7874"-0.7677"
SD-ER40-20.5-20.0mm	*20.5-20.0*	0.8070"-0.7874"
SD-ER40-21.0-20.5mm	*21.0-20.5*	0.8267"-0.8070"
SD-ER40-21.5-21.0mm	*21.5-21.0*	0.8464"-0.8267"
SD-ER40-22.0-21.5mm	*22.0-21.5*	0.8661"-0.8464"
SD-ER40-22.5-22.0mm	*22.5-22.0*	0.8857"-0.8661"
SD-ER40-23.0-22.5mm	*23.0-22.5*	0.9055"-0.8857"
SD-ER40-23.5-23.0mm	*23.5-23.0*	0.9251"-0.9055'
SD-ER40-24.0-23.5mm	*24.0-23.5*	0.9448"-0.9251"
SD-ER40-24.5-24.0mm	*24.5-24.0*	0.9645"-0.9448"
SD-ER40-25.0-24.5mm	*25.0-24.5*	0.9842"-0.9645"
SD-ER40-25.5-25.0mm	*25.5-25.0*	1.0039"-0.9842"
SD-ER40-26.0-25.5mm	*26.0-25.5*	1.0236"-1.0039"

Drive Key for Inch Shell Mill Holders



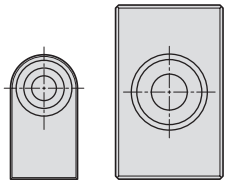
Catalog Number	For Size (inch)
SM64750	0.500"
SM64751	0.750"
SM64752	1.000"
SM64753	1.250"
SM64754	1.500"
SM64755	2.000"
SM64756	2.500"

Locking Screw for Inch Shell Mill Holders



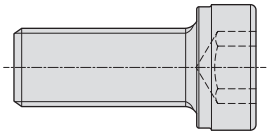
Catalog Number	For Size (inch)
SM64830	0.500"
SM64831	0.750"
SM64832	1.000"
SM64833	1.250"
SM64834	1.500"
SM64835	2.000"
SM64836	2.500"

Drive Key for Metric Shell Mill Holders



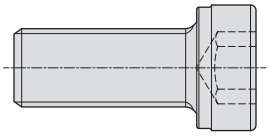
Catalog Number	For Size (*mm*)
SM16-8x8x14	*16*
SM22-10x10x17	*22*
SM27-12x14x20	*27*
SM32-14x14x22	*32*
SM40-15.9x16x21	*40*
SM60-25.4x25x31	*60*

Locking Screw for Metric Shell Mill Holders Drive Keys



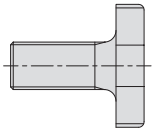
Catalog Number	For Size (*mm*)
M 3 x 8-DIN 912	*16*
M 4 X 8-DIN 912	*22*
M 4 X 14-DIN 912	*27*
M 5 X 13-DIN 912	*32*
M 6 X 16-DIN 912	*40*
M 12 X 25-DIN 912	*60*

Locking Screw for Metric Shell Mill Holders (Small Counterbore)



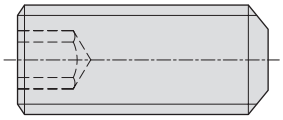
Catalog Number	For Size (*mm*)
M 8 x 20 DIN 912	*16*
M 10 x 30 DIN 912	*22*
M 12 x 35 DIN 912	*27*
M 16 x 40 DIN 912	*32*

Locking Screw for Metric Shell Mill Holders (Large Counterbore)



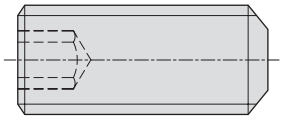
Catalog Number	For Size (*mm*)
M 8 x 16-DIN 6367	*16*
M 10 x 22-DIN 6367	*22*
M 12 x 27-DIN 6367	*27*
M 16 x 32-DIN 6367	*32*
M 20 x 40-DIN 6367	*40*

Locking Screw for End Mill Holders



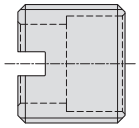
Catalog Number	For Size (inch)
6-32UNSC8	0.125"
8-32UNSC7	0.187"
1/4-28UNF-8	0.250"
5/16-24UNF-10	0.312"
3/8-24UNF-9	0.375"
7/16-20UNF-13	0.437"
7/16-20UNF-12	0.500"
1/2-20UNF-14	0.625"
5/8-18UNF-14	0.750" & 0.875"
3/4-16UNF-14	1.000"
3/4-16UNF-16	1.250" & 1.500"
1-14UNS-23	2.000"

Adjusting Screw Threaded Stud DIN 913 for End Mill Holders



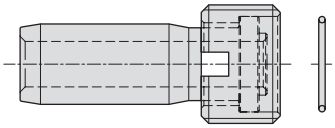
Catalog Number	For Size
M5x5 DIN913	CAT40/50
M5x6 DIN913	BT40
M6x10 DIN913	BT50

Adjusting Screw for ER Collet Chuck Holders



Catalog Number	For Size
M10 x 15-001	ER16
M12 x 15-001	ER20
M16 x 15-001	ER25
M22 x 1.5 x 15-001	ER32 & 40

Coolant Tube for HSK Holders



Catalog Number	For Size
CTHSK 32-10	HSK 32
CTHSK 40-12	HSK 40
CTHSK 50-16	HSK 50
CTHSK 63-18	HSK 63
CTHSK 80-20	HSK 80
CTHSK 100-24	HSK 100

Wrenches for Milling Chucks

Catalog Number	Size (*metric* & inch)
SC-20	*20* & 0.75"
SC-25	*25* & 1.000"
SC-32	*32* & 1.250"
SC-1.5"	1.5"
SC-2.0"	2.0"

Wrenches for ER Collect Holders

Fig. A

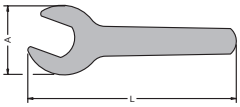


Fig. B

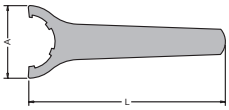


Fig. C

Catalog Number	For Clamping Nut	Dimensions (*mm*)			Fig
		A	L	G	
S-E11M	E11M	*16.8*	*90.0*	-	A
S-E16M	E16M	*22.5*	*110.0*	-	A
S-E20M	E20M	*29.0*	*120.0*	-	A
S-E25M	E25M	*36.0*	*130.0*	-	A
S-GS-SW25	ER16-DIN6499	*42.0*	*140.0*	-	B
S-E20	ER20-DIN6499	*54.0*	*168.0*	-	B
S-E25	ER25-DIN6499	*65.0*	*210.0*	-	C
S-E32	ER32-DIN6499	*75.0*	*250.0*	-	C
S-E40	ER40-DIN6499	*90.0*	*290.0*	-	C

Wrench for Shell Mill Holders Inch Locking Screws

Catalog Number	For Size (inch)
SM 3/16" hex key	0.500
SM 1/4" hex key	0.750
SM 5/16" hex key	1.000 & 1.250
SM 3/8" hex key	1.500
SM 1/2" hex key	2.000 & 2.500

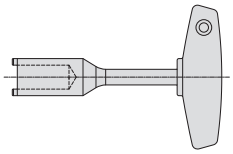
Wrench for Shell Mill Holders Metric Locking Screws (Small Counterbore)

Catalog Number	For Size (*mm*)
SM6 hex key	*16*
SM8 hex key	*22*
SM10 hex key	*27*
SM14 hex key	*32*
SM17 hex key	*40*

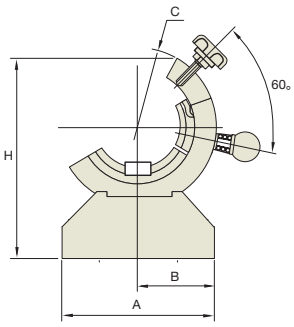
Wrench for Shell Mill Holders Metric Locking Screws (Large Counterbore)

Catalog Number	For Size (*mm*)
SM-16 DIN 6368	*16*
SM-22 DIN 6368	*22*
SM-27 DIN 6368	*27*
SM-32 DIN 6368	*32*
SM-40 DIN 6368	*40*

Wrench for HSK Coolant Tubes



Catalog Number	For Size
S-HSK 32-8.5x115	HSK 32
S-HSK 40-10.5x115	HSK 40
S-HSK 50-14.5x115	HSK 50
S-HSK 63-16.5x136	HSK 63
S-HSK 80-18.5x136	HSK 80
S-HSK 100-22x136	HSK 100



Tool Clamp

- No surface damage such as abrasion and scratch around taper shank closely associated with tool runout
- Easy to assemble and disassemble pull stud bolt
- Convenient and safe when using coolant tube wrench with milling chuck or ER collet chuck

Taper No.	Catalog Number	Dimensions (*mm*)				Weight (kg)
		A	B	C	H	
BT30	STCP30	*125*	*65*	*108*	*135*	3.0
BT40	STCP40	*160*	*80*	*138*	*180*	7.6
BT50	STCP50	*180*	*90*	*165*	*205*	8.6
SK30	STSK30	*125*	*65*	*108*	*135*	3.0
SK40	STSK40	*160*	*80*	*138*	*180*	7.6
SK50	STSK50	*180*	*90*	*165*	*205*	8.6

Spindle Cleaners – Professional Series

These easy to use wipers clean your spindles assuring that toolholder tapers make continuous positive contact for repeatable on-center performance. The wiper can also be used for cleaning the bores of collet chucks and Morse Taper holders.

Catalog Number	Description
ISO30	30-Taper Spindle Clean equipped with cleaning blades
ISO40	40-Taper Spindle Clean equipped with cleaning blades
ISO50	50-Taper Spindle Clean equipped with cleaning blades

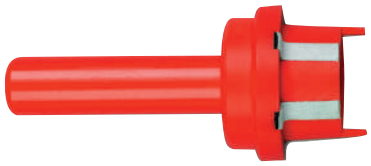
Taper Cleaners for HSK Tool Tapers

For cleaning HSK tool tapers. Plastic body with leather inserts.

For cleaning HSK tool tapers. Plastic body with leather inserts.

Catalog Number	HSK Form A/C/E
76.208.040	40
76.208.050	50
76.208.063	63

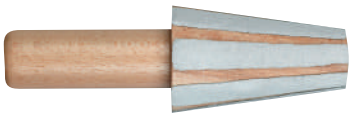
Taper Cleaners for HSK Spindles



For cleaning HSK spindle tapers. Plastic body with leather inserts.

Catalog Number	HSK Form A/C
76.205.032	32
76.205.040	40
76.205.050	50
76.205.063	63
76.205.080	80
76.205.100	100

Taper Cleaners for 7/24 Spindle Tapers (Steep Taper)



For cleaning 7/24 (Steep Taper) spindle tapers. Plastic body with leather inserts.

Catalog Number	CAT Size
76.200.030	30
76.200.040	40
76.200.050	50

PSZ Turn - Parts

Torque Wrench

Dimensions (Inch / *mm*)

Cat. No.	Applicable PSZ	Stock	Series	Clamping Screw
7000019-3NM	*.375 (10), .500 (12)*	●	*SW3.5*	Hexagon Socket
7000020-4NM	*.625 (16), .750 (20)*	●	*SW4.5*	

Torque Wrenches are sold separately from holders

High Perfomance Lubricant

Cat. No.	Stock
E25834	●

Lubricant is sold separately from holders

Hoses

Fig 1

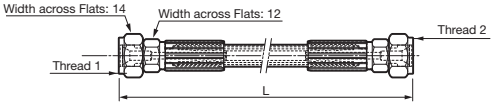


Fig 2

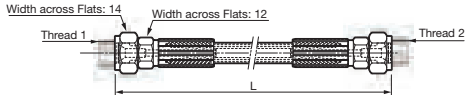


Fig 1

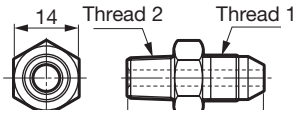
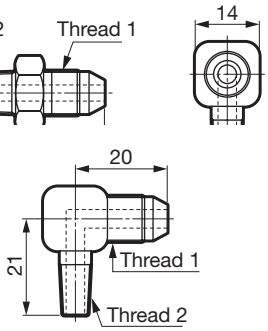


Fig 2



PSZ Parts (Hose)

Dimensions (inch / *mm*)

Cat. No.	Stock	L	End 1	End 2	Fig
J-HOSE-BSPT1/8M-BSPT1/8M-200	●	*200*	BSPT1/8M	BSPT1/8 M	2
J-HOSE-BSPT1/8M-BSPT1/8M-300	●	*300*	BSPT1/8M	BSPT1/8 M	2
J-HOSE-FJIC1/4-FJIC1/4-8.0	●	8.0	FJIC 1/4	FJIC 1/4	1
J-HOSE-FJIC1/4-FJIC1/4-10.0	●	10.0	FJIC 1/4	FJIC 1/4	1
J-HOSE-5/16-24M-5/16-24M-9.0	●	9.0	5/16-24M	5/16-24M	2
J-HOSE-M8X1M-M8X1M-9.0	●	9.0	M8X1 M	M8X1 M	2
J-HOSE-BSPP1/8M-BSPP1/8M-9.0	●	9.0	BSPP1/8 M	BSPP1/8 M	2

Hoses are sold separately.

Fig 2

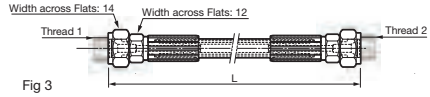
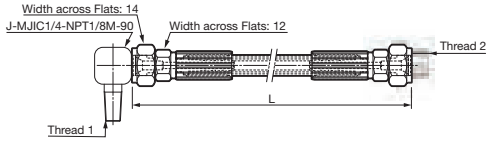


Fig 3



Parts (Connector)

Dimensions (*mm*)

Cat. No.	Stock	Angle	Thread 1	Thread 2	Fig
J-MJIC1/4-NPT1/8M	★	0°	MJIC1/4	NPT1/8 M	1
J-MJIC1/4-NPT1/8M-90	●	90°	MJIC 1/4	NPT1/8 M	2
J-FJIC1/4-BSPT1/8M	★	0°	FJIC1/4	BSPT1/8 M	1
J-MJIC1/4-5/16-24M	★	0°	MJIC1/4	5/16-24 M	1
J-MJIC1/4-M8X1M	★	0°	MJIC1/4	M8 X 1 M	1
J-MJIC1/4-BSPP1/8M	★	0°	MJIC1/4	BSPP1/8 M	1
J-MJIC1/4-BSPT1/8M	★	0°	MJIC1/4	BSPT1/8 M	1
J-MJIC1/4-5/16-24M-90	★	90°	MJIC1/4	5/16-24 M	2
J-MJIC1/4-BSPP1/8M-90	★	90°	MJIC1/4	BSPP1/8 M	2
J-MJIC1/4-NPT1/8F	★	0°	MJIC1/4	NPT1/8F	3
J-G1/8-R1/8-00	★	0°	G1/8	R1/8	1
J-G1/8-R1/8-90	★	90°	G1/8	R1/8	2
J-NPT1/8-G1/8-00	★	0°	NPT1/8	G1/8	1
J-NPT1/8-R1/8-00	★	0°	NPT1/8	R1/8	1

Parts (Hose Assembly)

Dimensions (inch/ *mm*)

Cat. No.	Stock	L	Thread 1	Thread 2	Fig
J-ASSY-NPT1/8M-NPT1/8M-90-8.0*	●	8.0	NPT1/8M	NPT1/8 M (90deg)	3
J-ASSY-NPT1/8M-NPT1/8M-90-10.0*	●	10.0	NPT1/8M	NPT1/8 M (90deg)	3
J-HOSE-G1/8-G1/8-200	●	*200*	G1/8	G1/8	2
J-HOSE-G1/8-G1/8-300	●	*300*	G1/8	G1/8	2
J-HOSE-MJIC1/4-NPT1/8-10.0	●	10.0	MJIC1/4	NPT1/8	2
J-HOSE-MJIC1/4-NPT1/8-8.0	●	8.0	MJIC1/4	NPT1/8	2
J-HOSE-R1/8-G1/8-200	●	*200*	R1/8	G1/8	2
J-HOSE-R1/8-G1/8-300	●	*300*	R1/8	G1/8	2

* Required separately sold MJIC Connectors to connect to holder or machine

Technical Guidance Reference
N35 to N77

N

Technical Guidance
Turning Edition ····· N36
Recommended Running Conditions ····· N40
Milling Edition ····· N53
Endmilling Edition ····· N59
Drilling Edition ····· N60
CBN Edition ····· N65
References ····· N69

The Basics of Turning, Turning Edition

■ Calculating Cutting Speed

(1) Calculating rotation speed from cutting speed

$$n = \frac{1{,}000 \times v_c}{\times D_m}$$

n : Spindle Speed (min^{-1})
v_c : Cutting speed (m/min)
D_m : Inner/outer diameter of workpiece (mm)
: $\pi \approx 3.14$

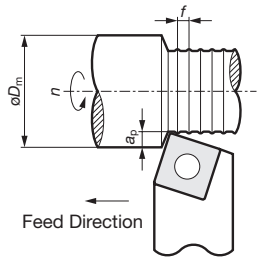
Example: v_c=150m/min, D_m=100mm

$$n = \frac{1{,}000 \times 150}{3.14 \times 100} = 478\ (min^{-1})$$

(2) Calculating cutting speed from rotational speed

$$v_c = \frac{\times D_m \times n}{1{,}000}$$

Refer to the above table



- n : Spindle speed (min^{-1})
- v_c : Cutting speed (m/min)
- f : Feed rate per revolution (mm/rev)
- a_p : Depth of cut (mm)
- D_m : Diameter of workpiece (mm)

■ Calculating Power Requirements

$$P_c = \frac{v_c \times f \times a_p \times k_c}{60 \times 10^3 \times}$$

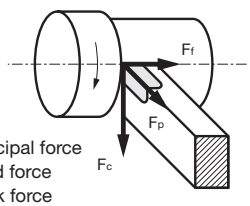
$$H = \frac{P_c}{0.75}$$

P_c : Power requirements (kW)
v_c : Cutting speed (m/min)
f : Feed Rate (mm/rev)
a_p : Depth of cut (mm)
k_c : Specific cutting force (MPa)
H : Required horsepower (HP)
: Machine efficiency (0.70 to 0.85)

● Rough value of kc

Aluminum: 800MPa
General steel: 2,500 to 3,000MPa
Cast iron: 1,500MPa

■ Three cutting force components



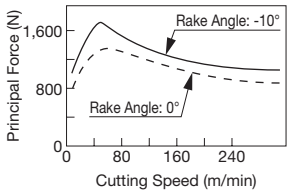
F_c : Principal force
F_f : Feed force
F_p : Back force

● Calculating cutting force

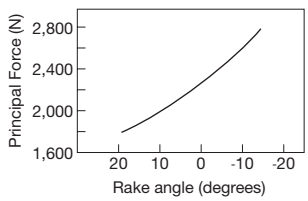
$$P = \frac{k_c \times q}{1{,}000} = \frac{k_c \times a_p \times f}{1{,}000}$$

P : Cutting force (kN)
k_c : Specific cutting force (MPa)
q : Chip area (mm^2)
a_p : Depth of Cut (mm)
f : Feed Rate (mm/rev)

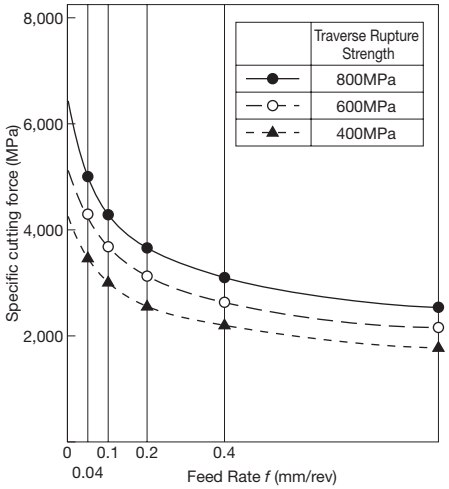
■ Relation between cutting speed and cutting force



■ Relation between rake angle and cutting force



■ Relation between feed rate and specific cutting force (for carbon steel)



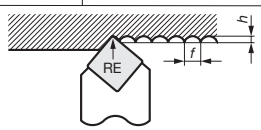
When feed rate decreases, specific cutting force increases.

■ Machined Surface Roughness

● Theoretical (geometrical) surface roughness

$$h = \frac{f^2}{8 \times RE} \times 10^3$$

h: Theoretical surface roughness (μm)
f : Feed rate per revolution (mm/rev)
RE: Nose radius (mm)



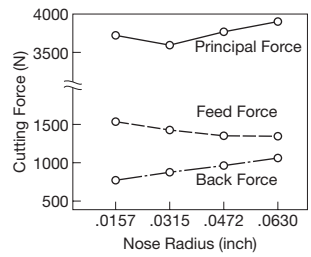
■ Actual surface roughness

Steel:
Theoretical surface roughness × 1.5 to 3
Cast iron:
Theoretical roughness × 3 to 5

● Ways to improve surface finish roughness

(1) Use an insert with a larger nose radius
(2) Optimise the cutting speed and feed rate so that built-up edges do not occur
(3) Select an appropriate insert grade
(4) Use wiper insert

■ Relation between nose radius and 3-part force

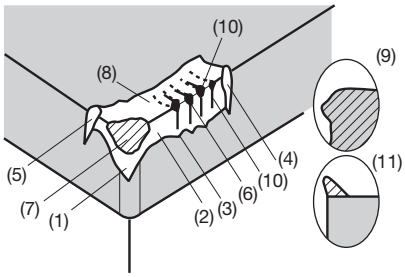


Large nose radius increases back force.

Part Material: Alloy Steel (38HS)
Insert: TNGA43○○
Holder: PTGNR2525-43
Cutting Conditions: v_c =330 SFM,
a_p =.157",
f =0.018 IPR

Forms of Tool Failure and Tool Life, Turning Edition

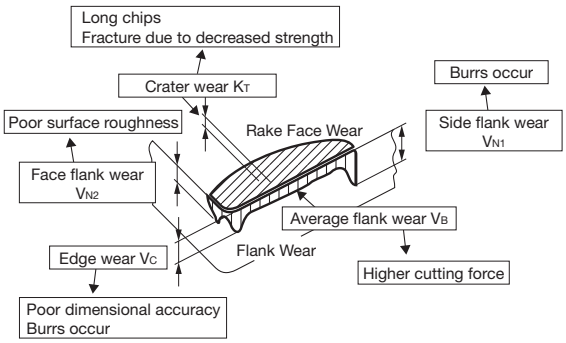
■ Forms of Tool Failure

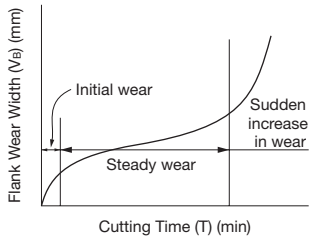
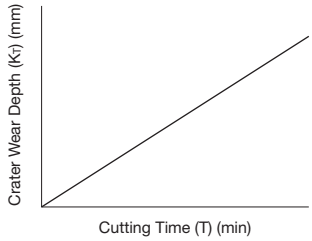


Classification	No.	Name of Failure	Major Causes of Failure
Failure Caused by Mechanical Factors	(1) to (5)	Flank Wear	Wear caused by the scratching effect of hard grains contained in the work material
	(6)	Chipping	Fine breakages caused by high cutting loads or vibration
	(7)	Fracture	Large breakage caused by the impact of an excessive mechanical force acting on the cutting edge
Failure Caused by Thermal and Chemical Reactions	(8)	Crater wear	Cutting chips removing tool material as it flows over its top rake at high temperatures
	(9)	Plastic deformation	Deformation of cutting edge due to softening at high temperatures
	(10)	Thermal cracking	Fatigue from rapid, repeated heating and cooling cycles during interrupted cutting
	(11)	Built-up edges	Work material is pressure welded on the top face of the cutting edge

■ Tool Wear Curve

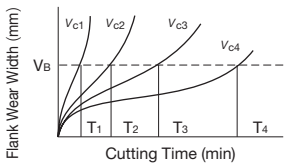
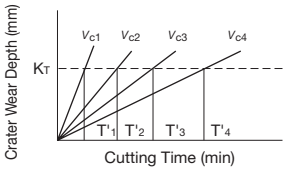
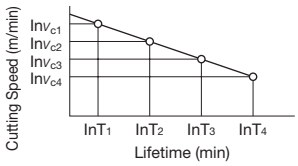
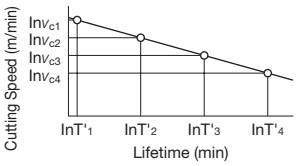
Forms of Tool Wear



Flank wear	Crater wear on rake face
	
· Wear increases rapidly right after starting cutting, then moderately and proportionally, and then rapidly again after a certain value	· Wear increases proportionately to the cutting time

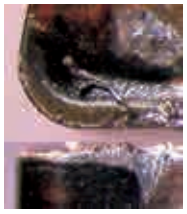
■ Tool Life (V-T)

· This double logarithm graph shows the relative tool life (T) with the specified wear over a range of cutting speeds (Vc) on the X axis, and the cutting speed along the Y axis

	Flank Wear	Crater wear
Tool wear		
Tool life		

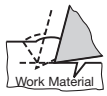
Cutting Edge Failure and Countermeasures, Turning Edition

■ Insert Failure and Countermeasures

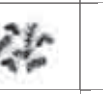
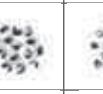
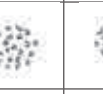
Insert Failure	Cause	Countermeasures
Flank Wear	· Tool grade lacks wear resistance · Cutting speed is too fast · Feed rate is far too slow	· Select a more wear-resistant grade P30→P20→P10 K20→K10→K01 · Increase rake angle · Decrease cutting speed · Increase feed rate
Crater Wear	· Tool grade lacks crater wear resistance · Rake angle is too small · Cutting speed is too fast · Feed rate and depth of cut are too large	· Select a more crater wear-resistant grade · Increase rake angle · Change the chipbreaker of the insert · Decrease cutting speed · Reduce feed rate and depth of cut
Cutting Edge Chipping	· Tool grade lacks toughness · Cutting edge breaks off due to chip adhesion · Cutting edge is not strong enough · Feed rate and depth of cut are too large	· Select a tougher grade P10→P20→P30 K01→K10→K20 · Increase amount of honing on cutting edge · Reduce rake angle · Reduce feed rate and depth of cut
Cutting Edge Fracture	· Tool grade lacks toughness · Cutting edge is not strong enough · Holder is not strong enough · Feed rate and depth of cut are too large	· Select a tougher grade P10→P20→P30 K01→K10→K20 · Select an insert chipbreaker with a strong cutting edge · Select a holder with a larger approach angle · Select a holder with a larger shank size · Reduce feed rate and depth of cut
Adhesion/Built-up Edges	· Inappropriate grade selection · Cutting edge is not sharp enough · Cutting speed is too slow · Feed rate is too slow	· Select a grade with less affinity to the work material Coated carbide or cermet grades · Select a grade with a smooth coating · Increase rake angle · Reduce honing · Increase cutting speed · Increase feed rate
Plastic Deformation	· Tool grade lacks thermal resistance · Cutting speed is too fast · Feed rate and depth of cut are too large · Not enough coolant	· Select a more crater wear-resistant grade · Increase rake angle · Decrease cutting speed · Reduce feed rate and depth of cut · Supply sufficient coolant
Notch Wear 	· Tool grade lacks wear resistance · Rake angle is too small · Cutting speed is too fast	· Select a more wear-resistant grade P30→P20→P10 K20→K10→K01 · Increase rake angle · Alter depth of cut to shift the notch location

Chip Control and Countermeasures, Turning Edition

■ Type of Chip Generation

	Flowing	Shearing	Tearing	Cracking
Type				
Condition	Continuous chips with good surface finish	Chip is sheared and separated by the shear angle	Chips appear to be torn from the surface	Chips crack before reaching the cutting point
Application	General cutting of steel and light alloy	Steel, stainless steel (low speed)	Steel, cast iron (very low speed, very small feed rate)	Cutting of general cast iron and carbon
Influence factor	Large ← Deformation of work material → Small Large ← Rake angle → Small Small ← Depth of cut → Large Large ← Cutting speed → Small			

■ Type of Chip Control

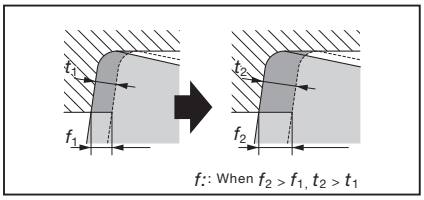
	Depth of cut	A	B	C	D	E
Classification of chip shapes	Large					
	Small					
Evaluation	NC lathe (for automation)	×	×	○	○	△
	General-purpose lathe (for safety)	×	○	○	○ to △	×

Good: C type, D type

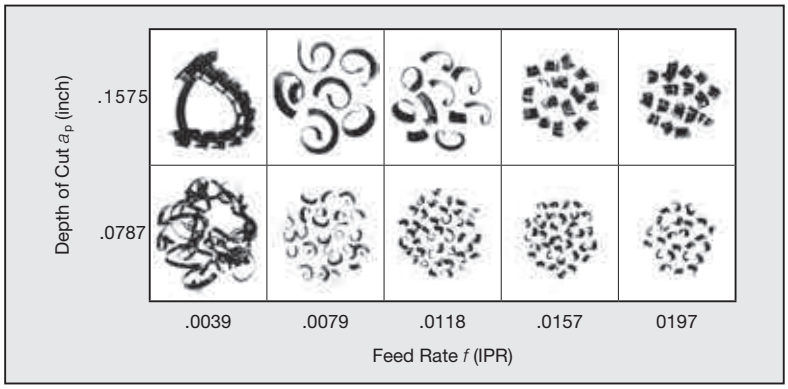
Poor
- A type: Twines around the tool or workpiece, damaging the machined surface and affecting safety
- B type: Causes problems in the automatic chip conveyor and chipping occurs easily
- E type: Causes spraying of chips and poor surface finish due to chattering, along with chipping, large cutting force and high temperatures

■ Factor of Improvement of Chip Control

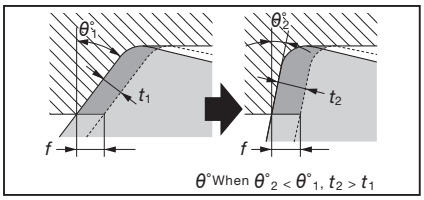
(1) Increase feed rate (f)



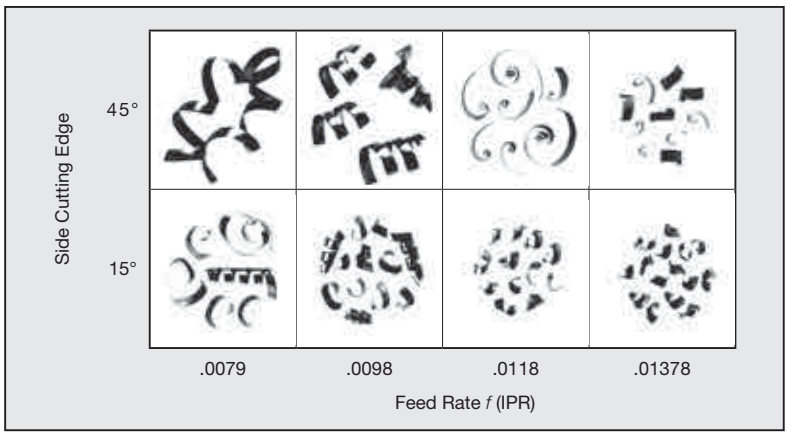
When the feed rate increases, the chip thickness (t) increases and chip control improves.



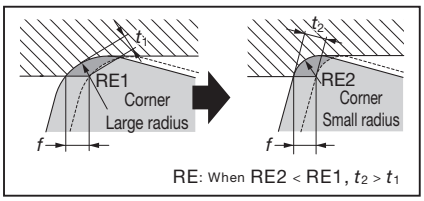
(2) Decrease side cutting edge (θ°)



Even if the feed rate is the same, a smaller side cutting edge angle makes chips thicker and chip control improves.

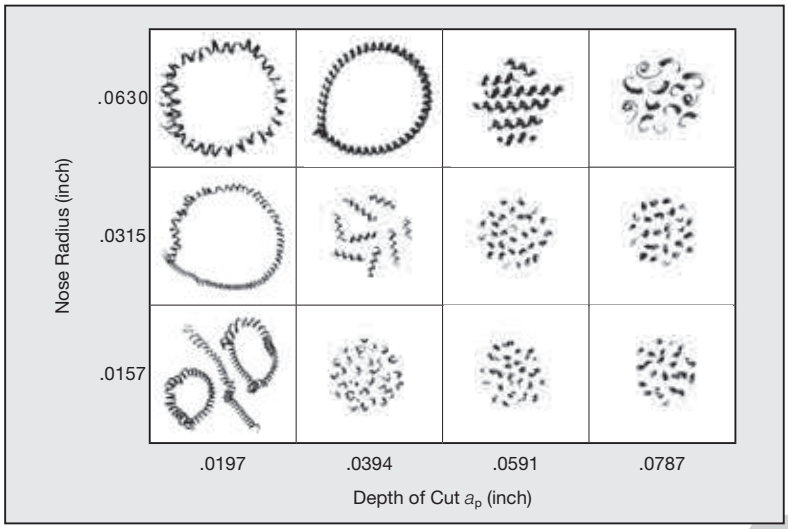


(3) Reduce nose radius (RE)



Even if the feed rate is the same, a smaller nose radius makes chips thicker and chip control improves.

* Cutting force increases proportionately to the length of the contact surface. Therefore, a larger nose radius increases back force which induces chattering. A smaller nose radius produces a rougher surface finish at the same feed rate.



Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .008 IPR. .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .015 ~ .026 IPR .200" D.O.C.
			CUTTING SPEED SFM		
LOW CARBON STEELS 1005, 1006, 1008, 1009, 1010, 1011, 1012, 1013, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1025, 1026, 1029, 1108, 1109, 1110, 1115, 1116, 1117, 1118, 1119, 1211, 1212, 1213, 1215, 1513, 1518, 1522	<250	T1500A	800~1700	800~1450	-
		T1500Z	800~1800	800~1550	-
		T2500Z	600~1500	600~1300	-
		AC8015P	**700~1800**	**700~1600**	**700~1200**
		AC810P	800~1600	800~1400	700~1100
		AC8020P	700~1600	700~1500	700~1200
		AC8025P	350~1200	350~1000	350~900
		AC820P	500~1200	500~1000	400~900
		AC8035P	300~700	300~900	300~900
		AC830P	-	500~900	400~850
	220~350	T1500A	700~1300	700~1200	-
		T1500Z	700~1450	700~1300	-
		T2500Z	500~1200	500~1100	-
		AC8015P	**700~1500**	**700~1400**	**700~1200**
		AC810P	700~1200	700~1100	600~950
		AC8020P	700~1500	700~1400	700~1200
		AC8025P	350~1000	350~900	350~800
		AC820P	500~1000	500~900	400~800
		AC8035P	300~700	300~800	300~800
		AC830P	-	500~800	400~750
	HRc 35~55	T1500A	400~750	400~650	-
		T1500Z	400~800	400~750	-
		T2500Z	300~750	300~750	-
		AC8015P	**600~1000**	**600~900**	**500~800**
		AC810P	400~600	400~550	350~550
		AC8020P	600~1000	600~900	500~800
		AC8025P	250~500	250~450	250~450
		AC820P	300~500	300~450	300~450
		AC8035P	200~450	200~450	200~450
		AC830P	250~450	200~400	200~400
		NB150H	400~1600	-	-
		NB90S	400~1400	-	-
LOW/MEDIUM CARBON STEEL -- LEADED 10L18, 10L45, 10L50, 11L17, 11L37, 11L41, 11L44, 12L13, 12L14, 12L15	<250	T1500A	1000~1650	1000~1550	-
		T1500Z	1000~1750	1000~1650	-
		T2500Z	600~1200	500~1100	-
		AC8015P	**600~1600**	**600~1500**	**600~1400**
		AC810P	1000~1500	1000~1400	900~1300
		AC8020P	600~1500	600~1500	600~1200
		AC8025P	600~1400	550~1300	500~1100
		AC820P	800~1400	750~1300	600~1100
		AC8035P	300~700	300~1000	300~1000
		AC830P	-	750~1200	650~1000
	250~350	T1500A	900~1350	800~1200	-
		T1500Z	900~1450	800~1300	-
		T2500Z	600~1200	500~1100	-
		AC8015P	**700~1500**	**700~1400**	**700~1200**
		AC810P	900~1200	800~1100	700~1000
		AC8020P	700~1500	600~1200	600~1200
		AC8025P	600~1000	500~900	450~900
		AC820P	800~1000	700~900	650~900
		AC8035P	300~700	300~800	300~800
		AC830P	-	700~900	650~900
	Chipbreaker Preference		ESE / ESU / ELU	EGE / EGU	EME / EMU

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .008 IPR. .005" ~ .060" D.O.C.	Gen. Purpose .010 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .015 ~ .026 IPR .200" D.O.C.
			CUTTING SPEED SFM		
MEDIUM CARBON STEELS 1030, 1033, 1035, 1037, 1038, 1039, 1040, 1042, 1043, 1044, 1045, 1046, 1049, 1050, 1053, 1055, 1132, 1137, 1139, 1140, 1141, 1144, 1145, 1146, 1151, 1524, 1525, 1526, 1527, 1536, 1541, 1547, 1548, 1551, 1552	<250	T1500A	900~1450	900~1300	-
		T1500Z	900~1550	900~1450	-
		T2500Z	600~1200	500~1100	-
		AC8015P	700~1500	700~1400	700~1200
		AC810P	900~1300	900~1200	800~1000
		AC8020P	**600~1500**	**600~1200**	**600~1000**
		AC8025P	600~1000	350~900	350~800
		AC820P	800~1000	500~900	450~800
		AC8035P	300~700	300~800	300~800
		AC830P	-	500~800	400~700
	220~350	T1500A	800~1300	700~1200	-
		T1500Z	800~1450	700~1300	-
		T2500Z	500~1200	500~1100	-
		AC8015P	700~1500	700~1400	700~1200
		AC810P	800~1200	700~1100	600~1000
		AC8020P	**600~1500**	**600~1200**	**600~1000**
		AC8025P	400~1000	350~900	350~900
		AC820P	600~1000	500~900	450~900
		AC8035P	300~700	300~800	300~800
		AC830P	-	500~850	400~800
	HRc 35~55	T1500A	600~1000	400~900	-
		T1500Z	600~1100	400~1000	-
		T2500Z	400~900	300~800	-
		AC8015P	700~1200	500~900	500~800
		AC810P	500~900	400~750	350~700
		AC8020P	**600~1200**	**500~900**	**500~900**
		AC8025P	350~750	300~700	300~550
		AC820P	400~750	350~700	300~550
		AC8035P	200~500	200~500	200~500
		AC830P	-	350~600	300~500
		NB150H	400~1600	-	-
		NB90S	400~1400	-	-
MEDIUM HIGH CARBON STEELS --LEADED 41L30, 41L40, 41L45, 41L47, 41L50, 43L40, 41L50, 43640, 51L32, 52L100, 86L20, 86L40	<250	T1500A	800~1550	800~1450	-
		T1500Z	800~1650	800~1550	-
		T2500Z	600~1400	500~1300	-
		AC8015P	800~1600	800~1500	600~1200
		AC810P	800~1400	800~1300	700~1100
		AC8020P	**600~1400**	**600~1200**	**600~1200**
		AC8025P	600~1200	500~1000	400~900
		AC820P	800~1200	700~1000	600~900
		AC8035P	300~700	300~800	300~800
		AC830P	-	650~950	550~800
	250~350	T1500A	800~1450	750~1300	-
		T1500Z	800~1550	750~1450	-
		T2500Z	600~1300	500~1200	-
		AC8015P	700~1500	700~1400	600~1200
		AC810P	800~1300	750~1200	650~1000
		AC8020P	**600~1400**	**600~1200**	**600~1200**
		AC8025P	500~1100	450~1000	400~900
		AC820P	700~1100	650~1000	550~900
		AC8035P	300~700	300~800	300~800
		AC830P	-	600~1000	500~800
	Chipbreaker Preference		ESE / ESU / ELU	EGE / EGU	EME / EMU

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .012 IPR. .005" ~ .060" D.O.C.	Gen. Purpose .010 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .015 ~ .026 IPR .200" D.O.C.
			CUTTING SPEED SFM		
ALLOY STEELS–MEDIUM CARBON 1340, 1345, 4042, 4047, 4140, 4142, 4145, 4147, 4340, 50B40, 40B44, 5046, 50B46, 5140, 5145, 5147, 81B45, 8640, 8642, 8645, 86B45, 8740, 8742, 4150, 4161, 50B50, 4060, 50B60, 5150, 5155, 5160, 51B60, 6150, 8650, 8655, 8660, 9254, 9255, 9260	<250	T1500A	700~1200	700~1100	-
		T1500Z	700~1300	700~1200	-
		T2500Z	500~1100	500~1000	-
		AC8015P	700~1400	700~1200	600~1000
		AC810P	700~1100	700~1000	500~800
		AC8020P	**600~1500**	**600~1200**	**600~1000**
		AC8025P	350~950	350~850	350~800
		AC820P	600~950	500~850	450~800
		AC8035P	250~650	300~800	300~800
		AC830P	-	500~800	400~700
	250~ 350	T1500A	600~1100	600~1000	-
		T1500Z	600~1200	600~1100	-
		T2500Z	400~1000	400~900	-
		AC8015P	700~1200	700~1100	600~900
		AC810P	600~1000	600~900	-
		AC8020P	**600~1200**	**600~1200**	**600~1000**
		AC8025P	350~900	350~800	350~750
		AC820P	500~900	450~800	400~750
		AC8035P	250~650	200~700	200~700
		AC830P	-	400~750	300~700
	HRc 35~55	T1500A	300~650	300~550	-
		T1500Z	300~800	300~650	-
		T2500Z	300~750	300~600	-
		AC8015P	600~900	500~900	500~800
		AC810P	300~600	300~500	200~500
		AC8020P	**600~1000**	**600~1000**	**500~900**
		AC8025P	250~500	200~450	150~400
		AC820P	250~500	200~450	150~400
		AC8035P	150~400	150~400	150~400
		AC830P	250~400	200~400	150~400
		NB150H	500~1000	-	-
		NB90S	500~900	-	-
HIGH CARBON STEELS 50100, 51100, 52100, M-50	<250	T1500A	800~1300	700~1200	-
		T1500Z	800~1450	700~1300	-
		T2500Z	600~1200	500~1100	-
		AC8015P	700~1500	700~1400	600~1200
		AC810P	800~1250	700~1150	600~1000
		AC8020P	**600~1400**	**600~1200**	**600~1200**
		AC8025P	350~850	250~750	250~700
		AC820P	450~850	300~750	300~700
		AC8035P	250~650	200~700	200~650
		AC830P	-	300~750	300~650
	250~350	T1500A	700~1200	600~1100	-
		T1500Z	700~1300	600~1200	-
		T2500Z	500~1100	400~1000	-
		AC8015P	700~1400	700~1300	600~1000
		AC810P	700~1150	600~1100	500~800
		AC8020P	**600~1300**	**600~1200**	**600~1000**
		AC8025P	350~550	350~750	350~650
		AC820P	550~850	500~750	400~650
		AC8035P	200~500	200~700	200~600
		AC830P	-	450~700	400~600
	Chipbreaker Preference		ESE / ESU / ELU	EGE / EGU	EME / EMU

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .012 IPR. .005" ~ .060" D.O.C.	Gen. Purpose .010 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .015 ~ .026 IPR .200" D.O.C.
			CUTTING SPEED SFM		
TOOL STEELS DIE STEELS	<250	T1500A	500~800	350~800	-
		T1500Z	500~950	350~900	-
		T2500Z	400~900	300~800	-
		AC8015P	600~1100	600~1000	600~900
		AC810P	500~900	350~800	300~750
		AC8020P	**600~1200**	**600~1200**	**600~1000**
		AC8025P	350~700	300~650	250~600
		AC820P	400~700	350~650	300~600
		AC8035P	300~700	200~600	200~600
		AC830P	-	350~650	300~600
	250~350	T1500A	650~1000	450~950	-
		T1500Z	500~900	350~900	-
		T2500Z	300~800	300~800	-
		AC8015P	600~1100	600~1000	600~900
		AC810P	500~900	450~800	350~750
		AC8020P	**600~1200**	**600~1100**	**600~1000**
		AC8025P	300~750	300~650	200~600
		AC820P	400~750	400~650	300~600
		AC8035P	300~700	200~600	200~600
		AC830P	-	300~650	200~600
	HRc 36-50	T1500A	350~550	300~550	-
		T1500Z	300~600	200~550	-
		T2500Z	250~550	200~500	-
		AC8015P	500~800	500~800	500~800
		AC810P	300~600	200~500	200~500
		AC8020P	**600~900**	**500~800**	**500~800**
		AC8025P	150~400	150~350	150~300
		AC820P	200~400	200~350	150~300
		AC8035P	150~350	150~350	150~300
		AC830P	200~400	200~350	150~300
		NB150H	300~800	-	-
		NB90S	300~600	-	-
HIGH STRENGTH STEELS 300M, 4340, 4340M 4340V, H13, H11, 50100, 51100, 52100, M-50	250~300	T1500A	600~1000	450~900	-
		T1500Z	550~1050	450~950	-
		T2500Z	500~1000	400~900	-
		AC8015P	600~1100	600~1000	600~900
		AC810P	500~950	350~850	300~700
		AC8020P	**600~1200**	**600~1100**	**600~1000**
		AC8025P	300~700	250~700	200~650
		AC820P	400~700	350~700	300~650
		AC8035P	200~600	200~600	200~600
		AC830P	-	350~700	300~600
	HRc 35-45	T1500A	550~900	350~850	-
		T1500Z	500~1000	350~950	-
		T2500Z	400~900	300~900	-
		AC8015P	600~1200	600~1000	600~1000
		AC810P	500~900	350~850	300~800
		AC8020P	**600~1200**	**500~1000**	**500~900**
		AC8025P	300~800	200~700	200~650
		AC820P	400~800	300~700	250~650
		AC8035P	150~600	150~600	150~600
		AC830P	-	300~650	250~600
	Chipbreaker Preference		ESE / ESU / ELU	EGE / EGU	EME / EMU

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .012 IPR. .005" ~ .060" D.O.C.	Gen. Purpose .010 ~ .020 IPR .040" ~ .200" D.O.C.	Roughing .015 ~ .026 IPR .200" D.O.C.
			CUTTING SPEED SFM		
STAINLES STEEL 300 SERIES AUSTENITIC	160~280	T1500A	350~850	300~650	-
		T1500Z	300~900	300~800	-
		T2500Z	250~850	250~750	-
		AC5005S	300~750	300~700	-
		AC5015S	300~750	300~700	-
		AC510U	300~700	300~650	-
		AC520U	250~550	300~550	300~550
		AC5025S	250~650	250~600	-
		AC530U	250~500	250~500	250~500
		EH510	300~500	300~500	-
		EH520	-	300~500	300~500
		AC8015P	500~900	500~800	500~700
		AC810P	450~750	400~700	-
		AC8020P	500~900	500~800	500~700
		AC8025P	300~700	250~700	250~600
		AC820P	-	300~600	300~550
		AC8035P	-	200~600	200~550
		AC830P	-	250~600	200~550
		AC6020M	350~800	300~700	300~650
		AC6030M	**350~750**	**300~650**	**300~600**
		AC630M	400~650	300~550	300~500
		AC6040M	350~650	300~600	300~500
STAINLESS STEEL 400 SERIES MARTENSITIC	160~260	T1500A	300~850	300~750	-
		T1500Z	300~950	300~850	-
		T2500Z	250~900	250~800	-
		AC5005S	300~750	300~700	-
		AC5015S	300~750	300~700	-
		AC510U	500~750	450~650	-
		AC5025S	250~650	250~600	-
		AC520U	400~650	400~600	300~500
		AC530U	300~600	300~550	300~500
		EH510	300~600	300~550	-
		EH520	300~600	300~550	300~500
		AC8015P	500~900	500~800	500~700
		AC810P	-	400~700	-
		AC8020P	500~900	500~800	500~700
		AC8025P	300~700	250~700	250~600
		AC820P	450~650	300~600	300~550
		AC8035P	-	200~600	200~550
		AC830P	-	250~600	200~550
		AC6020M	400~750	300~700	300~650
		AC6030M	**350~750**	**400~700**	**400~650**
		AC630M	300~650	300~600	300~550
		AC6040M	350~600	250~550	250~500
	Chipbreaker Preference		EEF / ESU	EEG / EEX / EUP	EEM / EMU

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR. .005” ~ .060” D.O.C.	Gen. Purpose .008 ~ .016 IPR .040” ~ .150” D.O.C.	Roughing .010 ~ .020 IPR .120” ~ .250” D.O.C.
			CUTTING SPEED SFM		
STAINLESS STEEL 400 SERIES MARTENSITIC cont.	260~380	T1500A	200~600	200~550	-
		T1500Z	200~700	200~650	-
		T2500Z	200~700	200~650	-
		AC5005S	300~750	300~700	-
		AC5015S	300~750	300~700	300~700
		AC510U	400~700	400~650	-
		AC520U	300~600	300~600	300~550
		AC5025S	250~750	250~700	250~600
		AC530U	300~550	300~500	300~500
		EH510	300~600	300~600	-
		EH520	-	300~550	250~500
		AC8015P	400~900	400~800	-
		AC810P	350~800	250~750	-
		AC8020P	400~900	400~800	-
		AC8025P	300~750	300~700	300~700
		AC820P	-	200~600	200~600
		AC8035P	-	200~700	200~700
		AC830P	-	200~600	200~600
		AC6020M	400~800	400~750	400~700
		AC6030M	**400~750**	**400~700**	**400~650**
		AC630M	300~650	300~600	300~550
		AC6040M	250~700	250~650	250~600
	HrC 36~46	T1500A	200~600	200~500	-
		T1500Z	200~700	200~650	-
		T2500Z	200~700	200~650	-
		AC5005S	300~700	300~650	-
		AC5015S	300~700	300~650	300~650
		AC510U	300~650	250~600	-
		AC520U	300~600	250~550	250~550
		AC5025S	250~650	250~600	250~600
		AC530U	250~550	250~500	250~500
		EH510	200~500	200~450	-
		EH520	-	200~450	200~400
		AC8015P	400~800	400~800	-
		AC810P	200~750	200~700	-
		AC8020P	400~800	400~800	-
		AC8025P	300~700	300~650	300~600
		AC820P	-	200~550	200~500
		AC8035P	-	200~600	200~550
		AC830P	-	200~550	200~500
		AC6020M	**350~800**	**350~700**	**350~650**
		AC6030M	200~700	200~650	200~600
		AC630M	200~650	200~600	200~550
		AC6040M	200~650	200~650	200~600
	Chipbreaker Preference		EEF / ESU	EEG / EEX / EUP	EEG / EMU

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR. .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .016 IPR .040" ~ .150" D.O.C.	Roughing .010 ~ .020 IPR .120" ~ .250" D.O.C.
			CUTTING SPEED SFM		
STAINLESS STEEL PRECIPITATION HARDENING 15-5PH, 16-6PH, 17-4, 17-7PH, 13-8Mo	160~260	T1500A	300~800	250~700	-
		T1500Z	300~900	250~750	-
		T2500Z	250~800	200~700	-
		AC5005S	300~900	300~900	-
		AC5015S	300~900	300~900	300~750
		AC510U	400~900	350~850	-
		AC520U	400~800	400~750	400~700
		AC5025S	250~800	250~750	250~700
		AC530U	300~600	300~550	300~500
		EH510	350~700	325~600	-
		EH520	-	300~650	250~550
		AC8015P	400~900	400~800	-
		AC810P	400~800	400~700	-
		AC8020P	400~900	400~800	-
		AC8025P	300~750	300~700	300~700
		AC820P	300~700	300~650	300~600
		AC8035P	-	200~700	200~650
		AC830P	-	300~650	300~600
		AC6020M	300~800	300~750	300~700
		AC6030M	**250~750**	**250~700**	**250~650**
		AC630M	200~650	200~600	200~550
		AC6040M	200~700	200~650	200~600
	25~36	T1500A	200~700	200~600	-
		T1500Z	300~800	300~750	-
		T2500Z	250~750	250~700	-
		AC5005S	300~900	300~800	-
		AC5015S	300~900	300~800	300~700
		AC510U	300~850	300~750	-
		AC520U	300~750	300~700	300~600
		AC5025S	250~800	250~750	250~700
		AC530U	250~600	250~550	250~500
		EH510	250~450	250~400	-
		EH520	-	250~450	250~425
		AC8015P	400~850	400~800	-
		AC810P	300~800	250~750	-
		AC8020P	400~850	400~800	-
		AC8025P	300~750	300~700	300~650
		AC820P	300~600	200~600	200~550
		AC8035P	-	200~650	200~550
		AC830P	-	200~600	200~500
		AC6020M	350~750	300~700	300~650
		AC6030M	**250~700**	**200~650**	**200~600**
		AC630M	300~650	300~600	300~550
		AC6040M	250~700	200~600	200~550
	36~46	T1500A	300~650	300~600	-
		T1500Z	300~700	300~650	-
		T2500Z	250~700	250~600	-
		AC5005S	300~750	300~750	-
		AC5015S	300~750	300~750	300~650
		AC510U	300~650	300~650	-
		AC520U	300~650	300~625	250~600
		AC5025S	200~700	200~700	200~600
		AC530U	250~550	250~500	250~500
		AC8015P	400~800	400~750	-
		AC810P	200~750	200~650	-
		AC8020P	400~800	400~750	-
		AC8025P	300~750	300~700	300~650
		AC820P	200~550	200~525	200~500
		AC8035P	-	200~550	200~500
		AC830P	-	200~500	200~450
		AC6020M	**350~800**	**350~750**	**350~650**
		AC6030M	250~750	200~650	200~600
		AC630M	300~650	300~600	300~550
		AC6040M	200~700	200~600	200~600
	Chipbreaker Preference		EEF / ESU	EEG / EEX / EUP	EEG / EMU

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR. .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .016 IPR .040" ~ .150" D.O.C.	Roughing .010 ~ .020 IPR .120" ~ .250" D.O.C.
			CUTTING SPEED SFM		
STAINLESS STEEL WROUGHT AUSTENITIC NITRONIC 32 NITRONIC 33 NITRONIC 40 NITRONIC 50 NITRONIC 60	160~260	T1500A	200~600	200~550	-
		T1500Z	200~700	200~650	-
		T2500Z	200~600	200~600	-
		EH510/520	250~600	200~500	150~400
		AC5005S	200~750	200~750	200~700
		AC5015S	200~750	200~750	200~700
		AC510U	200~750	200~750	200~700
		AC520U	200~750	200~700	200~700
		AC5025S	200~750	200~700	200~700
		AC530U	200~600	200~550	200~500
		AC6020M	300~800	250~750	250~650
		AC6030M	**250~750**	**250~650**	**200~600**
		AC6040M	200~750	200~600	200~500
HIGH TEMP. ALLOYS Nickel Base, Wrought Haynes Alloy 263, Incoloy Alloy 901, 903 Inconel Alloy 617, 625, 702, 706, 718, 721, 722, X-750, 751, M252 Nimonic 75, 80 Waspaloy	25~36	WX1500	600~1500	-	-
		WX2000	400~1500	400~1200	400~1000
		SN1000S	600~1200	600~1100	600~900
		EH510/520	40~130	30~110	30~90
		AC5005S	100~300	90~250	80~200
		AC5015S	**100~300**	**90~250**	**80~200**
		AC510U	90~200	80~180	80~150
		AC520U	90~180	70~150	50~120
		AC5025S	80~250	70~225	60~200
		AC530U	80~160	70~140	50~120
Nickel Base, Wrought Hastelloy Alloy	25~36	WX2000	400~1500	400~1200	400~1000
		SN1000S	600~1200	600~1100	600~900
		EH510/520	100~190	80~150	70~130
		AC5005S	100~300	90~250	80~200
		AC5015S	**100~300**	**90~250**	**80~200**
		AC510U	120~230	90~190	80~170
		AC520U	120~230	90~190	80~170
		AC5025S	100~250	80~225	70~200
		AC530U	80~180	80~150	50~150
Nickel Base, Wrought Incoloy Alloy 804, 825 Inconel Alloy 600, 601 Refractaloy 26	36~46	EH510/520	60~140	50~130	40~110
		AC5005S	100~250	80~200	60~175
		AC5015S	**100~250**	**80~200**	**60~175**
		AC510U	80~180	60~150	50~140
		AC520U	80~180	60~150	50~140
		AC5025S	75~225	70~200	70~200
		AC530U	70~150	50~140	50~120
		WX2000	400~1500	400~1200	400~1000
		SN1000S	600~1200	600~1100	600~900
Nickel Base, Cast Hastalloy Alloy	36~46	EH510/520	60~130	40~120	30~100
		AC5005S	100~250	80~200	60~175
		AC5015S	**100~250**	**80~200**	**60~175**
		AC510U	70~200	50~180	40~150
		AC520U	70~170	50~150	40~130
		AC5025S	75~225	70~200	70~200
		AC530U	60~150	50~130	40~120
		WX2000	400~1500	400~1200	400~1000
		SN1000S	600~1200	600~1100	600~900
	Chipbreaker Preference		EEF / ESU	EEG / EEX / EUP	EEG / EMU

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR. .005" ~ .060" D.O.C.	Gen. Purpose .008 ~ .016 IPR .040" ~ .150" D.O.C.	Roughing .010 ~ .020 IPR .120" ~ .250" D.O.C.
			CUTTING SPEED SFM		
HIGH TEMP ALLOYS IRON BASE, WROUGHT	180~230	AC5005S	100~300	80~250	80~225
		AC5015S	**100~300**	**80~250**	**80~225**
		AC510U	120~220	100~200	80~180
		AC520U	120~220	100~200	80~180
		AC5025S	100~250	75~225	70~200
		AC530U	80~150	80~120	70~100
		WX1500	600~1500	-	-
		WX2000	400~1500	400~1200	400~1000
		SN1000S	600~1200	600~1100	600~900
	250~320	AC5005S	100~300	80~250	80~225
		AC5015S	**100~300**	**80~250**	**80~225**
		AC510U	120~210	90~190	75~160
		AC520U	120~210	90~190	75~160
		AC5025S	100~250	75~225	70~200
		AC530U	80~180	80~160	50~120
		WX1500	600~1500	-	-
		WX2000	400~1500	400~1200	400~1000
		SN1000S	600~1200	600~1100	600~900
COBALT BASE	250-320	AC5005S	100~300	80~250	80~225
		AC5015S	**100~300**	**80~250**	**80~225**
		AC510U	110~210	100~180	80~160
		AC520U	110~210	100~180	80~160
		AC5025S	100~250	75~225	70~200
		AC530U	80~180	70~150	50~120
		WX1500	600~1500	-	-
		WX2000	400~1500	400~1200	400~1000
		SN1000S	600~1200	600~1100	600~900
STELLITE	250-320	AC5005S	100~300	80~250	80~225
		AC5015S	**100~300**	**80~250**	**80~225**
		AC510U	110~200	100~170	80~150
		AC520U	110~200	100~170	80~150
		AC5025S	100~250	75~225	70~200
		AC530U	80~180	80~150	50~120
		WX1500	600~1500	-	-
		WX2000	300~1500	300~1200	300~1000
		SN1000S	600~1200	600~1100	600~900
PURE TITANIUM	250-320	EH510/520	100~180	90~160	70~140
		H1	100~180	90~160	70~140
		DL1000	100~300	80~250	80~200
		AC5005S	100~300	80~250	80~200
		AC5015S	**100~300**	**80~250**	**80~200**
		AC510U	100~190	90~170	80~140
		AC520U	100~190	90~170	80~140
		AC5025S	100~250	75~225	70~200
		AC530U	80~150	70~130	50~120
TITANIUM ALLOY Ti-6AL-4V	250-320	EH510/520	100~180	90~160	70~140
		H1	100~180	90~160	70~140
		DL1000	100~300	80~250	80~200
		AC5005S	100~300	80~250	80~200
		AC5015S	**100~300**	**80~250**	**80~200**
		AC510U	120~210	120~190	100~160
		AC520U	120~210	120~190	100~160
		AC5025S	100~250	75~225	70~200
		AC530U	80~170	70~150	50~120
ALUMINUM ALLOYS BRASS ALLOYS	250-320	**DA1000***	**1000~10000**	**1000~10000**	-
		DA2200*	1000~10000	1000~10000	-
		DA150*	1000~10000	1000~10000	-
		H1	**500~2000**	**500~2000**	**500~2000**
		DL1000	**500~3000**	**500~3000**	**500~3000**
		EH510/520	800~1700	700~1200	700~1000
		AC5005S	500~1800	500~1600	500~1400
		AC5015S	500~1600	500~1400	500~1200
		AC510U	500~1500	500~1200	500~1000
		AC520U	500~1500	500~1200	500~1000
		AC5025S	500~1600	500~1400	500~1200
		G10E	800~1500	700~1200	700~1000
	Chipbreaker Preference		EEF / ESU	EEG / EEX / EUP	EEG / EMU

* mark: To be replaced by a new product, made to order or discontinued (please confirm stock availability)

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR. .005” ~ .060” D.O.C.	Gen. Purpose .008 ~ .016 IPR .040” ~ .150” D.O.C.	Roughing .010 ~ .020 IPR .120” ~ .250” D.O.C.
			CUTTING SPEED SFM		
COPPER ALLOYS WROUGHT 145, 147, 173, 187, 191, 314, 316, 330, 332, 335, 340, 342, 349, 350, 353, 356, 360, 365, 366, 367, 368, 370, 377, 385, 482, 485, 544, 623, 624, 638, 642, 782		**DA1000***	**2000~3300**	**2000~3300**	-
		DA2200*	2000~3300	2000~3300	-
		DA150*	2000~3300	2000~3300	-
		H1	500~2000	500~2000	500~2000
		DL1000	500~2000	500~2000	500~2000
		EH510/520	800~1300	800~1200	700~1100
		AC5005S	1000~1800	1000~1600	800~1400
		AC5015S	**1000~1800**	**1000~1600**	**800~1400**
		AC510U	1200~1700	1100~1500	900~1300
		AC520U	1200~1700	1100~1500	900~1300
		AC5025S	1000~1800	1000~1600	800~1400
		G10E	800~1100	800~1000	700~900
190, 226, 230, 240, 260, 268, 270, 280, 425, 435, 442, 443, 444, 445, 464, 465, 466, 467,613, 618, 630, 632, 651, 655, 667, 675, 687, 694, 770		**DA1000***	**2000~3300**	**2000~3300**	-
		DA2200*	2000~3300	2000~3300	-
		DA150*	2000~3300	2000~3300	-
		H1	500~2000	500~2000	500~2000
		DL1000	500~2000	500~2000	500~2000
		EH510/520	800~1100	600~950	500~850
		AC5005S	1000~1800	1000~1600	800~1400
		AC5015S	**800~1500**	**800~1300**	**700~1200**
		AC510U	900~1300	800~1150	700~1000
		AC520U	900~1300	800~1150	700~1000
		AC5025S	800~1500	800~1300	700~1200
		G10E	800~900	600~750	500~650
411, 413, 505, 512 ,511, 521, 524, 608, 610 ,614, 619, 625, 674, 688, 706, 710 ,715, 7285, 745		**DA1000***	**2000~3300**	**2000~3300**	-
		DA2200*	2000~3300	2000~3300	-
		DA150*	2000~3300	2000~3300	-
		H1	500~2000	500~2000	500~2000
		DL1000	500~2000	500~2000	500~2000
		EH510/520	250~550	200~500	150~450
		AC5005S	1000~1800	1000~1600	800~1400
		AC5015S	**400~1000**	**300~900**	**250~800**
		AC510U	450~750	350~650	300~600
		AC520U	450~750	350~650	300~600
		AC5025S	400~1000	300~900	250~800
		G10E	250~350	200~300	150~250
	Chipbreaker Preference		EEF / ESU	EEG / EEX / EUP	EEG / EMU

* mark: To be replaced by a new product, made to order or discontinued (please confirm stock availability)

Recommended Running Conditions

Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR. .005” ~ .060” D.O.C.	Gen. Purpose .008 ~ .016 IPR .040” ~ .150” D.O.C.	Roughing .010 ~ .020 IPR .120” ~ .250” D.O.C.
			CUTTING SPEED SFM		
COPPER ALLOYS, CAST 834, 836, 938, 842, 844, 848, 852, 8545, 8955, 857, 858, 864, 867, 879, 928, 932, 934, 935, 937, 938, 939, 943, 944, 945, 953, 954, 956, 973, 974, 976, 078		**DA1000***	**2000~3300**	**2000~3300**	-
		DA2200*	2000~3300	2000~3300	-
		DA150*	2000~3300	2000~3300	-
		H1	1000~1400	850~1250	750~1150
		DL1000	500~2000	500~1750	500~1500
		EH510/520	1000~1400	850~1250	750~1150
		AC5005S	1000~1800	1000~1600	800~1400
		AC5015S	**1000~1800**	**1000~1600**	**800~1400**
		AC510U	1200~1600	1050~1500	950~1400
		AC520U	1200~1600	1050~1500	950~1400
		AC5025S	1000~1800	1000~1600	800~1400
		G10E	1000~1200	850~1050	750~950
817, 821, 833, 853, 861, 862, 865, 888, 872, 874, 875, 876, 878, 903, 905, 915, 9022, 923, 9059, 926, 927, 947, 948, 952, 955, 957, 958		**DA1000***	**2000~3300**	**2000~3300**	-
		DA2200*	2000~3300	2000~3300	-
		DA150*	2000~3300	2000~3300	-
		H1	700~1100	550~850	500~800
		DL1000	500~2000	500~1750	500~1500
		EH510/520	700~1100	550~850	500~800
		AC5005S	800~1500	800~1300	700~1200
		AC5015S	**800~1500**	**800~1300**	**700~1200**
		AC510U	950~1350	700~1100	650~1050
		AC520U	950~1350	700~1100	650~1050
		AC5025S	800~1500	800~1300	700~1200
		G10E	700~900	550~650	500~600
801, 803, 805, 807, 809, 811, 813, 814, 815, 818, 820 ,822, 824, 825, 826, 827, 828, 863, 902, 907, 909, 910, 911, 913, 916, 917, 962, 963, 964, 966, 993		**DA1000***	**2000~3300**	**2000~3300**	-
		DA2200*	2000~3300	2000~3300	-
		DA150*	2000~3300	2000~3300	-
		H1	300~600	175~500	150~450
		DL1000	500~2000	500~1500	500~1000
		EH510/520	300~600	175~500	150~450
		AC5005S	400~1000	300~900	250~800
		AC5015S	**400~1000**	**300~900**	**250~800**
		AC510U	500~850	350~725	325~675
		AC520U	500~850	325~725	325~675
		AC5025S	400~1000	300~900	250~800
		G10E	300~400	175~300	150~250
	Chipbreaker Preference		EEF / ESU	EEG / EEX / EUP	EEG / EMU

* mark: To be replaced by a new product, made to order or discontinued (please confirm stock availability)

Recommended Running Conditions

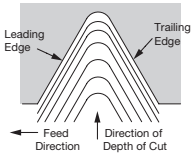
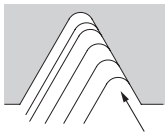
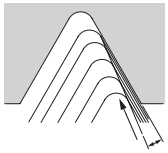
Recommended First Choice

Material	Hardness	Grade	Machining Parameters		
			Finishing .002 ~ .010 IPR. .005” ~ .060” D.O.C.	Gen. Purpose .008 ~ .016 IPR .040” ~ .150” D.O.C.	Roughing .010 ~ .020 IPR .120” ~ .250” D.O.C.
			CUTTING SPEED SFM		
GRAY CAST IRON	<220	SN2000K	1000~3500	800~3500	800~2500
		SN2100K	1000~3500	800~3500	800~2500
		T2000Z	600~1400	500~1200	-
		AC405K	700~1700	700~1500	600~1400
		AC4010K	**600~2000**	**600~1800**	**600~1600**
		AC4015K	600~1800	500~1500	500~1200
		AC415K	600~1600	500~1300	400~1000
		AC4125K	500~1600	500~1300	400~1100
		AC420K	600~1500	500~1200	400~1000
		AC700G	-	400~1200	400~900
		AC820P	-	600~1000	500~900
		G10E	200~350	150~300	100~250
		G10E	200~350	150~300	100~250
	>220	SN2000K	1000~3500	800~3500	600~2500
		SN2100K	1000~3500	800~3500	600~2500
		T1500Z	500~1350	400~1100	-
		AC405K	600~1600	600~1500	600~1400
		AC4010K	**600~2000**	**600~1800**	**600~1600**
		AC4015K	600~1800	500~1500	500~1200
		AC415K	550~1600	500~1200	450~1000
		AC4125K	500~1600	400~1200	400~1100
		AC420K	500~1500	450~1100	400~1000
		AC700G	-	300~1200	400~1000
		AC820P	-	600~1000	500~900
		G10E	200~300	150~300	100~250
DUCTILE IRON NODULAR IRON	<220	T1500Z	350~1000	400~950	-
		SN2000K	600~1700	600~1500	500~1100
		SN2100K	600~1700	600~1500	500~1100
		AC405K	600~1700	600~1500	600~1400
		AC4010K	600~2000	600~1800	600~1600
		AC4015K	**600~1800**	**500~1500**	**500~1200**
		AC415K	500~1500	500~1200	400~1000
		AC4125K	500~1500	500~1200	400~1100
		AC420K	500~1400	500~1100	400~1000
		AC700G	-	500~1100	400~1000
		AC820P	-	600~950	600~900
		AC510U	500~800	400~750	350~600
	>220	T1500Z	330~900	330~850	-
		SN2000K	500~1700	500~1500	400~1000
		SN2100K	500~1700	500~1500	400~1000
		AC405K	500~1700	500~1500	500~1100
		AC4010K	600~1600	600~1400	600~1200
		AC4015K	**300~1500**	**300~1300**	**300~1100**
		AC415K	400~1300	400~1100	300~1000
		AC4125K	300~1300	300~1100	300~1000
		AC420K	400~1100	400~1000	300~900
		AC700G	-	400~900	300~800
		AC820P	-	500~900	450~850
		AC510U	500~800	300~700	300~600
	Chipbreaker Preference		ENZ / FLAT TOP	EGZ / FLAT TOP	EGZ / FLAT TOP

* mark: To be replaced by a new product, made to order or discontinued (please confirm stock availability)

The Basics of Threading, Turning Edition

■ Thread Cutting Methods

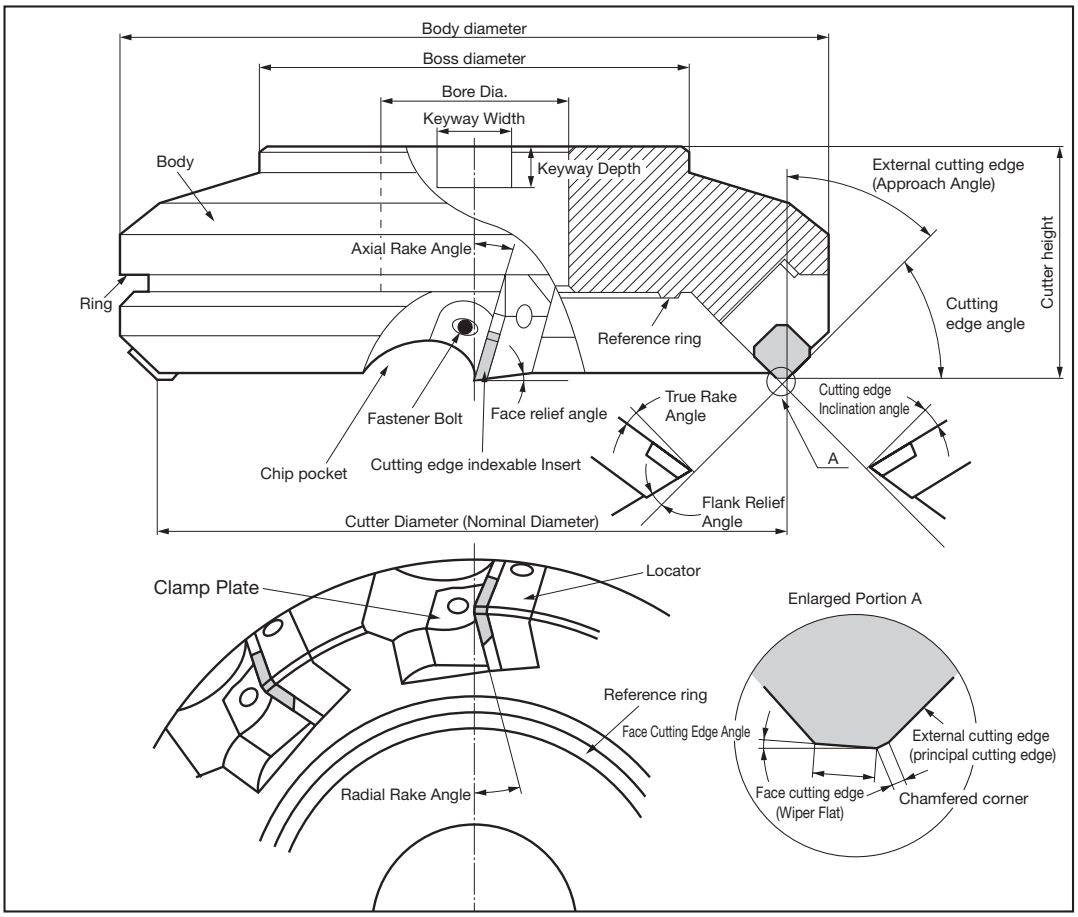
Cutting Method	Features
Radial Infeed 	· Most common threading technique, used mainly for small pitch threads. · Easy to change cutting conditions such as depth of cut, etc. · Long contact point has a tendency to chatter. · Chip control is difficult. · Considerable damage tends to occur on the trailing edge side.
Flank Infeed 	· Effective for large-pitch threads and blemish-prone work material surfaces. · Chips evacuate from one side for good chip control. · The trailing edge side is worn, and therefore the flank is easily worn.
Modified Flank Infeed 	· Effective for large-pitch threads and blemish-prone work material surfaces. · Chips evacuate from one side for good chip control. · Inhibits flank wear on trailing edge side.
Alternating Flank Infeed	· Effective for large-pitch threads and blemish-prone work material surfaces. · Wears evenly on right and left cut edges. · Since both edges are used alternately, chip control is sometimes difficult.

■ Troubleshooting for Threading

	Failure	Cause	Countermeasures
Cutting Edge Damage	Excessive Wear	· Tool grade	· Select a more wear-resistant grade
		· Cutting conditions	· Reduce cutting speed · Use a suitable quantity and concentration of coolant · Change the number of passes
	Uneven Wear on Right and Left Sides	· Tool mounting	· Check whether the cutting edge inclination angle is appropriate for the thread lead angle · Check whether the tool is mounted properly
		· Cutting conditions	· Change to modified flank infeed or alternating flank infeed
	Chipping	· Cutting conditions	· If built-up edge occurs, increase the cutting speed
	Breakage	· Biting of chips	· Supply enough coolant to the cutting edge
		· Cutting conditions	· Increase the number of passes and reduce the depth of cut for each pass · Use separate tools for roughing and finishing
Shape and Accuracy	Poor Surface Roughness	· Cutting conditions	· If blemished due to low-speed machining, increase the cutting speed · If chattering occurs, decrease the cutting speed · If the depth of cut of the final pass is too small, make it larger
		· Tool grade	· Select a more wear-resistant grade
		· Inappropriate cutting edge inclination angle	· Select the correct shim to ensure relief on the side of the insert
	Inappropriate Thread Shape	· Tool mounting	· Check whether the tool is mounted properly
	Shallow Thread Depth	· Shallow depth of cut	· Check the depth of cut
		· Tool wear	· Check damage to the cutting edge

The Basics of Milling

■ Parts



■ Milling Calculation Formulas

● Calculating Cutting Speed (Inch)

$SFM = 0.262 \times DC \times n$

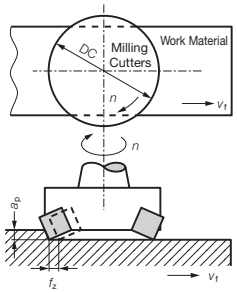
$$n = \frac{3.82 \times SFM}{DC}$$

● Calculating Feed Rate (Inch)

$v_f = IPR \times n$

$$IPR = \frac{v_f}{n}$$

v_c : Cutting speed (SFM)
π : $\pi \approx 3.14$
DC : Nominal cutting diameter (inch)
n : Rotation speed (min^{-1}) (RPM)
v_f : Feed rate per minute (inch/min)
f_z : Feed rate per tooth (inch/t)



● Calculating power requirements

$$P_c = \frac{a_e \times a_p \times v_f \times k_c}{60 \times 10^6 \times \eta} = \frac{Q \times k_c}{60 \times 10^3 \times \eta}$$

● Horsepower requirements

$$H = \frac{P_c}{0.75}$$

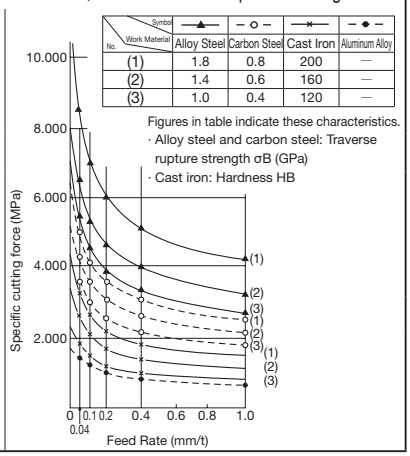
● Chip evacuation amount

$$Q = \frac{a_e \times a_p \times v_f}{1{,}000}$$

P_c: Power consumption (kw)
H : Required horsepower (HP)
Q : Chip evacuation amount (cm^3/min)
a_e: Cutting width (mm)
v_f : Feed rate per minute (mm/min)
a_p: Depth of cut (mm)
k_c : Cutting force (MPa)
Rough values (Steel: 2,500 to 3,000MPa / Cast iron: 1,500MPa / Aluminum: 800MPa)
η : Machine efficiency (about 0.75)

● Relation between feed rate, work material and specific cutting force

No. \ Work Material	Alloy Steel	Carbon Steel	Cast Iron	Aluminum Alloy
(1)	1.8	0.8	200	—
(2)	1.4	0.6	160	—
(3)	1.0	0.4	120	—

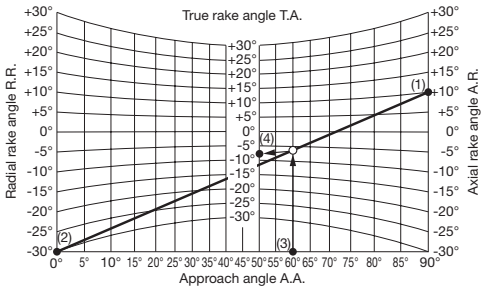


The Basics of Milling

■ Functions of cutting edge angles

	Material	Symbol	Function	Effect
(1) (2)	Axial rake angle Radial rake angle	A.R. R.R.	Determines chip evacuation direction, adhesion, thrust, etc.	Available in positive to negative (large to small) rake angles. Typical combinations: Positive and Negative, Positive and Positive, Negative and Negative
(3)	Approach angle	A.A.	Determines chip thickness and chip evacuation direction	Large: Thin chips Small cutting force
(4)	True rake angle	T.A.	Effective rake angle	Positive (Large): Excellent machinability and low chip adhesion. Low cutting edge strength Negative (Small): Strong cutting edge and easy chip adhesion
(5)	Cutting edge inclination angle	I.A.	Determines chip control direction	Positive (Large): Excellent chip control and small cutting force. Low cutting edge strength
(6)	Face cutting edge angle	F.A.	Determines surface finish roughness	Small: Excellent surface roughness
(7)	Relief angle		Determines cutting edge strength, tool life, chattering	

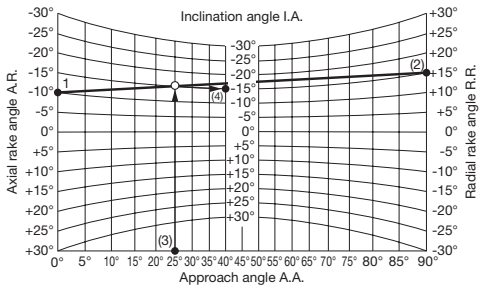
True rake angle (T.A.) table



Example: (1) A.R. (Axial rake angle) = +10°
(2) R.R. (Radial rake angle) = -30°
(3) A.A. (Approach angle) = 60°
-> (4) T.A. (True rake angle) = -8°

Formula: tan T.A.=tan R.R./cos A.A. + tan A.R./sin A.A.

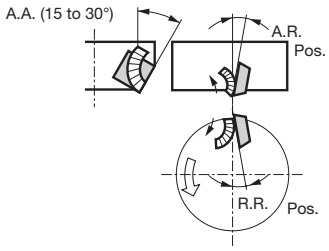
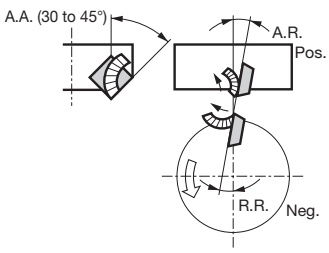
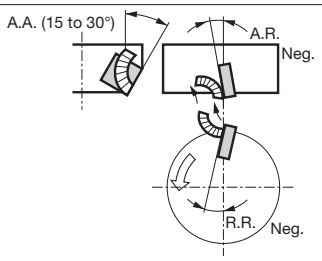
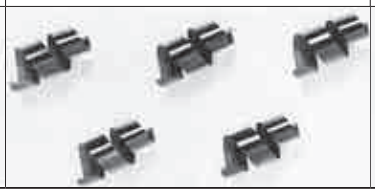
Inclination angle (I.A.) chart



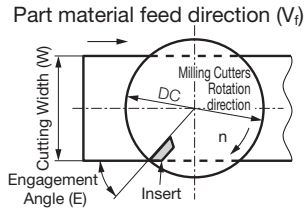
Example: (1) A.R. (Axial rake angle) = -10°
(2) R.R. (Radial rake angle) = +15°
(3) A.A. (Approach angle) = 25°
-> (4) I (inclination angle) = -15°

Formula: tan I.R.=tan A.R./cos A.A. - tan R.R./sin A.A.

■ Rake angle combination and features

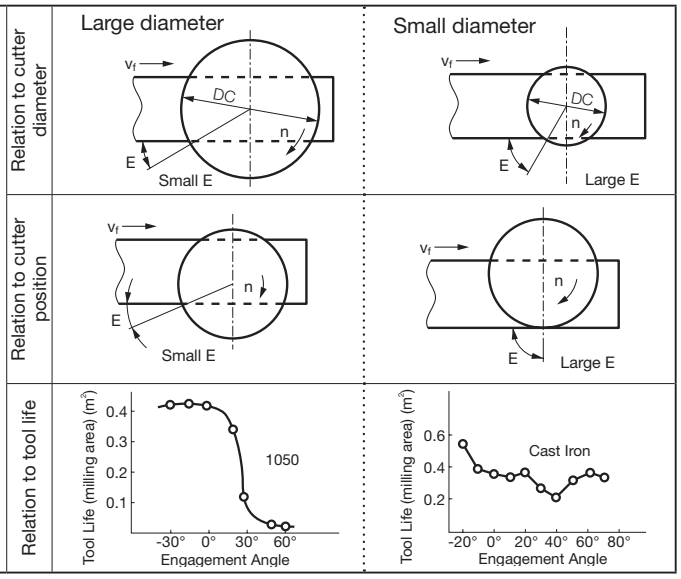
	Double Positive type	Negative - Positive type	Double Negative type
Edge combination and chip evacuation A.R.: Axial rake angle R.R : Radial rake angle A.A.: Approach angle : Chip and evacuation direction : Cutter rotation direction			
Advantages	Good sharpness	Excellent chip evacuation and sharpness	Economical design enabling use of both sides of insert Strong cutting edge
Disadvantages	Only single-sided inserts with a lower cutting edge strength can be used	Only single-sided inserts can be used	Dull cutting action
Applications	Machining of aluminum alloy and other materials requiring sharpness	Machining of steel, cast iron, and stainless steel, with suitable strength and good evacuation	For hard materials such as cast iron or poor surfaces such as castings
Cat. No.	ALNEX, HF, WAX	WGX, WFX, RSX, WEZ	TSX, DGC, DFC, DNX
Chips (Ex.) Part material: Alloy Steel · v_c=430 SFM f_z =.009 in./t a_p=.118”			

■ Relation between engagement angle and tool life



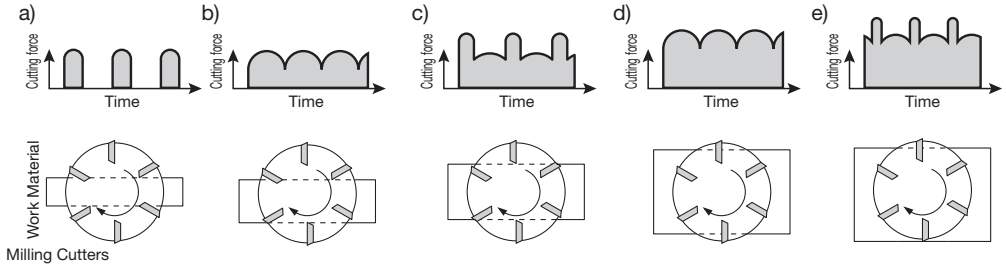
The engagement angle denotes the angle at which the full length of the cutting edge comes in contact with the work material, with reference to the feed direction.

· The larger E is, the shorter the tool life
· To change the value of E:
(1) Increase the cutter size
(2) Shift the position of the cutter



● Relation between the number of simultaneously engaged cutting edges and cutting force

Normally, a cutting width 70 to 80% of the cutter diameter is considered appropriate, as shown in example d). However, this may not apply due to the actual rigidity of the machine or workpiece, and the machine horsepower.



· 0 or 1 edge in contact at same time
· Only 1 edge in contact at any time
· 1 or 2 edges in contact
· 2 edges in contact at any time
· 2 to 3 edges in contact

■ Improving surface roughness

(1) Inserts with wiper flat

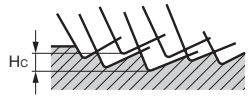
When all of the cutting edges have wiper flats, a few teeth protrude due to inevitable runout and act as wiper inserts.

· Insert equipped with straight wiper flat
(Face angle: Around 15' to1°)
· Insert equipped with curved wiper flat
(Curvature: ≈ R500 (example))

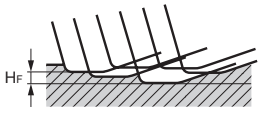
(2) Wiper insert assembling system

A system in which one or two inserts (wiper inserts) protrude with a smooth curved edge just a little beyond the other teeth to wipe the milled surface. (Applicable to WGX Type, DGC Type, etc.)

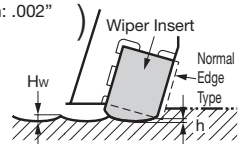
● Surface roughness without wiper flat



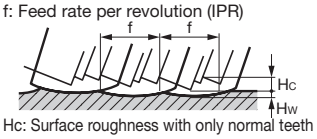
● Surface roughness with straight wiper flat



h: Projection value of wiper insert
(Cast Iron: .002"
Al: .001")

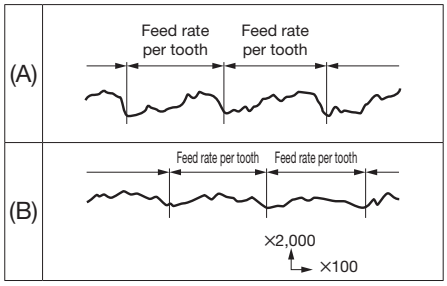


f: Feed rate per revolution (IPR)



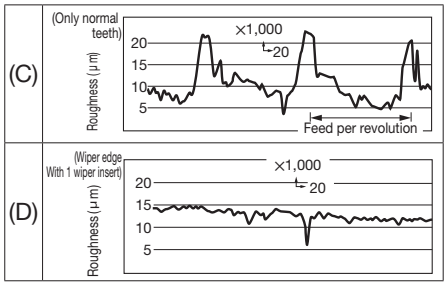
Hc: Surface roughness with only normal teeth
Hw: Surface roughness with wiper insert

● Surface roughness with wiper edge (difference in face cutting edge)



· Part material: Alloy Steel
· Cutter: DPG5160R (per tooth)
· v_c = 510 SFM
f_z = .0092 in./t
a_p = .0787"
· Face Cutting Edge Angle
(A): 28'
(B): 6'

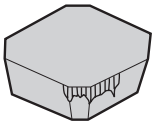
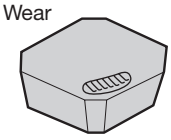
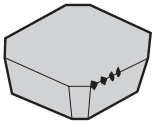
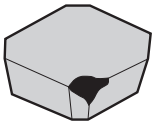
● Effects of wiper insert (example)



· Part material: Grey Cast Iron
· Cutter: DPG4100R
· Insert: SPCH42R
· Face runout: .0006"
· Runout: .0016"
v_c = 350 SFM
f_z = .0571 IPR
(C): Normal teeth
(D): Per wiper edge

Troubleshooting for Milling

■Troubleshooting for Milling

	Failure	Basic Remedies		Countermeasure Examples
Cutting Edge Damage	Excessive Flank Wear 	Tool Grade Cutting Conditions	· Select a more wear-resistant grade Carbide (P30→P20, K20→K10) → {Coated, Cermet} · Decrease the cutting speed · Increase feed rate	· Recommended Insert Grade Steel: Finishing — T250A, T4500A (Cermet); Roughing — ACP100 (Coated) ACP2000 Cast Iron: Finishing — ACK100 (Coated) BN7000 (SUMIBORON); Roughing — ACK200 (Coated) ACK2000 Non-Ferrous Alloy: Finishing — DA1000 (SUMIDIA); Roughing — DL1000 (Coated)
	Excessive Crater Wear 	Tool Grade Tool Design Cutting Conditions	· Select a crater-resistant grade · Use a sharp chipbreaker (G → L) · Decrease the cutting speed · Reduce depth of cut and feed rate	· Recommended Insert Grade Steel: Finishing — T250A, T4500A (Cermet); Roughing — ACP100 (Coated) Cast Iron: Finishing — ACK100 (Coated); Roughing — ACK200 (Coated) Non-Ferrous Alloy: Finishing — DA1000 (SUMIDIA); Roughing — DL1000 (Coated)
	Chipping 	Tool Grade Tool Design Cutting Conditions	· Use a tougher grade P10→P20→P30 K01→K10→K20 · Select a negative/positive cutter with a large peripheral cutting edge angle (a small approach angle). · Reinforce the cutting edge (honing) · Change chipbreaker (G → H) · Reduce feed rate	· Recommended Insert Grade Steel: Finishing — ACP200 (Coated); Roughing — ACP300 (Coated) Cast Iron: Finishing — ACK200 (Coated); Roughing — ACK300 (Coated) · Recommended cutter: WaveMill WGX Type · Cutting conditions: Refer to H20
	Breakage 	Tool Grade Tool Design Cutting Conditions	· If it is due to excessive low speeds or very low feed rates, select a grade resistant to chip adhesion · If the cause is thermal cracking, select a thermal impact resistant grade · Select a negative/positive (or double negative) cutter type with a large peripheral cutting edge angle (a small approach angle) · Reinforce the cutting edge (honing) · Change chipbreaker (G →→ H) · Increase insert size (thickness in particular) · Select appropriate conditions for that particular application	· Recommended Insert Grade Steel: Roughing — ACP300 (Coated) ACP3000 Cast Iron: Roughing — ACK300 (Coated) ACU2500 · Recommended cutter: WaveMill WGX Type · Insert thickness: .125 → .187” · Change chipbreaker: Standard → Strong edge type · Cutting conditions: Refer to H20
Others	Unsatisfactory Machined Surface Finish	Tool Grade Tool Design Cutting Conditions	· Select an adhesion-resistant grade Carbide → Cermet · Improve axial runout of cutting edges (Use a cutter with less runout / Mount the correct insert) · Use a wiper insert · Use cutters dedicated for finishing · Increase the cutting speed	· Recommended Cutters and Insert Grades Steel: General-purpose Cutter Insert — WGX Type* ACP200 (Coated); Finishing Cutter Insert — WGX Type T4500A (Cermet) Cast Iron: General-purpose Cutter Insert — DGC Type ACK200 (Coated); Finishing Cutter Insert — FMU Type BN7000 (SUMIBORON) Non-Ferrous Alloy: General-purpose Cutter Insert — RF type * H1 (Carbide) DL1000 (Coated Carbide); Finishing Cutter Insert — RF Type DA1000 (SUMIDIA) Cutters marked with * can be mounted with wiper inserts.
	Chattering	Tool Design Cutting Conditions Others	· Select a cutter with sharp cutting edges · Use an irregular pitched cutter · Reduce the feed rate · Improve the rigidity of the workpiece and cutter clamp	· Recommended cutter For steel: WaveMill WGX Type For cast iron: Sumi Dual Mill DGC Type For light alloy: Aluminum Body Cutter RF Type
	Unsatisfactory Chip Control	Tool Design	· Select a cutter with good chip evacuation features · Reduce number of teeth · Enlarge chip pocket	· Recommended cutter: WaveMill WGX Type
	Edge Chipping On Workpiece	Tool Design Cutting Conditions	· Increase the peripheral cutting edge angle (decrease the approach angle) · Change chipbreaker (G → L) · Reduce the feed rate	· Recommended cutter: WaveMill WGX Type
	Burr formation	Tool Design Cutting Conditions	· Use a sharp cutter · Increase feed rate · Use a burr-proof insert	· Recommended cutter: WaveMill WGX Type + FG Chipbreaker Sumi Dual Mill DGC Type + FG Chipbreaker

Troubleshooting for Milling

■ Horsepower Consumption

This section contains the horsepower consumption formula and the explanation of the associated variables. A list of commonly encountered materials has been added to assist you when determining the required horsepower for a machining operation.

Machine efficiency, drive type, and amount of time that the machine has been running can effect the horsepower and torque availability at the spindle. Without an extensive list of specifications, it is nearly impossible to predict the capabilities of a machine tool. Sumitomo suggests that unless the capabilities of a machine tool are well known, it is wise to limit the attempted operations to those that require no more than 65% of the machine's rated horsepower.

Please take the time to understand the power requirements of an operation before attempting it, unless you are very familiar with the tool, material, and especially the machine being used.

*Note: If the material that you are machining is not found in this list, contact the material manufacturer for further information. Most material suppliers, or mills, have excellent technical resources available. However, if the material in question exhibits machining properties that are similar to a given material, use the corresponding "K" factor.

■ Horsepower Consumption Formula

$$\text{Horsepower} = \frac{W \times D \times F}{K}$$

W = width of cut (inches)
D = depth of cut (inches)
F = feed rate (inches/minute)
K = 'K' factor for material

'K' factors for some common materials are:

Material	'K'
Magnesium	4.0
Aluminum	4.0
Copper	2.0
Brass	2.5
Bronze	2.0
Malleable iron	1.0
Cast iron	
Ferrite	1.5
Pearlitic	1.0
Chilled	.6
Steel	
up to 150 BHN	1.0
up to 300 BHN	.8
up to 400 BHN	.5
up to 500 BHN	.4

Material	'K'
Stainless steel	
Free machining	1.0
Others	.6
Titanium	
under 100,000 psi	.8
100,000-135,000 psi	.6
135,000 psi and over	.4
High-tensile alloys	
180,000-220,000 psi	.5
220,000-260,000 psi	.4
260,000-300,000 psi	.3
High-temperature alloys	
Nickel base alloys	.4
Cobalt base alloys	.4
Austenitic alloys	.4

■ Lead Angle Effect

The lead angle effect is a commonly known phenomenon in tool design. As the lead angle of a tool (the angle at which the insert is rotated away from its axial center line) increases, the actual thickness of the produced chip decreases from the programmed amount. This allows us to take advantage of increased feed rates over standard zero degree (90 degree shoulder) lead tools.

By comparing the following lead angle figures, it is possible to increase the actual feed rate up to 30% over the suggested numbers (depending on the type of tool), thus increasing productivity.

Tool Lead Angle	% of chip thickness from programmed feed rate
15 degrees	96%
20 degrees	94%
30 degrees	86%
45 degrees	71%

To simplify this calculation we have included a chart that allows easy determination of programmed feed per tooth by choosing desired feed per tooth and then following the column down to the row that matches the lead angle of the tool that is being used.

Example: Find the programmed feed per tooth for a UFO cutter (45 degree lead angle), when the desired feed per tooth is 0.006 IPT.

Answer: Programmed feed per tooth = 0.0085 IPT

■ Programmed Feed Per Tooth vs. Desired Feed Per Tooth

Tool Lead Angle	Desired Feed Per Tooth (IPT)								
	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.012
	Programmed Feed Per Tooth (IPT)								
15	0.0042	0.0052	0.0063	0.0073	0.0083	0.0094	0.0104	0.0115	0.0125
20	0.0043	0.0053	0.0064	0.0074	0.0085	0.0096	0.0106	0.0117	0.0128
30	0.0047	0.0061	0.0070	0.0081	0.0093	0.0105	0.0116	0.0128	0.0140
45	0.0057	0.0075	0.0085	0.0099	0.0113	0.0127	0.0141	0.0156	0.0170

nRadial Chip Thinning

Just as the axial rake of a cutting tool can alter the actual chip thickness, so can radial chip thinning. This occurs whenever the radial width of cut is less than 1/2 the cutter diameter. This is commonly found when making periphery cuts while end milling.

Since both tool life and productivity rely on maintaining full chip thickness, it is important to compensate for this scenario. Rather than using the mathematical process to arrive at a programmed feed rate, we have included the following chart.

To use this chart it is necessary to have the following information:

1) Desired feed per tooth (as taken from the end mill speed and feed section)
2) Cutter diameter
3) Radial width of cut

The first step is to divide the radial width of cut by the cutter diameter and find the closest value in the first column on the left. Next find the desired feed per tooth at the top of the chart and follow that column down to the row that was found in the first step. This will be the programmed feed per tooth.

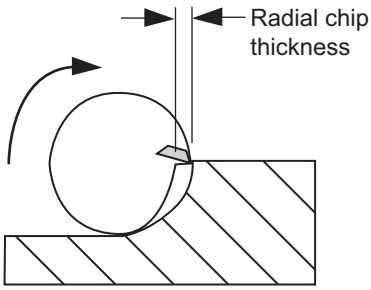
Example: 1.00″ diameter end mill
0.020″ radial width of cut
0.004″ desired feed per tooth

Answer: Dividing 0.020″ by 1.00″=0.020

Finding 0.020 in the first column on the left, and then the 0.004″ desired feed per tooth at the top, we find where the two meet and obtain 0.014″ programmed feed per tooth.

This results in a large increase in the feed rate. If we use these factors for a four flute tool at 2292 RPM, we have a feed rate of 128 IPM (2292 RPM x 0.014 IPT x 4 Flutes) versus 37 IPM (2292 RPM x 0.004 IPT x 4 Flutes) that might have otherwise been programmed.

As you can see from the illustration below, as radial depth increases, so does chip thickness until we reach 50% of the cutting diameter. At this point we have full, programmed chip load.



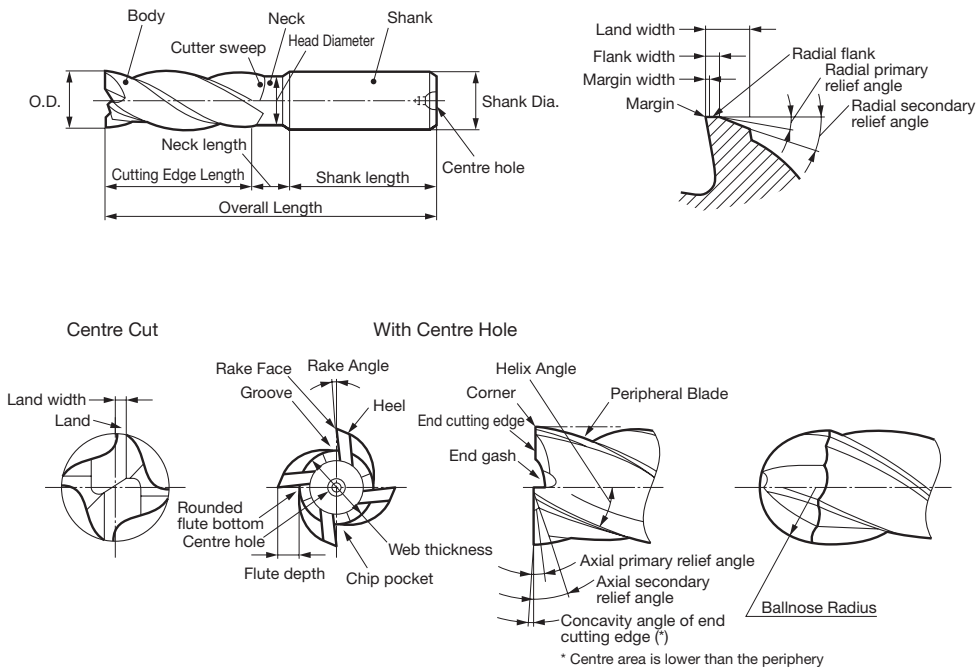
■ Radial Chip Thinning Compensation

	Desired Feed Per Tooth (IPT)								
	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.012
WOC/Dia.	Programmed Feed Per Tooth (IPT)								
0.005	0.0280	0.0350	0.0420	0.0490	0.0560	0.0630	0.0700	0.0770	0.0840
0.010	0.0200	0.0250	0.0300	0.0350	0.0400	0.0450	0.0500	0.0550	0.0600
0.015	0.0164	0.0205	0.0246	0.0287	0.0328	0.0369	0.0410	0.0451	0.0492
0.020	0.0140	0.0175	0.0210	0.0245	0.0280	0.0315	0.0350	0.0385	0.0420
0.025	0.0128	0.0160	0.0192	0.0224	0.0256	0.0288	0.0320	0.0352	0.0384
0.030	0.0116	0.0145	0.0174	0.0203	0.0232	0.0261	0.0290	0.0319	0.0348
0.035	0.0108	0.0135	0.0162	0.0189	0.0216	0.0243	0.0270	0.0297	0.0324
0.040	0.0100	0.0125	0.0150	0.0175	0.0200	0.0225	0.0250	0.0275	0.0300
0.060	0.0084	0.0105	0.0126	0.0147	0.0168	0.0189	0.0210	0.0231	0.0252
0.080	0.0072	0.0090	0.0108	0.0126	0.0144	0.0162	0.0180	0.0198	0.0216
0.120	0.0060	0.0075	0.0090	0.0105	0.0120	0.0135	0.0150	0.0165	0.0180
0.200	0.0052	0.0065	0.0078	0.0091	0.0104	0.0117	0.0130	0.0143	0.0156
0.300	0.0044	0.0055	0.0066	0.0077	0.0088	0.0099	0.0110	0.0121	0.0132

▲ mark: To be replaced by a new product, made to order or discontinued (please confirm stock availability)

The Basics of Endmilling, Endmilling Edition

■ Parts



■ Calculating cutting conditions (square endmill)

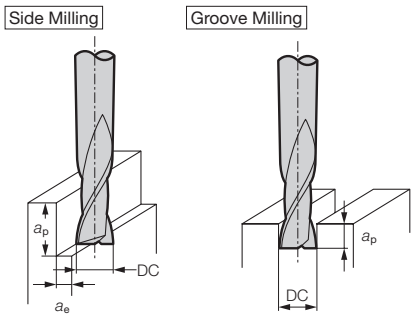
● Calculating cutting speed

$$v_c = \frac{\pi \times DC \times n}{1{,}000} \qquad n = \frac{1{,}000 \times v_c}{\pi \times DC}$$

● Calculating feed rate per revolution and per tooth

$$v_f = n \times f \qquad f = \frac{v_f}{n}$$

$$v_f = n \times f_z \times z \qquad f_z = \frac{f}{z} = \frac{v_f}{n \times z}$$

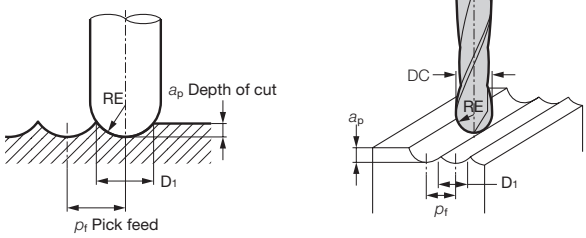


(Ballnose Endmill)

● Calculating notch width (D_1)

$$D_1 = 2 \times \sqrt{2 \times RE \times a_p - a_p^2}$$

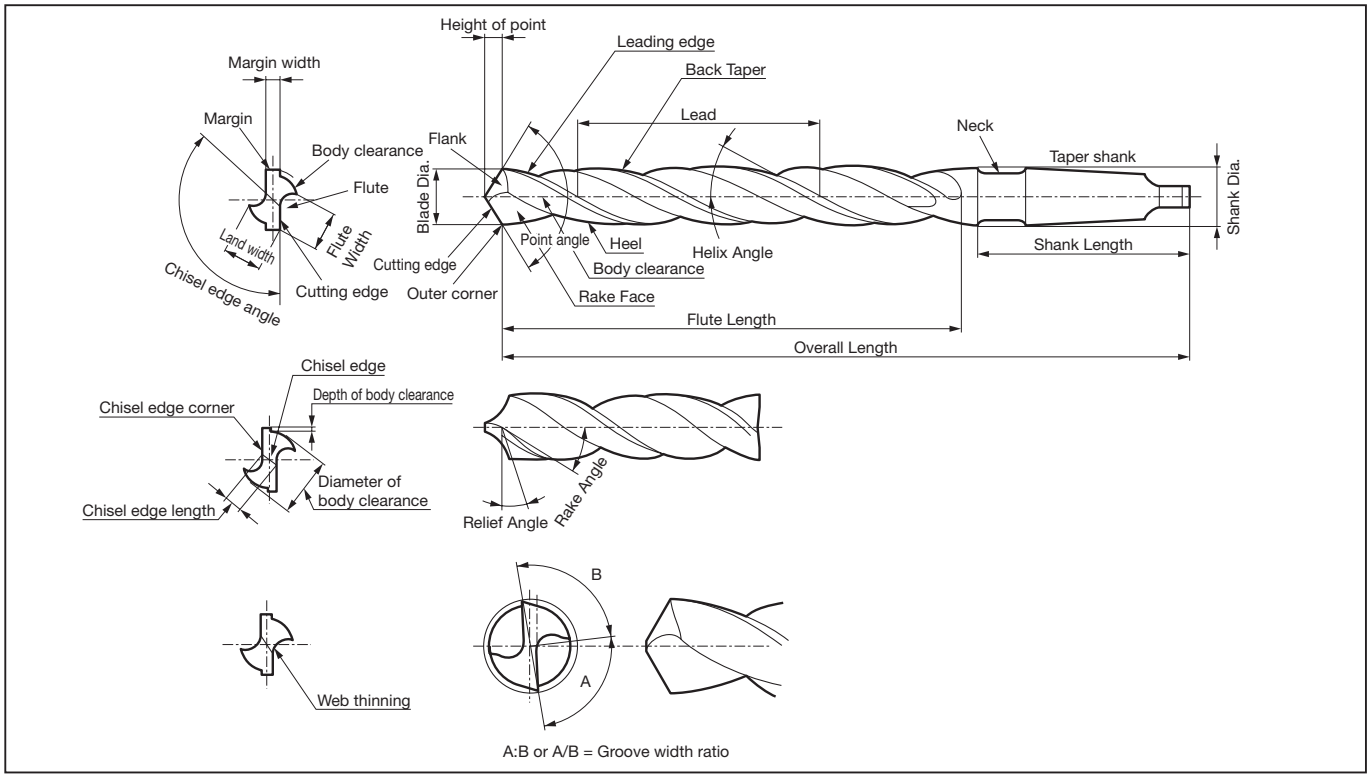
●Cutting speed and feed rate (per revolution and per tooth) are calculated using the same formula as the square endmill.



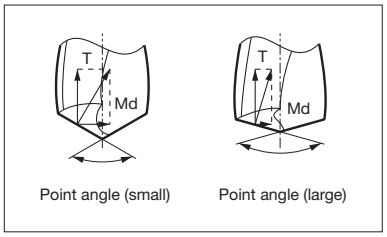
v_c	: Cutting speed (m/min)
π	: π≈3.14
DC	: Endmill diameter (mm)
n	: Spindle speed (min^{-1})
v_f	: Feed rate (mm/min)
f	: Feed rate per revolution (mm/rev)
f_z	: Feed rate per tooth (mm/t)
z	: Number of teeth
a_p	: Depth of cut in axial direction (mm)
a_e	: Depth of cut in radial direction (mm)
RE	: Ballnose radius

Basics of Drilling, Drilling Edition

■ Parts of Drill

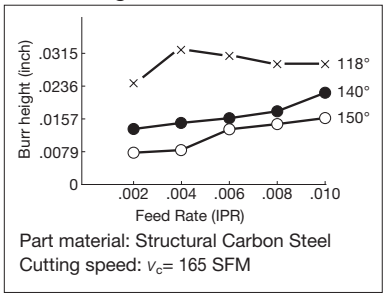


● Point angle and force



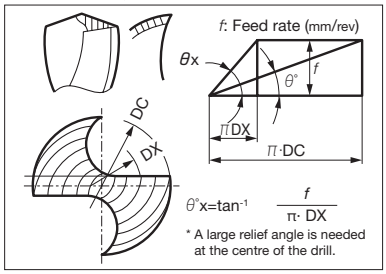
When point angle is large, thrust increases but torque decreases.

● Point angle and burr

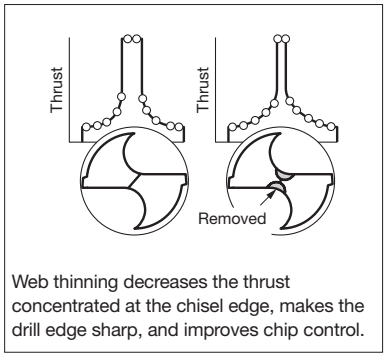


When point angle is large, burr height becomes low.

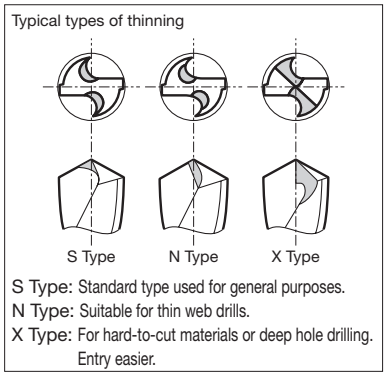
● Minimum requirement relief angle for drilling



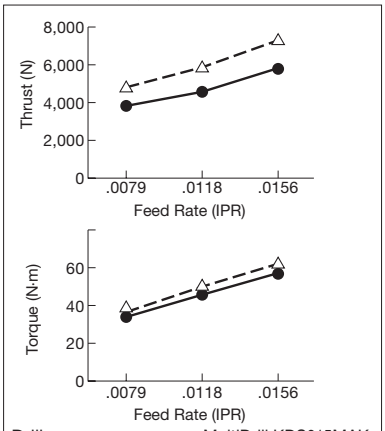
● Effects of web thinning



● Chisel width decreased by thinning

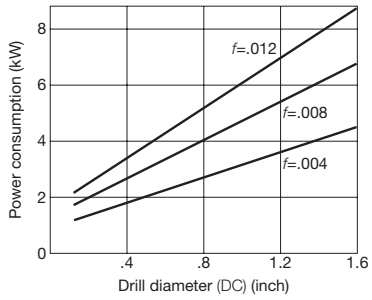


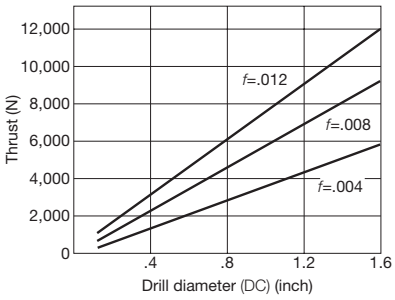
● Relation between edge treatment and cutting force



Drill : MultiDrill KDS215MAK
Edge treatment width : ●.0059”
△→.0091”
Part material : Carbon Steel (230HB)
Cutting conditions : v_c= 165 SFM, wet

■ Reference of Power Requirements and Thrust





f: Feed rate (IPR)

Part material: Medium Carbon Steel (220HB)

■ Cutting Condition Selection

- Control cutting force for low-rigidity machines

The following table shows the relation between edge treatment width and cutting force. If the cutting force is too great and causes issues, take measures such as reducing the feed rate or reducing the cutting edge treatment of the drill.

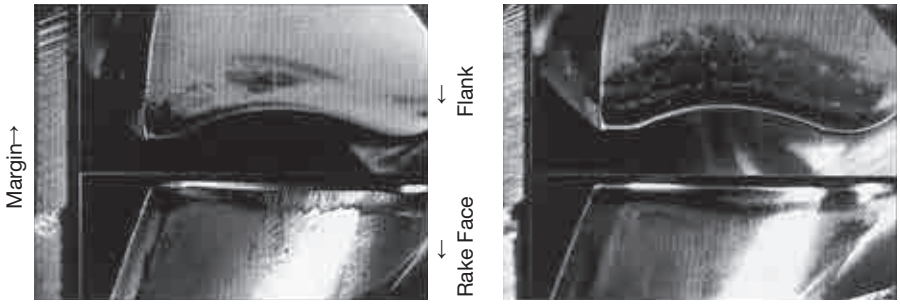
Cutting Conditions		Edge treatment width			
		.0059”		.0019”	
v_c(SFM)	*f* (IPR)	Torque (N/m)	Thrust (N)	Torque (N/m)	Thrust (N)
130	.015	12.8	2,820	12.0	2,520
165	.012	10.8	2,520	9.4	1,920
200	.009	9.2	2,320	7.6	1,640
200	.006	6.4	1,640	5.2	1,100

Drill Diameter : ø.394”
Part material : Carbon Steel (230HB)

- High speed machining recommendation

If the machine has enough power and sufficient rigidity, reasonable tool life can be ensured even when adopting higher efficiency machining; however, sufficient coolant must be supplied.

Wear example

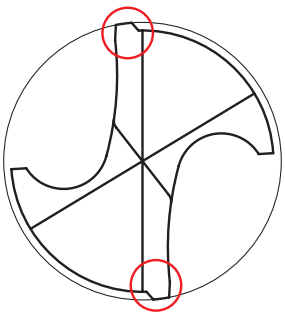


v_c= 200 SFM v_c= 400 SFM

Part material : Carbon Steel (230HB)
Cutting conditions: *f* = .0118 IPR
H=1.969”
Tool life : 600 holes (Cutting length: 1.181”)

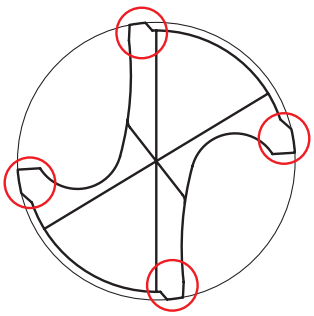
■ Explanation of Margins (Difference between single and double margins)

- Single Margin (2 guides: ○ part)



- Shape used on most drills

- Double Margin (4 guides: ○ part)

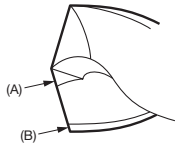


- 4-point guiding reduces hole bending and undulation for improved stability and accuracy during deep hole drilling.

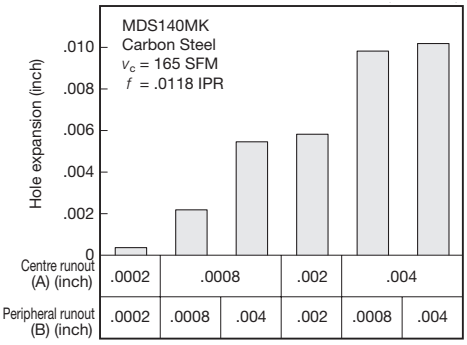
Basics of Drilling, Drilling Edition

■ Runout Accuracy

For the runout accuracy of web-thinned drills, the runout after thinning (A) is important in addition to the difference in lip height (B).



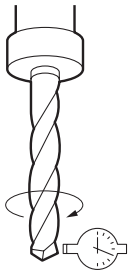
(A): Runout accuracy of thinning point
(B): The difference of the lip height



■ Drill Mounting Peripheral Runout Accuracy

• When the tool rotates

The peripheral runout accuracy of the drill mounted on the spindle should be controlled within .0012”. If the runout exceeds the limit, the drilled hole will also become large and an increase in the horizontal cutting force, which may result in drill breakage.



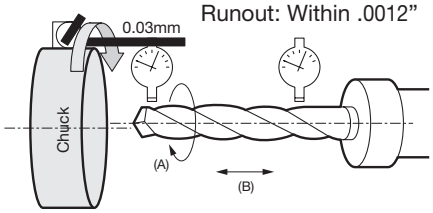
Runout: Within .0012”

Peripheral runout (inch)	Hole expansion 0 .002 (in.)	Cutting Force* 0 22 (lbs)
.0002		
.0035		

* Horizontal cutting force.
Drill: MDS120MK, part material: Carbon Steel (230HB)
Cutting Conditions: v_C= 165 SFM, f = .0118 IPR, H = 1.50”
Water-soluble Coolant

• When the part material rotates

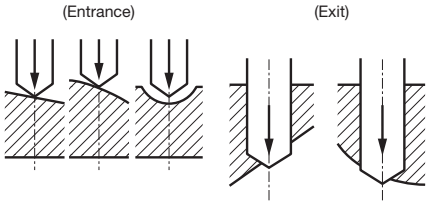
The peripheral runout at the drill edge (A) and the concentricity at (B) should be controlled within .0012”.



■ Work Material Surface and Drill Performance

• Part material with slanted or uneven surface

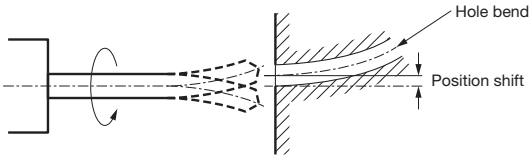
If the surface of the hole entrance or exit is slanted or uneven, decrease the feed rate to 1/3 to 1/2 of the recommended cutting conditions.



■ How to Use a Long Drill

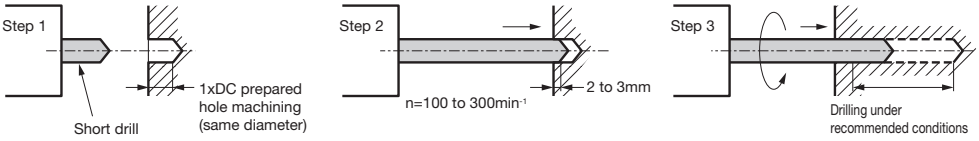
• Problem

When using a long drill (e.g. XHGS Type), SMDH-D Type drill or SMDH-12.5D Type drill at high rotation speeds, the runout of the drill tip may cause a deviation of the entry point as shown on the right, bending the drill hole and resulting in drill breakage.

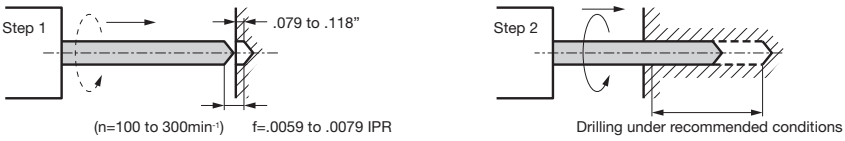


• Remedies

Method 1



Method 2 *Low rotational speed minimises centrifugal forces and prevents the drill from bending.

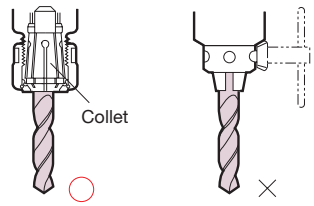


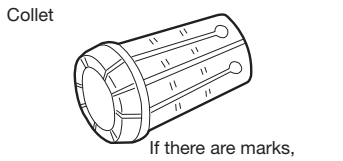
MultiDrill Usage Guidance, Drilling Edition

Drill Maintenance

(1) Collet Selection and Maintenance

- Ensure proper chucking of drills to prevent vibration. Collet type chucks are recommended, as the grip is strong and can be used with ease.
  (Drill chucks and keyless chucks are not suitable for MultiDrills as they have a weaker grip force.)
- When replacing drills, regularly remove cutting chips inside the collet by cleaning the collet and the spindle with oil. Repair marks with an oilstone.

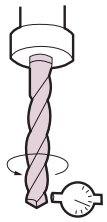




If there are marks, repair with an oilstone or change to a new one

(2) Drill Mounting

- The peripheral runout of the drill mounted on the spindle must be within 0.03mm.
- Do not chuck on the drill flute.
  (If the drill flute is inside the holder, chip evacuation will be obstructed, causing damage to the drill.)



Peripheral runout within 0.03mm

Do not grip on the drill flute

Using Cutting Oil

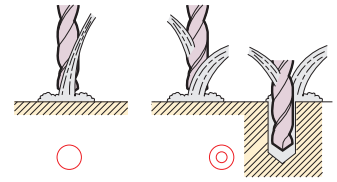
(1) Choosing Cutting Oil

- If the cutting speed is more than 131 SFM, cutting oil (JISW1 type 2) is recommended as its cooling effects and chip control capacity are good, and it is highly soluble.
- For optimum tool life at cutting speeds of less than 131 SFM, sulfo-chlorinated oil (JISA1 type 1) is recommended as it has a lubricating effect and is non-water soluble. * Insoluble cutting oil may be flammable. To prevent fire, a substantial amount of oil should be used to cool the component so that smoke and heat will not be generated.

(2) Supply of Coolant

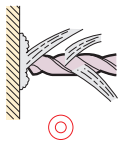
- External Coolant Supply
  There must be a sufficient external supply of coolant at the hole position.
  Coolant pressure 0.3 to 0.5MPa, coolant volume 3 to 32 SFM is a guideline.
- Internal Coolant Supply
  For holes ø4 or smaller, the oil pressure must be at least 1.5MPa to ensure a sufficient supply of coolant. For ø6 and above, if L/D is <3, the pressures should be at 0.5 to 1.0MPa. If L/D is >3, a hydraulic pressure of at least 1 to 2MPa is recommended.

- External Coolant Supply
- Vertical drilling



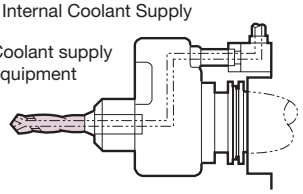
Use high pressure at entrance — Easy to use

- Horizontal drilling

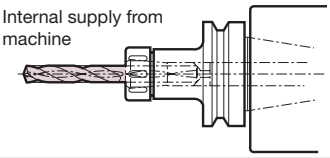


Use high pressure at entrance

- Internal Coolant Supply
- Coolant supply equipment



- Internal supply from machine

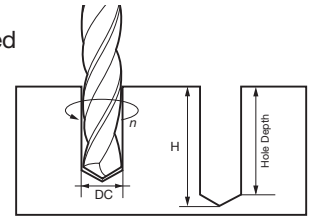


Calculation of Power Consumption and Thrust

- Calculating cutting speed

$$v_c = \frac{\times DC \times n}{1{,}000}$$

$$n = \frac{1{,}000 \times v_c}{\times DC}$$



- Calculating feed rate per revolution and per tooth

$$v_f = n \times f \qquad f = \frac{v_f}{n}$$

- Calculation of Cutting Time

$$T = \frac{H}{v_f}$$

v_c : Cutting speed (SFM)
: π≈3.14
DC : Drill diameter (in)
n : Rotation speed (min^{-1})
v_f : Feed rate (IPM)
f : Feed rate per revolution (IPR)
H : Drilling depth (in)
T : Cutting time (min)
HB : Work material Brinell hardness

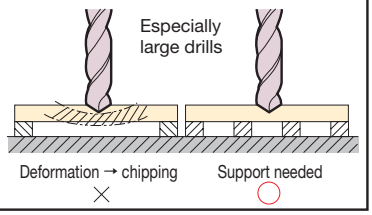
- Calculation of Power Consumption and Thrust
  <Experimental>
  Power consumption (kW) = $HB \times DC^{0.68} \times v_c^{1.27} \times f^{0.59} / 36{,}000$

  Thrust (N) = $0.24 \times HB \times DC^{0.95} \times f^{0.61} \times 9.8$

* When designing the machine, an allowance of 1.6 x power consumption and 1.4 x thrust should be given.

Clamping of the Workpiece

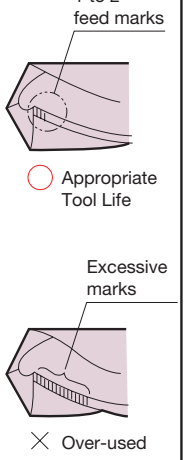
High thrust forces occur during high-efficiency drilling. Therefore, the workpiece must be supported to prevent fractures caused by deformation. Large torques and horizontal cutting forces also occur. Therefore, the workpiece must be clamped firmly enough to withstand them.



Drill Regrinding

- When to regrind
  When one or two feed marks (lines) appear on the margin, when corner wear reaches the margin width or when small chipping occurs, it indicates that the drill needs to be sent for regrinding.
- How and where to regrind
  We recommend regrinding and recoating. Regrinding alone may be sufficient, but if the work material is steel, use recoating as well as regrinding to prevent shortening of tool life. Note: Ask us or an approved vendor to recoat with our proprietary coating.
- Regrinding on your own
  Customers regrinding their own drills can obtain MultiDrill Regrinding Instructions from us directly or their vendor.

- Tool life determinant



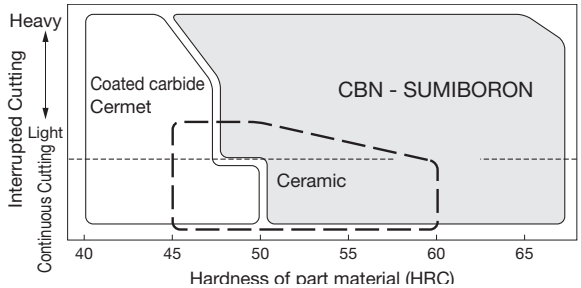
Troubleshooting for Drilling, Drilling Edition

■ Troubleshooting for Drilling

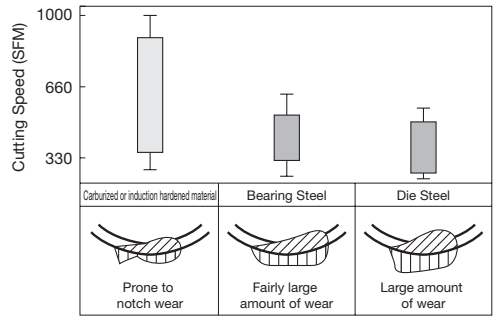
Failure		Cause	Basic Remedies	Countermeasure Examples
Drill Failure	Excessive Wear on Rake Face	· Inappropriate cutting conditions	· Use higher cutting speeds	· Refer to the upper limit of the recommended cutting conditions listed in the Cutting Tools Catalog
			· Increase feed rate	· Refer to the upper limit of the recommended cutting conditions listed in the Cutting Tools Catalog
		· Unsuitable coolant	· Reduce pressure if using internal coolant	· 1.5MPa or less (external coolant supply can be used at hole depths (L/D) of 2 or less)
			· Use coolant with more lubricity	· Use JIS A1 grade No.1 or its equivalent
	Chisel Point Breakage	· Off-center starts	· Reduce feed rate at entry point	· f=.0031 to .0047”
			· Pre-machining of flat surface for entry	· Drill flat base with Flat MultiDrill
		· Equipment, part materials, etc. lack rigidity	· Change cutting conditions to reduce resistance	· Increase v_c to decrease f (reduce thrust)
			· Improve clamp strength of work material	
		· Cutting edge is too weak	· Increase size of chisel width	· Use a chisel with a width of .004 to .008”
			· Increase amount of honing on cutting edge	· Increase the width of the thinning area at the centre by 1.5 times
	Breakage on Peripheral Cutting Edge	· Inappropriate cutting conditions	· Decrease the cutting speed	· Refer to the lower limit of the recommended cutting conditions listed in the Cutting Tools Catalog
			· Reduce feed rate	· Refer to the lower limit of the recommended cutting conditions listed in the Cutting Tools Catalog
		· Unsuitable coolant	· Use coolant with more lubricity	· Use JIS A1 grade No.1 or its equivalent
		· Equipment, part materials, etc. lack rigidity	· Improve clamp strength of work material	
		· Cutting edge is too weak	· Increase amount of honing on cutting edge	· Increase the width of the outer cutting edge by 1.5 times
			· Reduce the front relief angle	· Reduce the front relief angle by 2 to 3°
		· Entry from peripheral cutting edge	· Increase margin width (W margin specification)	· Increase the margin width by 2 to 3 times
		· Interrupted through cutting	· Reduce feed rate	· Refer to the lower limit of the recommended cutting conditions listed in the Cutting Tools Catalog
			· Increase amount of honing on cutting edge	· Increase the width of the outer cutting edge by 1.5 times
			· Reduce the front relief angle	· Reduce the front relief angle by 2 to 3°
	Margin Wear	· Inappropriate cutting conditions	· Decrease the cutting speed	· Refer to the lower limit of the recommended cutting conditions listed in the Cutting Tools Catalog
		· Unsuitable coolant	· Use coolant with more lubricity	· Use JIS A1 grade No.1 or its equivalent
			· Use more coolant	· If using external coolant, switch to internal coolant
		· Remaining margin wear	· Schedule for earlier regrind and ensure back taper	· If margin damage occurs, regrind to 1mm or less
		· Improper tool design	· Increase amount of back taper	· Make back taper 0.5/100
			· Reduce margin width	· Reduce the margin width to around 2/3
	Drill Breakage	· Chip blockage	· Use the optimal cutting conditions and tools	· Refer to recommended cutting conditions listed in the Cutting Tools Catalog
			· Use more coolant	· If using external coolant, switch to internal coolant
		· Holding clamp too weak	· Use strong holding clamp	· If the collet chuck is damaged, replace it · Change the collet holder to the next size up
		· Equipment, part materials, etc. lack rigidity	· Improve clamp strength of part material	
Unsatisfactory Hole Accuracy	Oversized Holes	· Off-centre starts	· Reduce feed rate at entry point	· f=.0031 to .0047”
			· Decrease the cutting speed	· Refer to the lower limit of the recommended cutting conditions listed in the Cutting Tools Catalog
			· Pre-machining added for entry in planar surfaces	· Planar machining with endmill
		· Drill bit lacks rigidity	· Use the optimal drill type for the hole depth	· Refer to the Cutting Tools Catalog
			· Improve overall drill rigidity	· Large web, small groove width
		· Drill bit has runout	· Improve drill mounting precision	· If the collet chuck is damaged, replace it
			· Improve drill retention rigidity	· Change the collet holder to the next size up
		· Equipment, part materials, etc. lack rigidity	· Improve clamp strength of part material	
	Poor Surface Roughness	· Inappropriate cutting conditions	· Increase the cutting speed	· Refer to the upper limit of the recommended cutting conditions listed in the Cutting Tools Catalog
			· Reduce feed rate	· Refer to the lower limit of the recommended cutting conditions listed in the Cutting Tools Catalog
		· Unsuitable coolant	· Use coolant with more lubricity	· Use JIS A1 grade No.1 or its equivalent
	Holes are not straight	· Off-centre starts	· Increase feed rate	· Refer to the upper limit of the recommended cutting conditions listed in the Cutting Tools Catalog
		· Drill is not mounted properly	· Improve drill mounting precision	· If the collet chuck is damaged, replace it
			· Improve drill retention rigidity	· Change the collet holder to the next size up
		· Equipment, part materials, etc. lack rigidity	· Improve clamp strength of part material	
			· Select a double margin tool	· Refer to the Cutting Tools Catalog
Unsatisfactory Chip Control	Chips clog	· Inappropriate cutting conditions	· Increase cutting speeds	· Refer to the upper limit of the recommended cutting conditions listed in the Cutting Tools Catalog
			· Increase feed rate	· Refer to the upper limit of the recommended cutting conditions listed in the Cutting Tools Catalog
		· Poor chip evacuation	· Increase volume if using internal coolant	
	Long Stringy Chips	· Inappropriate cutting conditions	· Increase feed rate	· Refer to the upper limit of the recommended cutting conditions listed in the Cutting Tools Catalog
			· Increase cutting speeds	· Refer to the upper limit of the recommended cutting conditions listed in the Cutting Tools Catalog
		· Strong cooling effect	· Reduce pressure if using internal coolant	· The pressure should be 0.5 MPa or less if using internal coolant
		· Dull cutting edge	· Reduce amount of edge honing	· Reduce the width to around 2/3

Hardened Steel Machining with CBN - SUMIBORON Edition

■ Recommended Zones for CBN by Workpiece Hardness and Shape

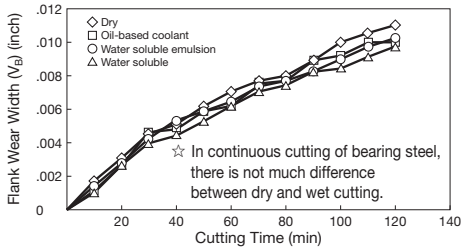


■ Cutting speed recommendations for each part material



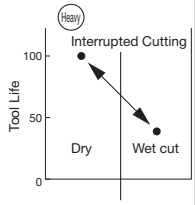
■ Influence of coolant on tool life

● Continuous Cutting



● Interrupted Cutting

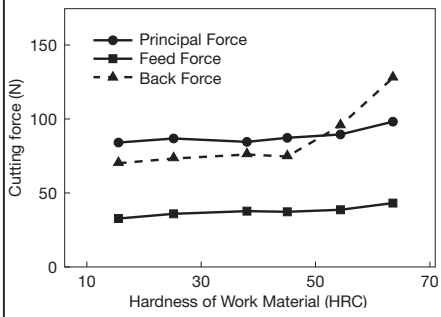
Milling of SKD11 to 4 U grooves
Cutting speed: v_c= 330 SFM
Depth of cut: a_p= .0079"
Feed rate (f)= .0039 IPR

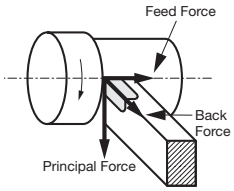


Part material: High Carbon Steel (58 to 62 HRC)
Cutting conditions: TPG321
v_c=330 SFM, a_p=.0059", f=.0039 IPR
Continuous Cutting

For continuous cutting, the influence of coolant on tool life is minimal.
For interrupted cutting, the thermal impact shortens the tool life in wet conditions.

■ Relation between part material hardness and cutting force

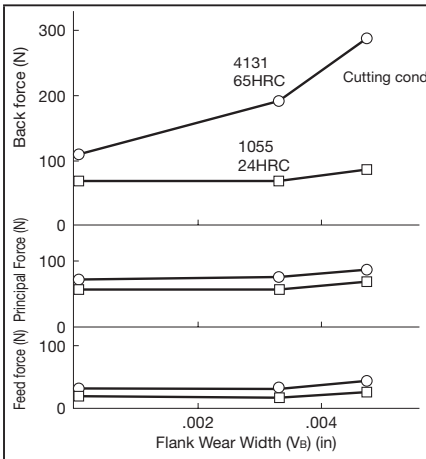




Part Material: Carbon Tool Steel
Cutting Conditions: Cutting speed (v_c) =400 SFM, depth of cut (a_p) =.0079", Feed rate (f) =.0039 IPR

Back force increases substantially for harder workpieces.

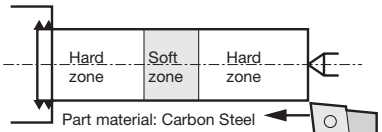
■ Relation between flank wear and cutting force



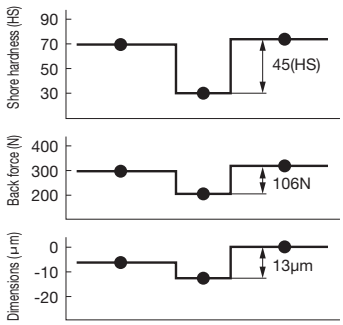
Cutting conditions: Cutting speed (v_c) = 262 SFM
Depth of cut (a_p) = .0059"
Feed rate (f) = .0039 IPR

For hardened steel machining, back force increases substantially due to the expansion of flank wear.

■ Influence of part material hardness on cutting force and accuracy

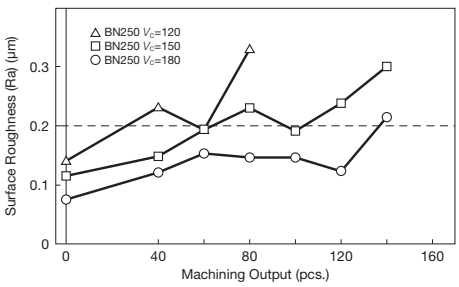


Cutting Speed: v_c = 400 SFM
Depth of Cut : a_p = .0197"
Feed Rate : f = .012 IPR, dry



External dimensions in the soft zone are smaller due to lower cutting forces.

■ Relation between cutting speed and surface roughness

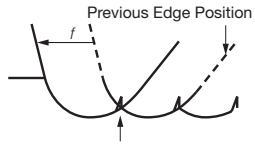
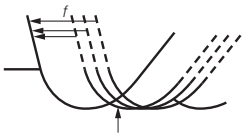
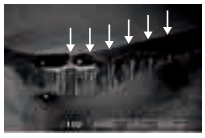


Part material : Alloy Steel 58 to 62HRC
Holder : MTXNR2525
Tool : NU-TNMA160408

Cutting Conditions:
v_c =400,500,600 SFM
f = .0018 IPR
a_p = .0059"
Wet

At high cutting speeds, surface roughness is more stable.

■ Improvement of surface roughness by altering the feed rate

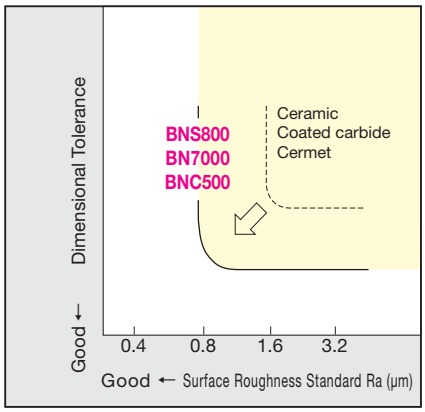
Constant Feed Rate	Variable Feed Rate
 Stationary Notch Location	 Shifting Notch Location
	

☆ Varying the feed rate spreads the notch location over a larger area.
→Surface finish improves and notch wear decreases.

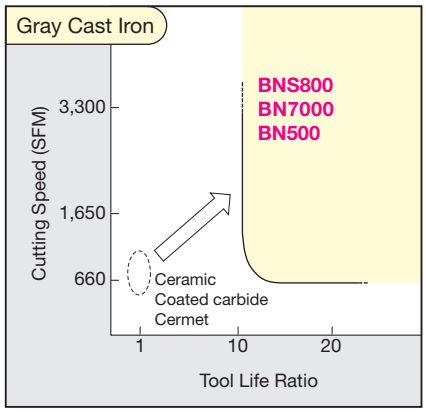
High Speed Machining of Cast Iron with CBN - SUMIBORON Edition

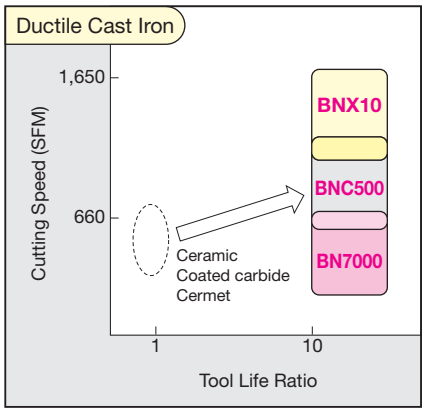
■ Advantages of using CBN - SUMIBORON for cast iron machining

● Higher accuracy



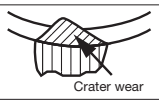
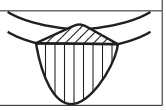
● Longer tool life at higher cutting speeds



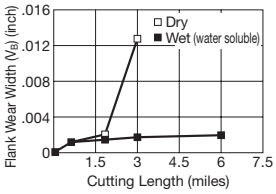


■ Turning

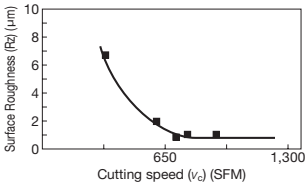
● Cast iron structure and wear shape examples

		Grey Cast Iron	Ductile Cast Iron
Structure			
	Matrix	Pearlite	Pearlite + Ferrite
Tool wear shape	Wet		
	Dry	 Crater wear	

(v_c=660 to 1,650 SFM)



Part material : Continuous cutting with Ductile Cast Iron
Tool material : BN500
Tool Shape : SNG432
Cutting Conditions : v_c = 1,500 SFM
a_p=.0098"
f =.0059 IPR
Dry & Wet
(water soluble)



WET (Water soluble)

DRY

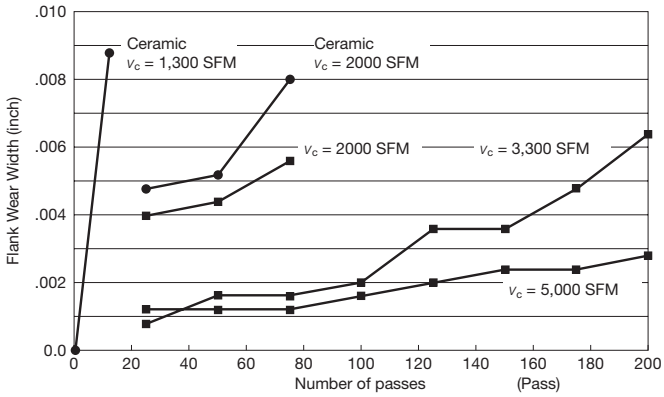
For turning cast iron with CBN, cutting speeds (v_c) should be 660 SFM and above. Wet cutting is recommended.

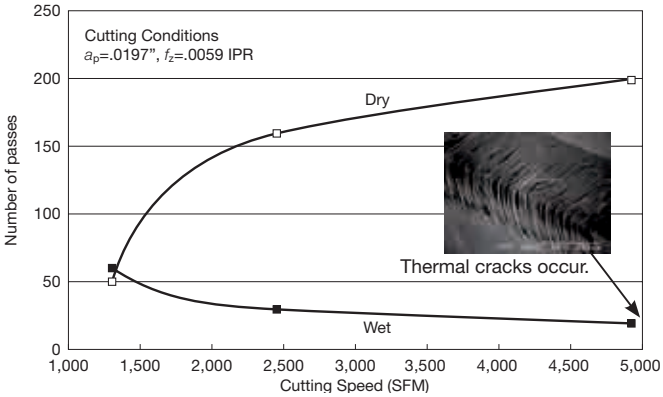
Machine : N/C lathe
Part Material : Ductile Cast Iron
200HB
Holder : MTJNP2525
Tool Grade : BN500
Tool Shape : TNMA332
Cutting Conditions : v_c=360 to 925 SFM
f =.0039 IPR
a_p=.0039"
Wet

■ Milling

BN Finish Mill EASY (for high-speed finishing of cast iron)

- Enables cutting with v_c of 6,600 SFM
- Surface finish roughness 3.2Rz (1.0Ra)
- Economical insert reduces running costs.
- Unit style enables easy runout adjustment.
- Employs safe, anti-centrifugal-force construction for high-speed conditions.





- Part material: Gray cast iron (FC250)
- Cutting conditions: a_p =.0197", f_z =.0039 IPR dry
- Tool grade: BN7000

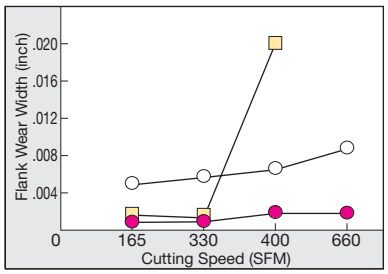
Dry cutting is recommended for high speed milling of cast iron with CBN.

Machining Exotic Alloys with CBN - SUMIBORON Edition

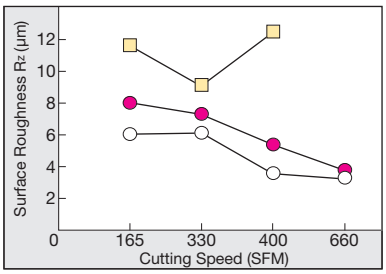
■ Powdered Metal

SUMIBORON — Cemented Carbide — Cermet

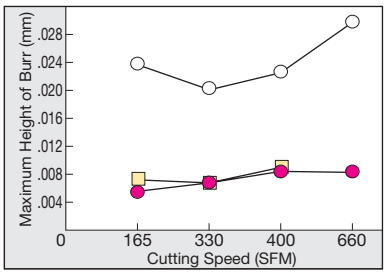
1. Flank wear



2. Surface roughness



3. Height of burr



Part material: Powdered Metal (HRB40), ø3.15-ø3.94" heavy interrupted facing with grooves and drilled holes. (After 40 passes)
Cutting conditions: f=.0039 IR, a_p=.0039" Wet
Tool Cat. No.: TNGA331

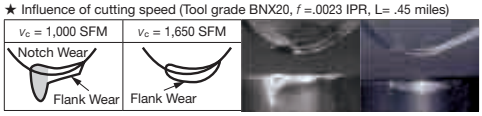
Enables cutting at v_c of up to 330 SFM even with cemented carbide. However, if v_c is around 400 SFM or higher, wear occurs rapidly, resulting in poorer surface roughness and greater spread of burrs. On the other hand, CBN exhibits stability and superior wear resistance, burr prevention and surface roughness, especially at high speeds.

■ Heat-Resistant Alloy

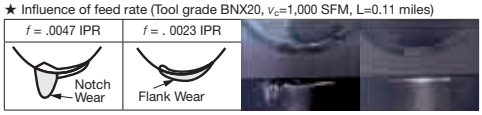
• Nickel based alloy

Typical tool damage of CBN tool when cutting Inconel 718

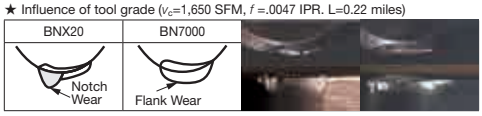
★ Influence of cutting speed (Tool grade BNX20, f =.0023 IPR, L= .45 miles)



★ Influence of feed rate (Tool grade BNX20, v_c=1,000 SFM, L=0.11 miles)



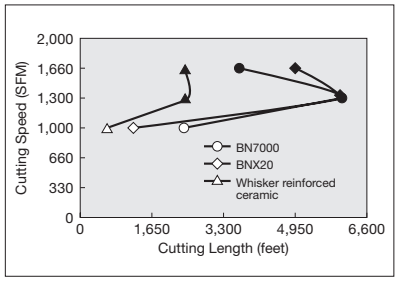
★ Influence of tool grade (v_c=1,650 SFM, f =.0047 IPR. L=0.22 miles)



Cutting Conditions: a_p= .0118", Wet

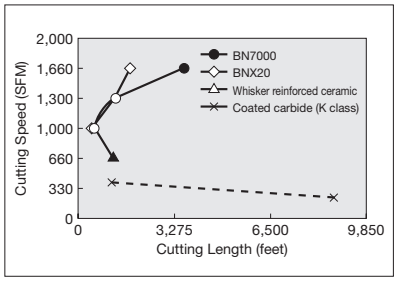
0. 5mm

Cutting conditions: f = .0023 IPR, a_p= .0118", wet



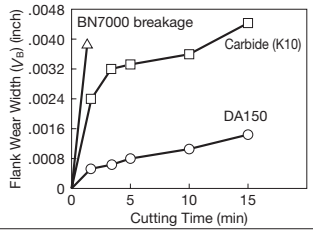
Tool life criteria
Notch wear = .010" (○)
or flank wear = .010"
BNX20 is recommended for high speed and low feed rates; BN7000 is recommended for cutting speeds below v_c = 800 SFM.

Cutting conditions: f = .0047 IPR, a_p= .0118", wet

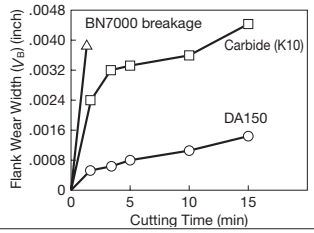


Tool life criteria
Notch wear = .010" (★)
or flank wear = .010"
BN7000 is recommended for cutting at high feed rates (over f = .0039 IPR).

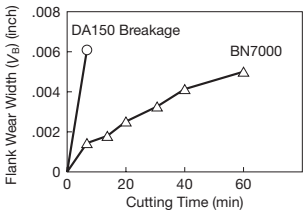
• Ti based alloy



Part material: Ti-6A-4V
Tool: NF-DNMX331
Cutting Conditions: v_c=330 SFM, a_p=.0039", f=.0019 IPR Wet
☆ Our ultra-sharp positive PCD inserts have a strong cutting edge and excellent wear resistance



Part material: Ti-6A-4V
Tool: NF-DNMX331
Cutting Conditions: v_c=330 SFM, a_p=.0039", f=.0019 IPR Wet
☆ Our ultra-sharp positive PCD inserts have a strong cutting edge and excellent wear resistance

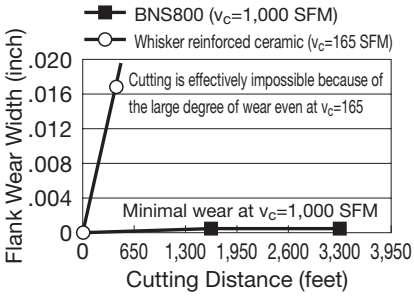


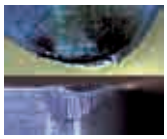
Part material: Ti-6Al-4V
Tool: DNMA434
Cutting Conditions: v_c=400 SFM, a_p=.0118", f=.0098 IPR Wet
☆ Highly fracture-resistant BN7000 negative insert is suitable for high-efficiency machining with large depth of cut and high feed rate.

■ Hard Facing Alloys

Part Material: Colmonoy No.6
(NiCr-based self-fluxing alloy)

Tool Cat. No. : SNG322
Cutting conditions : v_c=165 SFM , 1000 SFM
f = .0039 IPR
a_p= .008"
Dry



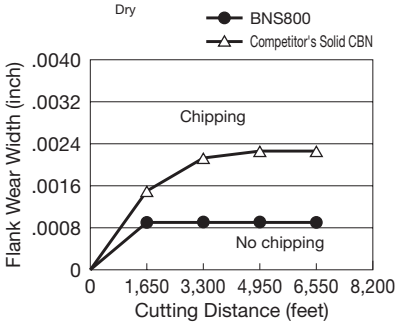


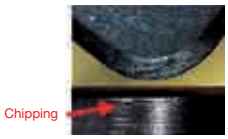
Whisker reinforced ceramic
(v_c = 165 SFM, after 330 feet of cutting)

BNS800
(v_c = 1,000 SFM, after 3,300 feet of cutting)

Part Material: Stellite SF-20
(Co-based self-fluxing alloy)

Tool Cat. No. : SNG322
Cutting conditions : v_c= 165 SFM
f = .0039 IPR
a_p= .008"
Dry

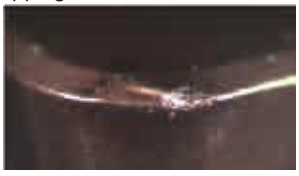




Competitor's Solid CBN
(After 6,500 feet of cutting)

BNS800
(After 6,500 feet of cutting)

Cutting Edge Failure & Countermeasures for Machining Hardened Steel - CBN

Insert Failure	Cause	Countermeasures
Flank Wear	· Grade lacks wear resistance	· Select a more wear-resistant grade (eg BNC2010, BN1000 or BN2000)
	· Cutting speed is too fast	· Reduce the cutting speed to v_c=660 SFM or less (higher feed rate also reduces tool-to-work contact time) · Use an insert with a larger relief angle
Crater Wear	· Grade lacks crater wear resistance	· Select a higher efficiency grade (eg BNC2010, BNX25 or BNX20)
Breakage at Bottom of Crater	· Cutting speed is too fast	· Reduce the cutting speed to v_c=660 SFM or less and increase the feed rate (low speed, high feed) (higher feed rate alone also reduces tool-to-work contact time)
Flaking	· Grade lacks toughness	· Select a tougher grade (eg BNC2020 or BN2000)
	· Back force is too high	· Select an insert with a stronger cutting edge (Increase negative land angle and perform honing) · If the grade is tough enough, improve the cutting edge sharpness
Notch Wear	· High stress at boundary	· Change to a grade with a higher notch wear resistance (e.g. BNC2010 or BN2000) · Increase cutting speed (500 SFM or more) · Change to the Variable Feed Rate method, which alters the feed rate in fixed output intervals · Increase negative land angle and perform honing
Chipping at Forward Notch Position 	· Impact to front cutting edge is too large or occurs constantly	· Change to a micro-grained grade with a higher fracture resistance (e.g. BNC300 and BN350) · Increase the feed rate (higher feed rates are recommended to reduce chipping) · Select an insert with a stronger cutting edge (Increase negative land angle and perform honing)
Chipping at Side Notch Position	· Impact to side cutting edge is too large or occurs constantly	· Change to a grade with a higher fracture resistance (e.g. BN350 or BNC300) · Reduce feed rate · Use an insert with a larger side cutting angle · Use an insert with a larger nose radius · Select an insert with a stronger cutting edge (Increase negative land angle and perform honing)
Thermal Crack	· Thermal shock is too severe	· Completely dry conditions are recommended · Select a grade with better thermal conductivity · Reduce cutting speed, feed rate, and depth of cut to decrease the machining load.

Reference: SI Unit Conversion List

■ Basic SI Units

● Quantity as a reference of SI

Quantity	Material	Symbol
Length	Metre	m
Mass	Kilogram	kg
Time	Second	s
Current	Ampere	A
Temperature	Kelvin	K
Quantity of substance	Mol	mol
Luminous intensity	Candela	cd

● Basic unit provided with unique name and symbol (extracted)

Quantity	Material	Symbol
Frequency	Hertz	Hz
Force	Newton	N
Pressure and stress	Pascal	Pa
Energy, work, and heat quantity	Joule	J
Power and efficiency	Watt	W
Voltage	Bolt	V
Electrical resistance	Ohm	Ω

■ SI Prefixes

● Prefix showing integral powers of 10 combined with SI units

Coefficient	Material	Symbol	Coefficient	Material	Symbol	Coefficient	Material	Symbol
10^{24}	Yotta	Y	10^{3}	Kilo	k	10^{-9}	Nano	n
10^{21}	Zeta	Z	10^{2}	Hecto	h	10^{-12}	Pico	p
10^{18}	Exa	E	10^{1}	Deca	da	10^{-15}	Femto	f
10^{15}	Peta	P	10^{-1}	Deci	d	10^{-18}	Atto	a
10^{12}	Tera	T	10^{-2}	Centi	c	10^{-21}	Zepto	z
10^{9}	Giga	G	10^{-3}	Milli	m	10^{-24}	Yocto	y
10^{6}	Mega	M	10^{-6}	Micro	μ			

■ Principal SI Unit Conversion List (☐ portions are SI units)

● Force

N	kgf
1	1.01972×10^{-1}
9.80665	1

● Stress

Pa(N/m²)	MPa(N/mm²)	kgf/mm²	kgf/cm²	kgf/m²
1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}	1.01972×10^{-1}
1×10^{6}	1	1.01972×10^{-1}	1.01972×10	1.01972×10^{5}
9.80665×10^{6}	9.80665	1	1×10^{2}	1×10^{6}
9.80665×10^{4}	9.80665×10^{-2}	1×10^{-2}	1	1×10^{4}
9.80665	9.80665×10^{-6}	1×10^{-6}	1×10^{-4}	1

● Pressure

1Pa = 1N/m², 1MPa = 1N/mm²

Pa(N/m²)	kPa	MPa	GPa	bar	kgf/cm²	mmHg or Torr
1	1×10^{-3}	1×10^{-6}	1×10^{-9}	1×10^{-5}	1.01972×10^{-5}	7.50062×10^{-3}
1×10^{3}	1	1×10^{-3}	1×10^{-6}	1×10^{-2}	1.01972×10^{-2}	7.50062
1×10^{6}	1×10^{3}	1	1×10^{-3}	1×10	1.01972×10	7.50062×10^{3}
1×10^{9}	1×10^{6}	1×10^{3}	1	1×10^{4}	1.01972×10^{4}	7.50062×10^{6}
1×10^{5}	1×10^{2}	1×10^{-1}	1×10^{-4}	1	1.01972	7.50062×10^{2}
9.80665×10^{4}	9.80665×10	9.80665×10^{-2}	9.80665×10^{-5}	9.80665×10^{-1}	1	7.35559×10^{2}
1.33322×10^{2}	1.33322×10^{-1}	1.33322×10^{-4}	1.33322×10^{-7}	1.33322×10^{-3}	1.35951×10^{-3}	1

1Pa = 1N/m²

● Work / Energy / Heat Quantity

J	kW·h	kgf·m	kcal
1	2.77778×10^{-7}	1.01972×10^{-1}	2.38889×10^{-4}
3.60000×10^{6}	1	3.67098×10^{5}	8.60000×10^{2}
9.80665	2.72407×10^{-6}	1	2.34270×10^{-3}
4.18605×10^{3}	1.16279×10^{-3}	4.26858×10^{2}	1

1J=1W/s,1J=1N/m

● Power (efficiency and motive energy) / Thermal flow

W	kgf·m/s	PS	kcal/h
1	1.01972×10^{-1}	1.35962×10^{-3}	8.60000×10^{-1}
1×10^{3}	1.01972×10^{2}	1.35962	8.60000×10^{2}
9.80665	1	1.33333×10^{-2}	8.43371
7.355×10^{2}	7.5×10	1	6.32529×10^{2}
1.16279	1.18572×10^{-1}	1.58095×10^{-3}	1

1W = 1J/s, PS: Horsepower

● Specific Heat

J/(kg·K)	1kcal (kg/°C) cal/(g/°C)
1	2.38889×10^{-4}
4.18605×10^{3}	1

● Thermal Conductivity

W/(m/K)	kcal/(h·m·°C)
1	8.60000×10^{-1}
1.16279	1

● Spindle Speed

min⁻¹	rpm
1	1

1min⁻¹=1rpm

■ Metals Symbols Chart (Excerpt)

● Carbon Steels for Structural Use

JIS	AISI	DIN	GB
S10C	1010	C10	10
S15C	1015	C15	15
S20C	1020	C22	20
S25C	1025	C25	25
S30C	1030	C30	30
S35C	1035	C35	35
S40C	1040	C40	40
S45C	1045	C45	45
S50C	1049	C50	50
S55C	1055	C55	55

● Ni-Cr-Mo Steels

SNCM220	8620	21NiCrMo2	20CrNiMo
SNCM240	8640	—	—
SNCM415	—	—	—
SNCM420	4320	—	20CrMo
SNCM439	4340	—	40CrNiMo, 42CrMo, 35CrMo
SNCM447	—	—	—

● Cr Steels

SCr415	—	—	15Cr
SCr420	5120	—	20Cr
SCr430	5130	34Cr4	30Cr
SCr435	5132	37Cr4	35Cr
SCr440	5140	41Cr4	40Cr
SCr445	5147	—	45Cr

● Cr-Mo Steels

SCM415	—	—	15CrMo
SCM420	—	—	20CrMo
SCM430	4131	—	30CrMo
SCM435	4137	34CrMo4	35CrMo
SCM440	4140	42CrMo4	42CrMo
SCM445	4145	—	—

● Mn Steels and Mn-Cr Steels for Mechanical Structures

SMn420	1522	—	20Mn2
SMn433	1534	—	30Mn2, 35Mn2
SMn438	1541	—	40Mn2
SMn443	1541	—	40Mn2, 45Mn2
SMnC420	—	—	15CrMn
SMnC443	—	—	40CrMn

● Carbon Tool Steels

SK1	—	—	T13
SK2	W1-11 $^1/_2$	—	T12
SK3	W1-10	C105W1	T11
SK4	W1-9	—	T10
SK5	W1-8	C80W1	T9
SK6	—	C80W1	T8
SK7	—	C70W2	T7

● High Speed Steels

JIS	AISI	DIN	GB
SKH2	T1	—	W18Cr4V
SKH3	T4	S18-1-2-5	W18Cr4VCo5
SKH10	T15	S12-1-4-5	W12Cr4V5Co5
SKH51	M2	S6-5-2	W6Mo5Cr4V2
SKH52	M3-1	—	W6Mo5Cr4V3
SKH53	M3-2	S6-5-3	CW6Mo5Cr4V3
SKH54	M4	—	—
SKH55	—	S6-5-2-5	W6Mo5Cr4V2Co5
SKH56	M36	—	—

● Alloy Tool Steels

SKS11	F2	—	—
SKS51	L6	—	—
SKS43	W2-9 $^1/_2$	—	V
SKS44	W2-8	—	—
SKD1	D3	X210Cr12	Cr12
SKD11	D2	—	Cr12MoV

● Gray Cast Iron

FC100	No 20B	GG-10	HT100
FC150	No 25B	GG-15	HT150
FC200	No 30B	GG-20	HT200
FC250	No 35B	GG-25	HT250
FC300	No 45B	GG-30	HT300
FC350	No 50B	GG-35	HT350

● Nodular Cast Iron

FCD400	60-40-18	GGG-40	QT400-18
FCD450	—	GGG-40.3	QT450-10
FCD500	80-55-06	GGG-50	QT500-7
FCD600	—	GGG-60	QT600-3
FCD700	100-70-03	GGG-70	QT700-2

● Ferritic Stainless Steels

SUS405	405	X10CrAl13	0CR13Al
SUS429	429	—	1Cr15
SUS430	430	X6Cr17	1Cr17
SUS430F	430F	X7CrMo18	Y1Cr17
SUS434	434	X6CrMo17 1	1Cr17Mo

● Martensitic Stainless Steels

SUS403	403	—	1Cr12,1Cr17Ti
SUS410	410	X10Cr13	1Cr13
SUS416	416	—	Y1Cr13
SUS420JI	420	X20Cr13	2Cr13
SUS420F	420F	—	Y3Cr13
SUS431	431	X20CrNi17 2	1Cr17Ni2
SUS440A	440A	—	7Cr17
SUS440B	440B	—	8Cr17
SUS440C	440C	—	9Cr18

● Austenitic Stainless Steels

JIS	AISI	DIN	GB
SUS201	201	—	1Cr17Mn6Ni5N
SUS202	202	—	1Cr18Mn8Ni5N
SUS301	301	X12CrNi17 7	1Cr17Ni7
SUS302	302	—	1Cr18Ni9
SUS302B	302B	—	—
SUS303	303	X10CrNiS18 9	Y1Cr18Ni9
SUS303Se	303Se	—	Y1Cr18Ni9Se
SUS304	304	X5CrNiS18 10	0Cr19Ni9N
SUS304L	304L	X2CrNi19 11	00Cr18Ni10
SUS304NI	304N	—	0Cr18Ni10
SUS305	305	X5CrNi18 12	1Cr18Ni12
SUS308	308	—	—
SUS309S	309S	—	0Cr23Ni13
SUS310S	310S	—	0Cr25Ni20
SUS316	316	X5CrMo17 12 2	0Cr17Ni12Mo2
SUS316L	316L	X2CrNiMo17 13 2	00Cr17Ni14Mo2
SUS316N	316N	—	0Cr17Ni12Mo2N
SUS317	317	—	0Cr19Ni13Mo3
SUS317L	317L	X2CrNiMo18 16 4	00Cr19Ni13Mo3
SUS321	321	X6CrNiTi18 10	0Cr18Ni10Ti
SUS347	347	X6CrNiNb18 10	0Cr18Ni11Nb
SUS384	384	—	—

● Heat Resistant Steels

SUH31	—	—	4Cr14Ni14W2Mo
SUH35	—	—	5Cr21Mn9Ni4N
SUH36	—	X53CrMnNi21 9	—
SUH37	—	—	2Cr21Ni12N
SUH38	—	—	—
SUH309	309	—	2Cr23Ni13
SUH310	310	CrNi2520	2Cr25Ni21
SUH330	N08330	—	1Cr16Ni35

● Ferritic Heat Resistant Steels

SUH21	—	CrAl1205	1Cr19Al3
SUH409	409	X6CrTi12	06Cr11Ti
SUH446	446	—	2Cr25N

● Martensitic Heat Resistant Steels

SUH1	—	X45CrSi9 3	4Cr9Si2
SUH3	—	—	4Cr10Si2Mo
SUH4	—	—	8Cr20Si2Ni
SUH11	—	—	—
SUH600	—	—	2Cr12MoVNbN

■ Steel and Non-Ferrous Metal Symbols Chart (Excerpt)

● Classifications and Symbols of Steels

Classification	Material	Symbol	Code Description
Steel for Structure	Rolled Steels for welded structures	SM	"M" for "Marine": Usually used in welded marine structures
	Re-rolled Steels	SRB	"R" for "Re-rolled" and "B" for "Bar"
	Rolled steel for general structures	SS	S for "Steel" and S for "Structure"
	Light gauge sections for general structures	SSC	"C" for "Cold" after SS
Steel Sheets	Hot rolled mild steel sheets / plates in coil form	SPH	P for "Plate" and "H" for "Hot"
Steel Tubes	Carbon steel tubes for piping	SGP	"GP" for "Gas Pipe"
	Carbon steel tubes for boiler and heat exchangers	STB	"T" for "Tube" and "B" for "Boiler·
	Seamless steel tubes for high-pressure gas cylinders	STH	"H" for "High Pressure" after ST
	Carbon steel tubes for general structures	STK	"K" for "Kozo" ("structure" in Japanese) after ST
	Carbon steel tubes for mechanical structures	STKM	"M" for "Machine" after STK
	Alloy steel tubes for structures	STKS	"S" for "Special" after STK
	Alloy steel tubes for piping	STPA	"A" for "Alloy" after STP
	Carbon steel tubes for pressure piping	STPG	"P" for "Piping" and "G" for "General" after ST
	Carbon steel tubes for high-temperature piping	STPT	"T" for "Temperature" after ST
	Carbon steel tubes for high-pressure piping	STS	"S" for "Special" after ST
	Stainless steel tubes for piping	SUS-TP	"T" for "Tube" and "P" for "Piping" after SUS
Steel for Mechanical Structures	Carbon steels for mechanical structures	SxxC	"C" for "Carbon"
	Aluminium-chromium-molybdenum steels	SACM	"A" for "Al", "C" for "Cr" and "M" for "Mo"
	Chromium molybdenum steels	SCM	"C" for "Cr" and "M" for "Mo"
	Chromium steels	SCr	"Cr" for "Chromium" after "S" for "Steel"
	Nickel Chromium steels	SNC	"N" for "Nickel" and "C"for "Chromium"
	Nickel Chromium Molybdenum steels	SNCM	"M" for "Molybdenum" in SNC
	Manganese steels for mechanical structures Chromium steels	SMn SMnC	"Mn" for "Manganese" "C" for "Chromium" in SMn
Special Steels – Tool Steels	Carbon tool steels	SK	"K" for "Kogu" ("tool" in Japanese)
	Hollow drill steels	SKC	"C" for "Chisel" after SK
	Alloy tool steel	SKS SKD SKT	S for "Special" after SK D for "Die" after SK T for "Tanzo" - "forging" in Japanese after SK
	High-speed tool steels	SKH	"H" for "High speed" after SK
Special Steels – Stainless Steel	Free cutting sulphuric steels	SUM	"M" for "Machinability" after SU
	High-carbon chromium bearing steels	SUJ	"J" for "Jikuuke" ("bearing" in Japanese) after SU
	Spring steels	SUP	"P" for "Spring" after SU
	Stainless Steel	SUS	"S" for "Stainless Steel" after SU
Special Steels – Heat-resistant Steel	Heat-resistant Steel	SUH	"U" for "Special Usage" and "H" for "Heat"
	Heat-resistant steel bars	SUH-B	"B" for "Bar" after SUH
	Heat-resistant steel sheets	SUHP	"P" for "Plate" after SUH
Forged Steels	Carbon steel forgings for general use	SF	"F" for "Forging"
	Carbon steel booms and billets for forgings	SFB	"B" for "Billet" after SF
	Chromium molybdenum steel forgings	SFCM	"C" for "Chromium" and "M" for "Molybdenum" after SF
	Nickel Chromium Molybdenum steel forgings	SFNCM	"N" for "Nickel" in SFCM
Cast Iron	Gray cast iron	FC	"F" for "Ferrous" and "C" for "Casting"
	Spherical graphite / Ductile cast irons	FCD	"D" for "Ductile" after FC
	Blackheart malleable cast irons	FCMB	"M" for "Malleable" and "B" for "Black" after FC
	Whiteheart malleable cast irons	FCMW	"W" for "White" after FCM
	Pearlite malleable cast iron	FCMP	"P" for "Pearlite" after FCM
Cast Steels	Carbon cast steels	SC	"C" for "Casting"
	Cast stainless steels	SCS	"S" for "Stainless Steel" after SC
	Heat-resistant cast steels	SCH	"H" for "Heat" after SC
	High-manganese cast steels	SCMnH	"Mn" for "Manganese" and "H" for "High" after SC

● Non-Ferrous Metals

Classification	Material	Symbol
Copper and Copper Alloys	Copper and copper alloys - sheets, plates and strips	CxxxxP
		CxxxxPP
		CxxxxR
	Copper and copper alloys - welded pipes and tubes	CxxxxBD
		CxxxxBDS
		CxxxxBE
		CxxxxBF
Aluminum and Aluminum Alloys	Aluminum and Al alloys - Sheets, plates and strips	AxxxxP
		AxxxxPC
	Aluminum and Al alloys Rods, bars, and wires	AxxxxBE
		AxxxxBD
		AxxxxW
	Aluminum and Al alloys - Extruded shapes	AxxxxS
	Aluminum and Al alloy castings	AxxxxFD
		AxxxxFH
Material – Wrought Alloys – Magnesium	Magnesium alloy sheets and plates	MP
Material – Nickel	Nickel-copper alloy sheets and plates	NCuP
	Nickel-copper alloy rods and bars	NCuB
Material – Wrought Materials – Titanium	Titanium rods and bars	TB
Castings	Brass castings	YBsCx
	High-strength brass castings	HBsCx
	Bronze castings	BCx
	Phosphorus Bronze castings	PBCx
	Aluminum bronze castings	AlBCx
	Aluminum alloy castings	AC
	Magnesium alloy castings	MC
	Zinc alloy die castings	ZDCx
	Aluminum alloy die castings	ADC
	Magnesium alloy die castings	MDC
	White metals	WJ
	Aluminum alloy castings for bearings	AJ
	Copper-lead alloy castings for bearings	KJ

■ Hardness Scale Comparison Chart

● Approximate corresponding values for steel hardness on the Brinell scale

Brinell 3,000kgf HB	Rockwell Hardness A Scale 60kgf brale HRA	B Scale 100kgf 1/10in ball HRB	C Scale 150kgf brale HRC	D Scale 100kgf brale HRD	Vickers 50kgf HV	Shore Hardness HS	Tensile Strength (GPa)
—	85.6	—	68.0	76.9	940	97	—
—	85.3	—	67.5	76.5	920	96	—
—	85.0	—	67.0	76.1	900	95	—
767	84.7	—	66.4	75.7	880	93	—
757	84.4	—	65.9	75.3	860	92	—
745	84.1	—	65.3	74.8	840	91	—
733	83.8	—	64.7	74.3	820	90	—
722	83.4	—	64.0	73.8	800	88	—
712	—	—	—	—	—	—	—
710	83.0	—	63.3	73.3	780	87	—
698	82.6	—	62.5	72.6	760	86	—
684	82.2	—	61.8	72.1	740	—	—
682	82.2	—	61.7	72.0	737	84	—
670	81.8	—	61.0	71.5	720	83	—
656	81.3	—	60.1	70.8	700	—	—
653	81.2	—	60.0	70.7	697	81	—
647	81.1	—	59.7	70.5	690	—	—
638	80.8	—	59.2	70.1	680	80	—
630	80.6	—	58.8	69.8	670	—	—
627	80.5	—	58.7	69.7	667	79	—
601	79.8	—	57.3	68.7	640	77	—
578	79.1	—	56.0	67.7	615	75	—
555	78.4	—	54.7	66.7	591	73	2.06
534	77.8	—	53.5	65.8	569	71	1.98
514	76.9	—	52.1	64.7	547	70	1.89
495	76.3	—	51.0	63.8	528	68	1.82
477	75.6	—	49.6	62.7	508	66	1.73
461	74.9	—	48.5	61.7	491	65	1.67
444	74.2	—	47.1	60.8	472	63	1.59
429	73.4	—	45.7	59.7	455	61	1.51
415	72.8	—	44.5	58.8	440	59	1.46
401	72.0	—	43.1	57.8	425	58	1.39
388	71.4	—	41.8	56.8	410	56	1.33
375	70.6	—	40.4	55.7	396	54	1.26
363	70.0	—	39.1	54.6	383	52	1.22
352	69.3	(110.0)	37.9	53.8	372	51	1.18
341	68.7	(109.0)	36.6	52.8	360	50	1.13
331	68.1	(108.5)	35.5	51.9	350	48	1.10
321	67.5	(108.0)	34.3	50.1	339	47	1.06
311	66.9	(107.5)	33.1	50.0	328	46	1.03
302	66.3	(107.0)	32.1	49.3	319	45	1.01
293	65.7	(106.0)	30.9	48.3	309	43	0.97
285	65.3	(105.5)	29.9	47.6	301	—	0.95
277	64.6	(104.5)	28.8	46.7	292	41	0.92
269	64.1	(104.0)	27.6	45.9	284	40	0.89
262	63.6	(103.0)	26.6	45.0	276	39	0.87
255	63.0	(102.0)	25.4	44.2	269	38	0.84
248	62.5	(101.0)	24.2	43.2	261	37	0.82
241	61.8	100.0	22.8	42.0	253	36	0.80
235	61.4	99.0	21.7	41.4	247	35	0.78
229	60.8	98.2	20.5	40.5	241	34	0.76
223	—	97.3	(18.8)	—	234	—	—
217	—	96.4	(17.5)	—	228	33	0.73
212	—	95.5	(16.0)	—	222	—	0.71
207	—	94.6	(15.2)	—	218	32	0.69
201	—	93.8	(13.8)	—	212	31	0.68
197	—	92.8	(12.7)	—	207	30	0.66
192	—	91.9	(11.5)	—	202	29	0.64
187	—	90.7	(10.0)	—	196	—	0.62
183	—	90.0	(9.0)	—	192	28	0.62
179	—	89.0	(8.0)	—	188	27	0.60
174	—	87.8	(6.4)	—	182	—	0.59
170	—	86.8	(5.4)	—	178	26	0.57
167	—	86.0	(4.4)	—	175	—	0.56
163	—	85.0	(3.3)	—	171	25	0.55
156	—	82.9	(0.9)	—	163	—	0.52
149	—	80.8	—	—	156	23	0.50
143	—	78.7	—	—	150	22	0.49
137	—	76.4	—	—	143	21	0.46
131	—	74.0	—	—	137	—	0.45
126	—	72.0	—	—	132	20	0.43
121	—	69.8	—	—	127	19	0.41
116	—	67.6	—	—	122	18	0.40
111	—	65.7	—	—	117	15	0.38

1) Figures within the ( ) are not commonly used.
2) Rockwell A, C and D scales utilise a diamond brale.
3) This chart was taken from the JIS Iron and Steel Handbook (1980).

■ Standard of Tapers

● Morse Taper

Fig.1 With Tang

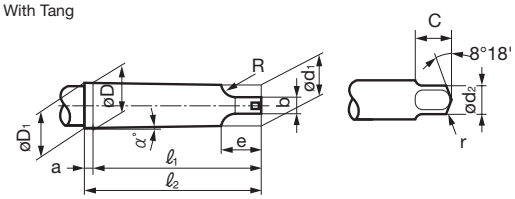
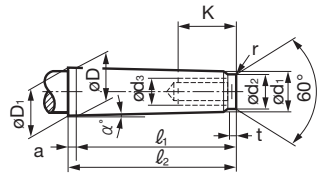


Fig.2 Drawing Thread Type



(Unit: *mm*)

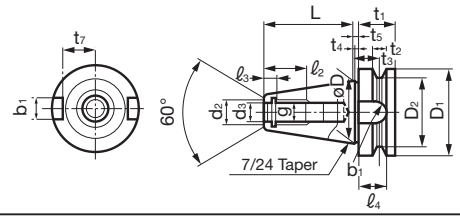
Morse Taper Number	Taper (1)		Taper Angle (α)	Taper						Tang						Fig
				D	a	D_1(2) (approx.)	d_1(2) (approx.)	ℓ_1 (Max)	ℓ_2 (Max)	d_2 (Max)	b	C (Max)	e (Max)	R	r	
0	$\frac{1}{19.212}$	0.05205	1°29'27"	9.045	3	9.2	6.1	56.5	59.5	6.0	3.9	6.5	10.5	4	1	1
1	$\frac{1}{20.047}$	0.04988	1°25'43"	12.065	3.5	12.2	9.0	62.0	65.5	8.7	5.2	8.5	13.5	5	1.2	
2	$\frac{1}{20.020}$	0.04995	1°25'50"	17.780	5	18.0	14.0	75.0	80.0	13.5	6.3	10	16	6	1.6	
3	$\frac{1}{19.922}$	0.05020	1°26'16"	23.825	5	24.1	19.1	94.0	99.0	18.5	7.9	13	20	7	2	
4	$\frac{1}{19.245}$	0.05194	1°29'15"	31.267	6.5	31.6	25.2	117.5	124.0	24.5	11.9	16	24	8	2.5	
5	$\frac{1}{19.002}$	0.05263	1°30'26"	44.399	6.5	44.7	36.5	149.5	156.0	35.7	15.9	19	29	10	3	
6	$\frac{1}{19.180}$	0.05214	1°29'36"	63.348	8	63.8	52.4	210.0	218.0	51.0	19.0	27	40	13	4	
7	$\frac{1}{19.231}$	0.05200	1°29'22"	83.058	10	83.6	68.2	286.0	296.0	66.8	28.6	35	54	19	5	

Morse Taper Number	Taper (1)		Taper Angle (α)	Taper						Thread					Fig
				D	a	D_1(2) (approx.)	d_1(2) (approx.)	ℓ_1 (Max)	ℓ_2 (Max)	d_2 (Max)	d_3	K (Min)	t (Max)	r	
0	$\frac{1}{19.212}$	0.05205	1°29'27"	9.045	3	9.2	6.4	50	53	6	-	-	4	0.2	2
1	$\frac{1}{20.047}$	0.04988	1°25'43"	12.065	3.5	12.2	9.4	53.5	57	9	M 6	16	5	0.2	
2	$\frac{1}{20.020}$	0.04995	1°25'50"	17.780	5	18.0	14.6	64	69	14	M10	24	5	0.2	
3	$\frac{1}{19.922}$	0.05020	1°26'16"	23.825	5	24.1	19.8	81	86	19	M12	28	7	0.6	
4	$\frac{1}{19.254}$	0.05194	1°29'15"	31.267	6.5	31.6	25.9	102.5	109	25	M16	32	9	1	
5	$\frac{1}{19.002}$	0.05263	1°30'26"	44.399	6.5	44.7	37.6	129.5	136	35.7	M20	40	9	2.5	
6	$\frac{1}{19.180}$	0.05214	1°29'36"	63.348	8	63.8	53.9	182	190	51	M24	50	12	4	
7	$\frac{1}{19.231}$	0.05200	1°29'22"	83.058	10	83.6	70.0	250	260	65	M33	80	18.5	5	

Note (1) The fractional values are the taper standards.
(2) Diameters D_1 and d_1 are calculated from the diameter D value, the taper, a, and ℓ_1 and rounded up to one decimal place.
Remark 1. Tapers are measured using JIS B 3301 ring gauges. At least 75% must be correct.
2. Screws must have metric coarse screw thread as per JIS B 0205 and Class 3 precision as per JIS B 0209.

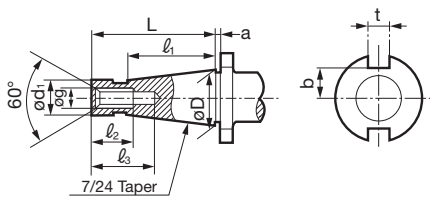
● Bottle Grip Taper

Fig 3



● American Standard Taper (National Taper)

Fig 4



● Bottle Grip Taper

(Units: *mm*)

Taper No.	D (Standard Dimensions)	D_1	D_2	t_1	t_2	t_3	t_4	t_5	d_2	d_3	L	ℓ_2	ℓ_3	ℓ_4	g	b_1	t_7	Fig
BT30	31.75	46	38	20	8	13.6	2	2	14	12.5	48.4	24	7	17	M12	16.1	16.3	3
BT35	38.10	53	43	22	10	14.6	2	2	14	12.5	56.4	24	7	20	M12	16.1	19.6	
BT40	44.45	63	53	25	10	16.6	2	2	19	17	65.4	30	8	21	M16	16.1	22.6	
BT45	57.15	85	73	30	12	21.2	3	3	23	21	82.8	36	9	26	M20	19.3	29.1	
BT50	69.85	100	85	35	15	23.2	3	3	27	25	101.8	45	11	31	M24	25.7	35.4	
BT60	107.95	155	135	45	20	28.2	3	3	33	31	161.8	56	12	34	M30	25.7	60.1	

● American Standard Taper (National Taper)

(Units: *mm*)

Taper No.	Nominal Dimensions	D	d_1		L	ℓ_1 (Min.)	ℓ_2 (Min.)	ℓ_3 (Min.)	g	a	t	b	Fig
30	$1^1/_4$"	31.750	17.4	-0.29 -0.36	68.4	48.4	24	34	$^1/_2$"	1.6	15.9	16	4
40	$1^3/_4$"	44.450	25.3	-0.30 -0.384	93.4	65.4	32	43	$^5/_8$"	1.6	15.9	22.5	
50	$2^3/_4$"	69.850	39.6	-0.31 -0.41	126.8	101.8	47	62	1"	3.2	25.4	35	
60	$4^1/_4$"	107.950	60.2	-0.34 -0.46	206.8	161.8	59	76	$1^1/_4$"	3.2	25.4	60	

■ Dimensional Tolerance of Standard Fittings [Excerpt from JIS B 0401 (1999)]

● Dimensional Tolerance Used for Shafts of Standard Fittings

Unit: μm

Classification of Reference Dimensions (mm)		Shaft Tolerance Class																													
or greater	or less	b9	c9	d8	d9	e7	e8	e9	f6	f7	f8	g5	g6	h5	h6	h7	h8	h9	js5	js6	js7	k5	k6	m5	m6	n6	p6	r6	s6	t6	u6	x6
—	3	-140 -165	-60 -85	-20 -34	-20 -45	-14 -24	-14 -28	-14 -39	-6 -12	-6 -16	-8 -20	-2 -6	-2 -8	0 -4	0 -6	0 -10	0 -14	0 -25	±2	±3	±5	+4 0	+6 0	+6 +2	+8 +2	+10 +4	+12 +6	+16 +10	+20 +14	—	+24 +18	+26 +20
3	6	-140 -170	-70 -100	-30 -48	-30 -60	-20 -32	-20 -38	-20 -50	-10 -18	-10 -22	-10 -28	-4 -9	-4 -12	0 -5	0 -8	0 -12	0 -18	0 -30	±2.5	±4	±6	+6 +1	+9 +1	+9 +4	+12 +4	+16 +8	+20 +12	+23 +15	+27 +19	—	+31 +23	+36 +28
6	10	-150 -186	-80 -116	-40 -62	-40 -76	-25 -40	-25 -47	-25 -61	-13 -22	-13 -28	-13 -35	-5 -11	-5 -14	0 -6	0 -9	0 -15	0 -22	0 -36	±3	±4.5	±7.5	+7 +1	+10 +1	+12 +6	+15 +6	+19 +10	+24 +15	+28 +19	+32 +23	—	+37 +28	+43 +34
10	14	-150 -193	-95 -138	-50 -77	-50 -93	-32 -50	-32 -59	-32 -75	-16 -27	-16 -34	-16 -43	-6 -14	-6 -17	0 -8	0 -11	0 -18	0 -27	0 -43	±4	±5.5	±9	+9 +1	+12 +1	+15 +7	+18 +7	+23 +12	+29 +18	+34 +23	+39 +28	—	+44 +33	+51 +40
14	18																															+56 +45
18	24	-160 -212	-110 -162	-65 -98	-65 -117	-40 -61	-40 -73	-40 -92	-20 -33	-20 -41	-20 -53	-7 -16	-7 -20	0 -9	0 -13	0 -21	0 -33	0 -52	±4.5	±6.5	±10.5	+11 +2	+15 +2	+17 +8	+21 +8	+28 +15	+35 +22	+41 +28	+48 +35	—	+54 +41	+67 +54
24	30																													+54 +41	+61 +48	+77 +64
30	40	-170 -232	-120 -182	-80 -119	-80 -142	-50 -75	-50 -89	-50 -112	-25 -41	-25 -50	-25 -64	-9 -20	-9 -25	0 -11	0 -16	0 -25	0 -39	0 -62	±5.5	±8	±12.5	+13 +2	+18 +2	+20 +9	+25 +9	+33 +17	+42 +26	+50 +34	+59 +43	+64 +48	+76 +60	—
40	50	-180 -242	-130 -192																											+70 +54	+86 +70	
50	65	-190 -264	-140 -214	-100 -146	-100 -174	-60 -90	-60 -106	-60 -134	-30 -49	-30 -60	-30 -76	-10 -23	-10 -29	0 -13	0 -19	0 -30	0 -46	0 -74	±6.5	±9.5	±15	+15 +2	+21 +2	+24 +11	+30 +11	+39 +20	+51 +32	+60 +41	+72 +53	+85 +66	+106 +87	—
65	80	-200 -274	-150 -224																									+62 +43	+78 +59	+94 +75	+121 +102	
80	100	-220 -307	-170 -257	-120 -174	-120 -207	-72 -107	-72 -126	-72 -159	-36 -58	-36 -71	-36 -90	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	±7.5	±11	±17.5	+18 +3	+25 +3	+28 +13	+35 +13	+45 +23	+59 +37	+73 +51	+93 +71	+113 +91	+146 +124	—
100	120	-240 -327	-180 -267																									+76 +54	+101 +79	+126 +104	+166 +144	
120	140	-260 -360	-200 -300	-145 -208	-145 -245	-85 -125	-85 -148	-85 -185	-43 -68	-43 -83	-43 -106	-14 -32	-14 -39	0 -18	0 -25	0 -40	0 -63	0 -100	±9	±12.5	±20	+21 +3	+28 +3	+33 +15	+40 +15	+52 +27	+68 +43	+88 +63	+117 +92	+147 +122	—	—
140	160	-280 -380	-210 -310																									+90 +65	+125 +100	+159 +134		
160	180	-310 -410	-230 -330																									+93 +68	+133 +108	+171 +146		
180	200	-340 -455	-240 -355	-170 -242	-170 -285	-100 -146	-100 -172	-100 -215	-50 -79	-50 -96	-50 -122	-15 -35	-15 -44	0 -20	0 -29	0 -46	0 -72	0 -115	±10	±14.5	±23	+24 +4	+33 +4	+37 +17	+46 +17	+60 +31	+79 +50	+106 +77	+151 +122	—	—	—
200	225	-380 -495	-260 -375																									+109 +80	+159 +130			
225	250	-420 -535	-280 -395																									+113 +84	+169 +140			
250	280	-480 -610	-300 -430	-190 -271	-190 -320	-110 -162	-110 -191	-110 -240	-56 -88	-56 -108	-56 -137	-17 -40	-17 -49	0 -23	0 -32	0 -52	0 -81	0 -130	±11.5	±16	±26	+27 +4	+36 +4	+43 +20	+52 +20	+66 +34	+88 +56	+126 +94	—	—	—	—
280	315	-540 -670	-330 -460																									+130 +98				
315	355	-600 -740	-360 -500	-210 -299	-210 -350	-125 -182	-125 -214	-125 -265	-62 -98	-62 -119	-62 -151	-18 -43	-18 -54	0 -25	0 -36	0 -57	0 -89	0 -140	±12.5	±18	±28.5	+29 +4	+40 +4	+46 +21	+57 +21	+73 +37	+98 +62	+144 +108	—	—	—	—
355	400	-680 -820	-400 -540																									+150 +114				
400	450	-760 -915	-440 -595	-230 -327	-230 -385	-135 -198	-135 -232	-135 -290	-68 -108	-68 -131	-68 -165	-20 -47	-20 -60	0 -27	0 -40	0 -63	0 -97	0 -155	±13.5	±20	±31.5	+32 +5	+45 +5	+50 +23	+63 +23	+80 +40	+108 +68	+166 +126	—	—	—	—
450	500	-840 -995	-480 -635																									+172 +132				

■ Dimensional Tolerance of Standard Fittings [Excerpt from JIS B 0401 (1999)]

■ Dimensional Tolerance Used for Holes of Standard Fittings

Classification of Reference Dimensions (*mm*)		Hole Tolerance Class																																	Unit: μm
or greater	or less	B10	C9	C10	D8	D9	D10	E7	E8	E9	F6	F7	F8	G6	G7	H6	H7	H8	H9	H10	JS6	JS7	K6	K7	M6	M7	N6	N7	P6	P7	R7	S7	T7	U7	X7
—	3	+180 +140	+85 +60	+100 +60	+34 +20	+45 +20	+60 +20	+24 +14	+28 +14	+39 +14	+12 +6	+16 +6	+20 +6	+8 +2	+12 +2	+6 0	+10 0	+14 0	+25 0	+40 0	±3	±5	0 -6	0 -10	-2 -8	-2 -12	-4 -10	-4 -14	-6 -12	-6 -16	-10 -20	-14 -24	—	-18 -28	-20 -30
3	6	+188 +140	+100 +70	+118 +70	+48 +30	+60 +30	+78 +30	+32 +20	+38 +20	+50 +20	+18 +10	+22 +10	+28 +10	+12 +4	+16 +4	+8 0	+12 0	+18 0	+30 0	+48 0	±4	±6	+2 -6	+3 -9	-1 -9	0 -12	-5 -13	-4 -16	-9 -17	-8 -20	-11 -23	-15 -27	—	-19 -31	-24 -36
6	10	+208 +150	+116 +80	+138 +80	+62 +40	+76 +40	+98 +40	+40 +25	+47 +25	+61 +25	+22 +13	+28 +13	+35 +13	+14 +5	+20 +5	+9 0	+15 0	+22 0	+36 0	+58 0	±4.5	±7.5	+2 -7	+5 -10	-3 -12	0 -15	-7 -16	-4 -19	-12 -21	-9 -24	-13 -28	-17 -32	—	-22 -37	-28 -43
10	14	+220 +150	+138 +95	+165 +95	+77 +50	+93 +50	+120 +50	+50 +32	+59 +32	+75 +32	+27 +16	+34 +16	+43 +16	+17 +6	+24 +6	+11 0	+18 0	+27 0	+43 0	+70 0	±5.5	±9	+2 -9	+6 -12	-4 -15	0 -18	-9 -20	-5 -23	-15 -26	-11 -29	-16 -34	-21 -39	—	-26 -44	-33 -51
14	18																																		-38 -56
18	24	+244 +160	+162 +110	+194 +110	+98 +65	+117 +65	+149 +65	+61 +40	+73 +40	+92 +40	+33 +20	+41 +20	+53 +20	+20 +7	+28 +7	+13 0	+21 0	+33 0	+52 0	+84 0	±6.5	±10.5	+2 -11	+6 -15	-4 -17	0 -21	-11 -24	-7 -28	-18 -31	-14 -35	-20 -41	-27 -48	—	-33 -54	-46 -67
24	30																																-33 -54	-40 -61	-56 -77
30	40	+270 +170	+182 +120	+220 +120	+119 +80	+142 +80	+180 +80	+75 +50	+89 +50	+112 +50	+41 +25	+50 +25	+64 +25	+25 +9	+34 +9	+16 0	+25 0	+39 0	+62 0	+100 0	±8	±12.5	+3 -13	+7 -18	-4 -20	0 -25	-12 -28	-8 -33	-21 -37	-17 -42	-25 -50	-34 -59	-39 -64	-51 -76	—
40	50	+280 +180	+192 +130	+230 +130																													-45 -70	-61 -86	
50	65	+310 +190	+214 +140	+260 +140	+146 +100	+174 +100	+220 +100	+90 +60	+106 +60	+134 +60	+49 +30	+60 +30	+76 +30	+29 +10	+40 +10	+19 0	+30 0	+46 0	+74 0	+120 0	±9.5	±15	+4 -15	+9 -21	-5 -24	0 -30	-14 -33	-9 -39	-26 -45	-21 -51	-30 -60	-42 -72	-55 -85	-76 -106	—
65	80	+320 +200	+224 +150	+270 +150																											-32 -62	-48 -78	-64 -94	-91 -121	
80	100	+360 +220	+257 +170	+310 +170	+174 +120	+207 +120	+260 +120	+107 +72	+126 +72	+159 +72	+58 +36	+71 +36	+90 +36	+34 +12	+47 +12	+22 0	+35 0	+54 0	+87 0	+140 0	±11	±17.5	+4 -18	+10 -25	-6 -28	0 -35	-16 -38	-10 -45	-30 -52	-24 -59	-38 -73	-58 -93	-78 -113	-111 -146	—
100	120	+380 +240	+267 +180	+320 +180																											-41 -76	-66 -101	-91 -126	-131 -166	
120	140	+420 +260	+300 +200	+360 +200	+208 +145	+245 +145	+305 +145	+125 +85	+148 +85	+185 +85	+68 +43	+83 +43	+106 +43	+39 +14	+54 +14	+25 0	+40 0	+63 0	+100 0	+160 0	±12.5	±20	+4 -21	+12 -28	-8 -33	0 -40	-20 -45	-12 -52	-36 -61	-28 -68	-48 -88	-77 -117	-107 -147	—	—
140	160	+440 +280	+310 +210	+370 +210																											-50 -90	-85 -125	-119 -159		
160	180	+470 +310	+330 +230	+390 +230																											-53 -93	-93 -133	-131 -171		
180	200	+525 +340	+355 +240	+425 +240	+242 +170	+285 +170	+355 +170	+146 +100	+172 +100	+215 +100	+79 +50	+96 +50	+122 +50	+44 +15	+61 +15	+29 0	+46 0	+72 0	+115 0	+185 0	±14.5	±23	+5 -24	+13 -33	-8 -37	0 -46	-22 -51	-14 -60	-41 -70	-33 -79	-60 -106	-105 -151	—	—	—
200	225	+565 +380	+375 +260	+445 +260																											-63 -109	-113 -159			
225	250	+605 +420	+395 +280	+465 +280																											-67 -113	-123 -169			
250	280	+690 +480	+430 +300	+510 +300	+271 +190	+320 +190	+400 +190	+162 +110	+191 +110	+240 +110	+88 +56	+108 +56	+137 +56	+49 +17	+69 +17	+32 0	+52 0	+81 0	+130 0	+210 0	±16	±26	+5 -27	+16 -36	-9 -41	0 -52	-25 -57	-14 -66	-47 -79	-36 -88	-74 -126	—	—	—	—
280	315	+750 +540	+460 +330	+540 +330																											-78 -130				
315	355	+830 +600	+500 +360	+590 +360	+299 +210	+350 +210	+440 +210	+182 +125	+214 +125	+265 +125	+98 +62	+119 +62	+151 +62	+54 +18	+75 +18	+36 0	+57 0	+89 0	+140 0	+230 0	±18	±28.5	+7 -29	+17 -40	-10 -46	0 -57	-26 -62	-16 -73	-51 -87	-41 -98	-87 -144	—	—	—	—
355	400	+910 +680	+540 +400	+630 +400																											-93 -150				
400	450	+1010 +760	+595 +440	+690 +440	+327 +230	+385 +230	+480 +230	+198 +135	+232 +135	+290 +135	+108 +68	+131 +68	+165 +68	+60 +20	+83 +20	+40 0	+63 0	+97 0	+155 0	+250 0	±20	±31.5	+8 -32	+18 -45	-10 -50	0 -63	-27 -67	-17 -80	-55 -95	-45 -108	-103 -166	—	—	—	—
450	500	+1090 +840	+635 +480	+730 +480																											-109 -172				

■ Dimensional Tolerance and Fittings [Excerpt from JIS B 0401 (1999)]

● Standard Fitting for Holes

Reference Hole	Shaft Tolerance Class																
	Gap fitting							Intermediate fitting			Tight fitting						
H6						g5	h5	js5	k5	m5							
					f6	g6	h6	js6	k6	m6	n6*	p6*					
H7					f6	g6	h6	js6	k6	m6	n6	p6*	r6*	s6	t6	u6	x6
				e7	f7		h7	js7									
H8					f7		h7										
				e8	f8		h8										
			d9	e9													
H9			d8	e8			h8										
		c9	d9	e9			h9										
H10	b9	c9	d9														

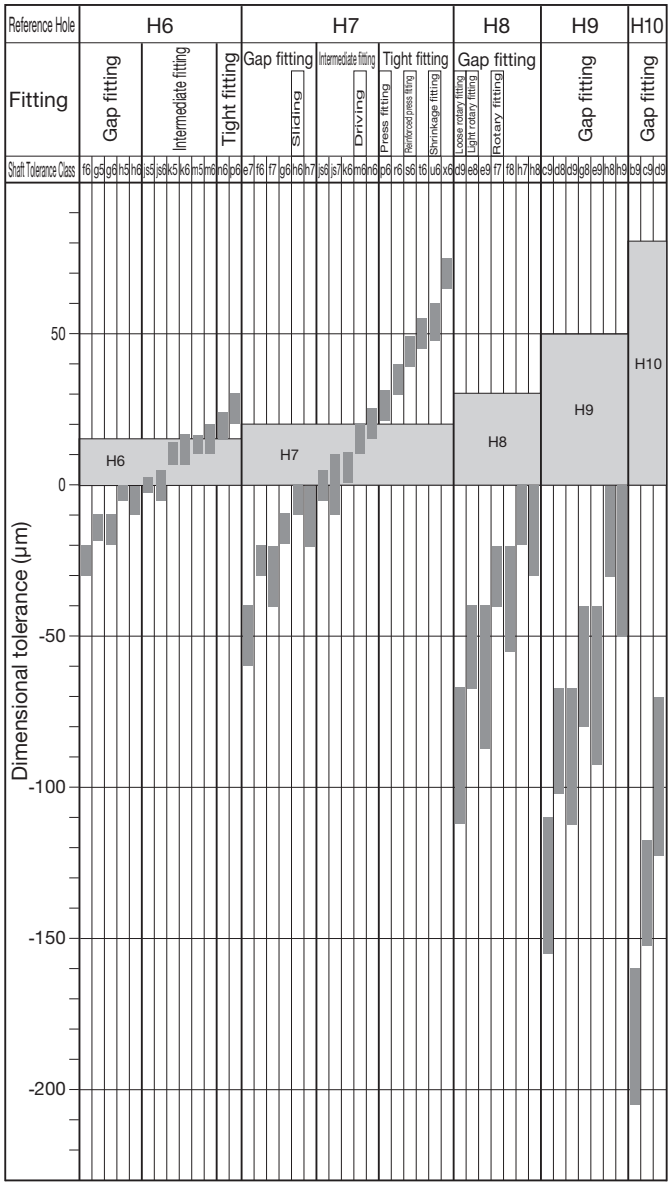
Note: *Exceptions may arise with these fittings depending on the dimension category.

● Standard Fittings for Shafts

Reference Shaft	Hole Tolerance Class																
	Gap fitting							Intermediate fitting			Tight fitting						
h5							H6	JS6	K6	M6	N6*	P6					
h6					F6	G6	H6	JS6	K6	M6	N6	P6*					
					F7	G7	H7	JS7	K7	M7	N7	P7*	R7	S7	T7	U7	X7
h7				E7	F7		H7										
					F8		H8										
h8			D8	E8	F8		H8										
			D9	E9			H9										
h9			D8	E8			H8										
		C9	D9	E9			H9										
	B10	C10	D10														

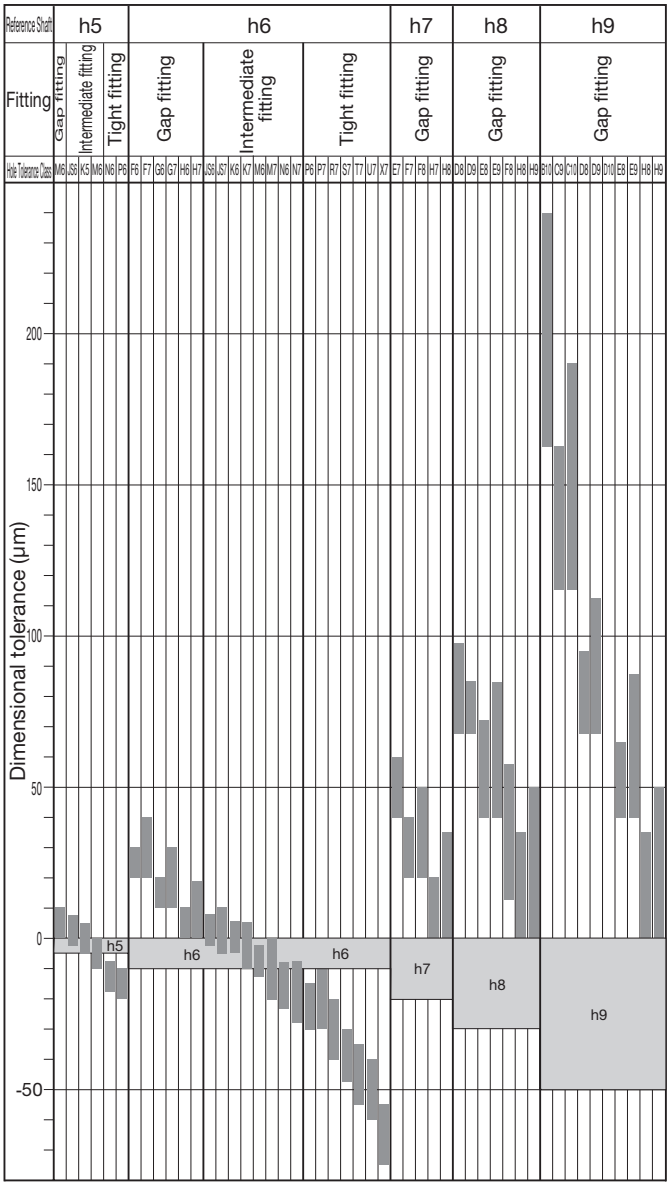
Note: *Exceptions may arise with these fittings depending on the dimension category.

● Correlation of Tolerance Zones in Standard Hole Fittings



Note: The above table is for reference dimensions greater than 18mm up to 30mm.

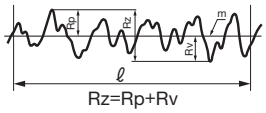
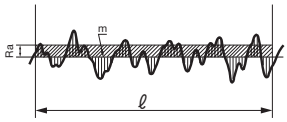
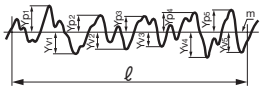
● Correlation of Tolerance Zones in Standard Shaft Fittings



Note: The above table is for reference dimensions greater than 18mm up to 30mm.

■ Surface Roughness

● Types and Definitions of Typical Surface Roughness

Type	Symbol	Method of Determination	Descriptive Figure
R Max.	*1) Rz	This value is found by extracting the reference length in the mean line direction from the surface roughness curve, measuring the intervals between the peaks and valleys in the extracted area in the longitudinal magnification direction of the surface roughness curve, and expressing this value in micrometres (μm). Remarks: When finding Rz, any areas deemed to be scratches are removed before extracting the reference length from an area with no high peaks or low valleys.	 Rz=Rp+Rv
Calculated Roughness	Ra	This value is found by extracting the reference length in the mean line direction from the roughness curve, taking the average line direction of the extracted area as the X-axis and the longitudinal magnification direction as the Y-axis and expressing the value found by the equation below in micrometres (μm) with the roughness curve expressed by y=f(x).	 $Ra=\frac{1}{\ell}\int_0^{\ell}\{f(x)\}dx$
10-point Average Roughness	*2) Rz JIS	This value is found by extracting the reference length in the mean line direction from the roughness curve, finding the sum of the mean absolute peak height taken from the five highest peaks (Yp) and the mean absolute valley height taken from the five lowest valleys (Yv) measured in the longitudinal magnification direction from the average line direction of the extracted area and expressing this value in micrometres (μm).	 $Rz_{JIS}=\frac{(Yp_1+Yp_2+Yp_3+Yp_4+Yp_5)+(Yv_1+Yv_2+Yv_3+Yv_4+Yv_5)}{5}$

Designated values for the above types of maximum height (Rz)*1), 10-point average roughness (Rz JIS)*2), calculated average roughness (Ra) classifications, and reference length ℓ are shown on the table at right with triangular symbols.

*1) The maximum height symbol (Rz) is calculated according to the new JIS B 0601:2001 standard. (This value was Ry under the old standard.)

*2) The 10-point average roughness (Rz JIS) is calculated according to the new JIS B 0601:2001 standard. (This value was Rz under the old standard.)

● Relationship with triangular symbol display

Designated values for maximum height *1) (Rz)	Designated values for calculated average roughness (Ra)	Designated values for 10-point average roughness *2) (RzJIS)	Standard reference ℓ length value (*mm*)	Triangular* Symbols
(0.05) 0.1 0.2 0.4	(0.012) 0.025 0.05 0.10	(0.05) 0.1 0.2 0.4	*0.25*	▽▽▽▽
0.8	0.20	0.8		
1.6 3.2 6.3	0.40 0.80 1.6	1.6 3.2 6.3	*0.8*	▽▽▽
12.5 (18) 25	3.2 6.3	12.5 (18) 25	*2.5*	▽▽
(35) 50 (70) 100	12.5 25	(35) 50 (70) 100	*8*	▽
(140) 200 (280) 400 (560)	(50) (100)	(140) 200 (280) 400 (560)	—	—

Remarks: The designated values in ( ) do not apply unless otherwise stated.

* Finish symbols (triangular symbol (▽) and tilde (~)) were removed from JIS in the 1994 revision.

MEMO

Index O

O1 to O6

Index Reference Guide

- **The catalog numbers in this index are listed in alphabetical order.**
- **Catalogue number markings:**
  - ● **mark: Represents a numeral**

    (Example: APG4●●●R → APG4160R)

  - ■ **mark: Represents an alphabetical character**

    (Example: C●●■-SCLCR●● → C08H-SCLCR06)

Index

A

ABS G26-G27
A-DTR E27
AECT H232-H235
AFBSM E70,E71
ALNEX H213-H220
ANB . . .H216,H218-H220,M29
AND J151,J157
ANX H213-H220
A-NER/L F54
ANH J151, J157
ANT J151, J157
AOET H70
AOMT H70
APET H176-H177
APG H256
APMT H176-H177
APV H250
A-SCFP E34
A-SCLP E34
A-SDQC E38
A-SDUP E42
A-SDXC E34
A-SDXP E42
A-SER/L F54
ASM2 . . . . . I82,I84
ASM4 . . . . . I83
A-STFP E48
A-STUP E48
A-SVQB E53
A-SVQC E58
A-SVUB E53
A-SVUC E58
A-SWLP E63
AXET H84-H91,H94-H97
AXMT H83-H91,H94-H97

B

BBT30 . . . . . H69
BCTJP E52
BES L127
Binderless PCD M10-M29
BMDLN E19
BMWLN E29
BNB E74,L118
BNBC I118,L131
BNBP I116,L130
BNBR I104,L129
BNBS I119,L132
BNBX E72,L116
BNC E74
BNES I80,L128
BNGG F57,L123
BNGNT F57,L107
BNRN L121
BNTT F57,F83
BNZ E73,L117
B-PCLN E14
B-PTFN E25
B-SCLC E33
BSCLO E37
B-SCLP E36
BSDJO E41
BSDJO E41
B-SDQC E41
B-SDUC E41
BSME E70,L114
BSSKO E45
BSTJO E52
B-STUP E52
B-SVJB E56
B-SVQB E56
B-SVUB E57
B-SVZB E57
BSWJO E62
BTR D11
BU G21
BXBR E69

C

CC■■03X1● B70,L36
CC■■04X1● B71,L36
CC■■2.52● B74
CC■■21.5● . . . . . .
B72-B73,L37-L39,M11
CC■■21.51.5● B74
CC■■32.5● . . . . . .
B75-B77,L40-L43,M12
CC■■32● B74
CC■■43● B77,L44
CCA PSC F47
CCGE62● L43
CCKN C44
CCLN C45
CCMA03X1●● M10,M27
CCMA04X1●● M10,M27
CCMA21.5..RH M27
CCMA32.5 . . . . . M12
CCMA32.5..RH M27
CDJN C46
Ceramic Inserts . . .B130-B133
CGAR/L F56,L107
CHE H255
CHG H257
CKB F49-F50,E65-E66
CN■■32.5● B20
CN■■32● B20
CN■■33● B21
CN■■43● . . . B22-B25,L30-L34
CN■■54● B26-B27
CN■■64● B28-B29
CN■■85● B29
CN■■86● B30
CNG32● L35
CNG43● L35
CNMA43● M10
CNMX43● M10
CP■■1.81.5● B78
CP■■2.51.5● . . . B78-B79,L44-L45
CP■■21.5● B78
CP■■32.5● . . .B81,L46,M12,M13
CP■■32● B80,L45-L46
CP■■43● B81
CP■■53● B81
CPG42● M13
CPG422 . . . . . M13
CPGA32● M13
CPMT H208
CPMX2.51.5● M12
CPMX21.5● M12
CPMX32● M13
CRDC C46
CRDN C47,L108
CRGN C47
CRSN C47,L108
C-SCLC E32
C-SCLP E35
CSDN C48
CSDP C52
C-SDUC E40
CSKN C49
CSKP C52
CSN H256
CSNH H256
CSRN C50
CSRP C52
C-SSKP E44
CSSN C51
CSTJO E51
CSTJO E51
C-STUB E46
C-SVQB E55
C-SVUB E55
C-SVZB E55
CSWJO E61
C-SWUB E62
CTAP C53
CTFP C53
CTG● G21
CTGP C53
CTHSK N31
CTL F67
CTR F67

D

DABB E75,M26
DAE I87,I88
DAL J90
DC■■21.5● . . . . . .
B82-B85,L55-L56,M14-M15
DC■■21.51.5● B85
DC■■32.5● . . . . . .
B86-B88,L57-L60,M15
DC■■32● B85
DCLN . . C5,G3,G18,C62,L111
DCMA21.5..RH M27
DCMA32.5..RH M27
DCMN G3
DCRN G6,G12
D-DCLN E14
D-DDQN E18
D-DDUN E19
DDHN G6,G12,L111
DDJN . . .C10,C62,G4,G13,L111
DDL J90
DDNN G4,G13,L112
D-DTFN E25
D-DVUN E26
D-DWLN E29
DFC H114-H125
DFCF H121,H124
DFCM H120,H123,H125
DFE I85,I86

DGC H32-H43
DGCF H38,H42
DGCM H37,H41
DMS H154-H163
DMSL H157-H159
DMSW H160-H162
DN■■33● B31-B32,L47
DN■■43● . . . B32-B35,L47-L52
DN■■44● B36-B38,L53
DN■■54● B38
DNF H256
DNH(S) H48
DNG32● L54
DNMA43..RH M27
DNMA43● B34,M14
DNMX43● B31,M14
DNX(F) H44-H47
DP■■21.5● B89
DP■■32.5● B89,L46
DPG H258
DPMT B91
DPV H248
DPW H258
DRSN G13
D-SCLC E32
D-SCLP E36
D-SDUC E42
DSDN C14
DSRN C14,G7
DSSN C15
D-STUC E47
D-STUP E51
D-SVUB E57
D-SVZB E57
DTFN G14,C62,L113
DTGN C20,C62,L112
DTJN C20
DTR F27,G6
DVJN C29,G14
DVPN G4
DVQN C30
DVVN C29,G14
DWLN C32,C62,G15,G18

E

EHG H259
ER N16,N17,N27-N29
ESBN C54
E-SCLC E31
E-SDUC E38
ESDN C54
ESKN C55
ESSN C55
E-STFC E47
E-STFP E50
E-STUP E50
ETAN C56
ETEN C57
ETFN C57
ETGN C56
ETXN C57

F

FM H236
FMU H236,L125
FPG H259

G

GCGN F11
GCMN F11
GDE C60-C61
GFS H242
GFX H240-H241
GITL F43
GND Inserts F21-F22
GND PSC F20
GNDC F31
GNDF F34-F35
GNDFS F36
GNDI F37
GNDIS F38
GNDL F23,F27
GNDL-J F24,F28
GNDL-JX F18
GNDLS F28
GNDM F23,F25
GNDM-J F24,F26
GNDMS F26
GNDN F32
GNDS F32
GNDXL F33
GRHN H243-H244
GSV4 . . . . . I74
GSV4-R I92
GSX2 (Inch) I28-I33
GSX2 (Metric) I40-I55
GSX3 (Metric) I56-I59
GSX4 (Inch) I34-I39
GSX4 (Metric) I60-I73
GSX4-R I90
GSXB (Inch/Metric) I27
GSXB (Metric) I106
GSXSLT I120
GSXVL I76-I78
GSXVL-R I94
GWB F56,L122
GWC F43,G6
GWCS F44
GWCI F44

H

HBB E72,E73,E75
HBSM E70,E71
HBX E69,E72,L116
HF H221-H226
HNEF H243-H244
HX J60-J66
HY J67-J68

I

ISG3430TWK-WS N22
ISO (Spindle Clean) N34

K

KBMF E68
KBMG E68
KBMX E65, E67-E68,M28
KBMZ E68

L

LNEX H131-H150
LNGX H240-H242
LNMX H260
LTER F74

M

MA H17,H69
MCFN C5
MCFN C7
MCGN C6
MCKN C6
MCLN C7
MCMNN C7
MCRN C8
MDE C61,M28
MDF J46-J50
MDF-H J54-J57
MDF-L J52-J53
MDJN C11
MDM J37-J45
MDPN C11
MDQN C12
MDSS J94-J95
MDS-SDC J89
MDUS J94-J95
MDW-GS J10-J18
MDW-HGS J19-J31
MDW-HX J60-J66
MDW-HY J67-J68
MDW-NHGS J79-J88
MDW-PHT J71-J77
MDW-PHV J78
MDW-SGS J69-J70
MDW-XHGS J71-J77
MDW-XHV J78
MINIT G21
MLDH J91-J93
MRGN C13
MSDN C15
MSKN C16
MSRN C16
MSSN C17
MSX H170-H173
MSX-M H174
MTAN C20
MTCN C21
MTENNS C21
MTFN C22
MTGN C22
MTJN C23
MTJNS C23
MTRN C24
MTXN C23
MU G29
MVJN C31
MVPC C59
MVVN C31
MVXC C59

MWLN C32

N

NC-ZNEX. E73
NER/L F54
NF-CCG■21.5 . . . . . M11
NF-CCG■32.5 . . . . . M12
NF-CCM■03X. M10,M27
NF-CCM■04X. M11,M27
NF-CCM■21.5 . . . . M11,M27
NF-CCM■32.5 . . . . M12,M27
NF-CNM■43. . . . . M10
NF-CPG■32 . . . . . M13
NF-CPM■21.5 . . . . . M12
NF-CPM■32. . . . . M13
NF-CPM■32.5 . . . . . M13
NF-DCG■32.5 . . . . . M15
NF-DCM■21.5 . . . M14,M15,M27
NF-DCM■32.5 . . . . M15,M27
NF-DNM■43. . . . . M14,M27
NF-LDEN . . . H223-H226,M29
NF-SCM■2.51.5. . . . . M16
NF-SDC. M28
NF-SDK. M28
NF-SECW H254
NF-SEG■32 . . . . . M17
NF-SEG■42 . . . . . M17
NF-SNEW . . .H228,H230,M29
NF-SNM■43. . . . . M16,M27
NF-SPG32. . . . . M16
NF-SPG42. . . . . M16
NF-TBG■52 . . . . . M18
NF-TCM■1.81.5 . . . . . M18
NF-TCM■21.5 . . . . . M18
NF-TEG■22 . . . . . M23
NF-TEG■32 . . . . . M23
NF-TNM■33. . . . . M18
NF-TPG1.81.5 . . . . . M22
NF-TPG22 . . . . . M22
NF-TPG32 . . . . . M22
NF-TPG■1.81.5 . . . . . M19
NF-TPG■21.5. . . . . M20
NF-TPG■22 . . . . . M20
NF-TPG■32 . . . . . M21
NF-TPG■33 . . . . . M21
NF-TPG■63 . . . . . M19
NF-TPM■1.81.5 . . . . . M19
NF-TPM■21.5. . . . . M20
NF-TPM■22 . . . . . M20,M27
NF-TPM■33 . . . . . M21,M27
NF-TPM■63 . . . . . M19,M27
NFV H249
NF-VCM■22. . . . . M24,M27
NF-VCM■33. . . . . M25,M27
NF-VCM■63. . . . . M24,M27
NF-VNM■33. . . . . M24,M27
NF-WBM■52 . . . . . M26
NHGS J79-J88
NPDB. I113
NPDBS I112
NPDRS I102
NQAD H252
NRV H247
NSR/L F54
NU-CCMT21.5. . . . . M11
NU-CCMT32.5. . . . . M12
NU-DCMT21.5. . . . . M15
NU-DCMT32.5. . . . . M15
NU-TPMT1.81.5 . . . . . M19
NU-TPMT21.5 . . . . . M20
NU-TPMT22 . . . . . M20
NU-TPMT63 . . . . . M19
NU-ZNEX. E73

O

ONET. H36-H43
ONMT H36-H43

P

PBT D17
PCBN. C8
PCFN. C9
PCLC. D27
PCLN. C9
PCT J145-J146
PDJC D29
PDJC-X D18
PDJN C12
PDL J141-J144
PHT J71-J77
PHV J78
PRDC. C36,L120
PRGC C36,L120
PRGN C36,L120
PRSC. G16
PSBN. C17
PSC G8-G23
PSC● G21-G23
PSDN. C18
PSKN. C19
PSSN. C19
PSZ ER D9
PSZ GNDL. D10
PSZ GNDR D10
PSZ PCLN D12
PSZ PDJN D12
PSZ SBT D9
PSZ SCLC D11
PSZ SDHC. D11
PSZ SDJC D11
PSZ SVHC. D12
PSZ SVJB D11
PSZ SVJC D12
PSZ TGAR. D9
PTFN C24
PTGN. C25,G21
PTTN C25
PTXN-X D26
PWC H260
PWLN C33
PWS. H151-H153

Q

QAD. H251
QF H251
QPET H194-H199
QPMT H194-H199

R

RBG. L106,L121
RC■■●●●●●● B90
RDET H185-H192
RDMT H180-H181
RF H227-H228
RM. H237,L126
RN■■●●● B39
RNG. L61,L106
RNG■● L61
RP■■●●●●●● B91
RPGW0803 . . . . . M28
RPGX. B133
RPHT. H180-H181
RPMT. H180-H181
RSE H178-H181
RS-PTXN D22
RS-SCL D19
RS-SDU. D20
RS-SDX D20
RS-SVVP D21
RS-SVX D21
RSX H182-H191
RSX-M. H192
RTGN. L119

S

S-(Wrench). N32
SBN F62
SBT D17
SBU F62
SC(Wrench) N32
SC■■2.51.5● B92,M16
SC■■32.5●. B93
SC■■32● B92
SC■■43● B94
SCAC. C34,D28
SCCH N14
S-CKB E66
SCLC. C34,D27,G15,G19
SCLC-X D23
SCNC C34,D28
S-CSKP. E45
S-CTFP E49
SCTR/L F66
SDAC. C35,D30,D25
SDC5. . . . . H250
SDCB. I114
SDCH H256
S-DCLN. E12
SDCN H248
S-DDQN E16
S-DDUN. E16
SD-ER_ N28-N29
SDET H228
SDJC C35,D29,G15
SDJC-X D24
SDNC C35,D30
SDP H261
SDPC. C35,D25
SDPC-X. D25
S-DSKN. E20

S-DTFN E23
S-DTR E27
S-DWLN E28
SE■■2.51.5● B103
SE■■32● B103
SE■■42● B103
S-ECLN E13
S-EDUN. E17
S-EDZN E18
SEET-AGFN. H254
SEET-AGSN. H254
SEET-AGSR (WGX) . H23-H30
SEGN32. . . . . M17
SEGN42. . . . . M17
SEKN. H259
SEMR H259
SEMT-AGSN H254
SEMT-AGSR (WGX). H23-H30
SER/L F54
S-ESKN E22
S-ETFN E24
SEXC E71,L115
SFEN H255
SFKN. H255
SFKR H255
SFT D18
SG-CB-L/R F55
SGIT F53
SG-L/R F55
SGS J69-J70
SGW D16
SHPMC N12
S-HSK (Wrench) N32
SJB L120
SM (Drive Key). N32
SM (Key/Wrench). N32
SMA. H17
SMC H262
SMDH J105-J121
SMDT . . . J100-J104, J113-J121
SN■■106● B49
SN■■32● B40,L64
SN■■43● . . . . . .
B41-B43,B50,L62-L63,L65,M16
SN■■54● B44-B45
SN■■64● B46-B47
SN■■85● B47
SN■■86● B48
SNB2 . . . . . I110
SNB-DL I109
SNC. H247
SNEF H249
SNEN090308W . . . H237,L126
SNET13T6 . . . . . H36-H43
SNEW . . . H228,H236,L106,L125
SNG42● L65
SNG43● L66
SNGN H237,L126
SNMA43..RH M27
SNMA43● M16
SNMN4 . . . . . H247
SNMT1205 . . . . . H46-H48
SNMT13T6 . . . . . H36-H43
SOET . . . . . .
H104-H113,H167-H169,H210-H212
SOMT . . . . . .
H104-H113,H167-H169,H210-H212
SP■■2.51.5● B98
SP■■2.52● B95
SP■■21.5● B95
SP■■32.5● B97
SP■■32● B96,B98
SP■■42● B99
SP■■43● B97,B99
SP■■53● B97,B100
SP■■63● B100
SPB D14
S-PCLN E13
S-PDUN. E17
S-PDZN E17
SPG H258,H262
SPG32● L67,M17
SPG42● M17
SPMN H258,H262
SPMT. H202
S-PSKN E21
S-PTFN E24
S-PWLN. E29
SR (Large) J160-J164
SRA J142-J144, J159
SRB J156
SRD J156
SRDC. C37
SRF H229-H230
SRGC C37
SRK J159
SRS J150
SRSC. C37,G16
SSBC. C38,D31
S-SCLC E31
S-SCLP E35
SSDC (Endmill) I89
SSDC (Holder) C38,D31
S-SDF G25
S-SDQC. E39
S-SDUC. E39
S-SDZC E40
SSEH-R I101
SSEHVL-R. I100
SSEHVL-W-R I96
SSEH-W-R I98
SSH F52
SSKC. G19
SSMH N25-N26
SSR/L F54
S-SSKC E43
S-SSKP E44
SSTER F75
SSTIR F76
S-SVJB E53
S-SVJC E59
S-SVQB E54
S-SVQC. E59
S-SVUB E54
S-SVUC. E60
S-SVZC E60
S-SWUB E61
S-SWUP E63
STAC C39,D32
STDC. C39
STER F75
STFC C39,G20
STFH F62
STFSR/L F63
STGC. C40,D32
STGP G21
STHR/L F86
STIR. F76
STJC C40,D27
STTC C40
SUMICRYSTAL M30-M35
SumiGrip F61
SumiNotch. F54
SVAB C41,D33
SVHB. G17
SVHC. C42
SVJB C41,G17
SVJC C42,D26,G17
SVLC C42,D33
SVLP C43,D34
SVNB. C41,D26
SVPC. C42,D33,G5
SVPP C43,D34
SVVC C42,G5

T

TB■■52● . . B101-B102,L75,M18
TBGN. E74,L118
TC■■1.81.5● . . . B103,M18
TC■■21.5● . . B104-B105,L75,M18
TC■■22● B105
TC■■32.5● B106,L76
TC■■63● B103
TCMX1.81.5. . . . . M18
TCMX21.5 . . . . . M18
TE■■●●● B118,M23
TEEN M29
TEKN H257
TGA F45-F46
TGA-BF F47
TGAR. L107,M28
TGC H205-H207
THR/L F86
TME. F83
TMI F83
TN■■2.52● B51
TN■■22● B51
TN■■32● B51-B52
TN■■33● . . . . . .
B52-B56,B61,L68-L72,M18
TN■■43● B56-B58,L73
TN■■44● B59
TN■■54● B59
TN■■66● B60
TNG22● L74
TNG33● L74
TNPT F83
T-NU-ZNEX E73
TP■■1.81.5● . . . . . .
B109,B115,L78,L88,M19
TP■■21.5● . . . B110,L79-L80,M20
TP■■22● . . . . . .

B111,B112,B115,B116,L81-L84,L89,M20,M21
TP■■32.5● B113,L76
TP■■32● . . .B113,B116,L85,M21
TP■■33● . . B114,B117,L85-L87,M21
TP■■43● B117
TP■■63● . . B107-B108,L77,M19
TPG1.81.5● M22
TPG22● L88,M22
TPG32● L90,M22
TPG43● L91,M23
TPGN1.81.5. . . . . M22
TPMA22..RH M27
TPMA33..RH M27
TPMA63..RH M27
TRGT L119
T-REX. C27-C28
TSE H208
TSX H126-H141
TSXF H131,H136-H140
TSXM. H134,H140
TSX-M H150
TSXR H142-H149
TUE F83
TWE. F83

U

UFO H255
UW. H255

V

VB■■22● . . B119-B120,L97-L98
VB■■33● . . . B121,L98-L99
VC■■1.51.5● L100
VC■■22● . B122-B123,L101,M24
VC■■2205● B125,M25
VC■■33● B124,L102
VC■■63● . . B122,L100,M24
VCMA22..RH M27
VCMA33..RH M27
VCMA63..RH M27
VCMT2205. . . . . M25
VCMX33 . . . . . M25
VN■■33● .B62-B64,L92-L96,M24
VN■■43● B64
VNMA33..RH M27
VN■■22● B127
VN■■33● L92-L96,M24
VN■■63● B126
VPMA44. . . . . M25

W

WAX. H231-H235
WB■■●●● . . .B128,L105,M26
WBMF H203-H204
WBMR. H200-H202
WCFH F64
WCFL. F61
WCFN F61
WCFR F61
WCFS F65
WCLN C10
WDMT H172-H174
WDX J122-J140
WDXT J143, J145
WEX. H77-H90
WEX-M H91
WEZ. H50-H61,H72-H76
WEZES H71
WEZ-M H69
WEZR H62-H67
WFX. H101-H113
WFXC H209-H211
WFXC-M H212
WFXF. . . H106,H108,H110,H112
WFXH H164-H168
WFXH-M H169
WFXM H105,H111
WFX-M H113
WGC H254
WGS J58-J59
WGX H18-H30
WGXF H25,H29
WGXM H24,H28
WMM. H175
WN■■32.5● B65
WN■■33●. B65-B66
WN■■43●. . .B67-B69,L103-L104
WN■■54●. B69
WP■■●●● B129
WRCX H193-H198
WRCX-M H199
WRX. H92-H97
WSE. H98-H100
WTENNS C26
WTJNS C26
WWLN C33

X

XCLN L109
XEEW. . . .H23-H30,H254,M29
XHGS. J71-J77
XHV J78
XNEU. H36-H43
XNGT. H46-H48
XNMU H119-H125
XOEW H104-H113
XSBN. L109

Z

ZNMT. H201-H202
ZPGU. H204

#

16ER F77
16IR F78
2NU-ECXA. E71
6SS43M. H249
6SS53M. H249

A.L.M.T. AL

Diamond Cutting Tools AL1 to AL13

A.L.M.T.
Diamond Cutting Tools

For Cylinder Head Cutting
PCD Rotating Tools ····· AL2

For Valve Guide Hole Cutting
PCD Rotating Tools ····· AL4

For Valve Body Cutting
PCD Rotating Tools ····· AL5

For Steering Part Cutting
PCD Rotating Tools ····· AL7

For Cemented Carbide Glass Lens Molds
Ultra-precision Cutting Tool BLPCD UPC · AL9

For Various Mold Machining (Spherical/Non-Spherical, Camera Lens Molds, etc.)/For Various Mold Machining (Infrared Lens Molds, etc.)
Ultra-precision Cutting Tool UPC-R ····· AL10

For Optical Shim Mold Machining, etc.
Ultra-precision Cutting Tool UPC-Nano Groove ·····AL11

For Micro Lens Array Mold Machining, etc.
Ultra-precision Cutting Tool UPC-Nano Ball Endmill ·····AL11

For LCD Light Guide Plate Mold Machining, etc.
Ultra-precision Cutting Tool UPC-Nano Endmill ····· AL12

For Optical Shim Mold Machining, etc.
Ultra-precision Cutting Tool UPC-Nano Profile ····· AL12

For Glasses Lens Roughing
PCD Face Milling Cutters ····· AL13

For Glasses Lens Finishing
New D Holders ····· AL13

A.L.M.T. Corp.

PCD Rotating Tools

Features

- A single reamer can finish multi-stage holes, reducing work processes.
- Delivering an excellent surface finish unobtainable with carbide tools.
- Precise and stable dimensional and shape accuracy unique to diamond tools can be maintained for a long time.
- Cutting speed and feed can be tuned to reduce machining time.

Data 1: Improved Productivity due to Breaking Chips

Negative Land Specification Cutting Edge

The chipbreaker function has been enhanced to prevent a reduction in productivity due to problems caused by chips. Solutions are proposed according to the type of chip problem.

Without Chipbreaker

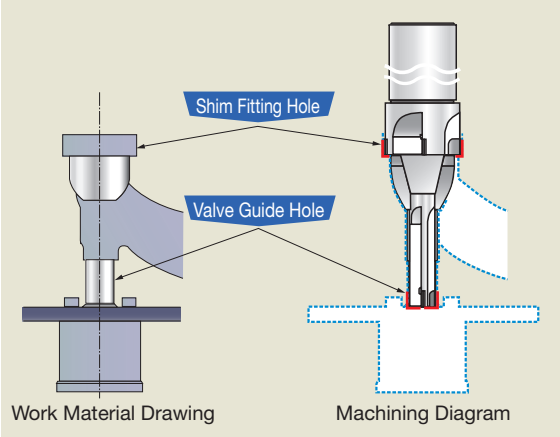
Long chips formed without curl.
· Wrapping around tool
· Remains on workpiece

With Chipbreaker

Chips are forcibly curled and break into small pieces.

Data 2: Good Balance between High-efficiency Cutting and High Machining Accuracy

High-precision / high-efficiency machining is realised through high-quality cutting edge accuracy created by diamond precision machining technology.



Difference in Performance by Shank Material

Results	1 Flute	4 Flute (Steel)	4 Flute (Cemented Carbide)
Machining Time (s)	52	26	13
Circularity (mm)	0.01	0.05	0.03
Coaxiality (mm)	0.01	0.07	0.05

Cutting Conditions

Machine	Horizontal Machining Centre
Tool Size (mm)	ø11 to ø36 to L150
Work Material	Aluminum Alloy Castings AC4B
Coolant	Emulsion-type water-soluble oil
Spindle Speed (min^{-1})	3,500
Cutting Speed (m/min)	395
Feed Rate (mm/rev)	0.3
Allowance (mm/diameter)	0.5

Tool Lineup for Cylinder Head Machining

■ PCD Reamer for Solenoid Hole Machining
Multi-blade/multi-stage high-precision reamers ensure coaxial accuracy.

■ PCD Reamer for Spark Plug Hole Machining
High-precision coaxial machining is realised by increasing the number of teeth at the machining start section (second stage).

■ PCD Cutter for Cam Grooving
Staggered blades are used to lower cutting resistance and achieve high-precision grooving with less chatter.

■ PCD Reamer (1-flute) for Valve Lifter Hole Machining
Guide pad design with attention to rotation balance realises high-precision hole finishing.

■ PCD Endmill for Spring Shim Machining
Cutting edges has a chipbreaker function, preventing chips from entering the water jacket.

■ PCD Reamer for HLA Hole Machining
Special 2 blade design can handle large lateral holes, preventing cutting edge drops.

■ Finishing
Improves chip evacuation and achieves a high cylindricity using a design ideal for machining of thin-wall parts and blind holes.

● Cutting Conditions

Machine	Horizontal Machining Centre
Coolant	Emulsion-type water-soluble oil
Spindle Speed (min^{-1})	5,000
Feed Rate (mm/min)	1,700
Feed Rate (mm/rev)	0.34
Allowance (mm/diameter)	0.5

*HLA: Abbreviation for hydraulic lash adjuster

■ PCD Ball Endmill for Cam Half-Rounding
The use of PCD increases machining accuracy and reduces machining load in later processes.

■ PCD Reamer for Cam Sensor Hole Machining
The cutting force is reduced, improving the cutting speed and accuracy.

■ PCD Reamer for Parent Metal Hole Machining
The use of a high-rigidity body enables high-coaxial finishing of guide holes and shim holes before press-fitting.

■ PCD Endmill for Valve Throat Machining
Simultaneous roughing of the parent metal insert section and throat machining.

■ Parent Hole Finishing
Achieves a good balance between coaxiality and cylindricity with a high rigidity shank and high cutting edge precision.

● Cutting Conditions

Machine	Horizontal Machining Centre
Coolant	Emulsion-type water-soluble oil
Spindle Speed (min^{-1})	6,000
Feed Rate (mm/min)	2,880
Feed Rate (mm/rev)	0.48
Allowance (mm/diameter)	0.6

■ PCD Endmill for Valve Throat Machining
Achieves longer tool life in throat machining through high-precision runout and contour accuracy.

For Valve Guide Hole Cutting

PCD Rotating Tools

Because the valve guide uses sintered alloy and cast iron, the use of a reamer with a cemented carbide cutting edge shortens the tool life and increases the frequency of tool exchange, decreasing machining efficiency. In valve guide hole machining, because the cutting speed is slow with hole diameter around 5mm, a diamond cutting edge with high wear resistance is superior to cemented carbide in cutting edge sharpness sustainability and tool life.
We propose high-precision, high-efficiency machining through tool design in accordance with the required quality and cutting conditions.

Features

- Tool life is around 10x that of carbide tools.
- High-precision and high-efficiency machining can be achieved.

PCD Valve Guide Reamer for 4 flute Finishing

Fine-pitch, rigid tool design realises high-feed machining.

PCD Valve Guide Reamer for 1 flute Pilot Machining

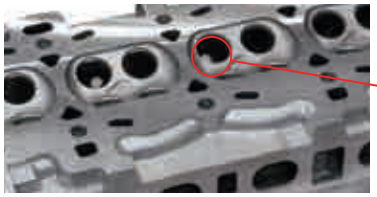
Used for high-precision finishing of prepared holes.
High-efficiency fine-pitch designs are also available.

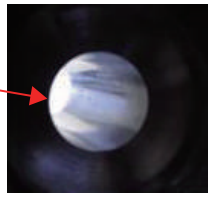
PCD Valve Guide Reamer with Helix Angle for 4 flute Finishing

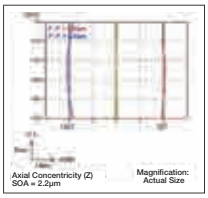
High-quality valve guide hole machining is enabled with a negative helix angle cutting edge, making it easier to evacuate chips in the feed direction.

PCD Valve Guide Reamer for 1 flute Finishing

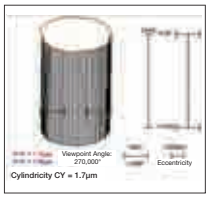
This finishing tool has a leading edge that fits the pilot hole.
Achieves high-precision machining with a high-rigidity body.



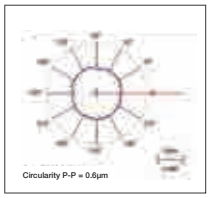




Linearity 2.2 µm



Cylindricity 1.7 µm



Circularity 0.6 µm

PCD Rotating Tools

Valve body spool hole machining is one of the most difficult types of machining. Hole finishing, which involves both interrupted cutting and multi-stage machining, requires high machining accuracy in quality issues such as surface roughness, circularity, cylindricity, and coaxiality.
A.L.M.T. proposes ideal tool designs based on various machining experience.

■ Features

- A single reamer can finish multi-stage holes, reducing work processes.
- Delivering an excellent surface finish unobtainable with carbide tools.
- Precise and stable dimensional and shape accuracy unique to diamond tools can be maintained for a long time.
- Cutting speed and feed can be tuned to reduce machining time.

Tool Lineup for Valve Body Machining

■ 1 flute 4-stage PCD Reamer

Single-flute multi-stepped design realizes high circularity and coaxiality.

■ 4 flute 4-stage PCD Reamer with Leading Edge

With a leading edge added to each cutting edge, position deviation from the previous process is prevented, the result is high-precision hole finishing at high feed conditions.

■ 4 flute 3-stage PCD Drill

Medium finishing for pre-cast hole drilling, high feed and high-accuracy prepared hole drilling are possible.

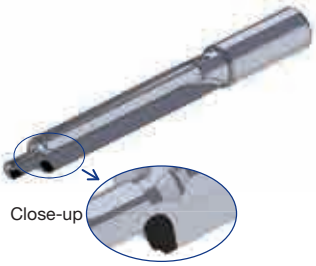
■ 5 flute Irregular Pitched 3-stage PCD Reamer

With irregular pitched cutting edges, vibration (resonance) during machining is suppressed and circularity and cylindricity are improved.

■ 2 flute 4-stage PCD Drill

Medium finishing for deep hole drilling, multi-step machining improves finished coaxiality.

Various additional function proposals

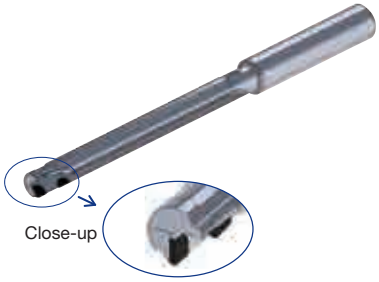


■ Workpiece chipping prevention function

The area around the hole exit is weak, cutting forces may cause chipping of the workpiece along with chips or ring-shaped chips that can wrap around the workpiece.
This can be prevented by a cutting edge design that suppresses cutting resistance.

■ Chip breaking function

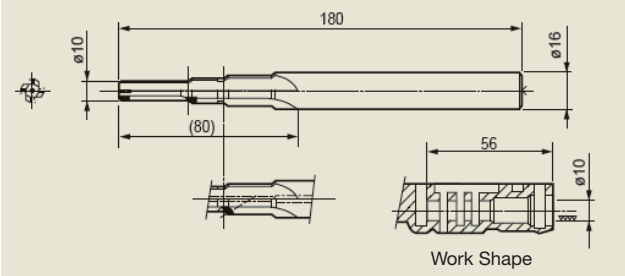
Addition of a chip breaking function to the cutting edge prevents quality deterioration due to machining defects and machine stoppage due to chip entanglement onto the holder.



■ Chip evacuation function

Single cutting edge with a chip discharge groove in the guide pad section prevents adhesion to the cutting edge, thus preventing quality deterioration.

Valve Body Application Examples



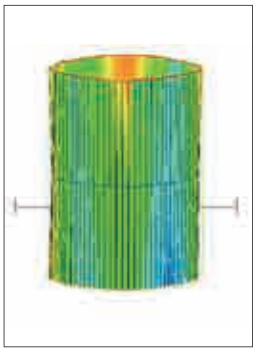
Functions		PCD Reamer	Cemented Carbide Reamer
Cutting Speed	(m/min)	120	120
Feed Rate	(mm/rev)	0.2	0.2
Allowance	(mm/dia.)	0.4	0.4
Coolant		Water soluble	Non-water-soluble Cutting Oil
Machined Surface Roughness	Rz (μm)	3	8
Circularity	(μm)	1 to 3	3 to 6
Economic Efficiency Ratio		0.5	1

Proposals for High-speed Feeds and Chatter Reduction with Irregular-pitched Reamers

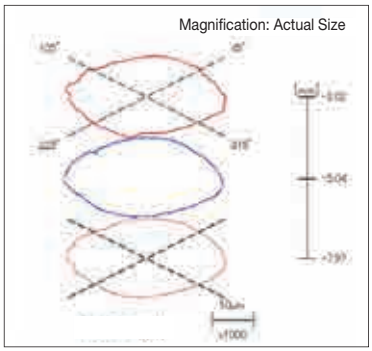
- Using an irregular pitch design that focuses on rotational balance prevents resonance due to cutting resistance and cutting edge biting inside the hole, enabling high-precision machining.
- The above results in suppressed chatter as well as improved circularity and cylindricity.
- In comparison to 1-flute machining, even at the same speed, multi-flute machining enables higher feed rate and thus reduces machining time.

Application Examples

		1 flute Balance Specification	4 Flutes	4 flute Irregular Pitch	5 flute Irregular Pitch
Shape					
Allowance	(mm/dia.)	0.5 to 0.7			0.5 to 0.7
Spindle Speed	(min^{-1})	1,000			1,000
Feed Rate	(mm/min)	400	960		960
Feed Rate per Revolution	(mm/rev)	0.1	0.24		0.24
Feed Rate per Cutting Edge	(mm/z)	0.1	0.06		0.05
Coolant		Emulsion-type water-soluble oil			Emulsion-type water-soluble oil
Chatter		No	Yes	No	No
Cylindricity	(μm)	6	6	4	3



Cylindricity 3 μm



Coaxiality 1 μm

*Image only.

PCD Rotating Tools

In recent years, aluminum steering parts have become lighter, and there is a demand for shorter machining time at higher feed rates. Our proprietary tool design achieves both reduced machining time and high machining quality.

Features

- A single reamer can finish multi-stage holes, reducing work processes.
- Delivering an excellent surface finish unobtainable with carbide tools.
- Precise and stable dimensional and shape accuracy unique to diamond tools can be maintained for a long time.
- Cutting speed and feed can be tuned to reduce machining time.

Tool Lineup for Steering Housing Machining

4 flute 8-stage PCD Reamer

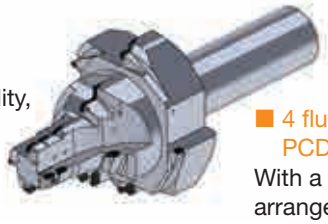
Multi-blade/multi-stage PCD reamers with high-precision finishing for excellent coaxial machining.

5 flute Irregular Pitched PCD Reamer

Irregularly pitched 5 flute design suppresses chatter to improve deep hole circularity.

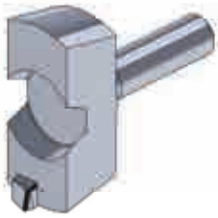
4 flute Irregular Pitched PCD Reamer with Interface

Structure with interface realises high rigidity, high feed, and high-precision machining.



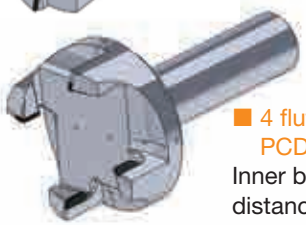
4 flute + 5 flute Irregular Pitched PCD Reamer

With a design that uses a different arrangement for each step of the cutting edges, vibration (resonance) in machining is prevented thus creating high-precision machining.



Cutting Edge Indexable PCD Mill for Facing

Opening facing with 1 flute and corner insert method reduce tool running costs.



4 flute Blade for Peripheral Machining PCD Endmill

Inner blade design keeps machining distance short, enabling protrusion plunging or contouring, so that machining time can be reduced.

5 flute + 3 flute PCD Reamer

PCD 5 flute cutting edge and PCD 5-flute guide improve circularity, with 3 flutes at opening to suppress chatter.

Proposals for Reducing Processes with Combination Tools

Combination of Threading (indexable) and Grooving

Three processes (tapping + grooving + reaming) are integrated into a single tool, reducing tool change time and number of tools required.

Combination of Back Spot Facing and Reamer

Drilling and back spot facing can be machined with a single tool. Contouring is performed with offset from axis of rotation.

Combination of Endmill with Central Insert and Reamer

By finishing the bottom face during the reaming process, machining time can be reduced while improving bottom face diameter, flatness and surface roughness.

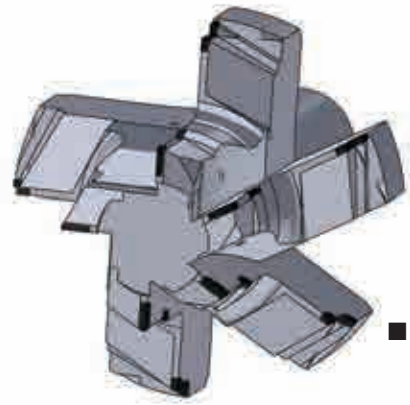
Combination of Face Grooving and Back Boring

Process is reduced by shifting off-center of the prepared hole to perform back boring, after the front face grooving operation. Boring diameter is adjustable.

Proposals for High-speed Feeds and Chatter Reduction with Irregular-pitched Reamers

Features

- Extremely effective for improving chatter prevention, cylindricity, and circularity.
- Cycle time can be shortened by a third compared to the use of 4 flutes.
- Design with attention to rotating balance.



■ 5 flute Irregular Pitched Reamer

Application Examples

	4 flute Regular Pitch	4 flute Irregular Pitch	5 flute Irregular Pitch	
Shape				
Allowance (mm/dia.)	0.5 to 0.7		0.5 to 0.7	
Spindle Speed (min^{-1})	1,000		1,000	
Feed Rate (mm/min)	400		400	125
Feed Rate (mm/rev)	0.4		0.4	0.125
Coolant	Emulsion-type water-soluble oil		Emulsion-type water-soluble oil	
Chatter	Yes		No	
Circularity (μm)	24	18	8	4

Ultra-Precision Cutting Tool BLPCD UPC

Achieves long tool life in mirror finish and fine machining of cemented carbides

SUMIDIA BINDERLESS is a new material developed by Sumitomo Electric Industries, Ltd. Fine grains of a few tens of nanometres are firmly and directly bonded together without the use of a binder, achieving a hardness exceeding that of single crystal diamond. There is also no anisotropy or specific cleavage.
Combined with our signature diamond precision grinding technology, this material enables unprecedented tool life and chipping resistance.

Features

[Features of SUMIDIA BINDERLESS]

- Fine grains of a few tens of nanometres are firmly and directly bonded together without the use of a binder.
- Harder than single-crystal diamond.
- No anisotropy or specific cleavage.

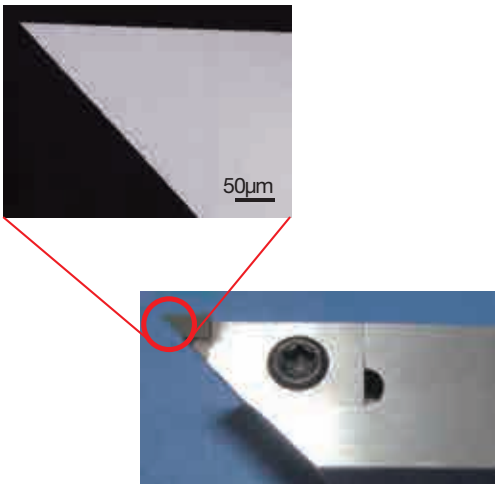
[Features of BLPCD UPC]

- Superior fracture and wear resistance compared to single/polycrystalline diamond.
- Sharp and precise cutting edge equivalent to UPC (single-crystal diamond).
- Free from uneven wear caused by crystal orientation, as it is not anisotropic.

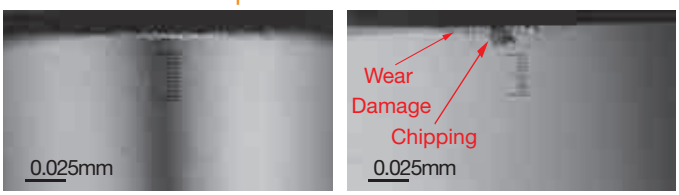
Applications

- Machining of cemented carbide glass lens molds and other high-hardness and brittle materials

Sharp Cutting Edge Equivalent to Single Crystal Diamond

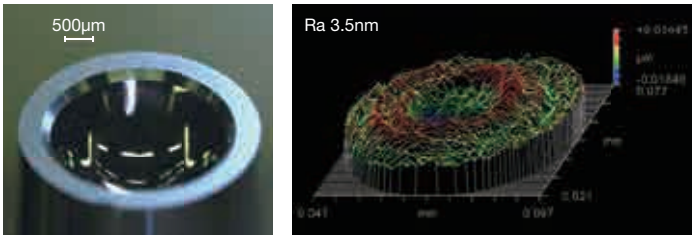


Flank Wear Comparison of Machined Cemented Carbide



BLPCD UPC	UPC (Single-crystal Diamond)
No Large Chipping Found	Large Chipping Found

Surface Roughness of Machined Cemented Carbide



*"SUMIDIA" is a registered trademark of Sumitomo Electric Industries, Ltd.

For Various Mold Machining (Spherical/Non-Spherical, Camera Lens Molds, etc.)

Ultra-precision Cutting Tool UPC-R

Exhibits outstanding performance in ultra-precision cutting

An ultra-precision cutting tool for machining of molds used for products like spherical/aspherical lenses and camera lenses where extremely high precision is called for.

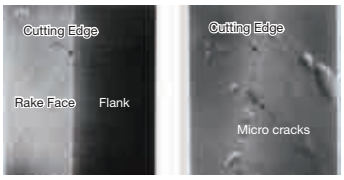
Our proprietary development process yields high-precision polished blades which realise microscopic shaping of workpieces with high precision on the nanometre level.

Features

- The cutting edge is uniformly finished in high quality, achieving nanometre-level surface roughness.
- An inspection report of the cutting edge arc waviness is attached to the product for thorough quality control.

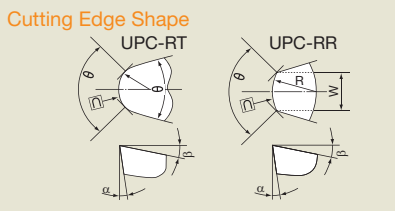
Applications

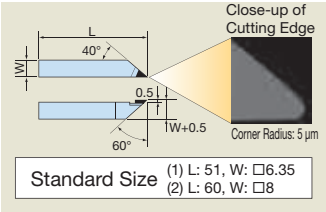
- BD pickup lens molds, digital camera lens molds, camera lens molds for smartphones/computers/tablets, spherical/aspherical mirrors, etc.



UPC cutting edge — Cutting edge with microscopic irregularities

- Sharp Cutting Edge
  Machining without deforming or damaging workpieces during fine finishing
  Nanometre-level fine machining is possible
- Cutting Edge Without Chipping
  Mirror surface without transfer of workpiece irregularities
  Mirror finishing of Ra 5nm or less is possible





Dimensions and Highest Accuracy

Cat. No.		Edge Waviness (μm) ∩			Corner Radius R	Cutting Edge Angle θ	Width of Cut W (RR)	Relief Angle α	Rake Angle β
		θ ≤90°	θ ≤120°	θ ≤150°					
UPC-R	Very High Precision	0.05	0.1	0.20	0.002 to 200	20° or more	0.5 to 5	0° to 20°	-30° to 10°
	High Precision	0.25	0.5	1					

*Please consult us as dimensions and accuracy vary depending on the combination of each element.

For Various Mold Machining (Infrared Lens Molds, etc.)

Ultra-precision Cutting Tool UPC-R

Makes its presence felt in fine machining of hard brittle material

Tool life was a problem when machining germanium and silicon lenses used in infrared sensors and night-vision lenses.

Proprietary fine edge treatment applied to a single-crystal diamond cutting edge has enabled significant extension of tool life.

Features

- Cutting edge height (centre height) is the same on any conical surface.
- Sharp cutting edge with nanometric precision.
- Cutting edge can achieve 0.05μm waviness precision.
- Also applicable to machining of calcium fluoride or cemented carbide.

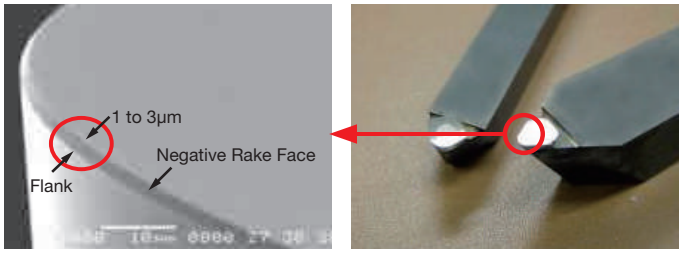
Applications

- Infrared sensor lenses, night-vision camera lenses, germanium lenses, silicon lenses, calcium fluoride lenses, cobalt-free carbide molds

Comparative Examples

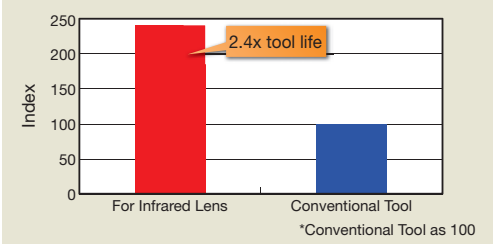
1) Work Material : Infrared sensor transmissive lens, ø95mm germanium
2) Tool Specification : Corner radius 1.5mm, relief angle 10°
3) Cutting Conditions : Rotation speed 2,000min^{-1}, feed rate 1.75μm/rev, allowance 1.5μm

UPC Cutting Edge for Infrared (IR) Lenses and Cemented Carbide Molds



Uniform Negative Rake Face of Cutting Edge

Results



For Optical Shim Mold Machining, etc.

Ultra-precision Cutting Tool UPC-Nano Groove

Enables high-precision linear grooving with a cutting edge width among the world's smallest.

Grooving holder with 5μm minimum groove width. Enables quick high-aspect-ratio machining that cannot be achieved using the photolithography method or ion-beam method. The high-precision, durable cutting edge is the ideal tool for fine, clear grooving of hologram diffraction gratings, linear fine grooving, LCD light guide plates, and so on.

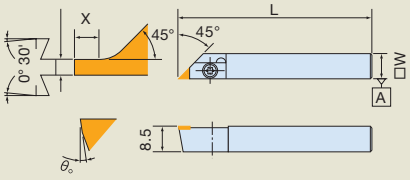
Features

- Grooving holder with 5μm minimum groove width.
- Durable cutting edge with high-precision grinding.
- Enables high-precision fine grooving that cannot be achieved using the photolithography method or ion-beam method.

Applications

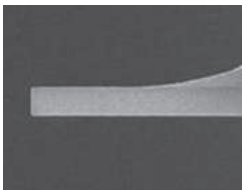
- For linear fine grooving, optical shim molds, light guide plate mold machining

Cutting Edge Shape

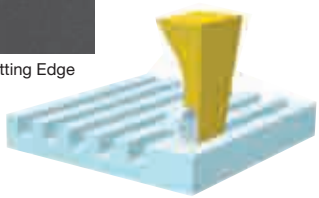


Standard Size	(1) L: 51, W: □6.35 (2) L: 60, W: □8

Cutting Edge Shape



Nano Groove Cutting Edge



For Micro Lens Array Mold Machining, etc.

Ultra-precision Cutting Tool UPC-Nano Ball Endmill

World's smallest ballnose endmill

Enables high-precision 3D machining with its extremely sharp cutting edge. Fine 3D curved surfaces can also be machined, as well as quick machining of multiple fine spherical holes.

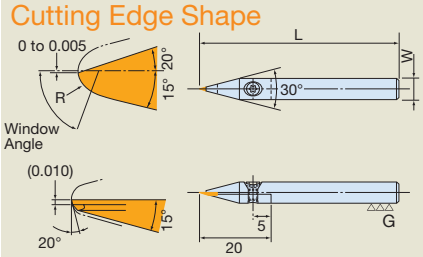
Features

- This ballnose endmill is the world's smallest in its class with a radius of 30μm.
- World's highest class profile of 50nm is also possible.
- Enables high-precision 3D machining with its extremely sharp cutting edge.

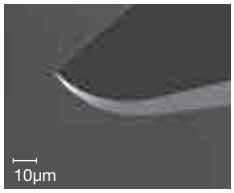
Applications

- For micro lens array molds, LCD light guide plate molds, fine machining molds

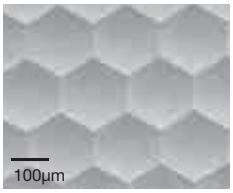
Cutting Edge Shape



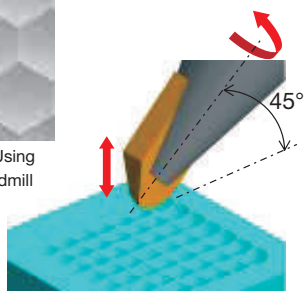
Standard Size	(1) L: 50, W: ø6 (2) L: 40, W: ø4



Cutting Edge Shape



Example of Cutting Using a Nano Ballnose Endmill



For LCD Light Guide Plate Mold Machining, etc.

Ultra-precision Cutting Tool UPC-Nano Endmill

Enables world's smallest class of free-form fine grooving

This endmill enables machining of rectangular grooves along free curves.
Enables quick high-aspect-ratio machining in edged shapes that cannot be achieved using the photolithography method or ion-beam method.

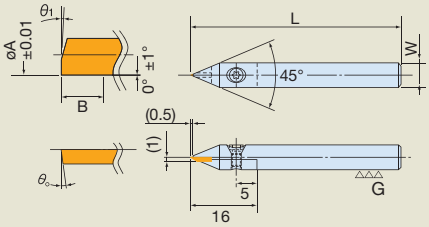
Features

- Enables machining with a high aspect ratio 2.5 times the rotation diameter.
- Durable cutting edge with high-precision grinding.
- Enables high-precision fine grooving that cannot be achieved using the photolithography method or ion-beam method.

Applications

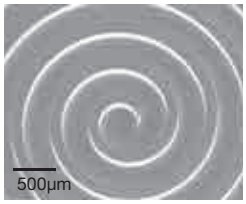
- For machining of LCD light guide plate molds, hologram diffraction grating molds, free-form fine grooving

Cutting Edge Shape

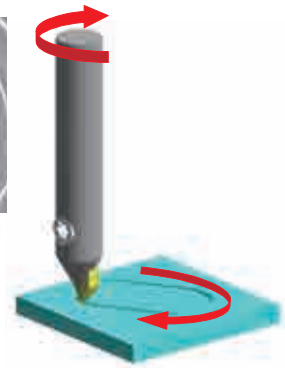


Standard Size	(1) L: 50, W: ø6 (2) L: 40, W: ø4

Cutting Edge Shape



Example of Cutting Using a Nano Endmill



For Optical Shim Mold Machining, etc.

Ultra-precision Cutting Tool UPC-Nano Profile

Formed Single Crystal Diamond Tool with Free-form Cutting Edge

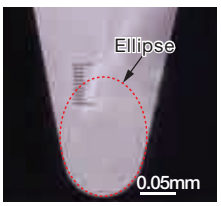
When machining multiple formed grooves or over a long distance, a formed tool makes it easy. UPC-Nano Profile is an ultra-fine formed cutting tool with a free-form profile on its single crystal diamond cutting edge.

Features

- Enables flexible one-pass machining of free-form surfaces including elliptical and paraboloidal surfaces with a profile accuracy of 1μm or less.
- Ensures high-profile accuracy in machining of paraboloidal and other free-form surfaces.

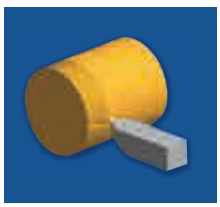
Applications

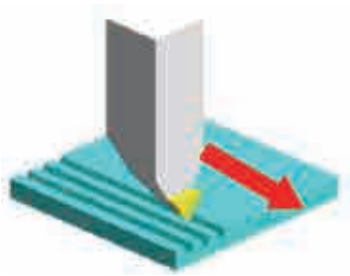
- For optical lens molds, liquid crystal panel optical shim molds, micro lens array molds



Oval Cutting Edge Shape

Concave Round Cutting Edge Shape





For Glasses Lens Roughing

PCD Face Milling Cutters

Efficiency is improved not only for face milling but also free-form profile milling and grooving. Tool specifications can be manufactured to order with requirements like mono-block tool bodies and indexable cutting edges.

Features

- Improves machined surface roughness and suppresses burrs.
- Proprietary tool design balances reduced machining time and tool life.

Applications

- Glasses lens roughing, resin molded parts, aluminum die cast alloys and other non-ferrous metal components

For Glasses Lens Finishing

New D Holders

The sharp cutting edge achieves the high shape precision and mirror finish required for glasses lens finishing.

Features

- The combination of our uniquely designed inserts and holders enables easy and precise tool setting, as with indexable inserts.
- The rake face is free from adhesion and accumulation of chips, maintaining a high quality in worked surfaces even during continuous use.

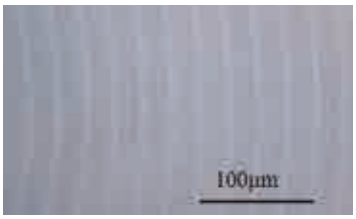
Applications

- For Glasses Lens Finishing
- For Resin Part Machining

Comparative Examples (Glasses Lens Machining Examples)

		[Results]	
1) Tool Specification	R2.0 Relief Angle 18°	Shape Precision:	0.8μm
2) Cutting Speed	1,200m/min	Surface Roughness (Ra):	0.1μm
3) Feed Rate	0.25mm/rev	Output:	2,000 pcs
4) Depth of Cut	0.08mm		

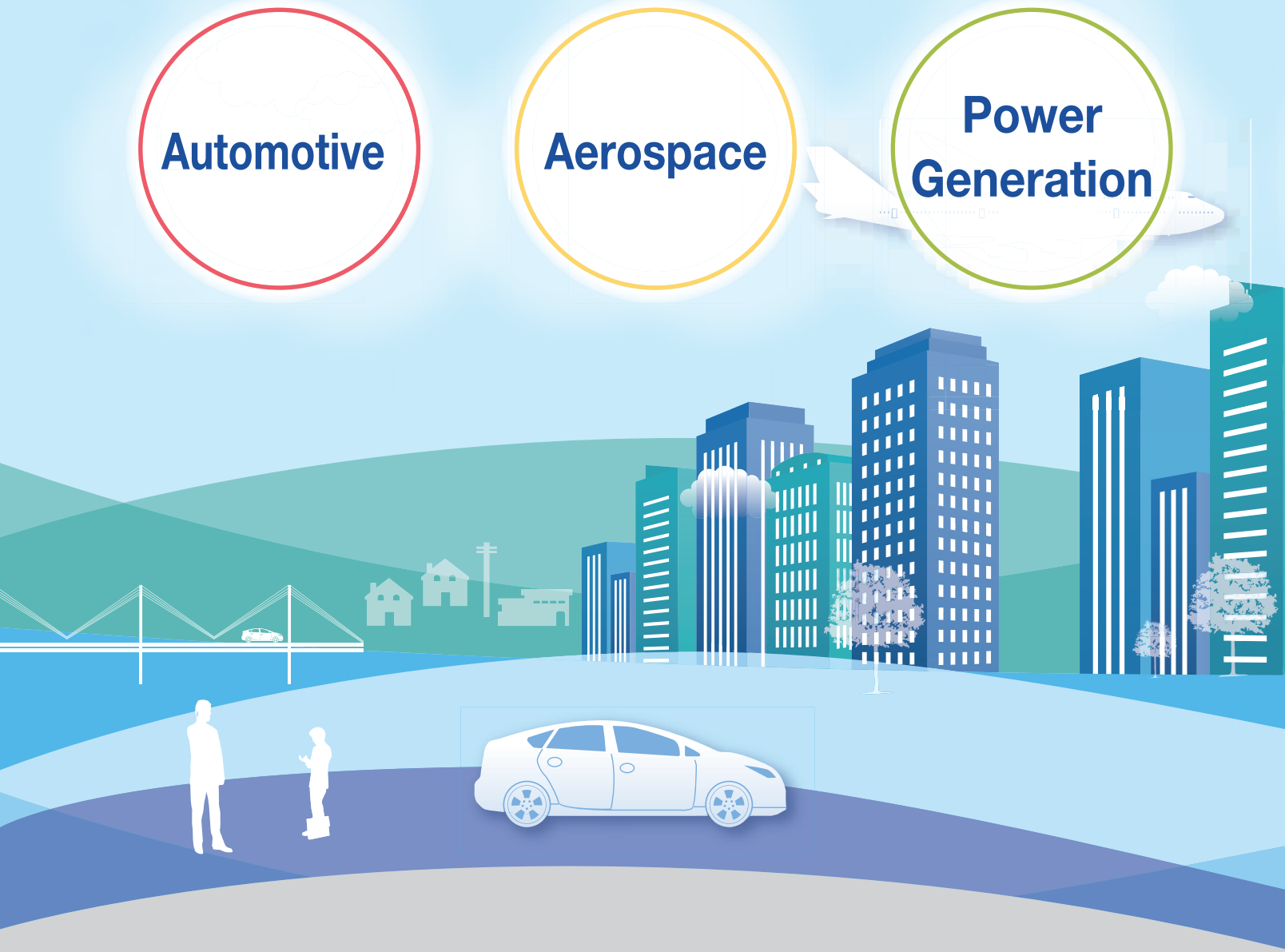
Glasses Lens



Microscope Photo of Machined Surface

Sumitomo's Innovative Tools

Sumitomo Electric promises to understand the needs of our customers and use outstanding creativity to provide excellent products and services that are safe, socially useful and satisfy the needs of all of our customers, including quality and affordability, while also supporting people's daily lives.



Provide Support for Daily Lives

Carbide Tool Product Safety Pamphlet / Cutting Tool Edition

Sumitomo Electric Hardmetal pursues product manufacturing with a focus on both quality and safety.
Take note of each of the following points when using IGETALLOY, SUMIBORON or SUMIDIA products for safe use.

1. Carbide Tool Product Usage

Be sure to read this pamphlet thoroughly before handling or using any kind of carbide tool product or carbide tool material. Furthermore, as part of your employee safety training, make sure that all staff are well aware of the contents of this pamphlet.

2. Basic Characteristics of Carbide Tool Materials

2-1. Understanding the Terminology in this Pamphlet

Carbide Tool Material: Overall name for tool materials such as cemented carbide, cermet, ceramics, CBN, and polycrystalline diamond.
Cemented Carbide: Tool material using WC (tungsten carbide) as the main constituent
Carbide: Nickname for carbide tool materials. In a narrow sense, it is used as an abbreviation of cemented carbide.
Carbide Tool: Overall name for tools that use carbide tool materials

2-2. Physical Characteristics

Appearance: Depends on the material. Ex: Gray, black, gold, etc.
Smell: Odourless
Hardness: Carbide / cermet Hv5 to 30GPa, ceramics Hv10 to 40GPa
CBN Hv20 to 50GPa, polycrystalline diamond Hv80 to 120GPa
Specific Gravity: Carbide 9 to 16, cermet 5 to 9, ceramics 2 to 7, CBN and polycrystalline diamond 3 to 5

2-3. Constituents

Carbides, nitrides, carbon nitrides and oxides of W, Ti, Al, Si, Ta, and B, in addition to alloys containing Co, Ni, Cr, Mo and other constituents.

3. Precautionary Notes for Handling Carbide Tool Materials

- While carbide materials are extremely hard, they also possess characteristics of brittle materials. Accordingly, they may break if subjected to shock or if excessive tightening force is applied.
- Carbide materials have a high specific gravity: if the product is large or there are many items, they should be handled carefully as heavy items.
- Carbide materials have a different rate of thermal expansion from metal materials. Therefore, if the operating temperature is much higher (or lower) than the designed value, hot-fit/cool-fit (shrink fit) tools may crack.
- Carbide materials may corrode in liquids such as grinding fluid or lubricant, decreasing the strength of the tool. Consequently, store them with care.

4. Precautionary Notes on the Use of Carbide Tools

- The strength of carbide tools can be drastically reduced if the surface shape is changed. Always use a diamond grindstone for finishing.
- Carbide tools generate cutting dust when cutting. There may be harmful physical effects if a large amount is inhaled. Install a ventilation device and wear a protective mask and gloves when using the tool. If the dust gets on the skin or in the eyes, immediately wash out and rinse with water.
- If discarding lubricant used when grinding carbide materials or brazed products, the liquid will contain heavy metal constituents and should be discarded appropriately.
- When regrinding a carbide tool, check that no cracks have formed after regrinding is complete.
- Cracks may form if attempting to mark carbide materials and products with a laser or electric pen. Make sure areas where stress is applied are not marked.
- Residual cracks will form on the surface if electrical discharge machining carbide materials, decreasing the strength. If EDM is required, completely grind away these cracks.
- If brazing carbide materials, take care as if the temperature of the brazing material is too hot or too cold the carbide may come loose or become damaged.

■ Precautionary Notes on the Use of Cutting Tools

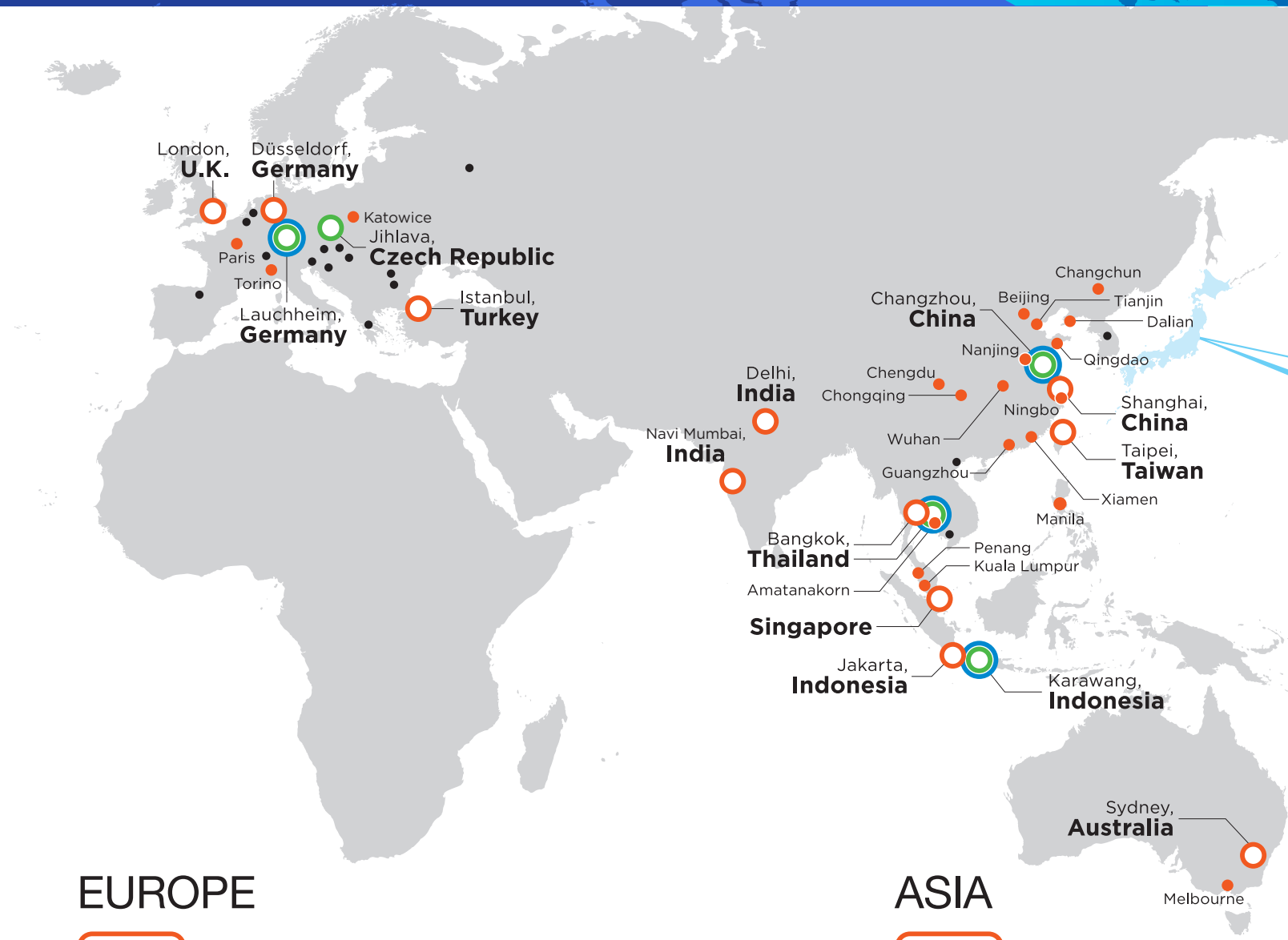
Product Line	Dangers	Countermeasures
General Cutting Tools	◎ As the tools have sharp cutting edges, you may cut your hands if they come into direct contact with the edges.	* Please use gloves and other protective gear, especially when removing a product from its case or mounting it onto a machine.
	◎ Incorrect use or inappropriate application conditions could result in injuries caused by tool breakage or projectiles.	* Use safety covers, safety glasses and other protection measures. * Always operate within recommended conditions. Please refer to the instruction manuals or catalogues.
	◎ If there is a sharp increase in cutting force due to high impact loads or excessive wear, injuries may result from tool breakage or projectiles.	* Use safety covers, safety glasses and other protection measures. * Replace the tools before the indicated product lifetimes expire.
	◎ High temperature chips or lengthy chips being discharged may cause injuries or burns.	* Use safety covers, safety glasses and other protection measures. * When clearing chips, please wear safety gloves and use an appropriate tool.
	◎ Both the tool and work material will heat up during machining. Burns may occur if touched with bare hands immediately after machining operations.	* Use gloves and other protective measures, especially when removing products from their cases.
	◎ Chips may ignite or catch fire from sparks during machining or from heat produced from breakage.	* Please do not use this product in places where there are highly flammable or highly explosive materials. * If non-water-soluble coolant is used, precautions against fire must be taken beforehand.
	◎ At high rotational speeds, injuries may result from tool breakage if the cutter (including the machine tool jig) is not balanced or if there is runout vibration.	* Use safety covers, safety glasses and other protection measures. * Please perform a dry run to ensure that there is no vibration or abnormal noises.
	◎ Burrs formed on workpieces are sharp and may cause injuries.	* Do not handle with bare hands.
General Indexable Insert Tools	◎ If inserts or holder parts are not clamped properly, they may drop off or be flung out during machining.	* Remove any foreign particles and clean all contact and clamping parts before mounting the inserts. * Check that inserts and parts have been properly clamped for mounting. Use wrenches provided for securing. Do not use inserts or parts not specified by the manufacturer.
	◎ Using pipes to aid tightening may cause insert or tool breakage as a result of over tightening.	* Do not use tightening aids such as pipes, etc. Use the included wrench.
	◎ The use of tools at high speeds is dangerous, as inserts may be flung out due to centrifugal force. Take extra care when handling very small drills.	* Always operate within recommended conditions. Please refer to the instruction manuals or catalogues.
Milling Cutters	◎ As the cutters have sharp cutting edges, you may cut your hands if they come into direct contact with the edges.	* Please use gloves and other protective measures, especially when removing products from their cases.
	◎ Injuries may result from tool breakage or projectiles if there is rotational imbalance in the cutter, which causes wobbling or vibrations.	* Rotational speeds should be kept within recommended conditions. * Regular maintenance should be performed to maintain the rotational balance and accuracy of the machine's spindle bearings. Worn bearings will lead to rotational imbalance and runout.
Drills	◎ When using rotary tools to perform through hole drilling, disc-shaped chips may be flung out at high speeds. Be careful, as the disc has extremely sharp edges.	* Use safety covers, safety glasses and other protection measures. A cover must also be mounted on the chuck.
	◎ Drills with very small diameters have sharp tips and will prick the fingers. Surgery will be required if the drills break inside the finger. Drills may also scatter when fractured. Drills may also scatter shards when fractured.	* Take extra care when handling very small drills. Use gloves and other protective gear such as safety glasses.
Brazed Tools	◎ Injuries may result from a dislodged insert or from tool breakage.	* Please ensure that tools have been properly brazed before use. * Please do not use the product under high-temperature conditions.
Others	◎ Tools that have been repeatedly brazed run a risk of breaking easily while in use.	* Do not use tools that have been brazed repeatedly, as their strength will be lowered.
	◎ There is a danger of breakages and even injuries if machines and tools are used for applications other than their intended uses.	* Always conform to the regulations specified for intended use.

Closing Notes

The content of this pamphlet covers only basic instructions for precautionary measures. For more details, please refer to the specific instruction manual and catalog of the respective tools or contact us directly.
Sumitomo Electric Hardmetal Corp. shall not be liable for any injuries sustained from any unauthorized modifications made to the original tool specifications.

SUMITOMO
CARBIDE - CBN - DIAMOND

SUMITOMO ELECTRIC HARDMETAL WORLDWIDE LOCATIONS



EUROPE

Sales

- DEU **Sumitomo Electric Hartmetall GmbH**
- GBR **Sumitomo Electric Hardmetal Ltd.**
- TUR **SumiSertmetal Ticaret ve Sanayi Limited Şirketi**

Production

- DEU **Sumitomo Electric Hartmetallfabrik GmbH**
  with European Design and Engineering Center
- CZE **Sumitomo Electric Hartmetallfabrik GmbH, organizační složka.**

ASIA

Sales

- JPN **Sumitomo Electric Industries, Ltd.**
- IDN **PT. Sumitomo Electric Hardmetal**
- SGP **Sumitomo Electric Hardmetal Asia**
- THA **Sumitomo Electric Hardmetal**
- CHN **Sumitomo Electric Hardmetal**
- PHL **SEI (Philippines) Inc.**
- AUS **SEI Carbide Australia Pty Ltd**
- IND **Sumitomo Electric Hardmetal**
- IND **Motherson Techno Tools Ltd.**
- CHN **Sumiden Tool Net (Shanghai)**
- TWN **Sumitomo Electric Hardmetal**

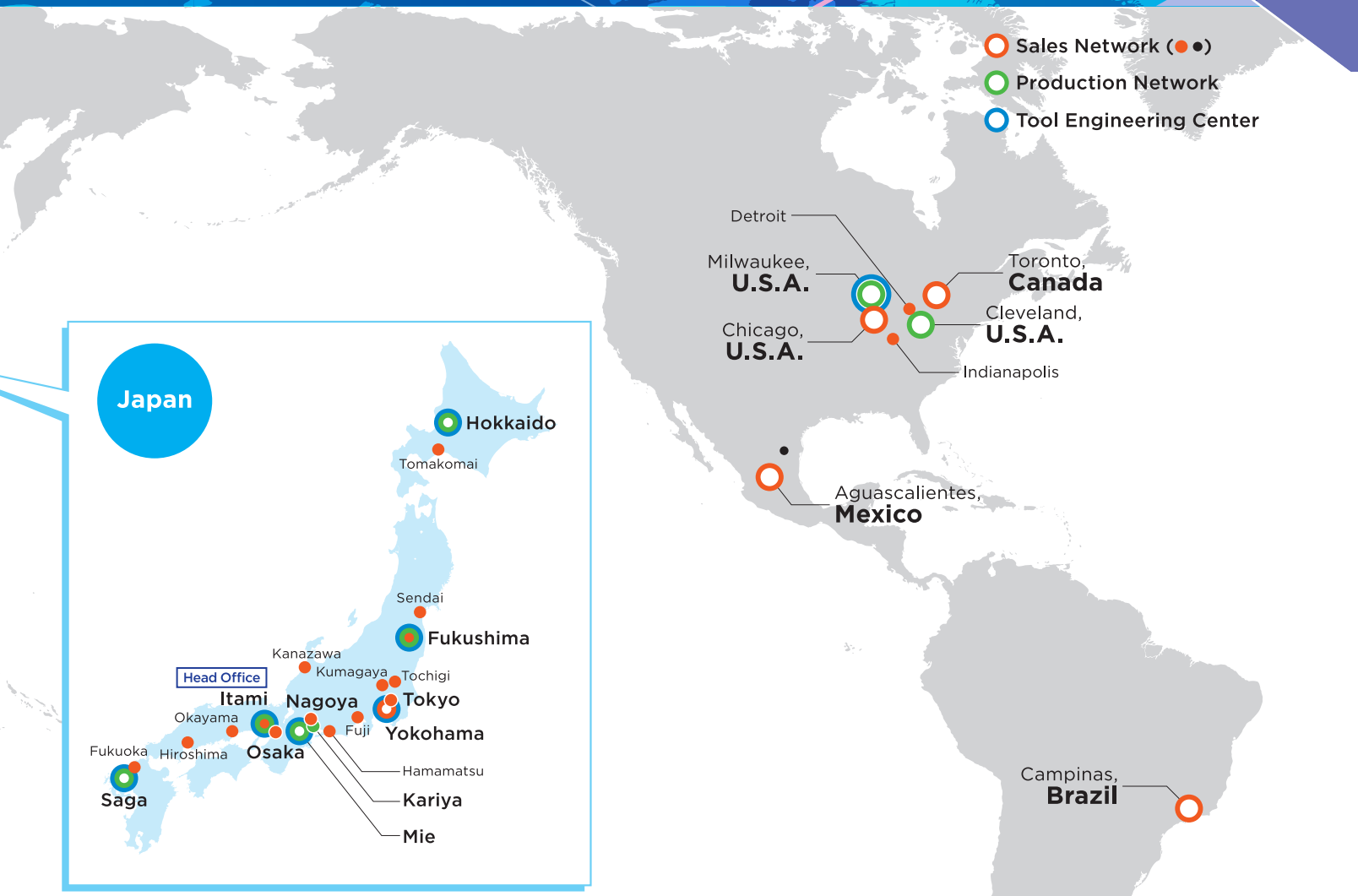
Production

- JPN **Sumitomo Electric Hardmetal**
  with Itami Tool Engineering Center
- IDN **PT.Sumiden Hardmetal Manu**
  with Indonesian Tool Engineering Center
- THA **Sumitomo Electric Hardmetal**
  with Thailand Tool Engineering Center
- CHN **Sumitomo Electric Hardmetal**
  with China Tool Engineering Center

We are strengthening our global position with high-quality product and services, while contributing technology to market demands around the world.

Global Support, Global Solutions.

SUMITOMO ELECTRIC GROUP



NORTH & SOUTH AMERICA

Sales

USA **Sumitomo Electric Carbide, Inc.**
CAN **Sumicarbide Canada, Inc.**
MEX **Sumitomo Electric Hardmetal de Mexico, S.A. de C.V.**
BRA **Sumitomo Electric Hardmetal do Brasil Ltda.**

Production

USA **Sumitomo Electric Carbide Manufacturing, Inc. (Wisconsin)**
with Americas Tool Engineering Center
USA **Sumitomo Electric Carbide Manufacturing, Inc. (Ohio)**

-Hardmetal Division-
Indonesia
Pacific Pte Ltd
(Thailand) Ltd.
Trading (Shanghai) Co., Ltd.

India Private Limited

Co., Ltd.
Taiwan Co., Ltd.

Corp.

facturing Indonesia

Manufacturing (Thailand), Ltd.

Manufacturing (Changzhou) Co., Ltd.

Sumitomo Electric Carbide, Inc. Headquarters

1001 Business Center Drive
Mount Prospect, IL 60056-2181
Phone: (847) 635-0044
Fax: (847) 635-7866
Website: www.sumicarbide.com

Sumitomo Electric Carbide, Inc. - Americas Tool Engineering Center

5637 S. Westridge Drive
New Berlin, WI 53151

Indiana Branch - Greenwood

595 S. Emerson Avenue
Suite 100
Greenwood, IN 46143

Michigan Branch

26800 Meadowbrook
Suite 120
Novi, MI 48377

Sumitomo Carbide Canada, Inc.

150 Research Lane
Unit 210
Guelph, Ontario N1G 4T2
Canada
Phone: (519) 265-6050
Phone: (844) 211-6050