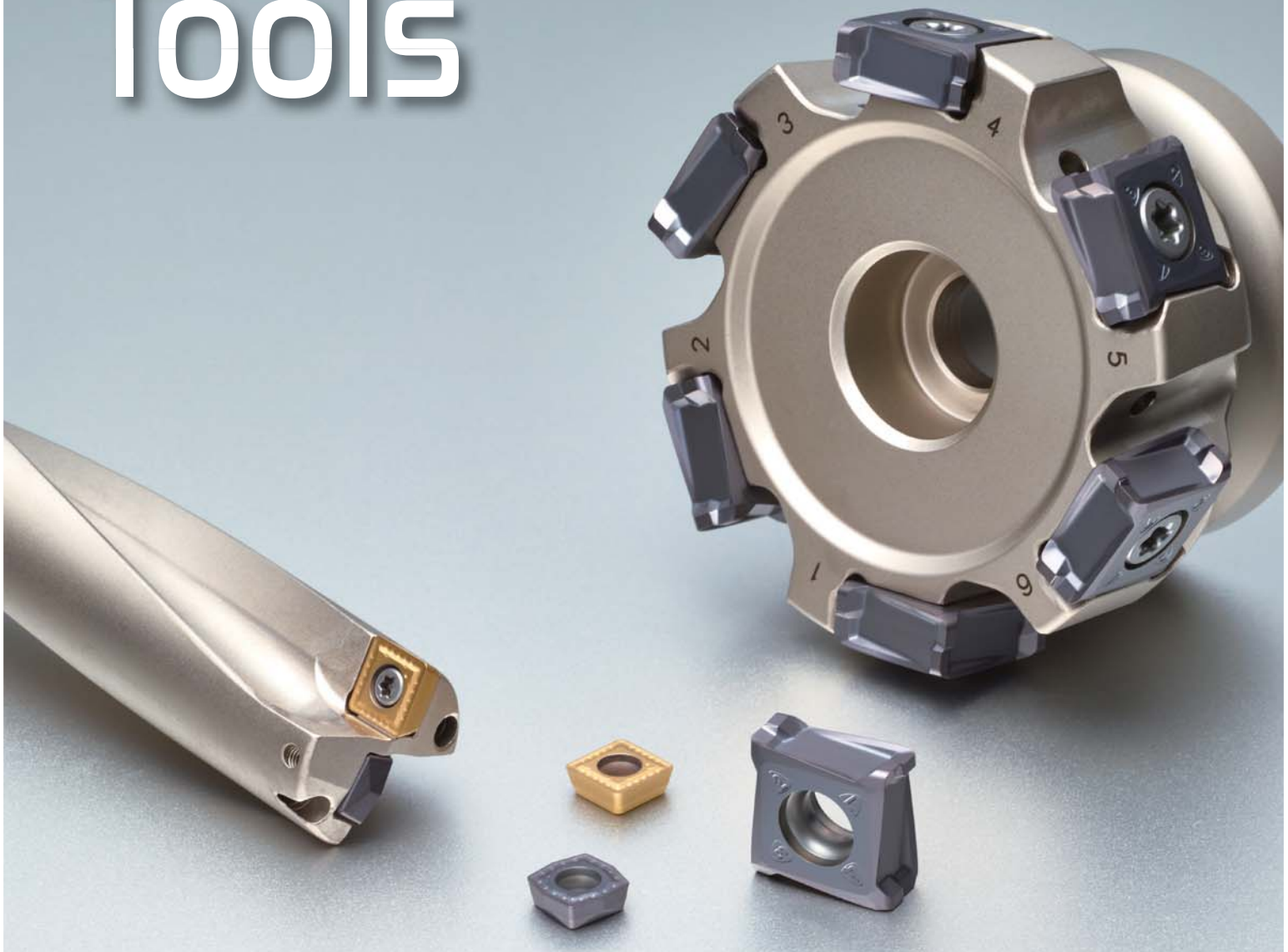
Cutting Tools



2025 ROTATING 2026

TURNING / ROTATING / SOLID

KORLOY

2025▸2026
KORLOY ROTATING TOOLS

CONTENTS

A GRADES & CHIP BREAKERS

Grades

A2 KORLOY Grade Index
A3 Grade System

Milling Grades

A4 Milling Grade selections
A5 CVD Coated Grades
A9 PVD Coated Selections
A14 Uncoated Carbide Grades
A15 Cermet Grades
A16 Diamond Coated Grades
A17 DLC Coated Grades
A18 PCD Insert Grades
A19 Chip Breakers for Milling
A26 Chip Breakers for Drilling

B MILLING

Insert

B2 Milling Insert Code System (ISO)
B4 Milling Inserts
B35 KORLOY Cutters
B42 KORLOY Shanks
B45 KORLOY Modular Adaptors

Face Milling Cutters

B47 Mill Max / Mill Max Plus
B57 Turbo Mill
B60 Double Mill
B62 Technical Information for Power Buster
B65 Power Buster
B68 Technical Information for Rich Mill
B69 Rich Mill Table
B75 Technical Information for Rich Mill RM3
B78 Rich Mill RM3
B84 Technical Information for Rich Mill RM4
B90 Rich Mill RM4
B105 Technical Information for Rich Mill RM6
B108 Rich Mill RM6
B114 Technical Information for Rich Mill RM8
B116 Rich Mill RM8
B126 Technical Information for Rich Mill RMT8
B127 Rich Mill RMT8
B132 Technical Information for Rich Mill RM8-x
B136 Rich Mill RM8-x
B137 Technical Information for Rich Mill RM14
B140 Rich Mill RM14

B

MILLING

B141 Technical Information for Rich Mill RM16
B142 Rich Mill RM16
B144 Technical Information for Rich Mill RMR
B146 Rich Mill RMR
B148 Technical Information for Aero Mill
B150 Aero Mill
B151 Technical Information for Aero Mill Plus
B152 Aero Mill Plus
B154 Technical information for Aero Mill Mini
B155 Aero Mill Mini
B157 PCD Face Cutter

Cutters for Molds

B158 Technical Information for Alpha Mill-X
B162 Alpha Mill-X
B167 Technical Information for Alpha Mill
B173 Alpha Mill
B202 Technical Information for Future Mill
B224 Future Mill
B238 Technical Information for FMR P-Positive
B243 FMR P-Positive
B255 Technical Information for Triple Mill
B258 Triple Mill
B262 Technical Information for HQM
B268 HQM
B272 Technical Information for HFMD
B276 HFMD
B286 Technical Information for HFM
B289 HFM
B292 Technical Information for HRMDouble
B297 HRMD
B308 HRM
B315 Tank Mill
B316 Technical Information for TP2P
B319 TP2P
B325 Technical Information for TP8P
B327 TP8P
B329 Technical Information for Laser Mill
B333 Laser Mill
B338 Technical Information for GBE
B341 GBE
B344 Technical Information for BRE
B345 BRE
B347 Technical Information for Chamfer Tool
B349 Chamfer Tools
B351 Multi-functional Chamfer Tool
B352 T-Cutter

Milling Cutter for Aluminum

B353 Technical Information for Pro-A Mill
B355 Pro-A Mill
B358 Technical Information for Pro-X Mill
B360 Pro-X Mill
B365 Technical Information for Pro-L Mill
B367 Pro-L Mill
B371 Technical Information for Pro-XL Mill
B372 Pro-XL Mill
B373 Technical Information for Pro-V Mill
B376 Pro-V Mill
B378 Modular Adaptor

Side Milling Cutters

B380 Technical Information for Side Milling Cutters
B383 Side Milling Cutter
B387 Side Cutter
B390 Technical Information for Wind Mill
B391 Wind Mill

High feed Cutter

B393 Technical Information for High feed Cutter
B395 Technical Information for Cube Mill
B396 Technical Information for Couple Mill
B398 Technical Information for Shave Mill
B400 Technical Information for Shave Mill Ultra

Gear Tools

B401 Gear Cutter Applicable Example
B402 Gear Cutter Table
B403 Gear Cutter
B411 Gear Cutter Order Form
B412 Indexable HOB
B413 Indexable HOB Cutter Order Form

CONTENTS

C THREADING

Technical Information for Threading

C2 Technical Information for Thread Milling
C2 Thread Milling Holders Code System
C3 Thread Milling
C10 Preparing for the Thread Milling Operation

Thread Milling Inserts

C12 ISO Metric
C13 American UNC
C14 UNJ (Unified Constant Thread)
C15 Whitworth (BSW, BSF, BSP, BSB)
C16 NPT
C16 NPTF
C16 BSPT

Thread Milling Holders

C17 Standard Type
C17 Long Type
C17 Taper Type

D DRILL

D2 KORLOY Drills

Indexable Drills

D3 Technical Information for KING Drill
D11 KING Drill (For through coolant system with a lathe)
D15 Technical Information for KING Drill (For large diameter drilling)
D16 KING Drill (For large diameter drilling)
D17 Technical Information for TPDC Plus Drill
D25 TPDC Plus Drill
D34 Technical Information for TPDB Plus Drill
D40 TPDB Plus Drill
D48 Technical Information for TPDB-DS
D51 TPDB-DS
D53 Technical Information for TPDB-H
D56 TPDB-H
D59 Technical Information for TPDB-F
D61 TPDB-F
D63 Technical Information for WPDC
D66 Center Drill
D67 WPDC
D69 Technical Information for Multi Turn
D71 Multi Turn

Indexable Reamers

D72 Technical Information for Indexable Reamer
D75 Indexable Reamer

E TOOLING SYSTEM

E2 Tooling System Index
E4 DINOX MAP
E8 DHE
E16 DHE/S
E20 DHE/G
E22 DHC
E24 DZC
E26 DSC
E35 CAT Milling Chuck
E38 NPM
E44 DCL
E45 DCJ
E49 ER Collet Chuck
E53 SDC/P
E62 SDC/PL
E65 GERC
E69 ER
E73 ER/L
E74 RTJW
E76 DSK
E79 GSK
E83 HC
E85 NPU
E87 DTN
E90 TCA
E91 DST
E94 TER
E95 THE
E97 STER PAT.
E98 OFH
E99 SLA
E103 MTA
E104 FMA
E107 FMC
E110 MD
E116 EXT

E TOOLING SYSTEM

E117 RDC
E118 FBH/B
E124 FBH
E125 FBH/D
E129 DBCA
E133 DBC
E135 SMB
E137 KMB
E139 SMH
E141 BKA
E143 FZ UNIT
E144 Angular head
E146 KAH
E148 KHU
E150 KAG
E152 HRAG
E154 MAH
E156 KAC
E158 SAH
E160 POSITIONING BLOCK
E162 ATM
E165 ATM(U) SPARE PART
E166 ATU
E168 Damping Pro
E176 Pull Stud Bolt
E177 HT

F PARTS

F3 Shim
F4 Cartridge
F4 Chip breaker
F4 Chip cover
F4 Clamp
F5 Coolant bolt
F5 Wrench bolt
F5 Lever
F6 Locator
F6 Nut
F6 Pin
F6 Screw
F7 Shim pin
F8 Spring
F8 Wrench
F8 Stop ring
F8 Washer
F8 Stopper
F8 Nozzle

G TECHNICAL INFORMATION

Technical Information I

G2 Workpiece Material Grades
G6 Steel, Non-ferrous Metal Symbol List
G7 SI Unit Conversion Table
G8 Hardness Calculating Table

Technical Information II

G9 Actual designation of Milling Cutter
G11 Clamping Part of Milling Cutter (Oil-hole)
G19 The Comparison of Grade for Milling

H INDEX

H2 INDEX (A~Z)

SAFETY GUIDE OF CARBIDE PRODUCTS

KORLOY Inc. is continuously trying to develop safer and higher quality products
Please be aware of the safety guidelines below prior to using KORLOY Inc. products

* It is generally accepted that the proper handling of cemented carbide tools requires awareness of safety as noted above. For more information, please contact us.
* KORLOY does not accept any responsibility for any accident caused by inappropriate use, abuse of tools, or changes to the products.

1 PL (Product Liability)

In accordance with the PL (Product Liability) law, we have attached a WARNING label on the case of KORLOY products.
There is no warning on the surface of the tools. Please read this safety guidelines before using carbide tools and provide safety education to all users.

2 Basic characteristics of CEMENTED CARBIDE tools

Cemented carbide tools are made of carbides, nitrides, carbonitrides, oxides of Tungsten (W), Titanium (Ti), Alluninyum (Al), Silicon (Si), Tantalum (Ta), Boron (B) etc.
and metal component like Cobalt (Co), Nickel (Ni), Chrom (Cr), Molybdenum (Mo) as binder. Cemented carbides tools have high hardness and specific gravity.
Generally there's no smell but according to usage and treatment, appreance and color could be changed

3 Precaution for CEMENTED CARBIDE tools

1) Cemented carbides are extremely hard and brittle at the same time. Impact shock or excessive clamping power could cause fracture or breaking of the tool.
2) Cemented carbides have large specific gravity, thus they require special attention as a heavy material when you handle big sizes or large quantities.
3) Cemented carbides have different thermal expansion coefficient with steel and ferrous materials. Shrink fit or swell fit products may cause trouble if they are used at undesirable conditions like extremly high or low temperatures.
4) There are several cemented carbide products having sharp cutting edges.Be careful not to handle the tools with bare hands which may cause cuts or injury, especially when removing the tools from the case, do not touch the cutting edge and be careful not to drop it.
5) Storing carbide tools in a corrosive atmosphere may cause erosion which can reduce toughness.
6) Please refer to the catalouge safety guidance prior to handling the tools.
7) Do not abuse tools under inappropriate conditions.

4 Precaution for machining (grinding, welding, EDM) of CEMENTED CARBIDE tools

1) Surface condition can affect the toughness of the tool, so it is recommended to use a diamond grinding wheel.
2) Grinding of cemented carbide creates mist and dust. It contains harmful compositions like Cobalt (Co), thus it is recommended to use a mask, mist collection, and other protective facilities. If the dust gets in your skin or eye, rinse immeditely with continously running water.
3) In case of grinding with coolant, coolant contains harmful metal components which cause environmental problems. Handle the coolant according to the manufacturer's recommendations.
4) Check for cracks after re-grinding carbide tool and reuse.
5) Marking with laser or electric pen may cause cracks on the carbide tool. The crack can shortened tool life.
6) EDM of carbide may cause residual cracks on the carbide tool, so if necessary , remove the crack with a grinding process.
7) Brazing of carbide tools at extremly high or low temperatures compare with the melting point of brazing materials may cause loosening or breakage.
8) Overheating a oil base coolant may cause a fire or flames, thus be prepared for fire prevention.

5 METALCUTTING SAFETY

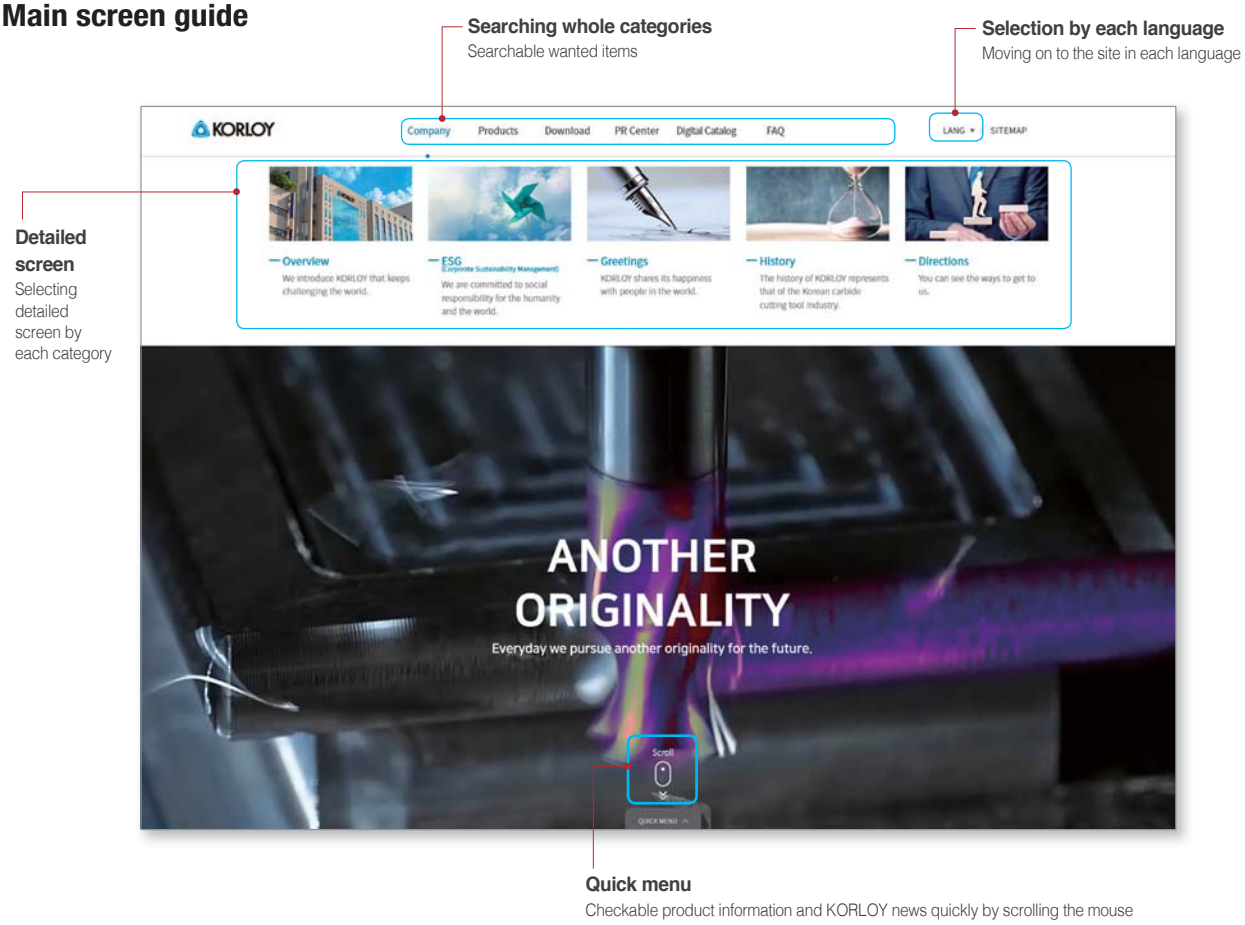
DANGEROUS FACTOR	
Cutting tools	• Sharp cutting edge of cutting tools may cut your bare-hand
	• Inappropriate conditions or usage may cause fragmentation and expel parts of tools which may cause injury
	• Severe load on tool and premature wear of cutting edge may bring excessive cutting force on tool, causing fracture of the tool and may cause injury
	• Chips evacuated during cutting are hot and sharp and maycause burns and cuts
	• Touching the workpiece immediately after cutting may cause burns
	• Be aware of sparks, fire, or explosion of hot chips generated during the cutting operation
	• In case of high RPM machining, vibration and chattering may occur due to the improper balance of the machine
	• Touching a burr remaining on the workpiece with a bare-hand may cause a cut
	• Loose clamping of the workpiece may cause the tool to fracture and result in damage to the cutter body and possible injury
	• Tools are operated to right-hand direction normally • Left-hand direction operation can cause fracture of tool and body damage
Indexable tools	• Loose clamping of inserts and parts may result in ejection of the tool during cutting and may cause serious injury
	• Over loaded clamping of inserts by a lever (such as a pipe) may cause dangerous fracturing of parts and inserts
	• In case of high speed machining, parts and inserts can be forced out by centrifugal force
Rotating tools	• Since cutter has sharp cutting edges touching with a bare-hand may cause a cut
	• It is dangerous to use glove with rotating machine • Contact with body or clothes is dangerous with rotating parts
	• Vibration generated by balancing trouble may cause a fracture and ejection of the tool which may cause serious injury
	• In case of drilling, the uncut bottom core can fly out of the part with high speed and cause serious injury
	• The edges of small diameter drill are sharp and easy to break
Brazed tools	• Fragmentation and ejection of brazed carbide tip may cause injury
ETC	• There's a possibility of breaking the carbide tip after several brazing
	• Abusing may cause fragmentation of tool and is very dangerous

SAFETY COUNTERPLAN	
Cutting tools	• Use gloves when pulling out the insert from the case or mounting it on the machine
	• Use glasses or safety cover for your safety • Use the tools within the recommended range • Please refer to catalogue and safety guidelines first
	• Use glasses or safety cover for your safety • Change the tool as required before excessive wear or fracture
	• Use glasses or safety cover for your safety • Stop machining and put safety glove on and use a hook tool to remove chips
	• Use gloves or safety cover for your safety
	• Do not use at the place where having explosive materials • Prepare for fire extinguishments
	• Use glasses or safety cover for your safety • Check first if there's any chattering, vibration or strange noises prior to your main cutting operation
	• Do not touch the burr with bare-hand · Use gloves or safety cover for your safety
	• Clamp the workpiece tightly
	• Do not use left-hand direction without notice • Check the package of product to check the availability of left-hand operation
Indexable tools	• Check the clamping of inserts and parts prior to machining,and use original parts only
	• Do not use lever inappropriately
	• Use within recommended condition · Use glasses or safety cover for your safety
Rotating tools	• Use gloves or safety cover for your safety
	• Do not wear gloves when you work with rotating machine • Keep your body and clothes away from rotating machine
	• RPM should be controled within recommended condition • Check the balance of rotating part periodically
	• Use gloves or safety cover for your safety
	• Concentrate on safety regulation in using tools. • Use glove or safety cover for your safety.
Brazed tools	• Check the brazed tip before using • Do not use at high temperature cutting condition
ETC	• Do not use brazing a tip that has been brazed several times
	• Stick to safety regulations and guidelines

INTRODUCTION OF HOMEPAGE

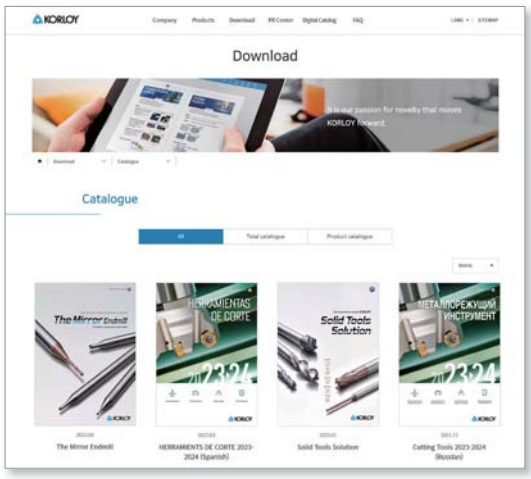
1) Get on the homepage through the internet.
   » **http://www.korloy.com** (KORLOY Homepage)
2) Choose a category and click that.

Main screen guide



Search the necessary materials in the detailed search screen

» Downloading technical materials



Downloading technical materials:
Downloading and searching by sections of various technical materials are available

» Shortcut to KOMS



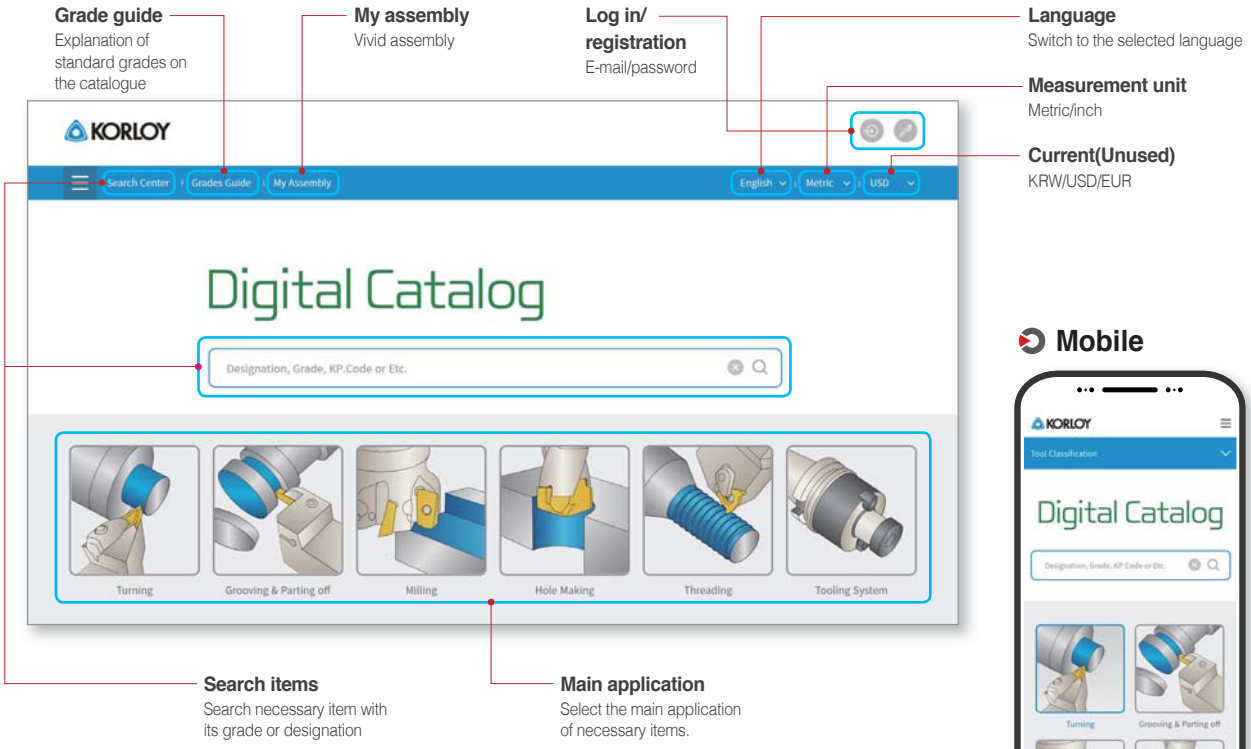
» Shortcut to genuine product certification



INTRODUCTION OF DIGITAL CATALOG

1) Connect to the digital catalogue on PC or mobile
   » **https://catalog.korloy.com**
2) Guideline for main screen

PC

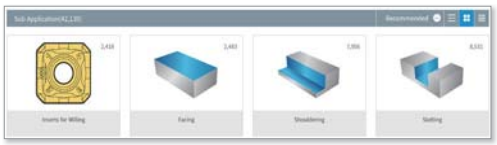


Mobile



Details

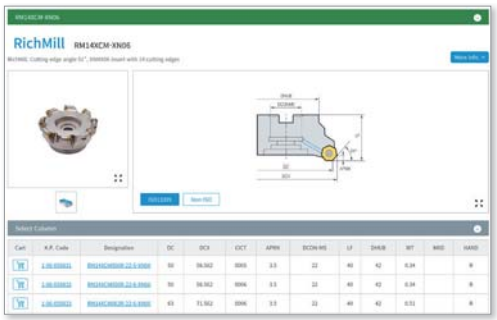
» Sub application



» Item group



» Item



» Item data, 2/3D modeling, etc.



INTRODUCTION OF ONLINE EXHIBITION

1) Get on the online exhibition hall on the PC or mobile.
   » https://www.korloy.com/ko/prcenter/media_list.do#online
2) Main screen guide



① **Mini map I** Move the wanted hall

② **Information desk I** Introduction in Korean/English

③ **Side menu I** Searchable wanted sections

④ **Product names / Explanation I** In Korean/English

⑤ **Video I** Item promotion video

⑥ **Tech news I** Checking tech news

⑦ **Detailed information of product I** Checking the information of product and promotion video

⑧ **3D modeling I** Checking 3D modeling view

* **Connectable on mobile**

Detailed screen

» **New product hall**



» **Industry hall**



» **Tooling guide**



» **History hall**



» **Smart factory**



» **Poster**



TOOL KEEPER C/L(COIL/LOCKER) TYPE SYSTEM

The smart tool storage control system which is a 24-hour running unmanned system that can simultaneously store and manage tools and tool holders in real time. It is designed to improve the efficiency and security of tool management in operation sites and other industrial settings.

Efficient and transparent hybrid tool management control system + customer-customized S/W applied

C/L Type



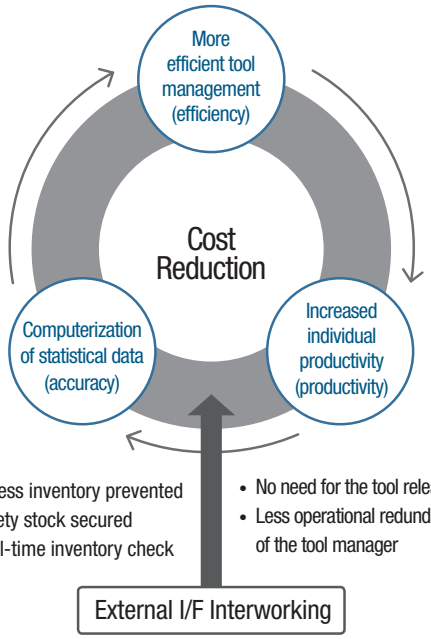
- Storage CAPA: Coils (81 types) + Lockers (21 types)
- Transparent Shipping (Packaging Units)
- Easy Tool Selection/Shipping with Touch Monitor

[Option] L Type



- Storage CAPA: 59 types
- Maximum Length: Up to 14.96 inch
- Can Add Up to: 10 units

- Monthly performance data search (quantity / sum)
- Warehousing history and status search
- Computerization of statistical data (application history, etc.)



- Excess inventory prevented
- Safety stock secured
- Real-time inventory check

- No need for the tool release log
- Less operational redundancy of the tool manager

External I/F Interworking

Software Configuration: Administrator Program + User Program

» Administrator Program





» User Program



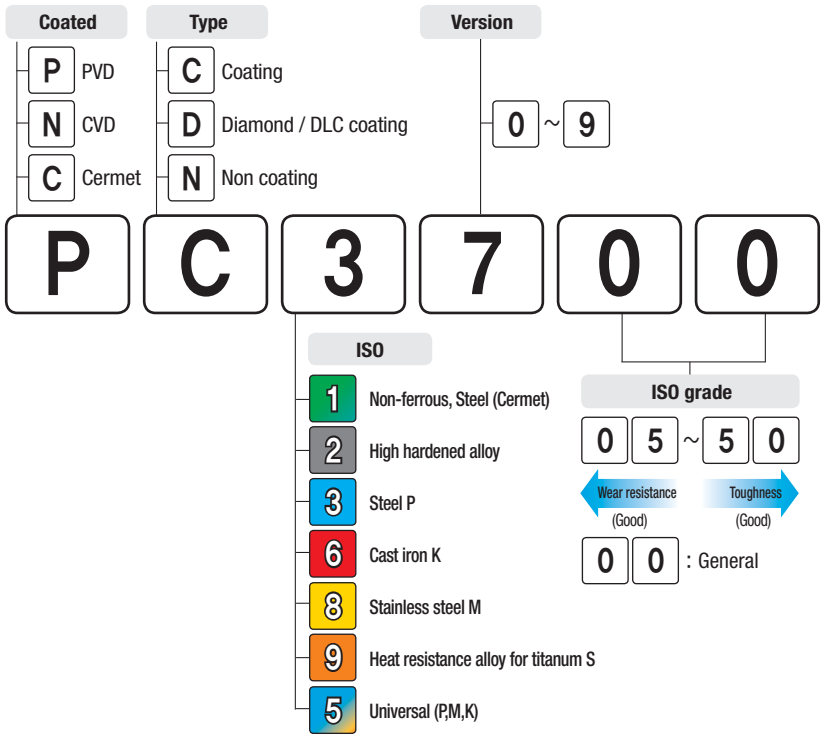


Key features

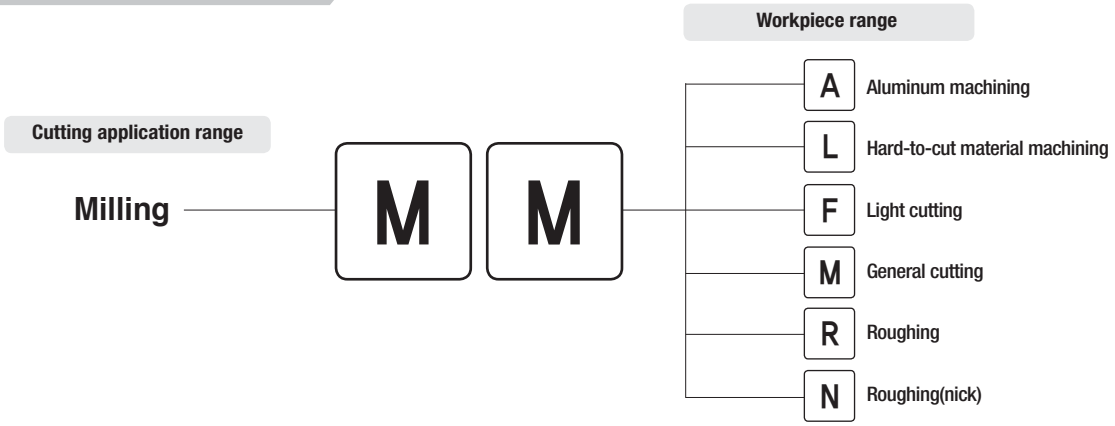
1. Safety Stock Alert Management (Automatic Email/SMS Notifications)
2. Multilingual Language Settings/Remote Diagnosis/SW
3. Automatic Updates Monthly Tool Usage(Average)/Expenditure/Inbound Quantity Management

KORLOY INC. CODE SYSTEM

1 Grade name for coated carbide



2 Chip breaker



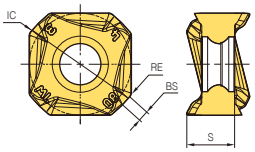
3 Terminology of tool formula

TERM	CODE	UNIT
Tool diameter	DC	Inch
Cutting speed	vc	sfm
Revolution per minute	n	min^{-1}
Feed per minute	vf	ipm
Feed per revolution	fn	ipr
Feed per tooth	fz	ipt
Tooth	z	-
Axial depth of cut	APMX	Inch
Radial depth of cut	APMXEFW	Inch
Peak feed	pf	Inch

TERM	CODE	UNIT
Horse power requirement	Pc	kW
Specific cutting resistance	kc	Mpa
Torque	Mc	N·m
Thrust	Tc	N
Cycle time	tc	min
Tool life	T	min
Flank wear	VB	Inch
Crater wear	Kt	Inch
Nose radius	RE	Inch

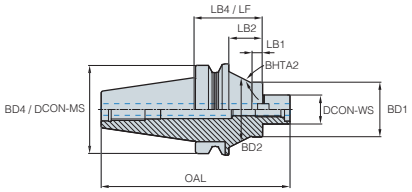
ISO13399 GLOSSARY

Insert



ISO13399 Property Symbols	Property Name
AN	Clearance Angle Major
APMX	Depth of Cut Maximum
BS	Wiper Edge Length
CBMD	Chip Breaker Manufacturers Designation
CHW	Corner Chamfer Width
CW	Cutting Width
DC	Cutting Diameter
IC	Inscribed Circle Diameter
IH	Insert Hand
INSL	Insert Length
KCH	Corner Chamfer
KAPR	Tool cutting edge angle
LE	Cutting Edge Effective Length
RE	Corner Radius
S	Insert Thickness
SC	Insert Shape Code
TQ	Torque
W_1	Insert Width

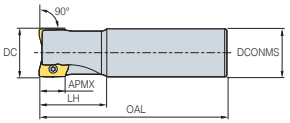
Tooling System



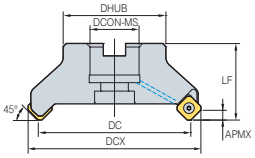
ISO13399 Property Symbols	Property Name
ADJ	Adjust Screw
BD	Body Diameter
CCKZ	Cutter Connecter Key Size
CRKS	Connection Retention Knob Thread Size
DC	Cutting Diameter
DCON-WS	Connection Diameter Workpiece Side
DCX	Cutting Diameter Maximum
H	Shank Height
HF	Functional Height
LB	Body Length
LF	Functional Length
MBCB	Mount Bolt, Clamp Bolt
SSL	Set Screw Length
SSZ	Set Screw Size
WF	Functional Width

Holder

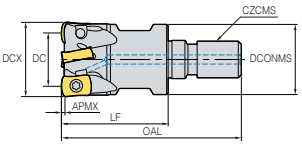
[shank]



[Cutter]



[Modular]



ISO13399 Property Symbols	Property Name
APMX	Depth of Cut Maximum
BD	Body Diameter
BHTA	Body Half Taper Angle
CBDP	Connection Bore Depth
CDX	Cutting Depth Maximum
CICT	Cutting Item Count
CW	Cutting Width
CXSC	Coolant Exit Style Code
CZC-MS	Connection Moduler Machine Side
CZC-WS	Connection Moduler Work Side
DC	Cutting Diameter
DCON-MS	Connection Diameter Machine Side
DCX	Cutting Diameter Maximum
DHUB	Hub Diameter
KAPR	Tool Cutting Edge Angle
KWW	Keyway Width
LF	Functional Length
LH	Head Length
LU	Usable length
MIID	Master Insert Identification
NOF	Flute Count
OAL	Overall Length
RE	Corner Radius
RMPX	Maximum Ramping Angle
SC	Insert Shape Code
THUB	Hub Thickness
WT	Weight of Item
ZEFF	Effective Cutting Edge Count



GRADES & CHIP BREAKERS

KORLOY's new grades are designed with optimal substrate for each application and are PVD coated for high temperature, high hardness and oxidation resistance, or CVD coated for high tempeure and wear resistance. Additionally, the improved post-coating treatment provides superior surface finishes to ensure the highest levels of quality and productivity

Technical Information for GRADES & CHIP BREAKERS

Grades

A2 KORLOY Grade Index
A3 Grade System

Milling Grades

A4 Milling Grade selections
A5 CVD Coated Grades
A9 PVD Coated Selections
A14 Uncoated Carbide Grades
A15 Cermet Grades
A16 Diamond Coated Grades
A17 DLC Coated Grades
A18 PCD Insert Grades
A19 Chip Breakers for Milling
A26 Chip Breakers for Drilling

KORLOY Grade Index

Grade index

Workpiece	Coated	Grade	ISO						Milling	Multi functional tools	Thread (Milling)
			P	M	K	S	N	H			
			Steel	Stainless steel	Cast iron	HRSA	Non-ferrous	Hardened			
Coated carbide	CVD	NCM325	P30~P40	M25~M35					•		
		NCM335	P35~P45	M30~M40					•		
		NCM535	P30~P40		K20~K30				•	•	
		NCM545	P40~P50		K25~K35				•		
		NC5330	P25~P35	M20~M30	K15~K25				•	•	
	PVD	PC210F	P10~P20	M10~M20	K10~K20			H10~H20	•		
		PC2005	P01~P10		K01~K10			H01~H10	•		
		PC2010	P05~P15		K05~K15			H05~H15	•		
		PC2015	P10~P20	M10~M20	K10~K20			H10~H20	•		
		PC2505	P01~P10					H01~H10	•		
		PC2510	P05~P15					H05~H15	•		
		PC3700	P30~P40						•	•	
		PC5335	P30~P40	M20~M30						•	
		PC5300	P30~P40	M20~M30	K20~K30	S15~S25			•	•	•
		PC5400	P35~P45	M30~M40	K25~K35	S25~S35			•	•	
		PC5535	P30~P40	M25~M35	K15~K25	S20~S30		H15~H25	•		
		PC6100			K05~K15				•	•	
		PC9530		M25~M35		S20~S30			•		
		PC9540		M35~M45		S30~S40			•	•	
		PC9570T	P25~P35	M20~M30	K15~K25						•
	Non-coated	ST30A	P25~P35						•		
		H01			K05~K10		N10~N20		•	•	
		H05			K10~K15		N15~N25		•		
		G10			K15~K20				•		
Cermet	Non-coated	CN30	P25~P35						•		
Dia coated	CVD	ND3000					N01~N05		•		
DLC coated	PVD	PD1005					N05~N10		•		
		PD1010					N10~N15		•		
PCD	Non-coated	DP90					N01~N20		•		
		DP150					N05~N25		•		
		DP200					N10~N30		•		

Grade System

Cutting tool

Uncoated carbide	P	Steel	ST30A		
	K	Cast iron	H01	H05	G10
	N	Aluminum alloy/ Copper alloy	H01	H05	
Cermet	P	Steel	CN30		
Dia coated	N	Non-ferrous	ND3000		
DLC coated	N	Non-ferrous	PD1005	PD1010	
PCD	N	Non-ferrous	DP90	DP150	DP200

Applications

Milling coated	P	Steel	NC5330	NCM535	NCM545	NCM325	NCM335	PC3700	PC5300	PC5535	PC5400	
	M	Stainless steel	NC5330	NCM325	NCM335	PC9530	PC9540	PC5300	PC5535	PC5400	PC210F	
	K	Cast iron	NC5330	NCM535	NCM545	PC6100	PC5300	PC5535	PC5400	PC2005	PC2010	PC2015	PC210F
	S	HRSA	PC9530	PC9540	PC5300	PC5535	PC5400					
	N	Non-ferrous	ND3000	PD1005	PD1010							
	H	Hardened	PC2005	PC2010	PC2015	PC210F	PC2505	PC2510				
Indexable drill coated	P	Steel	NC5330	NCM535	PC3700	PC5300	PC5335	PC9540				
	M	Stainless steel	NC5330	PC5300	PC5335	PC9540						
	K	Cast iron	NC5330	NCM535	PC6100	PC5300	PC5335	PC9540				
	S	HRSA	PC5300	PC5335	PC9540							
	N	Non-ferrous	H01									
Thread coated	P	Steel	PC9570T									
	K	Cast iron	PC9570T									

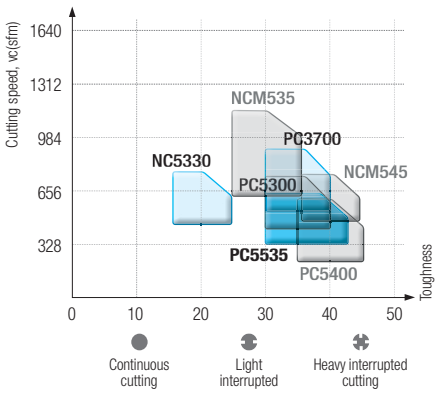
Milling Grade selections

Selection system

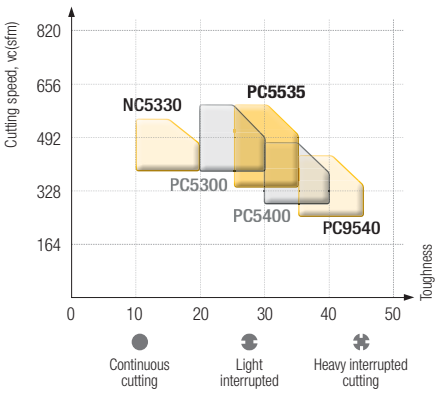
Workpiece	P					M				K					S				N				H			
ISO	P10	P20	P30	P40	P50	M10	M20	M30	M40	K01	K10	K20	K30	K40	S10	S20	S30	S40	N01	N10	N20	N30	H01	H10	H20	H30
Coated carbide			NC5330 PC3700 NCM535 PC5300 PC5535 PC5400 NCM545				NC5330 PC5300 PC9530 PC5535 PC5400 PC9540			PC6100 PC5535 NC5330 PC5300 NCM535 PC5400 NCM545					PC5300 PC5535 PC5400 PC9530 PC9540				ND3000 PD1005 PD1010				PC2005 PC2010 PC2015 PC210F PC2505 PC2510 PC5535		
Cermet			CN30																							
PCD																				DP90 DP150 DP200						
Uncoated carbide			ST30A								H01 H05 G10											H01 H05				

Application range of milling grades

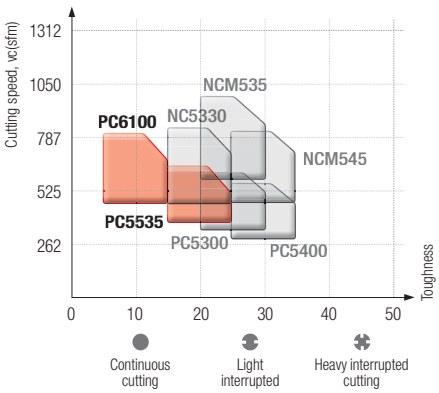
P Steel



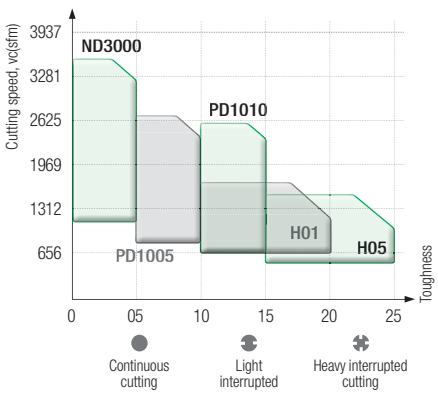
M Stainless steel



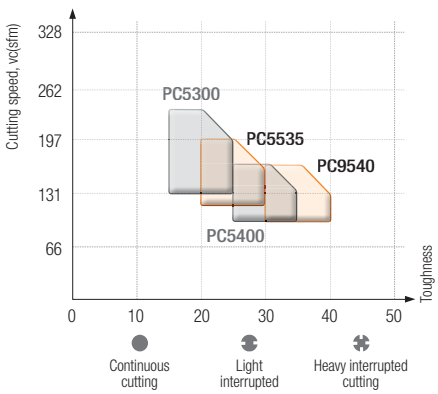
K Cast iron



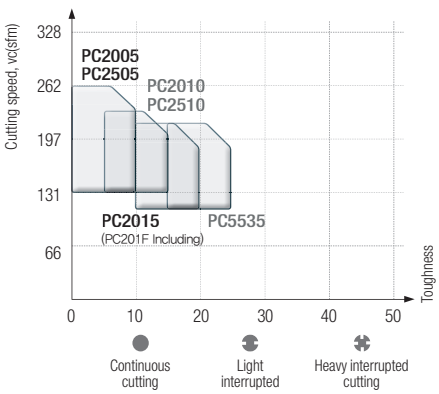
N Non-ferrous metal



S Heat resistant alloy



H Hardened steel



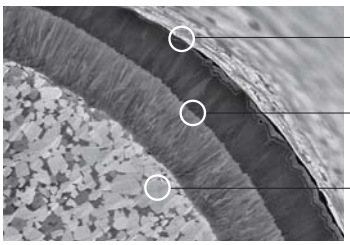
CVD Coated Grades

Milling solutions for steel and cast iron

NCM535/NCM545

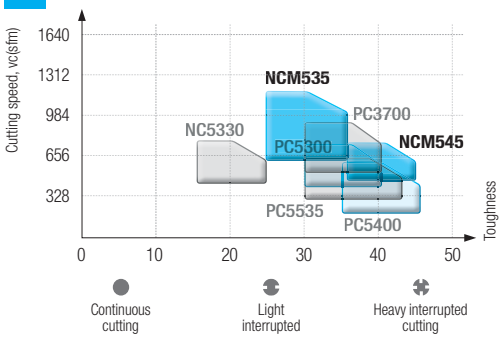
- Improved chipping resistance / heat and crack resistance: Applied after treatment with good chipping resistance and heat and crack resistance
- Improved wear and heat resistance: Applied high toughness substrate and high functional CVD alumina

Features

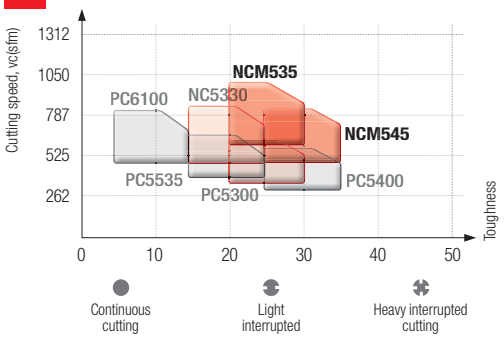


Application range

P Steel



K Cast iron



Selection system of CVD coated grades

Workpiece		Machining types	Recommended grade	Recommended cutting speed (sfm)	ISO	Application range
P	Steel	Continuous cutting	NC5330	656 (492 ~ 820)	P20	NC5330
					P25	
		Continuous cutting	NCM535	984 (656 ~ 1312)	P30	NCM535
					P35	
		Interrupted cutting	NCM545	656 (492 ~ 820)	P40	NCM545
					P45	
M	Stainless steel	Continuous cutting	NC5330	490 (390 ~ 590)	M20	NC5330
					M30	
K	Cast iron	Continuous cutting	NC5330	623 (361 ~ 886)	K10	
					K20	
			NCM535	820 (656 ~ 984)	K30	NC5330 NCM535
		General cutting	NCM545	656 (492 ~ 820)	K40	NCM545

The features of CVD milling grades

CVD Coated grades	ISO	Features
NC5330	P25 ~ P35 M20 ~ M30 K15 ~ K25	• For high speed milling of steel and stainless steel • Superior wear resistance and chipping resistance grade for steel and stainless steel • MT-TiCN + Al_2O_3 + TiN
NCM535	P30 ~ P40 K20 ~ K30	• Rising CVD milling grade for high productivity in large steel and cast iron machining at high speed • High toughness and thermal conductivity substrate and high functional CVD coating layer with heat resistance • High chipping resistance and heat and crack resistance from excellent after treatment • MT-TiCN + Al_2O_3
NCM545	P40 ~ P50 K25 ~ K35	• For steel and cast iron milling with high toughness • High toughness substrate and high functional CVD coating layer • High chipping resistance and heat and crack resistance from excellent after treatment • MT-TiCN + Al_2O_3

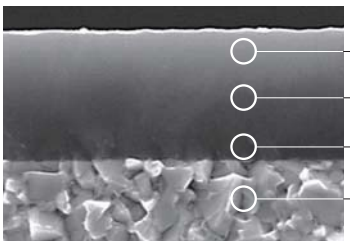
PVD Coated Grades

PVD insert for cast iron milling

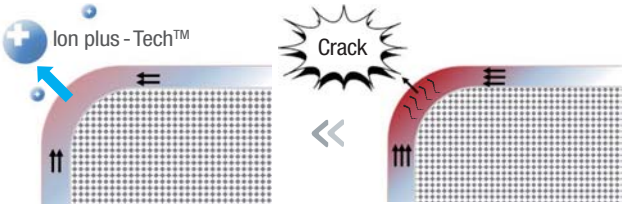
PC6100

- Optimally designed PVD coating grade in cast iron milling
- Applying Ion plus - Tech™ increasing hardness and adherence of layer ensures wear resistance and thermal crack resistance
- Coating surface treatment technology prevents chipping and unexpected fracture
- The optimal substrate for cast iron cutting enhances wear resistance and fracture resistance

Features

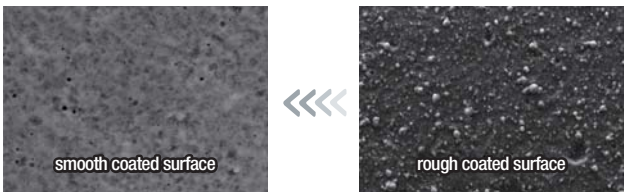


Applying Ion plus-Tech™



[PC6100] [Unapplied]

Applying smooth coating surface treatment technology

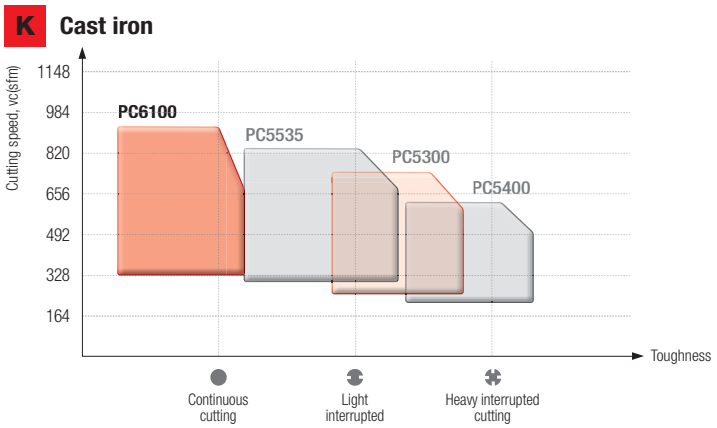


[PC6100] [Existing]

∗ Effect of applying Ion Plus - Tech™ (wear in cutting)



Application range



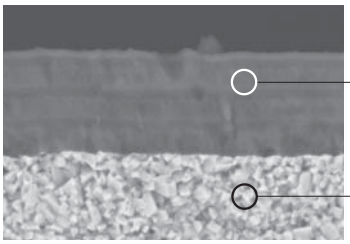
PVD Coated Grades

Milling grade specialized for steel

PC3700

- Excellent chip removal rate due to a tough substrate specialized for steel, and lubricative PVD coating of high-hardness
- A highly chipping-resistant grade for minimized deviation and extended tool life under various cutting conditions

Features



Substrate for general milling applications of steel and PVD coating treatment

Stronger resistance to welding and chipping due to the multi-layer coating technology with high hardness and lubricating treatment

Ensuring general machinability due to wear and breakage resistant materials optimized for milling applications of steel

- Smooth surface due to special surface treatment
  → Smooth chip evacuation, improved chipping resistance and surface finish of the workpiece

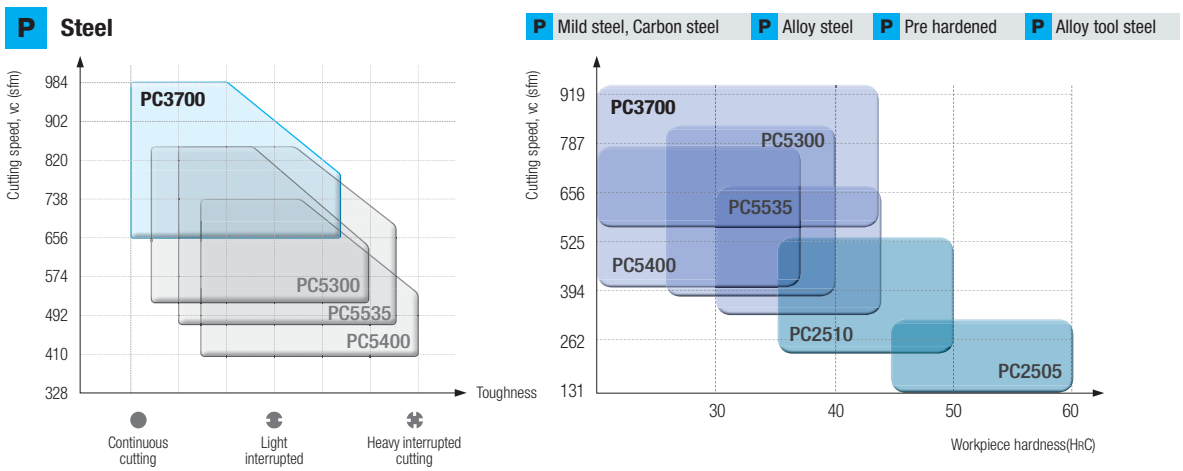
Special coating surface treatment



[PC3700] [Existing products]

Application range

Recommended grades and cutting conditions for p-type milling application



PVD Coated Grades

PVD coated grades for hard-to-cut stainless steel milling

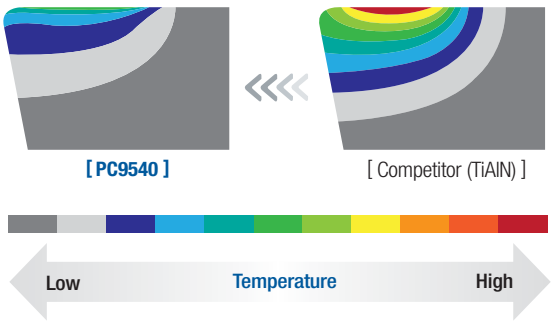
PC9540

- Optimal PVD grade for medium to rough cutting and highly interrupted milling in stainless steel
- Longer tool life due to higher breakage resistance applying high toughness substrate controlling crack growth
- Excellent and new PVD oxide film with oxidation and heat resistance overcoming the limit of hard-to-cut materials machining
- Stable machinability by preventing welding and chipping due to applying special coating surface treatment

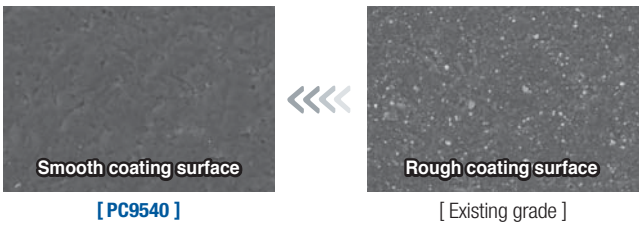
Features



New PVD dioxide film (comparison of thermal conductivity)

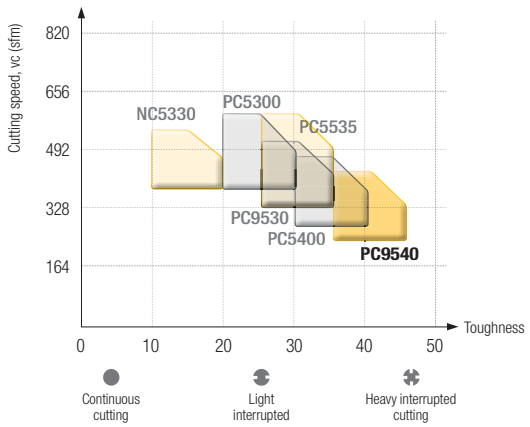


Special coating surface treatment technology

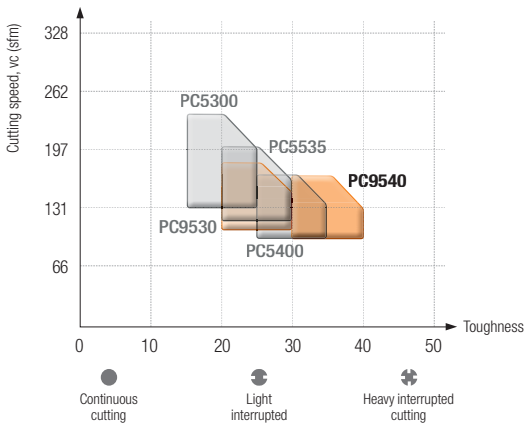


Application range

M Stainless steel



S Heat resistant alloy



PVD Coated Grades

PVD coated grades for finishing high hardened steel

PC2005/PC2010/PC2015

- Finishing grade lineup for tool steel and plastic die steel
- PC2005 with extremely hard substrate and coatings
- PC2010 with high hardened cutting edges, ideally suited for pre-hardened steel and interrupted cutting
- PC2015 for carbon steel and casting machining, demonstrating excellent performance in hard-to-cut materials

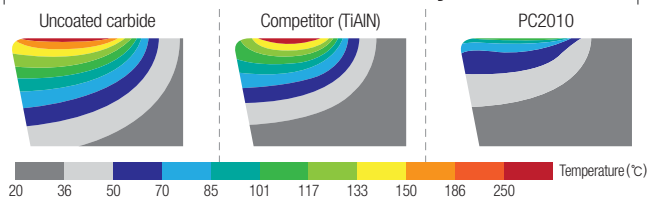
Features

Wear comparison



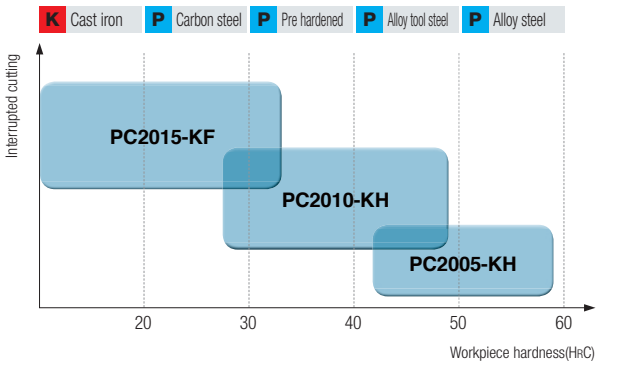
[PC2010] [Competitor]

Result of heat conductivity



Application guideline per workpiece

Recommended grade and chip breaker



- Heat shield coating was applied to prevent thermal crack
- Ultra fine WC was combined with high contents cobalt to be optimized for machining pre-hardened steel

PVD coated grades for roughing high hardened steel

PC2505/PC2510

- Roughing grade series for high hardened steel
- PC2505 with excellent wear resistance, ideal for machining die steel and high hardened steels over HRC50
- PC2510 with stabilized toughness, ideal for interrupted cutting of high hardened steel and wet cutting accompanied by massive thermal shock

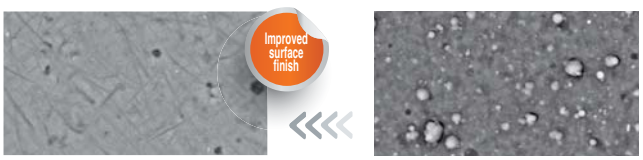
Features

Ultra fine substrate with high toughness



[Ultra fine grade] [Fine grade]

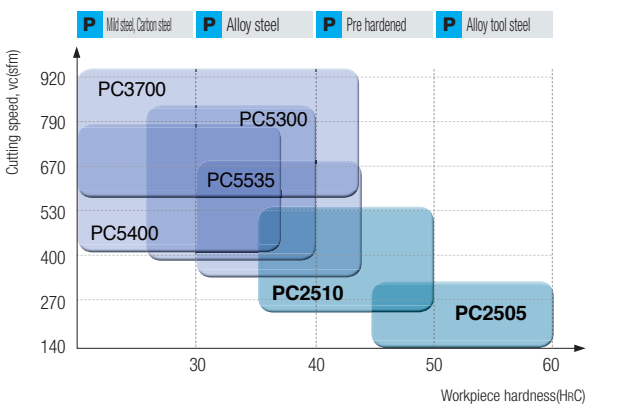
Surface treatment



[After surface treatment] [Normal coating]

Application guideline per workpiece

Recommended grade and chip breaker



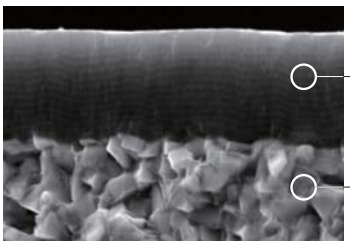
PVD Coated Grades

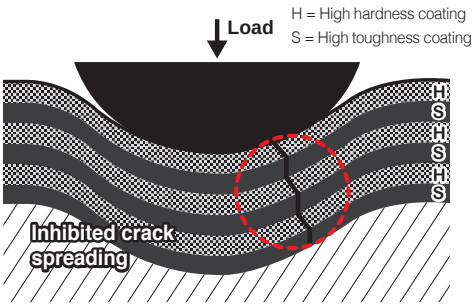
Universal PVD grade

PC5400

- New PVD coating layer with high toughness and lubrication
- High adhesive strength and toughness between the substrate and coating layer
- Excellent cutting edge strength and chipping resistance ensure stable machinability for P, M, K, S.

Features





Crack creation on the coating surface after leaving an indentation by 60kg



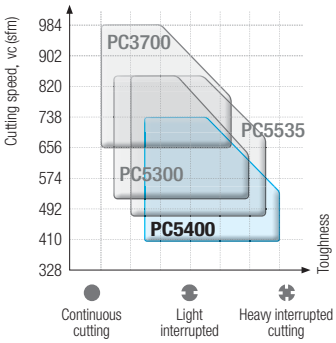
[High toughness coating]



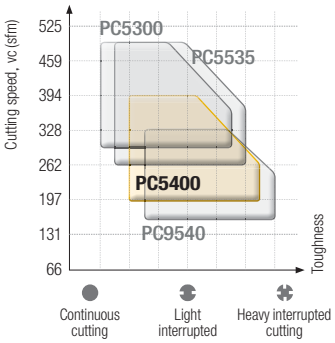
[Normal coating]

Application range

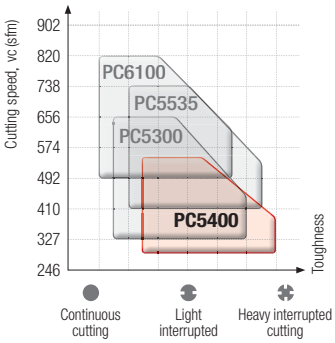
P Steel



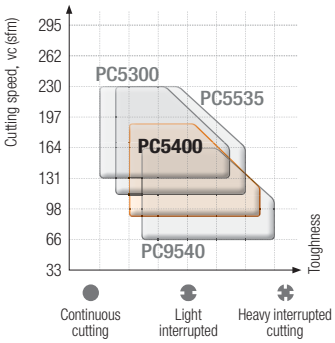
M Stainless steel



K Cast iron



S Heat resistant alloy



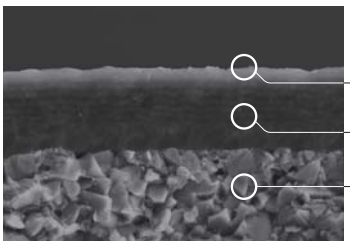
PVD Coated Grades

Exclusive universal grade for indexable drill insert

PC5335

- Excellent machining stability due to high toughness ultra fine substrate
- Enhanced cutting due to high lubricated coating layer with welding resistance
- Optimal and general grade in various drilling

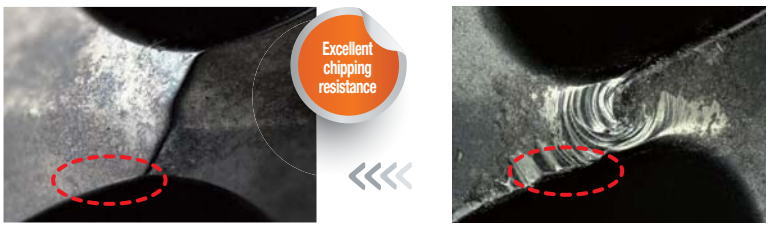
Features



Applying exclusive PVD coating KROEX-Tech™ and optimal substrate in drilling

- Good welding resistance due to applying lubricated coating layer
- Balance of wear resistance and chipping resistance from high hardness layer and high toughness layer
- Good fracture resistance and cutting stability due to optimal high toughness substrate in drilling

Point polishing-Tech™



[PC5335]

[Competitor]

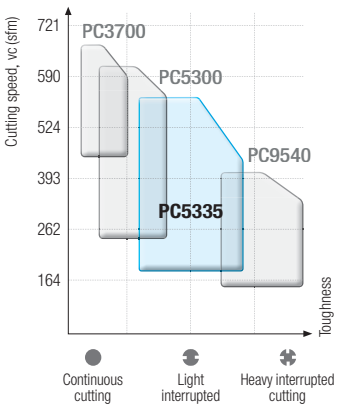
» Stable shape of cutting edge

» Fracture of cutting edge due to brittleness wear

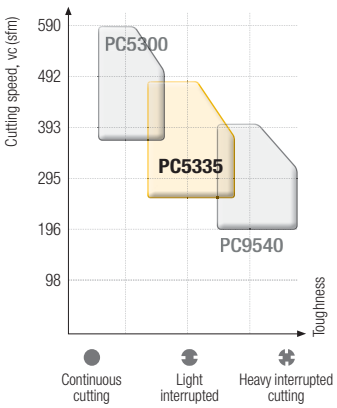
- Cutting stability by point polishing tech, special cutting edge treatment technology

Application range

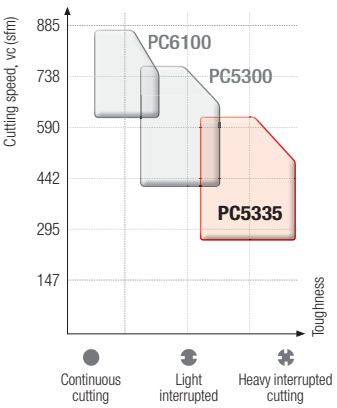
P Steel



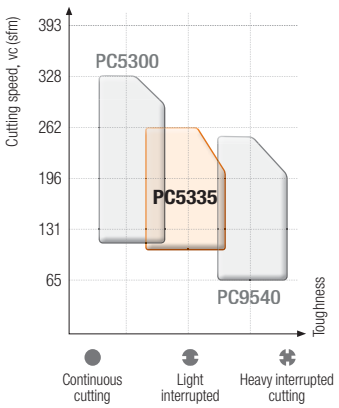
M Stainless steel



K Cast iron



S Heat resistant alloy



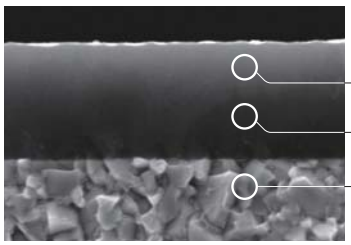
PVD Coated Grades

PVD insert for general milling

PC5535

- General use due to high toughness substrate with balance of wear resistance and toughness
- Maximized tool life by applying the omega tech overcoming primary troubles in milling
- Achieved stable cutting by implementing Edge-Tech™ and preventing welding, chipping and unexpected fracture
- PVD coated grade optimized for general milling

Features

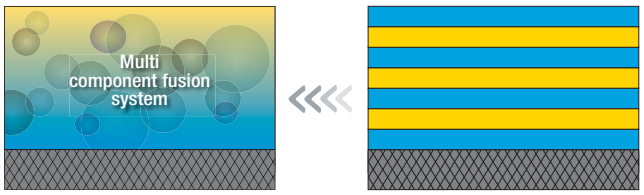


Omega-Tech™ - PVD applying PVD fusion coating technology

- Maximized coating performance by applying exclusive PVD fusion coating technology
- Increased adherence between substrate and coating layer with the application of newly designed layer
- Fine substrate with balance of wear resistance and toughness



Omega-Tech™



[PC5535] [Competitor]

- One strong coating layer unifying various components
- Enhanced general use and cutting performance due to increased mechanical and chemical stability

Edge-Tech™ - Applying high lubricated edge technology

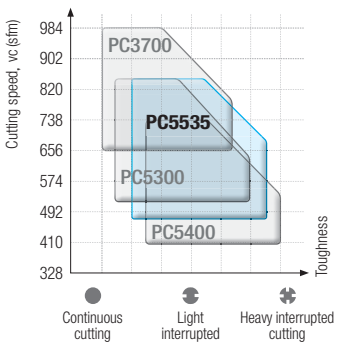


[PC5535] [Competitor]

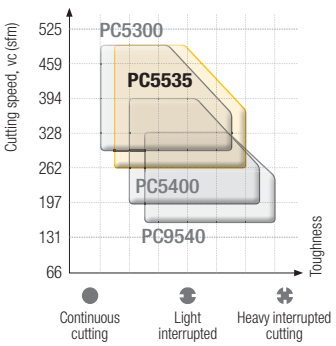
- Preventing welding, chipping and unexpected fracture
- Longer tool life and stable cutting

Application range

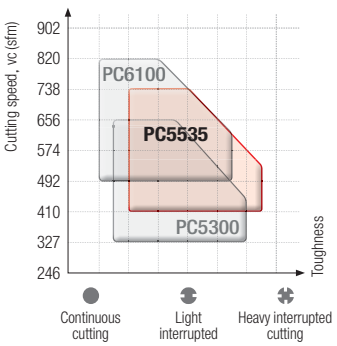
P Steel



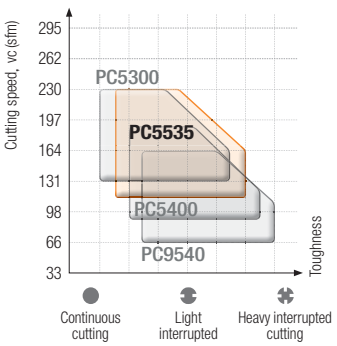
M Stainless steel



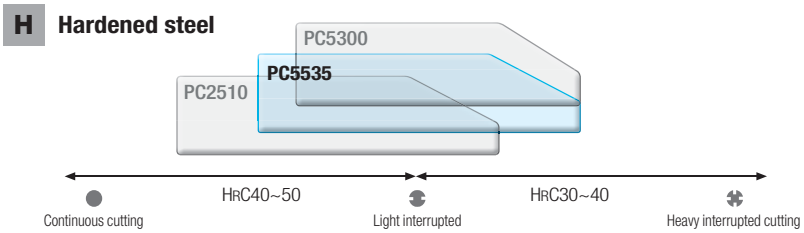
K Cast iron



S Heat resistant alloy



H Hardened steel



Selection system of PVD coated grades

Workpiece		Machining types	Recommended grade	Recommended cutting speed (sfm)	ISO	Application range
P	Steel	Continuous cutting	PC3700	771 (591 ~ 2690)	P30	PC3700 PC5300 PC5535 PC5400
		Interrupted cutting	PC5300	640 (492 ~ 787)	P40	
			PC5400	476 (262 ~ 689)	P50	
M	Stainless steel	Continuous cutting	PC5300	427 (328 ~ 525)	M20	PC5300 PC9530 PC5535 PC5400 PC9540
			PC9530	427 (328 ~ 525)	M30	
		Interrupted cutting	PC5400	394 (312 ~ 509)	M40	
			PC9540	361 (262 ~ 459)	M50	
K	Cast iron	Continuous cutting	PC6100	591 (459 ~ 755)	K10	PC6100 PC5535 PC5300 PC5400
		Interrupted cutting	PC5300	476 (361 ~ 591)	K20	
			PC5400	410 (279 ~ 525)	K30	
S	HRSA	Continuous cutting	PC5300	180 (131 ~ 230)	S20	PC5300 PC9530 PC5535 PC5400 PC9540
		Interrupted cutting	PC5400	131 (98 ~ 164)	S30	
			PC9540	131 (98 ~ 164)	S40	
H	High hardness steel	Continuous cutting	PC2005	197 (131 ~ 262)	H01	PC2005 PC2010 PC2015 PC210F PC2505 PC2510
			PC2010	180 (131 ~ 230)	H10	
			PC2015	164 (115 ~ 213)	H20	
			PC210F	164 (115 ~ 213)	H30	

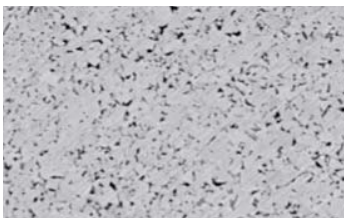
The features of PVD coated grades

PVD Coated grades	ISO	Features
PC3700	P30 ~ P40	• Exclusive grade for steel milling • Lubricated and high hardness multi-layered coating
PC5300	P30 ~ P40 K20 ~ K30 M20 ~ M30 S15 ~ S25	• Superior universal grade for steel, cast iron, hard to cut material, stainless steel • New coating and ultra fine grain provide wear resistance and oxidation resistance • TiAlN Series new coating
PC5535	P30 ~ P40 S20 ~ S30 M25 ~ M35 H15 ~ H25 K15 ~ K25	• General use for all kinds of workpiece materials milling; P, M, K, H and S • Long tool life and stable machining due to PVD Omega-Tech™ and Edge-Tech™
PC5400	P35 ~ P45 K25 ~ K35 M30 ~ M40 S25 ~ S35	• Universal grade for interrupted machining of steel, cast iron, hard-to-cut materials and stainless steel with stable machinability • New coating layer with high toughness and lubrication on ultra fine grain substrate with high toughness • AlCrN series new coating
PC6100	K05 ~ K15	• PVD Ion plus-Tech™ provides long tool life and stability • The optimal substrate for cast iron cutting with coating adherence technology ensures regular tool life
PC9530	M25 ~ M35 S20 ~ S30	• Medium to rough cutting of hard to cut materials such as stainless steel, Cr-Ni steel, etc. • The toughest sub-micron substrate provides excellent cutting performance at high feed • TiAlN coating
PC9540	M35 ~ M45 S30 ~ S40	• Exclusive high toughness grade for stainless steel milling • PVD dioxide film with good heat resistance
PC2005	H01 ~ H10 P01 ~ P10 K01 ~ K10	• Exclusive for Laser Mill in milling of high hardness workpieces and press mold steel • Utmost wear resistance due to high hardness substrate and coating • Ultra high hardness K-Brown coating
PC2010	H05 ~ H15 P05 ~ P15 K05 ~ K15	• Exclusive for Laser Mill in milling of pre-hardened steel and plastic mold steel • High hardness enhanced cutting edges due to ultra fine WC and high contents binder for expanding application range to high hardness steel and pre-hardened steel • Ultra high hardness K-Brown coating
PC2015	H10 ~ H20 P10 ~ P20 M10 ~ M20 K10 ~ K20	• Exclusive for Laser Mill in milling of carbon steel and cast • Highly lubricative K-silver coating • Lubricative coating layer and high contents substrate for machining mild steel and hard-to-cut cast materials
PC210F	H10 ~ H20 P10 ~ P20 M10 ~ M20 K10 ~ K20	• High speed milling grade for hardened steel, cast iron, and stainless steel(Laser Mill) • New coating and ultra fine grain provide wear resistance and oxidation resistance • TiAlN Series new coating
PC2505	H01 ~ H10 P01 ~ P10	• Roughing grade for high hardened steel and pressed die steel • Excellent wear resistance ideal for machining die steel and high hardened steel over HRC50
PC2510	H05 ~ H15 P05 ~ P15	• Roughing grade for pre-hardened steel and plastic die steel • Stabilized toughness ideal for interrupted cutting of high hardened steel and wet cutting accompanied by massive thermal shock

Uncoated Carbide Grades

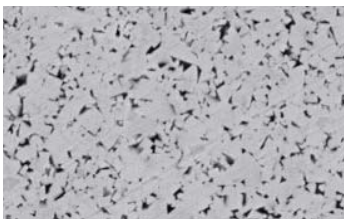
Uncoated carbide grades for turning application of titanium

H01



- Increased wear resistance and chipping resistance with the use of ultra fine substrate
- Improved welding resistance and chipping resistance with the use of special surface treatment and sharp cutting edge of VP chip breaker
- Excellent tool life when finishing titanium alloy at high speed

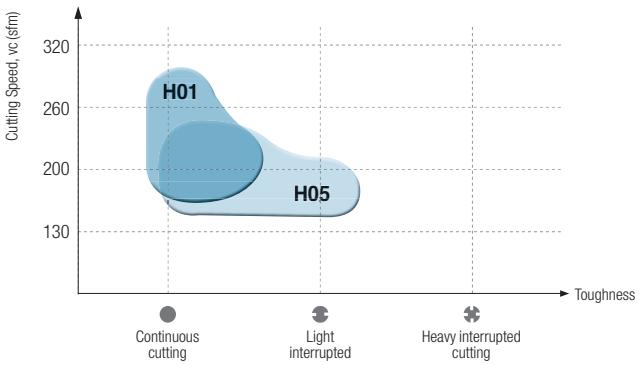
H05



- The 1st recommended grade for machining titanium alloy in a variety of cutting conditions
- Improved welding resistance and chipping resistance with the use of special surface treatment and sharp cutting edge of VP chip breaker
- Ideal for medium cutting of titanium alloy

Grade line up

Titanium alloy



Selection system of uncoated carbide grades

Workpiece		Recommended grade	Recommended cutting speed (sfm)	ISO	Application range
P	Steel	ST30A	230 (131 ~ 295)	P30	ST30A
K	Cast iron	H01	344 (197 ~ 459)	K01	
		H05	344 (197 ~ 459)	K10	H01, H05
		G10	361 (164 ~ 394)	K20	G10
N	Non-ferrous metal (Aluminum alloy, Copper alloys)	H01	1969 (1476 ~ 2461)	N10	H01
		H05	1394 (1050 ~ 1739)	N20	H05

Main composition and application range

Workpiece	Composition	Features	Workpiece
P	WC-TiC-TaC-Co	Heat resistance, excellent plastic deformation resistance	Carbon steel, Alloy steel, Stainless steel
M	WC-TiC-TaC-Co	General tools stable heat resistance with strength	Carbon steel, Alloy steel, Stainless steel, Cast steel
K	WC-Co	High strength and superior wear resistance	Cast iron, Non-ferrous metal, Plastic, etc.
S	WC-Co	Excellent wear resistance and chipping resistance	Titanium alloy

Cermet Grade

Cermet grade for Milling of steel

CN30

- High temperature hardness substrate ensures long tool life in high speed milling
- High toughness cutting edge ensures long tool life even in high impact machining
- Chemically stable substrate provides excellent surface finish of the workpiece

Selection system

Workpiece		Machining types	Grade	Recommended cutting speed (sfm)	ISO	Application range
P	Steel	Interrupted cutting	CN30	492 (328 ~ 656)	P30	CN30

Selection system

Grade	ISO	Features
CN30	P25 ~ P35	• For milling of steel • Cermet with high toughness

The physical properties of cermet grades

Workpiece		Grade	Hardness (Hv)	TRS (kgf/mm^2)	SG (g•cm-3)
P	Steel	CN30	< 1500	240 <	7.0 ~ 7.3

Diamond Coated Grades

Diamond coating grade for Non-ferrous steel

ND3000

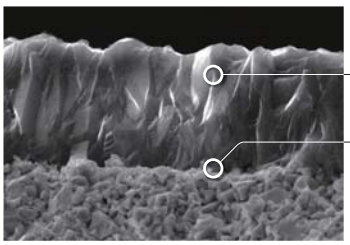
- SP3-crystalline diamond coatings of high purity and high hardness
- Improved adhesion between coated layers and the substrate that is specialized for diamond coatings
- Excellent tool life when machining graphite and ceramic

Features

ND3000

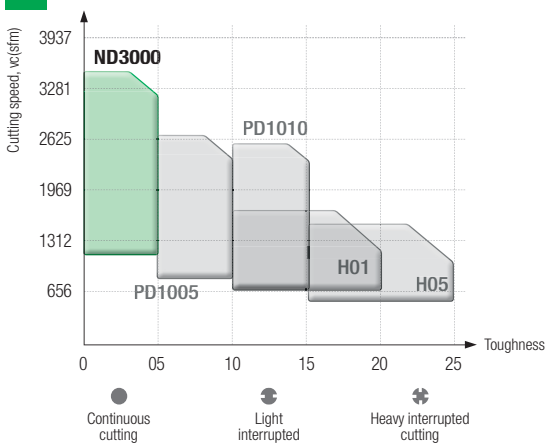


Cross section of ND3000's coated layers



Application range

N **Non-ferrous metal**



Selection system

Workpiece			Grade	ISO	Application range
N	Non-ferrous	Graphite/ Ceramic	ND3000	N01	ND3000
		Al alloy	ND3000	N05	

The features of diamond coated grades

Grade	ISO	Features
ND3000	N01 ~ N05	• For continuous roughing of graphite, ceramic, and Al alloy at high speeds • Exceptional cutting performance due to high resistance to wear and flaking • High hardness diamond coatings of high purity SP3-crystalline structure

DLC Coated Grades

DLC-coated Inserts for non-ferrous steel

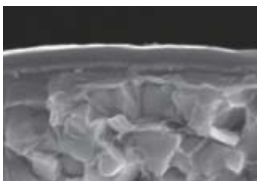
PD1005/PD1010

- High hardness and low friction DLC coating technology
- Lubrication and maximized wear resistance increase machinability and machining quality
- Optimal substrate for each workpiece ensures stable and long tool life
- For non-ferrous metals such as aluminum, Al-Si alloy, copper and etc. machining

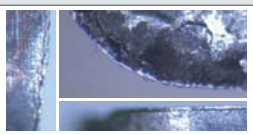
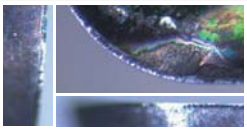
Features



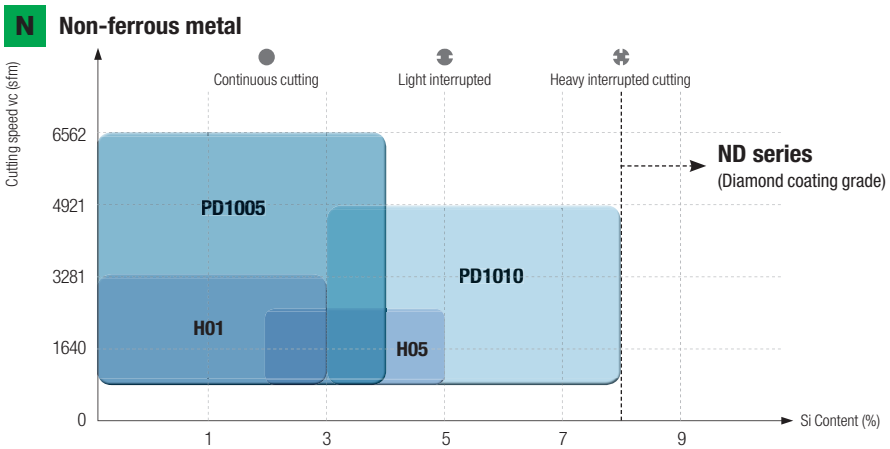
Smooth coating surface



Hard DLC coating

Grade	Wear resistance and Welding resistance	Surface finish	Chip curl
Carbide non coated			
DLC PD1010			

Application range



Selection system

Workpiece			Grade	ISO	Application range
N	Non-ferrous	Aluminum and copper (Soft non-ferrous metals)	PD1005	N05	PD1005
		Aluminum alloy	PD1005 PD1010	N10	
		Al-Si alloy (Hardened non-ferrous metals)	PD1010	N15	PD1010

The features of DLC coating grades

Grade	ISO	Features
PD1005	N05~N10	• For high speed and continuous machining of Aluminum and copper • High wear and welding resistance realize good machinability • High performance of DLC coating with high hardness and low friction
PD1010	N10~N15	• For medium to high and interrupted machining of aluminum alloy and Al-Si alloy • Stable tool life due to substrate with chipping resistance • High performance DLC coating with high hardness and low friction

PCD Insert Grades

PCD Insert grade for non-ferrous steel

DP90/DP150/DP200

- Excellent tool life for aluminum alloy and copper alloy
- Excellent tool life for ceramic, high-silicon aluminum and rock or stone
- Excellent tool life for rubber, carbon, graphite and wood

Features

KORLOY PCD products are manufactured by using high quality PCD tips under ultra high temperatures and pressure. The PCD tip is welded on the qualified KORLOY carbide insert
KORLOY high quality PCD products meet a wide range of application needs in turning, milling, and endmills

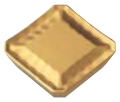
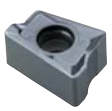
PCD grade

Grade	Features	Application	Grain size (㎛)	Force of resistance(Gpa)
DP90	Coarse diamond grain has been used to get excellent wear resistance enough to machine cemented-carbide, high Si aluminum alloy	Cemented carbide Ceramic roughing High Si aluminum alloy Rock, Stone	25 ~ 30	≒1.10
DP150	By use of fine diamond grain having good bonding property, it is suitable for machining of Non-ferrous metal, graphite	High Si aluminum alloy Copper, Bronze alloy Rubber, Wood, Carbon	5 ~ 10	≒1.95
DP200	By use of ultra fine diamond grain, it is possible to make sharp cutting edge. Thus it is appropriate grade to machine Non-ferrous material	Plastic Wood Precise finishing of aluminum	~ 2	≒2.45

Recommended cutting condition

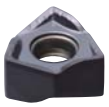
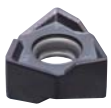
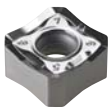
Workpiece	Cutting speed (sfm)	Feed (ipr)	Depth of cut (inch)	Recommended grade	
				1st	2nd
Aluminum alloy (4%~8%Si)	3281 ~ 9843	0.004 ~ 0.024	~ 0.118	DP150	DP200
Aluminum alloy (9%~14%Si)	1969 ~ 8202	0.004 ~ 0.020	~ 0.118	DP150	DP200
Aluminum alloy (15%~18%Si)	984 ~ 2297	0.004 ~ 0.016	~ 0.118	DP150	DP200
Copper, Bronze alloy	~ 3281	0.002 ~ 0.008	~ 0.118	DP150	DP200
Reinforced plastic	~ 3281	0.004 ~ 0.012	~ 0.08	DP150	DP200
Wood	~ 13123	0.004 ~ 0.016	-	DP150	DP200
Cemented carbide	33 ~ 98	~ 0.008	~ 0.02	DP90	DP150

Chip Breakers for Milling

		Picture	Cutting edge	Application range Feed rate fn (ipt) 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.031 0.047 0.055 0.063 Depth of cut ap (inch) 0.004 0.020 0.039 0.079 0.118 0.157 0.197 0.236 0.315 0.394 0.591 0.787	Features
MX series	MX			0.004~0.012 0.039~0.197	**For Roughing** • Possible to increase productivity through increase feed and depth • Excellent heat resistance due to the special chip breaker design of top face of insert
Mill-max Heavy	MM			0.008~0.016 0.079~0.551	**For Roughing** • Specialized tool for high depth of cut roughing with high rigidity cutting edge ensures stable machining.
Rich Mill series-RM3	MA			0.002~0.016 0.039~0.315	**For Aluminum machining** • Sharp cutting edge for low cutting load, which is ideal for machining steel, hard-to-cut materials and aluminum
	ML			0.002~0.012 0.039~0.315	**For machining hard-to-cut materials** • Low cutting resistance for light cutting and machining hard-to-cut materials with excellent tool life and surface roughness
	MM			0.002~0.014 0.039~0.315	**For General cutting** • Available for most of applications with universal design for general milling
Rich Mill series-RM4	MA			0.002~0.010 0.012~0.551	**For Aluminum machining** • Sharp cutting edge design ensures low cutting resistance and excellent machining in difficult-to-cut materials, aluminum and light machining
	MF			0.002~0.012 0.020~0.551	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	MM			0.002~0.012 0.039~0.551	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining

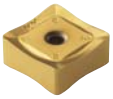
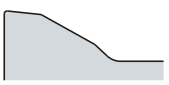
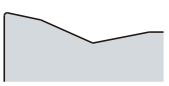
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

		Picture	Cutting edge	Application range Feed rate fn (ipt) 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.031 0.047 0.055 0.063 Depth of cut ap (inch) 0.004 0.020 0.039 0.079 0.118 0.157 0.197 0.236 0.315 0.394 0.591 0.787	Features
Rich Mill series-RM6	MA			0.002~0.008 0.039~0.323	**For Aluminum machining** • Specialized sharp cutting edge for aluminum machining ensures machinability. • Buffing treatment on the surface realizes good chip flow and welding resistance.
	ML			0.002~0.010 0.039~0.323	**For Machining hard-to-cut materials** • Low cutting load chip breaker for light cutting • Long tool life and high quality of machining in hard-to cut material cutting
	MM			0.002~0.010 0.039~0.323	**For General cutting** • Optimally designed shape for general shoulder milling in various cutting ranges
Rich Mill series-RM8	MA			0.002~0.014 0.012~0.236	**For Aluminum machining** • Sharp cutting edge and lubricated top face show excellent chip flow and welding resistance in aluminum machining
	MF			0.002~0.014 0.012~0.236	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	ML			0.002~0.012 0.012~0.236	**For Machining hard-to-cut materials** • Chip breaker with low cutting load resistance ensures long tool life and high quality in light and difficult-to-cut material cutting.
	MM			0.004~0.016 0.020~0.236	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
Rich Mill series-RMT8	MF			0.002~0.008 0.020~0.197	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining

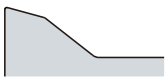
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

Picture		Cutting edge	Application range Feed rate fn (ipt) 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.031 0.047 0.055 0.063 Depth of cut ap (inch) 0.004 0.020 0.039 0.079 0.118 0.157 0.197 0.236 0.315 0.394 0.591 0.787	Features
Rich Mill series-RMT8	MM 		0.002~0.012 0.020~0.315	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
Rich Mill series-RM8-X	ML 		0.002~0.012 0.020~0.217	**For Machining hard-to-cut materials** • Stable tool life and good cutting quality in hard-to-cut material cutting due to double reverse positive relief surface and low cutting load chip breaker
	MM  SAGX		0.002~0.012 0.020~0.217	**For high hardness cutting** • Stable tool life and good cutting quality due to double reverse positive relief surface and high rigidity chip breaker
	MM  SNMX		0.004~0.012 0.020~0.217	**For General cutting** • For general cutting range with optimal shape for general milling
Rich Mill series-RM14	ML  Neutral		0.002~0.012 0.039~0.118	**For HRSA cutting** • Excellent cutting performance in heat resistance STS cutting from neutral type flat cutting edge and sharp chip breaker
	ML  Right-handed		0.002~0.012 0.039~0.118	**For cast iron and STS cutting** • Excellent cutting performance in general STS and cast iron cutting from right-handed helix cutting edge and sharp chip breaker
Rich Mill series-RM16	MA 		0.002~0.012 0.012~0.217	**For Aluminum machining** • Sharp cutting edge design ensures low cutting resistance and excellent machining in difficult-to-cut materials, aluminum and light machining
	MF 		0.002~0.016 0.012~0.217	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining

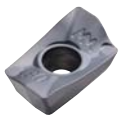
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

		Picture	Cutting edge	Application range Feed rate fn (ipt) 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.031 0.047 0.055 0.063 Depth of cut ap (inch) 0.004 0.020 0.039 0.079 0.118 0.157 0.197 0.236 0.315 0.394 0.591 0.787	Features
Rich Mill series-RM16	ML			0.002~0.014 0.012~0.217	**For Machining hard-to-cut materials** • Low cutting resistance for excellent tool life and surface roughness in machining hard-to-cut materials
	MM			0.004~0.018 0.020~0.217	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
	W			0.002~0.012 0.012~0.079	**For Finishing of milling (Wiper)** • Wiper insert provides improved surface roughness due to special cutting edge
Rich Mill series-RMR	ML			0.002~0.016 0.039~0.118	**For Machining hard-to-cut materials** • Stable tool life and cutting performance in hard-to-cut material cutting from hard clamping side preventing reverse positive revolution and low cutting resistance chip breaker
Alpha Mill series	MA			0.004~0.016 0.020~0.630	**For Aluminum machining** • Sharp cutting edge and lubricated top face show excellent chip flow and welding resistance in aluminum machining
	MF			0.002~0.006 0.020~0.630	**For Light cutting** • Low cutting force chip breaker design ensures longer tool life and excellent machining in difficult-to-cut material and light machining
	MM			0.004~0.010 0.020~0.630	**For General cutting** • Suitable geometry design for general milling has wider ranges of machining
	ML			0.002~0.006 0.020~0.630	**For Machining hard-to-cut materials** • The chip breaker with low cutting resistance ensures superior machinability in hard-to-cut materials

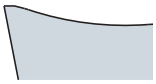
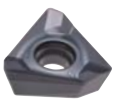
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

Picture	Cutting edge	Application range (Feed rate fn (ipt): 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.031 0.047 0.055 0.063 / Depth of cut ap (inch): 0.004 0.020 0.039 0.079 0.118 0.157 0.197 0.236 0.315 0.394 0.591 0.787)	Features
Alpha Mill series — MN 		0.004~0.010 0.020~0.630	**For Roughing (nick)** • Design for easy chip cutting ensures high machinability in roughing
Alpha Mill-X series — MM 		0.002~0.014 0.039~0.650	**For General cutting** • Shape for general milling with most cutting range
Alpha Mill-X series — ML 		0.002~0.012 0.039~0.650	**For Hard-to-cut material machining** • Chip breaker for cutting with low cutting load guarantees long tool life and qualified machining in light cutting and HRSA machining
Future Mill series — MF 		0.002~0.008 0.020~0.197	**For Light cutting** • Special design for light cutting of gummy materials like stainless steel and hard to machine material provide fine surface finish and longer tool life
Future Mill series — MM 		0.002~0.012 0.039~0.197	**For General cutting** • Chip breaker design to cover general cutting condition provides wide available application range • Ground type and sintered type are
Future Mill series — MR 		0.002~0.014 0.059~0.197	**For Roughing** • Strongest cutting edge strength provide stable tool life even in case of severe cutting with heavy intermittent and heavy roughing
Future Mill series — MA 		0.004~0.014 0.020~0.197	**For Aluminum machining** • Sharp cutting edge and lubricated top face show excellent chip flow and welding resistance in aluminum machining
Future Mill series P-posi — MA 		0.012~0.024 0.012~0.236	**For Aluminum machining** • Excellent surface roughness due to buffed surface in machining aluminumt

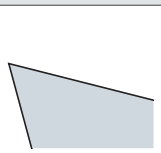
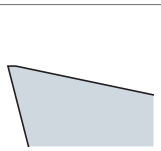
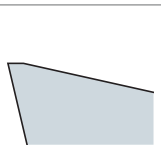
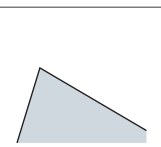
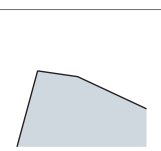
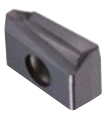
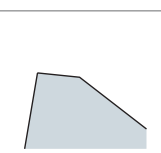
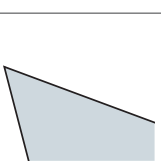
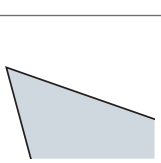
Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

		Picture	Cutting edge	Application range (Feed rate fn (ipt) 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.031 0.047 0.055 0.063 / Depth of cut ap (inch) 0.004 0.020 0.039 0.079 0.118 0.157 0.197 0.236 0.315 0.394 0.591 0.787)	Features
Future Mill series P-posi	ML			0.012~0.020 0.012~0.118	**For Hard-to-cut material machining** • Low cutting resistance and high hardness cutting edges for excellent surface roughness in machining titanium and Inconel
	MF			0.005~0.020 0.012~0.236	**For Light cutting** • Low cutting resistance for light cutting
	MM			0.008~0.028 0.012~0.236	**For General cutting** • Universal purpose for most of milling applications
	None C/B			0.012~0.020 0.012~0.020	**For Machining high hardness steel** • Ideal for machining high hardness mold steel and heat resistant alloy
Triple Mill series	ML			0.004~0.012 0.039~0.610	**For Hard-to-cut material machining** • Stable tool life and cutting performance in hard-to-cut material cutting due to low cutting load chip breaker
	MM			0.004~0.012 0.039~0.610	**For General cutting** • For general cutting range with optimal shape for general milling
HFM	MF			0.012~0.039 0.004~0.016	**For Light cutting** • Chip breaker for cutting with low cutting load is optimal for light cutting
	None C/B			0.012~0.031 0.004~0.016	**For Machining high hardness steel** • Shape with hard cutting edge is optimal for high hardness alloy steel machining

Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

	Picture	Cutting edge	Application range	Features
			Feed rate fn (ipt): 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.031 0.047 0.055 0.063 Depth of cut ap (inch): 0.004 0.020 0.039 0.079 0.118 0.157 0.197 0.236 0.315 0.394 0.591 0.787	
HFMD	ML			**For Hard-to-cut material machining** • Chip breaker for cutting with low cutting load and hard cutting edge ensure high qualified machining
HFMD	MF			**For Light cutting** • Chip breaker for cutting with low cutting load is for light cutting
HFMD	MM			**For General cutting** • Shape for general machining with high feed is available for most machining range
TP2P	MA			**For Aluminum machining** • Sharp cutting edge for aluminum machining ensures good machinability • Buffed surface realizes chip flow and welding resistance
TP2P	ML			**For Hard-to-cut material machining** • Chip breaker for cutting with low cutting load guarantees long tool life and qualified machining in light cutting and HRSA machining
TP2P	MM			**For General cutting** • Specialized shape for general slotting is applicable in most cutting ranges
Pro-XL Mill	MA			**For Aluminum machining** • Sharp cutting edge with buffing on the surface for aluminum machining ensures chip flow and welding resistance
Pro-V Mill	MA			**For Aluminum machining** • Shape for general slotting is applicable in most cutting ranges

Notice: Application ranges are based on main cutting material

Chip Breakers for Milling

	Picture	Cutting edge	Application range Feed rate fn (ipt): 0.002 0.004 0.006 0.008 0.010 0.012 0.014 0.016 0.031 0.047 0.055 0.063 Depth of cut ap (inch): 0.004 0.020 0.039 0.079 0.118 0.157 0.197 0.236 0.315 0.394 0.591 0.787	Features
King Drill series	PD		0.002~0.008 2.362~11.811	**For General cutting** • Chip breaker with strong cutting edge for universal applications with steel, stainless steel, and cast iron
	LD		0.002~0.006 1.575~9.843	**For Light cutting** • Superior chip control in machining of mild steel, forged steel and stainless steel
	RD		0.002~0.008 2.362~11.811	**Reinforced chipping resistance** • Improved central chipping resistance due to reinforced corners of the King Drill central inserts • Excellent cutting performance even in machining where there is frequent corner breakage of central inserts • e.g. Machining heat-treated steel or stainless steel, and high feed machining, etc.
	ND		0.002~0.004 3.937~15.748	**Non-ferrous metals** • Chip breaker with sharp and polished cutting edge for aluminum and Non-ferrous metals. Machining with King Drill ensures good chip flow and resistance to chip welding

• Notice: Application ranges are based on main cutting material

PART B

MILLING

Milling tools that provide the best quality and improve productivity for every customer needs.

Technical Information for MILLING

Insert

B2 Milling Insert Code System (ISO)
B4 Milling Inserts
B35 KORLOY Cutters
B42 KORLOY Shanks
B45 KORLOY Modular Adaptors

Face Milling Cutters

B47 Mill Max / Mill Max Plus
B57 Turbo Mill
B60 Double Mill
B62 Technical Information for Power Buster
B65 Power Buster
B68 Technical Information for Rich Mill
B69 Rich Mill Table
B75 Technical Information for Rich Mill RM3
B78 Rich Mill RM3
B84 Technical Information for Rich Mill RM4
B90 Rich Mill RM4
B105 Technical Information for Rich Mill RM6
B108 Rich Mill RM6
B114 Technical Information for Rich Mill RM8
B116 Rich Mill RM8
B126 Technical Information for Rich Mill RMT8
B127 Rich Mill RMT8
B132 Technical Information for Rich Mill RM8-x
B136 Rich Mill RM8-x
B137 Technical Information for Rich Mill RM14
B140 Rich Mill RM14
B141 Technical Information for Rich Mill RM16
B142 Rich Mill RM16
B144 Technical Information for Rich Mill RMR
B146 Rich Mill RMR
B148 Technical Information for Aero Mill
B150 Aero Mill
B151 Technical Information for Aero Mill Plus
B152 Aero Mill Plus
B154 Technical information for Aero Mill Mini
B155 Aero Mill Mini
B157 PCD Face Cutter

Cutters for Molds

B158 Technical Information for Alpha Mill-X
B162 Alpha Mill-X
B167 Technical Information for Alpha Mill
B173 Alpha Mill
B202 Technical Information for Future Mill
B224 Future Mill
B238 Technical Information for FMR P-Positive
B243 FMR P-Positive
B255 Technical Information for Triple Mill
B258 Triple Mill
B262 Technical Information for HQM
B268 HQM
B272 Technical Information for HFMD
B276 HFMD
B286 Technical Information for HFM
B289 HFM
B292 Technical Information for HRMDouble
B297 HRMD
B308 HRM
B315 Tank Mill
B316 Technical Information for TP2P
B319 TP2P
B325 Technical Information for TP8P
B327 TP8P
B329 Technical Information for Laser Mill
B333 Laser Mill



B338 Technical Information for GBE
B341 GBE
B344 Technical Information for BRE
B345 BRE
B347 Technical Information for Chamfer Tool
B349 Chamfer Tools
B351 Multi-functional Chamfer Tool
B352 T-Cutter

Milling Cutter for Aluminum

B353 Technical Information for Pro-A Mill
B355 Pro-A Mill
B358 Technical Information for Pro-X Mill
B360 Pro-X Mill
B365 Technical Information for Pro-L Mill
B367 Pro-L Mill
B371 Technical Information for Pro-XL Mill
B372 Pro-XL Mill
B373 Technical Information for Pro-V Mill
B376 Pro-V Mill
B378 Modular Adaptor

Side Milling Cutters

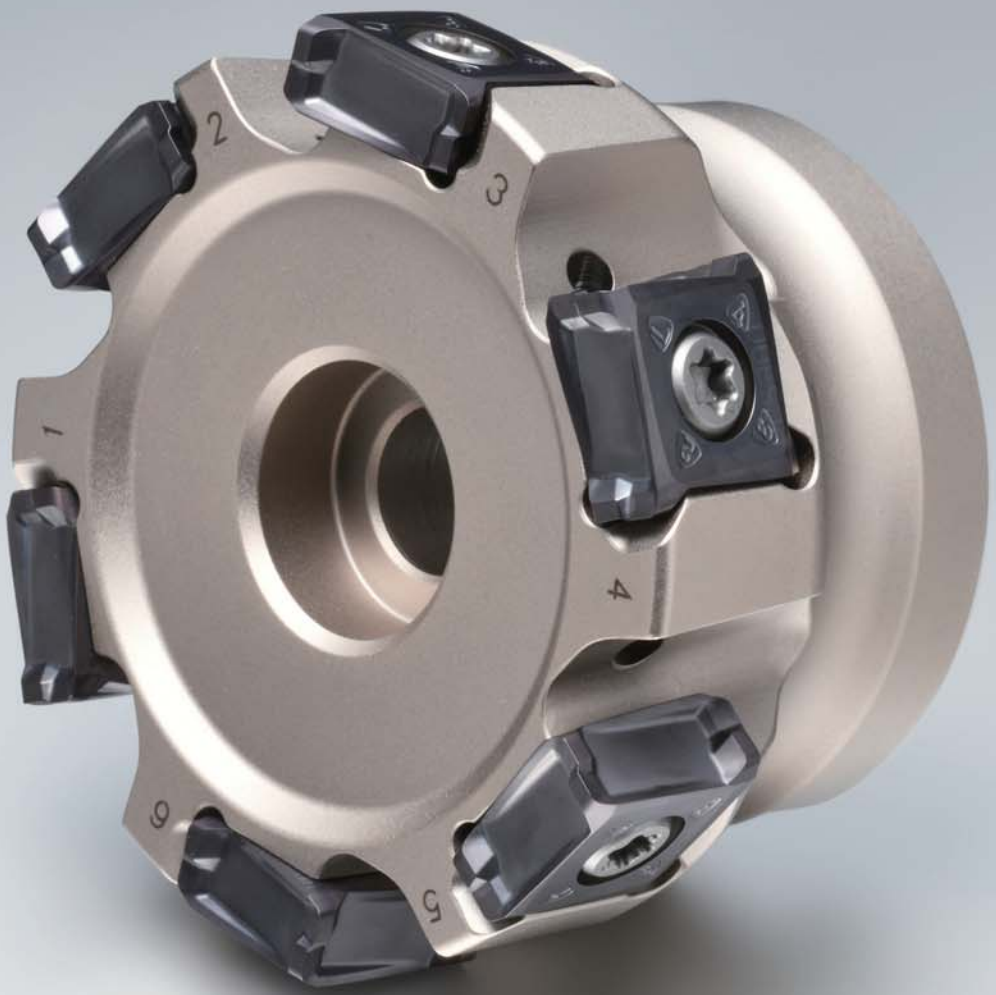
B380 Technical Information for Side Milling Cutters
B383 Side Milling Cutter
B387 Side Cutter
B390 Technical Information for Wind Mill
B391 Wind Mill

High feed Cutter

B393 Technical Information for High feed Cutter
B395 Technical Information for Cube Mill
B396 Technical Information for Couple Mill
B398 Technical Information for Shave Mill
B400 Technical Information for Shave Mill Ultra

Gear Tools

B401 Gear Cutter Applicable Example
B402 Gear Cutter Table
B403 Gear Cutter
B411 Gear Cutter Order Form
B412 Indexable HOB
B413 Indexable HOB Cutter Order Form

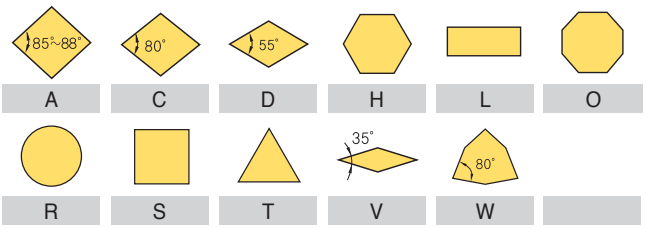




S	P	K	R	4
1	2	3	4	5
Insert shape	Relief angle	Tolerance	Cross section type	Cutting edge length, diameter of inscribed circle

1 Insert shape

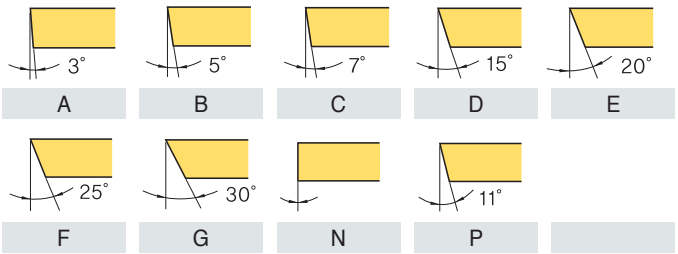
S P K R 4 3 ED/2 S R - MX



A	C	D	H	L	O
R	S	T	V	W	

2 Relief angle

S P K R 4 3 ED/2 S R - MX

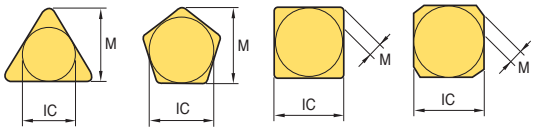


A	B	C	D	E
F	G	N	P	

3 Tolerance

S P K R 4 3 ED/2 S R - MX

IC : Inscribed circle
S : Thickness
M : Refer to figure



(inch)

Class	IC	M	S
A	±0.0010	±0.0002	±0.0010
C	±0.0010	±0.0005	±0.0010
H	±0.0005	±0.0005	±0.0010
E	±0.0010	±0.0010	±0.0010
G	±0.025	±0.0010	±0.0051
J	±0.0020~±0.0059	±0.0002	±0.0010
K	±0.0020~±0.0059	±0.0005	±0.0010
L	±0.0020~±0.0059	±0.0010	±0.0010
M	±0.0020~±0.0059	±0.0032~±0.0079	±0.0051
U	±0.0032~±0.01	±0.0051~±0.0150	±0.0051

Tolerance on C,E,H,M,O,P,R,S,T,W insert shape (exceptional case)

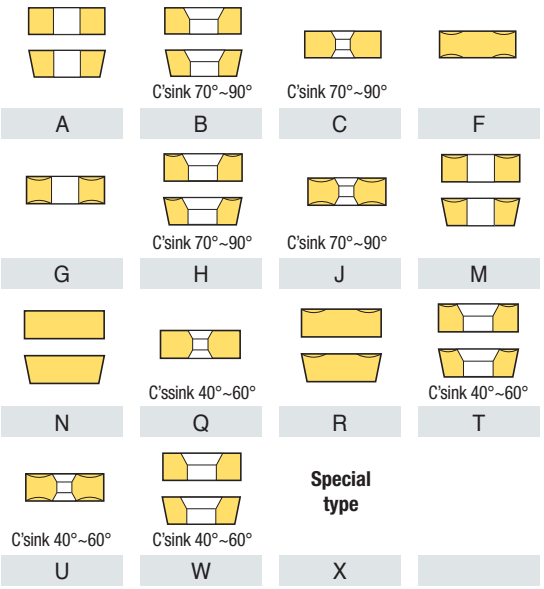
IC	Tolerance on IC		Tolerance on M	
	J,K,L,M,N	U	M,N	U
1/4	±0.0020	±0.0032	±0.0032	±0.0051
3/8	±0.0020	±0.0032	±0.0032	±0.0051
1/2	±0.0032	±0.0051	±0.0051	±0.0079
5/8	±0.0040	±0.0070	±0.0059	±0.0106
3/4	±0.0040	±0.0070	±0.0059	±0.0106
1	±0.0051	±0.01	±0.0070	±0.0150

Tolerance on D insert shape (exceptional case)

IC	Tolerance on IC	Tolerance on M
1/4	±0.0020	±0.0043
3/8	±0.0020	±0.0043
1/2	±0.0032	±0.0059
5/8	±0.0040	±0.0070
3/4	±0.0040	±0.0070

4 Cross section type

S P K R 4 3 ED/2 S R - MX



A	B	C	F
G	H	J	M
N	Q	R	T
U	W	X	

Special type

5 Cutting-edge length, diameter of inscribed circle

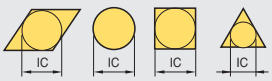
S P K R 4 3 ED/2 S R - MX

• Metric system

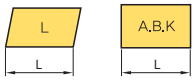
※ Decimal integer constant



• Inch system



· Use 1/32" unit for a insert having smaller I.C under 1/4"
· Use 1/8" unit for a insert having larger I.C over 1/4"



※ In case of rectangular and rhombic insert indicate cutting-edge length instead of inscribed circle.

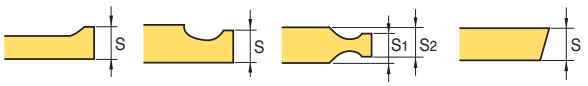
• Cross over chart for "Metric" and "Inch" system

△	06	09	11	16	22	27	33	44
□ ○	03	05	06	09	12	15	19	25
55°	04	06	07	11	15	19	232	31
80°	03	05	06	09	12	16	19	25
Inscribed circle(IC)	5/32"	7/32"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
Inch system	5	7	2(8)	3	4	5	6	8

3	ED 2	S	R	-	MX
6	7	8	9		10
Height of cutting edge	Nose radius (Nose R)	Edge preparation	Hand		Chip breaker for milling

6 Height of cutting-edge

S P K R 4 **3** ED 2 S R - MX

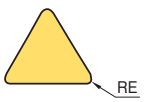


Symbol		Height of cutting-edge (S)	
Metric	Inch	Metric	Inch
01	1(2)	1.59	1/16
T0	1.125	1.79	9/128
T1	1.2	1.98	5/64
02	1.5(3)	2.38	3/32
T2	1.75	2.78	7/64
03	2	3.18	1/8
T3	2.5	3.97	5/32
04	3	4.76	3/16
05	3.5	5.56	7/32
06	4	6.35	1/4
07	5	7.94	5/16
09	6	9.52	3/8
11	7	11.11	7/16
122	8(16)	12.70	1/2

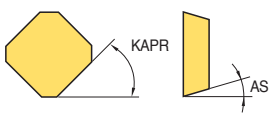
( ) Symbol for small size insert

7 Nose radius (Nose R)

S P K R 4 3 **ED 2** S R - MX



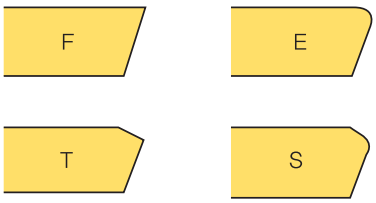
Symbol		RE		Symbol		RE	
Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch
00	0	0.0		12	3	1.2	3/64
02		0.2		15		1.5	
04	1	0.4	1/64	16	4	1.6	4/64
05		0.5		24	6	2.4	6/64
08	2	0.8	2/64	32	8	3.2	8/64
10		1.0		40		4.0	



Parallel land	Relief angle	
KAPR	AS	
A - 45°	A - 3°	F - 25°
D - 60°	B - 5°	G - 30°
E - 75°	C - 7°	N - 0°
F - 85°	D - 15°	P - 11°
P - 90°	E - 20°	
Z - Special		

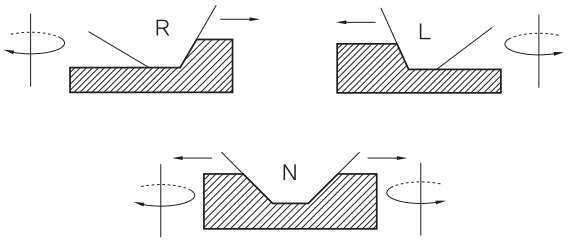
8 Edge preparation

S P K R 4 3 ED 2 **S** R - MX



9 Hand

S P K R 4 3 ED 2 S **R** - MX



10 Chip breaker for milling

S P K R 4 3 ED 2 S R - **MX**



MA MF MM MX

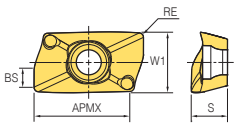
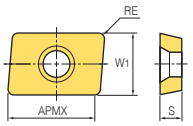
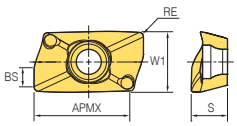
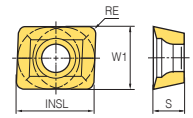
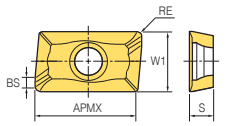
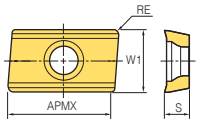
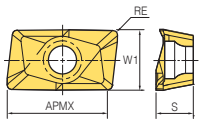
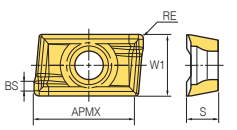


MF MM MR MA



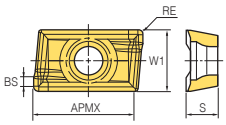
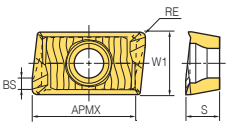
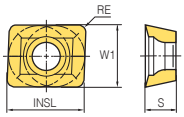
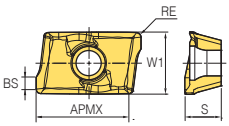
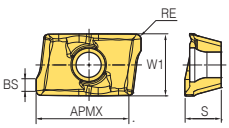
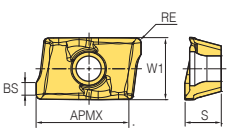
MA MF MM ML

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬢ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated			Dimension (inch)							Geometry	Page
		CN30	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	G10	H01	H05	INSL	W1	S/S1	RE	BS	APMX	KAPR (°)		
ADHT	10T304PEFR-MA														◆	0.456	0.253	0.15	0.016	0.047	0.374	90		-
	120408PEFR-MA														◆	0.571	0.308	0.19	0.031	0.067	0.453	90		
	170608PEFR-MA														◆	0.768	0.427	0.257	0.031	0.130	0.650	90		
ADKA	150308R															0.591	0.375	0.125	0.031	-	-	-		-
	150308SR															0.591	0.375	0.125	0.031	-	-	-		
	150308TR	●														0.591	0.375	0.125	0.031	-	-	-		
ADKT-ML	10T304PEER-ML				●	◆	●		●	◆	●	●				0.461	0.253	0.15	0.016	0.038	0.374	90		B162 ~ B165
	120408PESR-ML				●	◆	●		◆	◆	●	◆				0.571	0.308	0.19	0.031	0.067	0.453	90		
	170608PESR-ML		○		◆	◆	●	○	◆	◆	●	◆				0.774	0.427	0.257	0.031	0.138	0.650	90		
ADKT-MM	10T304PESR-MM				●	◆	◆		●	◆	●	●				0.461	0.253	0.15	0.016	0.047	0.374	90		B162 ~ B165
	10T308PESR-MM								●	○	●					0.461	0.253	0.15	0.031	0.031	0.374	90		
	10T312PESR-MM								●	○	●					0.461	0.253	0.15	0.047	0.016	0.374	90		
	120408PESR-MM				●	◆	◆		◆	◆	●	●				0.571	0.308	0.19	0.031	0.067	0.453	90		
	120412PESR-MM				○	◆	●		○	◆	○	◆				0.571	0.308	0.19	0.047	0.048	0.453	90		
	120416PESR-MM				○	◆	●		○	◆	○	●				0.571	0.308	0.19	0.063	0.033	0.453	90		
	170604PESR-MM				○	◆			○	◆	○	○				0.774	0.427	0.257	0.016	0.125	0.650	90		
	170608PESR-MM		○		◆	◆	●		◆	◆	●	◆				0.774	0.427	0.257	0.031	0.130	0.650	90		
	170616PESR-MM					●				◆		◆				0.774	0.427	0.257	0.063	0.098	0.650	90		
	170620PESR-MM					●				◆		◆				0.774	0.427	0.257	0.079	0.083	0.650	90		
ADLT	150308R		●							●						0.591	0.375	0.125	0.031	-	-	90		B315
	150308SR					●										0.591	0.375	0.125	0.031	-	-	90		
	150308TR															0.591	0.375	0.125	0.031	-	-	90		
APKT	1604PDSR		●			◆										0.646	0.375	0.187	0.031	0.089	0.646	90		B177 B189
APKT-MA	1604PDFR-MA													●	●	0.646	0.375	0.187	1/128	0.075	0.646	90		B177 B189
	160416FR-MA													●		0.646	0.375	0.187	0.063	-	0.646	90		
APKT-MA2	1604PDFR-MA2													◆		0.65	0.375	0.227	0.031	-	0.650	90		B177 B189
	160416FR-MA2													○		0.65	0.375	0.227	0.063	-	0.650	90		
	160432FR-MA2													○		0.65	0.375	0.227	0.126	-	0.650	90		
APKT-MA3	1604PDFR-MA3													◆	●	0.646	0.375	0.197	0.031	0.085	0.646	90		B177 B189
	160420FR-MA3													○		0.646	0.375	0.197	0.079	-	0.630	90		

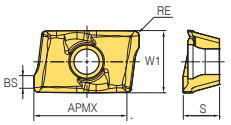
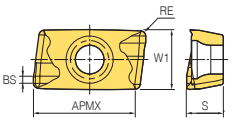
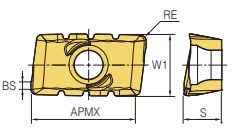
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (inch)							Geometry	Page
		CN30	NC5330	NCM325	NCM335	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	W1	S/S1	RE	BS	APMX	KAPR (°)		
APKT-MF 	**1604PDSR-MF**			●	○		○		○		●	○	○			0.646	0.375	0.197	0.031	0.085	0.646	90		B177 B189 B198
APKT-MM 	**1604PDSR-MM**			◆	●		●	○	◆		◆	○	◆			0.646	0.375	0.205	0.031	0.076	0.646	90		B177 B189 B199
APLT 	**070304R**			○					○			○				0.295	0.25	0.125	0.016	-	-	90		B315
APMT-MA 	**0602PDFR-MA**													◆	○	0.236	0.167	0.102	0.016	0.031	0.236	90		B173 ~ B176 B178 B181 ~ B188 B190 ~ B191 B194 ~ B201
	060208PDFR-MA													○		0.236	0.167	0.102	0.031	0.017	0.236	90		
	0903PDFR-MA													◆		0.37	0.244	0.142	0.016	0.058	0.370	90		
	090308PDFR-MA													○		0.37	0.244	0.142	0.031	0.043	0.370	90		
	11T3PDFR-MA													◆	○	0.441	0.255	0.142	0.02	0.043	0.441	90		
	11T308PDFR-MA													○		0.441	0.255	0.142	0.031	0.031	0.441	90		
	160404PDFR-MA													○		0.646	0.37	0.227	0.016	0.056	0.646	90		
	1604PDFR-MA													◆	○	0.646	0.37	0.227	0.031	0.039	0.646	90		
	180604PDFR-MA													●		0.685	0.432	0.25	0.016	0.099	0.685	90		
	1806PDFR-MA													●		0.685	0.432	0.25	0.031	0.089	0.685	90		
	180612PDFR-MA													○		0.685	0.432	0.25	0.047	0.067	0.685	90		
	180616PDFR-MA													○		0.685	0.432	0.25	0.063	0.051	0.685	90		
	180620PDFR-MA													●		0.685	0.432	0.25	0.079	0.035	0.685	90		
	180624PDFR-MA															0.685	0.432	0.25	0.095	0.018	0.685	90		
	180630R-MA													●		0.685	0.432	0.25	0.118	-	0.685	90		
APMT-MF 	**11T3PDSR-MF**		●	◆	○		◆	●	○	○	◆	●	◆			0.441	0.255	0.142	0.02	0.047	0.441	90		B175 ~ B176 B178 ~ B183 B187 ~ B188 B190 ~ B193 B195 ~ B196 B198 ~ B201
	1604PDSR-MF		◆	○	○		◆	●	○	○	◆	●	◆			0.646	0.37	0.227	0.031	0.043	0.646	90		
	1806PDSR-MF			○			○	●	○	○	◆	○	◆			0.685	0.432	0.25	0.031	0.087	0.685	90		
	180612PDSR-MF						○		○		○	○				0.685	0.432	0.25	0.047	0.071	0.685	90		
APMT-ML 	**0903PDER-ML**									○	◆		◆			0.37	0.244	0.142	0.016	0.058	0.370	90		B174 ~ B176 B178 B181 ~ B183 B185 ~ B188 B190 ~ B191 B194 ~ B198 B200 ~ B201
	090308PDER-ML										●	○	◆			0.37	0.244	0.142	0.031	0.043	0.370	90		
	11T3PDER-ML										◆		◆			0.441	0.255	0.142	0.02	0.043	0.441	90		
	11T308PDER-ML									○	◆		◆			0.441	0.255	0.142	0.031	0.031	0.441	90		

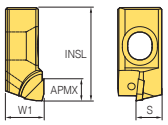
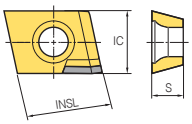
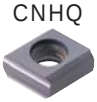
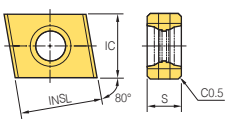
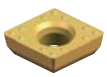
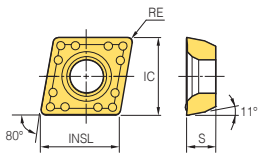
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated										Uncoated		Dimension (inch)							Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	W1	S/S1	RE	BS	APMX	KAPR (°)		
APMT-ML	160404PDER-ML									○	◆		◆			0.646	0.37	0.227	0.016	0.056	0.646	90		B176 ~ B199, B347 ~ B364
	1604PDER-ML						○			○	◆	○	◆			0.646	0.37	0.227	0.031	0.039	0.646	90		
	180604PDER-ML									○	●	○	◆			0.685	0.432	0.25	0.016	0.099	0.685	90		
	1806PDER-ML										●		◆			0.685	0.432	0.25	0.031	0.089	0.685	90		
	180612PDER-ML									○	◆	○	●			0.685	0.432	0.25	0.047	0.067	0.685	90		
	180616PDER-ML									○		○	◆			0.685	0.432	0.25	0.063	0.051	0.685	90		
	180620PDER-ML									○	●	○	●			0.685	0.432	0.25	0.079	0.035	0.685	90		
	180624PDER-ML									○	◆	○				0.685	0.432	0.25	0.095	0.018	0.685	90		
	180630R-ML									○		○	◆			0.685	0.432	0.25	0.118	-	0.685	90		
APMT-MM	060202PDSR-MM		●				◆		○		◆	○	◆			0.236	0.167	0.102	0.008	0.043	0.236	90		B173 ~ B176, B178 ~ B188, B190 ~ B201
	0602PDSR-MM		●	○	●	●	◆	●	●	○	◆	●	◆			0.236	0.167	0.102	0.016	0.035	0.236	90		
	060208PDSR-MM		●				◆		○		◆	●	◆			0.236	0.167	0.102	0.031	0.020	0.236	90		
	060212R-MM		●				○		○		●	○	●			0.236	0.167	0.102	0.047	0.004	0.236	90		
	060216R-MM *		○				○		○		●	○	●			0.236	0.167	0.102	0.063	-	0.236	90		
	0903PDSR-MM		●		●	●	◆	◆	○		◆	●	●			0.37	0.244	0.142	0.016	0.035	0.370	90		
	090308PDSR-MM		●				◆		○		◆	●	◆			0.37	0.244	0.142	0.031	0.020	0.370	90		
	090312R-MM		○				◆		○		●	○				0.37	0.244	0.142	0.047	-	0.370	90		
	090316R-MM			○			◆		○		●	○	●			0.37	0.244	0.142	0.063	-	0.370	90		
	090320R-MM		○				◆		○		●	●	●			0.362	0.244	0.142	0.079	-	0.362	90		
	090332R-MM *		○				○		○		◆	○				0.362	0.244	0.142	0.126	-	0.362	90		
	11T3PDSR-MM		●	●	●	●	◆	◆	◆	○	◆	●	◆			0.441	0.255	0.142	0.02	0.047	0.441	90		
	11T308PDSR-MM		●	○			◆		●	●	◆	●	◆			0.441	0.255	0.142	0.031	0.035	0.441	90		
	11T312PDSR-MM		●	○			◆		●	○	◆	●	●			0.441	0.255	0.142	0.047	0.020	0.441	90		
	11T316R-MM		●	○			◆		○	○	◆	●	◆			0.433	0.255	0.142	0.063	-	0.433	90		
	11T318R-MM		○				○				○	○				0.433	0.255	0.142	0.071	-	0.433	90		
	11T324R-MM		●				◆		○	○	◆	●	●			0.433	0.255	0.142	0.094	-	0.433	90		
	160404PDSR-MM									○	◆	●	◆			0.646	0.37	0.227	0.016	0.075	0.646	90		
	1604PDSR-MM		●	●	●	●	◆	◆	◆	●	◆	●	◆			0.646	0.37	0.227	0.031	0.043	0.646	90		
	160410PDSR-MM			○	●		●				◆	●	●			0.646	0.37	0.227	0.039	0.035	0.646	90		
	160416PDSR-MM			○			◆		◆	○	◆	●	◆			0.646	0.37	0.227	0.063	0.012	0.646	90		
	160420R-MM									○	◆	○				0.646	0.37	0.227	0.079	-	0.630	90		
	160424R-MM						◆			○	◆	●	◆			0.63	0.37	0.227	0.094	-	0.630	90		
	160430R-MM		○				●			○	◆	●	●			0.63	0.37	0.227	0.118	-	0.630	90		
	160432R-MM		●	○			◆		◆	○	◆	●	◆			0.63	0.37	0.227	0.126	-	0.630	90		
	160450R-MM *		○				◆			○	◆	●	◆			0.63	0.37	0.227	0.197	-	0.630	90		
	160464R-MM *		○				○		○	○	◆	○				0.63	0.37	0.227	0.252	-	0.630	90		
	1806PDSR-MM		●			●	◆	●	◆	●	◆	●	◆			0.685	0.432	0.25	0.031	0.087	0.685	90		
	180612PDSR-MM		●	○			◆			○	◆	●	●			0.685	0.432	0.25	0.047	0.071	0.685	90		
	180616PDSR-MM						○			○	◆	○	●			0.685	0.432	0.25	0.063	0.055	0.685	90		
	180620PDSR-MM		○				○			○	○	○				0.685	0.432	0.25	0.079	0.039	0.685	90		
	180624PDSR-MM						●		○	○	●	○	●			0.685	0.432	0.25	0.094	0.024	0.685	90		
	180630R-MM		○				○			○	●	○	●			0.657	0.432	0.25	0.118	-	0.657	90		
	180632R-MM		●				○			○	◆	○	◆			0.657	0.432	0.25	0.126	-	0.657	90		
	180640R-MM *		○				○			○	●	○	●			0.657	0.432	0.25	0.157	-	0.657	90		
	180648R-MM *		○				○			○	○	○	●			0.657	0.432	0.25	0.189	-	0.657	90		
	180650R-MM *		○				○			○	●	○	●			0.657	0.432	0.25	0.197	-	0.657	90		
	180660R-MM *		○									○				0.657	0.432	0.25	0.236	-	0.657	90		
	180664R-MM *		○				○			○	◆	○				0.657	0.432	0.25	0.252	-	0.657	90		
APMT-MN	11T3PDSR-MN2										●	○				0.441	0.255	0.142	0.02	0.047	0.441	90		B175 B176 B178 B181 B183 B187 B188 B190 ~ B191 B195 ~ B196 B201
	11T3PDSR-MN3										●	○				0.441	0.255	0.142	0.02	0.047	0.441	90		
	1604PDSR-MN3			○			○				●	○	○			0.646	0.37	0.227	0.031	0.043	0.646	90		
	1604PDSR-MN4			○			○				●	○	○			0.646	0.37	0.227	0.031	0.043	0.646	90		
	1806PDSR-MN3										●	○				0.685	0.432	0.25	0.031	0.087	0.685	90		
	1806PDSR-MN4										●	○	○			0.685	0.432	0.25	0.031	0.087	0.685	90		

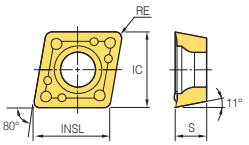
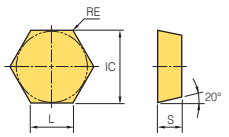
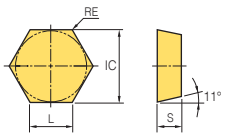
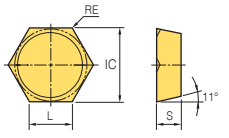
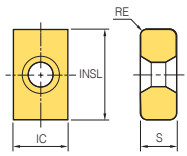
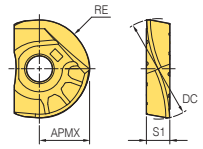
✳ Inserts marked with an asterisk(*) require a custom - made order for special holders. ●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated							Uncoated		PCD			Dimension (inch)						Geometry	Page
		CN30	NC5330	NCM535	PC3700	PC6100	PC9540	PC5300	PC5535	PC5400	G10	H01	DP90	DP150	DP200	INSL	IC	S/S1	RE	APMX	W1		
BAMPR-XAF 	**BAMPR-XAF**												●	○	○	1.008	0.413	0.276	-	0.232	0.413		B152 ~ B153
BAMPR-XAW 	**BAMPR-XAW**												●	●	○	1.008	0.394	0.276	-	0.232	0.394		
BAMPR-XAWR 	**BAMPR-XAWR**												●	●	○	1.008	0.394	0.276	-	0.232	0.394		
CDEW-NAF  Strengthened Edge	**1204R-NAF**												●	○		0.500	3/8	0.187	-	-	-		B150
	1204L-NAF															0.500	3/8	0.187	-	-	-		
CDEW-NAW  Strengthened Edge Wiper Insert	**1204R-NAW**													○		0.500	3/8	0.187	-	-	-		
	1204L-NAW															0.500	3/8	0.187	-	-	-		
CDEW-XAW  Sharp Edge Wiper Insert	**1204R-XAW**												●		●	0.500	3/8	0.187	-	-	-		
	1204L-XAW															0.500	3/8	0.187	-	-	-		
CDEW-XAF  Sharp Edge	**1204R-XAF**												●		●	0.500	3/8	0.187	-	-	-		
	1204L-XAF															0.500	3/8	0.187	-	-	-		
CDEW-XCF  Sharp Edge	**1204R-XCF**										●					0.500	3/8	0.187	-	-	-		
	1204L-XCF															0.500	3/8	0.187	-	-	-		
CNHQ 	**1005-C0.5**					○		○								0.394	0.394	0.213	-	-	-		B381 B405
	1305-C0.5							○								0.500	0.394	0.213	-	-	-		
	1606-C0.5							○								0.630	0.472	0.252	-	-	-		
CPMH-MM 	**120408-MM**				●											0.500	0.500	0.187	0.031	0.709	0.500		B352

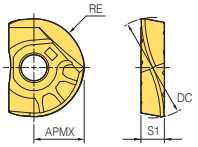
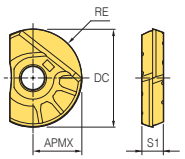
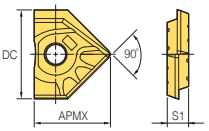
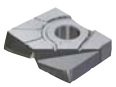
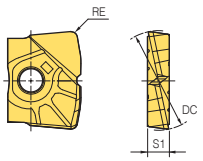
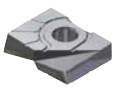
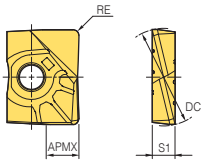
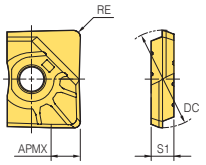
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	◗ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated										Uncoated		Dimension (inch)						Geometry	Page
		CN30	PC2005	PC2010	PC2015	PC210F	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ND3000	H01	H05	DC	INSL	IC	S/S1	RE	APMX	
CPMT-MM	21.51-MM						●									-	0.25	0.25	0.094	0.016	0.354		B352
	2.522-MM						●									-	0.313	0.313	0.134	0.031	0.433	
	32.52-MM						●									-	0.375	0.375	0.156	0.031	0.551	
HECN	532FN															-	0.361	0.625	0.187	0.031	-		-
	532SN															-	0.361	0.625	0.187	0.031	-	
	532TN															-	0.361	0.625	0.187	0.031	-	
	633FN															-	0.433	0.750	0.187	0.047	-	
	633TN															-	0.433	0.750	0.187	0.047	-	
HPEN	532FN															-	0.361	0.625	0.187	0.031	-		-
	532SN															-	0.361	0.625	0.187	0.031	-	
	532EN															-	0.361	0.625	0.187	0.031	-	
	633FN															-	0.433	0.750	0.187	0.047	-	
HPEN-WC	532-WC															-	0.361	0.625	0.187	0.031	-		-
	633-WC															-	0.433	0.750	0.187	0.047	-	
KEL-MF	150608-MF															-	0.625	0.375	0.250	0.031	-		B404 ~ B405 B407
	150608-ML															-	0.625	0.375	0.250	0.031	-	
KEL-QNN	1506QNN-MF															-	0.625	0.375	0.250	0.031	-		-
	1506QNN-ML															-	0.625	0.375	0.250	0.031	-	
KEL-ANN	1506ANN-MF															-	0.625	0.375	0.250	0.031	-		-
	1506ANN-ML															-	0.625	0.375	0.250	0.031	-	
LBH	0312					◆										0.312	-	-	0.094	0.156	0.156		B333 ~ B337
	0375					◆										0.375	-	-	0.109	0.188	0.188	
	0500					◆										0.500	-	-	0.125	0.250	0.250	
	0625					◆										0.625	-	-	0.156	0.313	0.313	
	0750					◆										0.750	-	-	0.203	0.375	0.375	
	1000					◆										1.000	-	-	0.234	0.500	0.500	
	1250					◆										1.250	-	-	0.281	0.625	0.625	
LBH-KF	0312-KF			○	○	○										0.312	-	-	0.094	0.156	0.156		
	0375-KF			○	○	◆										0.375	-	-	0.109	0.188	0.188		
	0500-KF			○	○	◆										0.500	-	-	0.125	0.250	0.250		
	0625-KF			○	○	○										0.625	-	-	0.156	0.313	0.313		
	0750-KF			○	○	◆										0.750	-	-	0.203	0.375	0.375		
	1000-KF			○	◆	◆										1.000	-	-	0.234	0.500	0.500		
	1250-KF			○	○	◆										1.250	-	-	0.250	0.625	0.625		

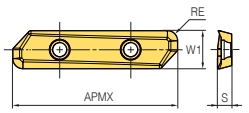
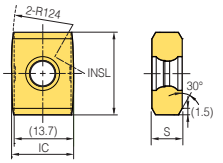
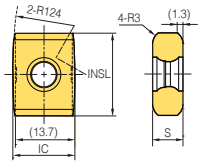
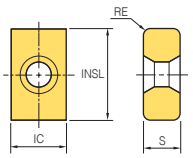
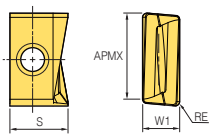
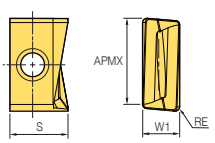
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬣ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (inch)				Geometry	Page
		CN30	PC2005	PC2010	PC2015	PC210F	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ND3000	H01	H05	DC	S/S1	RE	APMX		
LBH-KH 	0312-KH		○	○	○											0.312	0.094	0.156	0.156		B333 ~ B337
	0375-KH		◆	◆	○											0.375	0.109	0.188	0.188		
	0500-KH		○	◆	○											0.500	0.125	0.250	0.250		
	0625-KH		○	○	○											0.625	0.156	0.313	0.313		
	0750-KH		○	○	◆											0.750	0.203	0.375	0.375		
	1000-KH		○	○	○											1.000	0.234	0.500	0.500		
	1250-KH		○	○	◆											1.250	0.281	0.625	0.625		
LBS 	0312					○										0.312	0.094	0.156	0.156		
	0375					○										0.375	0.109	0.188	0.188		
	0500					○										0.500	0.125	0.250	0.250		
	0625					○										0.625	0.156	0.313	0.313		
	0750					○										0.750	0.203	0.375	0.375		
	1000															1.000	0.234	0.500	0.500		
	1250					○										1.250	0.281	0.625	0.625		
LCF 	0625-D90					◆										0.625	0.156	-	0.301		B333 ~ B337
	0750-D90					◆										0.750	0.203	-	0.362		
	1000-D90					◆										1.000	0.234	-	0.481		
LFH 	0375					○										0.375	0.102	0.039	0.025		B333 ~ B337
	0500					◆										0.500	0.118	0.047	0.031		
	0625					○										0.625	0.157	0.063	0.040		
	0750					◆										0.750	0.197	0.079	0.045		
	1000					◆										1.000	0.236	0.079	0.063		
	1250					○										1.250	0.276	0.079	0.072		
LRH 	0375-R015					○										0.375	0.109	0.016	0.118	 LRH type  LR type	B333 ~ B337
	0375-R031					◆										0.375	0.109	0.031	0.118		
	0375-R062					○										0.375	0.109	0.063	0.118		
	0500-R015					○										0.500	0.125	0.016	0.157		
	0500-R031					◆										0.500	0.125	0.031	0.157		
	0500-R062					◆										0.500	0.125	0.063	0.157		
	0625-R015					○										0.625	0.156	0.063	0.197		
	0625-R031					○										0.625	0.156	0.063	0.197		
	0625-R062					○										0.625	0.156	0.063	0.197		
	0625-R125					○										0.625	0.156	0.063	0.197		
	0750-R015					○										0.750	0.250	0.015	0.256		
	0750-R031					◆										0.750	0.250	0.032	0.256		
	0750-R062					◆										0.750	0.250	0.063	0.256		
	0750-R125					○										0.750	0.250	0.125	0.256		
	1000-R015					◆										1.000	0.234	0.015	0.354		
	1000-R031					◆										1.000	0.234	0.032	0.354		
	1000-R062					◆										1.000	0.234	0.063	0.354		
	1000-R125					◆										1.000	0.234	0.125	0.354		
	1250-R031					○										1.250	0.250	0.032	0.472		
	1250-R062					○										1.250	0.250	0.063	0.472		
	1250-R125					○										1.250	0.250	0.125	0.472		

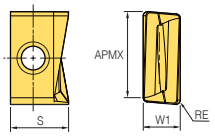
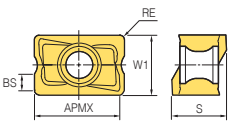
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (inch)							Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	DC/ INSL	IC/W1	S/S1	RE	BS	APMX	KAPR (°)		
LDET-MA	650540PPFR-MA													○	○	2.244	0.591	0.221	0.157	-	2.244	90		B372
	650550PPFR-MA													○	○	2.244	0.591	0.221	0.197	-	2.244	90		
LNCS-WC	1907-C1.5-WC															0.563	3/4	0.276	-	-	-	-		-
LNCS-WC	1907-R3.0-WC															0.563	3/4	0.276	-	-	-	-		-
LNE	324-R0.8															5/8	3/8	1/4	1/32	-	-	-		B404 ~ B405, B407 ~ B408
	324-C1.0															5/8	3/8	1/4	3/64	-	-	-		
LNKT-MA	080404PNR-MA													○		0.315	0.165	0.260	0.016	0.044	0.315	90		B319 ~ B324
	080408PNR-MA													○		0.315	0.165	0.260	0.031	0.028	0.315	90		
	080412PNR-MA															0.315	0.165	0.260	0.047	0.022	0.315	90		
	080416PNR-MA															0.315	0.165	0.260	0.063	0	0.315	90		
	140604PNR-MA															0.472	0.262	0.394	0.016	0.060	0.472	90		
	140608PNR-MA													○		0.472	0.262	0.394	0.031	0.044	0.472	90		
	140612PNR-MA															0.472	0.262	0.394	0.047	0.029	0.472	90		
	140616PNR-MA															0.472	0.262	0.394	0.063	0.013	0.472	90		
	170704PNR-MA													○		0.650	0.276	0.433	0.016	0.052	0.650	90		
	170708PNR-MA													○		0.650	0.276	0.433	0.031	0.037	0.650	90		
	170712PNR-MA													○		0.650	0.276	0.433	0.047	0.021	0.650	90		
	170716PNR-MA													○		0.650	0.276	0.433	0.063	0.005	0.650	90		
	170720PNR-MA													○		0.650	0.276	0.433	0.079	-	0.650	90		
LNKT-ML	080404PNR-ML										○	○	○			0.315	0.165	0.260	0.016	0.044	0.315	90		B319 ~ B324
	080408PNR-ML										○	○				0.315	0.165	0.260	0.031	0.028	0.315	90		
	080412PNR-ML															0.315	0.165	0.260	0.047	0.022	0.315	90		
	080416PNR-ML															0.315	0.165	0.260	0.063	0	0.315	90		
	140604PNR-ML															0.472	0.262	0.394	0.016	0.060	0.472	90		
	140608PNR-ML										○	○				0.472	0.262	0.394	0.031	0.044	0.472	90		
	140612PNR-ML															0.472	0.262	0.394	0.047	0.029	0.472	90		
	140616PNR-ML															0.472	0.262	0.394	0.063	0.013	0.472	90		
	170704PNR-ML										○	○				0.650	0.276	0.433	0.016	0.052	0.650	90		
	170708PNR-ML										◆	○	●			0.650	0.276	0.433	0.031	0.037	0.650	90		
	170712PNR-ML										○	○				0.650	0.276	0.433	0.047	0.021	0.650	90		
	170716PNR-ML										○	○				0.650	0.276	0.433	0.063	0.005	0.650	90		
	170720PNR-ML										○	○				0.650	0.276	0.433	0.079	-	0.650	90		

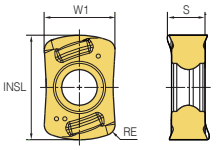
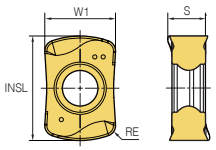
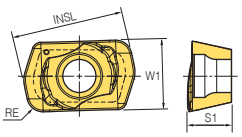
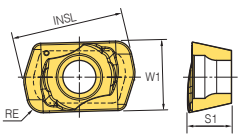
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬣ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation		Cermet	Coated									Uncoated		Dimension (inch)							Geometry	Page
			CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	DC/ INSL	IC/W1	S/S1	RE	BS	APMX	KAPR (°)		
LNKT-MM 	080404PNR-MM											○	○	○			0.315	0.165	0.260	0.016	0.044	0.315	90		B319 ~ B324
	080408PNR-MM											○	○	○			0.315	0.165	0.260	0.031	0.028	0.315	90		
	080412PNR-MM																0.315	0.165	0.260	0.047	0.022	0.315	90		
	080416PNR-MM																0.315	0.165	0.260	0.063	-	0.315	90		
	140604PNR-MM												○				0.500	0.262	0.394	0.031	0.060	0.472	90		
	140608PNR-MM											○	○	○			0.500	0.262	0.394	0.031	0.044	0.472	90		
	140612PNR-MM																0.500	0.262	0.394	0.047	0.029	0.472	90		
	140616PNR-MM												○				0.500	0.262	0.394	0.063	0.014	0.472	90		
	170704PNR-MM											○	○				0.650	0.276	0.433	0.016	0.052	0.650	90		
	170708PNR-MM							○				◆	○	◆			0.650	0.276	0.433	0.031	0.037	0.650	90		
	170712PNR-MM											○	○				0.650	0.276	0.433	0.047	0.021	0.650	90		
	170716PNR-MM											○	○				0.650	0.276	0.433	0.063	0.005	0.650	90		
	170720PNR-MM																0.650	0.276	0.433	0.079	-	0.650	90		
LNEX-MA 	100605PNR-MA														◆		0.394	0.256	0.256	0.020	0.067	0.354	90		B90 ~ B94 B99 ~ B100 B103 ~ B104
	151004PNR-MA														◆		0.591	0.394	0.394	0.016	0.122	0.551	90		
	151008PNR-MA														◆		0.591	0.394	0.394	0.031	0.106	0.551	90		
LNM(E)X -MF 	LNMX	100605PNR-MF						○	●	○		◆	○	◆			0.394	0.256	0.256	0.020	0.067	0.354	90		
		100608PNR-MF						○	●			●	●	●			0.394	0.256	0.256	0.031	0.055	0.354	90		
		151004PNR-MF						◆	●			◆	○				0.591	0.394	0.394	0.016	0.122	0.551	90		
		151008PNR-MF			●			◆	●	○		◆	○	◆			0.591	0.394	0.394	0.031	0.106	0.551	90		
		151016PNR-MF						○	●	○		◆	○	○			0.591	0.394	0.394	0.063	0.075	0.551	90		
	LNEX	100605PNR-MF						○	●	○		◆	○	◆			0.394	0.256	0.256	0.020	0.067	0.354	90		
		100608PNR-MF						◆				◆	○	●			0.394	0.256	0.256	0.031	0.055	0.354	90		
		151004PNR-MF						○	●			●					0.591	0.394	0.394	0.016	0.122	0.551	90		
		151008PNR-MF						○	◆	○	○	◆	○	◆			0.591	0.394	0.394	0.031	0.106	0.551	90		
		151016PNR-MF						○	●				○	◆			0.591	0.394	0.394	0.063	0.075	0.551	90		
LNM(E)X -MM 	LNMX	100605PNR-MM						◆	◆	◆		◆	●	◆			0.394	0.256	0.256	0.020	0.067	0.354	90		
		100608PNR-MM						◆		○		◆	●	●			0.394	0.256	0.256	0.031	0.055	0.354	90		
		100605PNL-MM						◆	●			◆	○	●			0.394	0.256	0.256	0.020	0.067	0.354	90		
		151004PNR-MM						○	◆			○	○	●			0.591	0.394	0.394	0.016	0.122	0.551	90		
		151008PNR-MM			●			◆	◆	◆	○	◆	●	◆			0.591	0.394	0.394	0.031	0.106	0.551	90		
		151016PNR-MM						◆	◆			◆	○	◆			0.591	0.394	0.394	0.063	0.075	0.551	90		
		151008PNL-MM						○		○		◆	○	○			0.591	0.394	0.394	0.031	0.106	0.551	90		
	LNEX	100605PNR-MM						◆	●	○		◆	○	◆			0.394	0.256	0.256	0.020	0.067	0.354	90		
		100608PNR-MM						○	●			●	○				0.394	0.256	0.256	0.031	0.055	0.354	90		
		100605PNL-MM						○	●			●	○	○			0.394	0.256	0.256	0.020	0.067	0.354	90		
		151004PNR-MM						○	●			◆	○				0.591	0.394	0.394	0.016	0.122	0.551	90		
		151008PNR-MM			○			◆	●			◆	○	◆			0.591	0.394	0.394	0.031	0.106	0.551	90		
		151016PNR-MM						○					○				0.591	0.394	0.394	0.063	0.075	0.551	90		
		151008PNL-MM						○	●			○	○	○			0.591	0.394	0.394	0.031	0.106	0.551	90		

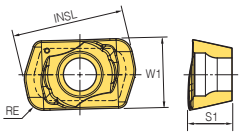
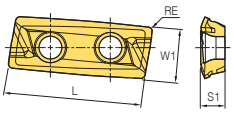
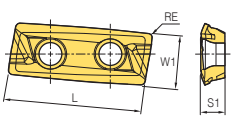
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Cermet	Coated										Uncoated		Machining types
			CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	
	Steel	P	◐	●	●	●	◐	◐				◐	◐	✱			● Continuous cutting
	Stainless steel	M		●						◐	✱	◐	◐	✱			◐ General cutting
	Cast iron	K		●	●	◐	◐		●			◐	◐	✱	●	●	✱ Interrupted cutting
	Non-ferrous metal	N													●	◐	
	Heat resistant alloy, Titanium alloy	S									✱	◐	◐	✱			
	Hardened steel	H				●	◐					◐	◐	✱			

Picture	Designation	Cermet	Coated										Uncoated		Dimension (inch)					Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	W1	S/S1	RE	APMX	
LNMX-MF	060310R-MF					●	◆			○	◆	●	◆			0.394	0.268	0.142	0.039	0.039		B276 ~ B277 B280 ~ B282 B284 ~ B285
	100412R-MF					●	◆			●	◆	●	●			0.480	0.394	0.165	0.047	0.059	
LNMX-ML	040205R-ML										◆	○	◆			0.244	0.165	0.093	0.020	0.020	
	060310R-ML									○	◆	●	◆			0.394	0.268	0.142	0.039	0.039	
	100412R-ML									●	◆	●	●			0.480	0.394	0.165	0.047	0.059	
LNMX-MM	040205R-MM				●	●	◆				◆	○	●			0.244	0.165	0.093	0.020	0.020		
	060310R-MM			○	●	●	◆			○	◆	●	◆			0.394	0.268	0.142	0.039	0.039	
	100412R-MM				●	●	◆			○	◆	●	●			0.480	0.394	0.165	0.047	0.059	
LPEW	040210R				●						●	○	○			0.252	0.165	0.102	0.039	0.020		B289 ~ B291
	040220R										◆	○	◆			0.252	0.165	0.102	0.079	0.020	
LPMT-MF	040210R-MF					●	◆			○	◆		◆			0.252	0.165	0.102	0.039	0.020		B289 ~ B291
	040220R-MF					●	◆			○	◆	○	◆			0.252	0.165	0.102	0.079	0.020	

● : Korea Stock ◆ : US Stock ○ : Made to order

Workpiece			Cermet	Coated									Uncoated		Machining types
			CN30	NC5330	NCM5335	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	
	Steel	P	⇔	●	●	●	⇔	⇔				⇔	⇔	⇔			● Continuous cutting
	Stainless steel	M		●						⇔	✱	⇔	⇔	⇔			⇔ General cutting
	Cast iron	K		●	●	⇔	⇔		●			⇔	⇔	⇔	●	●	✱ Interrupted cutting
	Non-ferrous metal	N													●	⇔	
	Heat resistant alloy, Titanium alloy	S									✱	⇔	⇔	✱			
	Hardened steel	H				●	⇔					⇔	⇔	⇔			

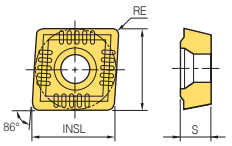
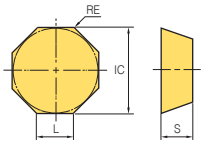
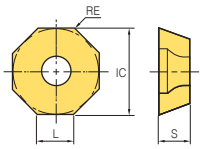
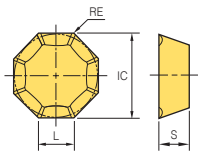
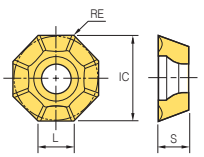
Picture	Designation	Cermet	Coated									Uncoated		Dimension (inch)						Geometry	Page
		CN30	NC5330	NCM5335	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	W1	S/S1	RE	BS	APMX	KAPR (°)	
LPMW 	**040210R**				●	●					◆	○	○			0.252	0.165	0.102	0.039	-	-	13	 B289 ~ B291
	040220R				●	●					◆	○	◆			0.252	0.165	0.102	0.079	-	-	13	
LXET-MA 	**250404PEFR-125-MA**													○		0.984	0.424	0.187	0.016	0.102	0.984	90	 B367 ~ B370
	2504PEFR-125-MA													◆		0.984	0.424	0.187	0.031	0.106	0.984	90	
	250412PEFR-125-MA													○		0.984	0.424	0.187	0.047	0.071	0.984	90	
	250416PEFR-125-MA													○		0.984	0.424	0.187	0.063	0.055	0.984	90	
	250404PEFR-150-MA													○		0.984	0.418	0.187	0.016	0.102	0.984	90	
	2504PEFR-150-MA													○		0.984	0.418	0.187	0.031	0.106	0.984	90	
	250412PEFR-150-MA													○		0.984	0.418	0.187	0.047	0.071	0.984	90	
	250416PEFR-150-MA													○		0.984	0.418	0.187	0.063	0.055	0.984	90	
	340504PEFR-200-MA													○		1.339	0.542	0.219	0.016	0.122	1.339	90	
	3405PEFR-200-MA													◆		1.339	0.542	0.219	0.031	0.106	1.339	90	
	340512PEFR-200-MA													○		1.339	0.542	0.219	0.047	0.091	1.339	90	
	340516PEFR-200-MA													○		1.339	0.542	0.219	0.063	0.075	1.339	90	
	340504PEFR-250-MA													○		1.339	0.543	0.219	0.016	0.122	1.339	90	
	3405PEFR-250-MA													◆		1.339	0.543	0.219	0.031	0.106	1.339	90	
	340512PEFR-250-MA													○		1.339	0.543	0.219	0.047	0.091	1.339	90	
	340516PEFR-250-MA													○		1.339	0.543	0.219	0.063	0.075	1.339	90	
LXET-ML 	**250404PEER-125-ML**										○	○	○			0.984	0.424	0.187	0.016	0.102	0.984	90	 B367 ~ B370
	2504PEER-125-ML										◆	○	◆			0.984	0.424	0.187	0.031	0.106	0.984	90	
	250412PEER-125-ML										○	○	○			0.984	0.424	0.187	0.047	0.071	0.984	90	
	250416PEER-125-ML										○	○	○			0.984	0.424	0.187	0.063	0.055	0.984	90	
	250404PEER-150-ML										○	○	○			0.984	0.418	0.187	0.016	0.102	0.984	90	
	2504PEER-150-ML										◆	○	○			0.984	0.418	0.187	0.031	0.106	0.984	90	
	250412PEER-150-ML										○	○	○			0.984	0.418	0.187	0.047	0.071	0.984	90	
	250416PEER-150-ML										○	○	○			0.984	0.418	0.187	0.063	0.055	0.984	90	
	340504PEER-200-ML										○	○	○			1.339	0.542	0.219	0.016	0.122	1.339	90	
	3405PEER-200-ML										●	○	○			1.339	0.542	0.219	0.031	0.106	1.339	90	
	340512PEER-200-ML										○	○	○			1.339	0.542	0.219	0.047	0.091	1.339	90	
	340516PEER-200-ML										○	○	○			1.339	0.542	0.219	0.063	0.075	1.339	90	
	340504PEER-250-ML										○	○	○			1.339	0.543	0.219	0.016	0.122	1.339	90	
	3405PEER-250-ML										◆	○	◆			1.339	0.543	0.219	0.031	0.106	1.339	90	
	340512PEER-250-ML										○	○	○			1.339	0.543	0.219	0.047	0.091	1.339	90	
	340516PEER-250-ML										○	○	○			1.339	0.543	0.219	0.063	0.075	1.339	90	

●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			CN30	NC5330	NCM325	NCM335	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05
	Steel	P	⇕	●	●	✱	●	⇕	⇕			⇕	⇕	✱		
	Stainless steel	M		●		✱					⇕	⇕	⇕	✱		
	Cast iron	K		●			●	⇕		●		⇕	⇕	✱	●	●
	Non-ferrous metal	N													●	⇕
	Heat resistant alloy, Titanium alloy	S										⇕	⇕	✱		
	Hardened steel	H						⇕				⇕	⇕	✱		

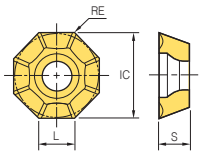
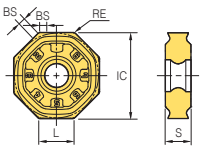
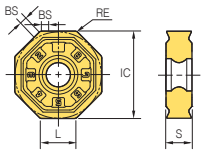
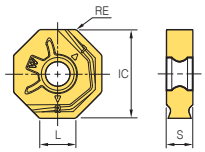
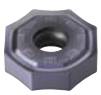
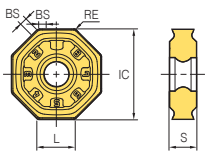
Machining types

● Continuous cutting
⇕ General cutting
✱ Interrupted cutting

Picture	Designation	Cermet	Coated											Uncoated		Dimension (inch)								Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05	L	INSL	IC	S/S1	RE	BS	APMX	KAPR (°)		
MPMT	**322**															-	0.375	0.375	0.125	0.031	-	-	-		-
	432							●								-	0.500	0.500	0.187	0.031	-	-	-		
OFCN	**0704SN**			◆	○	○		○	●	○	○	○	○			0.291	0.709	0.709	0.191	0.020	0.071	0.291	45		B61
	070408SN			○												0.291	0.709	0.709	0.191	0.031	-	0.291	45		
OFCW	**05T3SN**			○												0.205	0.502	0.500	0.152	0.020	0.059	0.205	45		B60
OFKR-MA	**0704FN-MA**													◆		0.291	0.706	0.709	0.187	0.020	0.071	0.291	45		
OFKR-MF	**0704SN-MF**			◆	●	○		○		○	○	○				0.291	0.706	0.709	0.187	0.020	0.071	0.291	45		B61
	070408SN-MF			○						○						0.291	0.706	0.709	0.187	0.031	-	0.291	45		
OFKR-MM	**0704SN-MM**			◆	●	○		●	●	●	○	○	●			0.291	0.706	0.709	0.187	0.020	0.071	0.291	45		
	070408SN-MM			●	○	○				○	○	○				0.291	0.706	0.709	0.187	0.031	-	0.291	45		
OFKT-MA	**05T3FN-MA**													◆		0.205	0.500	0.500	0.152	0.020	0.059	0.205	45		B60 B61
	05T3EN-MA															0.205	0.502	0.500	0.152	0.020	0.059	0.205	45		
	0704FN-MA													●		0.291	0.706	0.709	0.187	0.020	0.071	0.291	45		
OFKT-MF	**05T3SN-MF**			○	○				●	○						0.205	0.501	0.500	0.152	0.020	0.059	0.205	45		
	05T308SN-MF															0.205	0.501	0.500	0.152	0.031	-	0.205	45		

● : Korea Stock ◆ : US Stock ○ : Made to order

Workpiece			Cermet	Coated									Uncoated		Machining types
			CN30	NC5330	NCM325	NCM535	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	
	Steel	P	⇔	●	●	●	⇔	⇔				⇔	⇔	✱			● Continuous cutting
	Stainless steel	M		●						⇔	✱	⇔	⇔	✱			⇔ General cutting
	Cast iron	K		●		●	⇔		●			⇔	⇔	✱	●	●	✱ Interrupted cutting
	Non-ferrous metal	N													●	⇔	
	Heat resistant alloy, Titanium alloy	S								✱	⇔	⇔	⇔	✱			
	Hardened steel	H					⇔					⇔	⇔	✱			

Picture	Designation	Cermet	Coated									Uncoated		Dimension (inch)							Geometry	Page
		CN30	NC5330	NCM325	NCM535	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	L	IC/ BW	S/S1	RE	BS	APMX /INSL	KAPR (°)	CW	
OFKT-MM 	05T3SN-MM			◆			●		●							0.205	0.500	0.152	0.020	0.059	0.205	45	-	
	05T308SN-MM			○	○				○		○	○				0.205	0.500	0.152	0.031	-	0.205	45	-	
	0704SN-MM			◆			○				○	○	○			0.291	0.709	0.187	0.020	0.071	0.291	45	-	
																								B60 B61
ONHX-MF 	060608-MF				○		○		○	○	○	○				0.261	0.630	0.236	0.031	-	0.157	45	-	
	080608-MF				○		○	◆	○	○	●	○				0.329	0.795	0.236	0.031	-	0.217	45	-	
	0606ANN-MF			○			○	●	○	○	●	○				0.261	0.630	0.236	0.031	0.041	0.157	45	-	
	0806ANN-MF						○	●	○	○	●	○				0.329	0.795	0.236	0.031	0.060	0.217	45	-	
ONHX-ML 	060608-ML				○					◆		●				0.261	0.630	0.236	0.031	-	0.157	45	-	
	080608-ML				○					○	◆	○	●			0.329	0.795	0.236	0.031	-	0.217	45	-	
ONHX-MM 	060608-MM					○	○	◆	○	○	●	○	●			0.261	0.630	0.236	0.031	-	0.157	45	-	
	080608-MM					○	○	●	○	○	●	○	○			0.329	0.795	0.236	0.031	-	0.217	45	-	
	0606ANN-MM					○		●	○	○	●	○				0.261	0.630	0.236	0.031	0.041	0.157	45	-	
	0806ANN-MM					○	○	●	○	○	○	○	○			0.329	0.795	0.236	0.031	0.060	0.217	45	-	
ONHX-MA 	060608-MA													◆		0.261	0.630	0.236	0.031	-	0.157	45	-	
	080608-MA													◆		0.329	0.795	0.236	0.031	-	0.217	45	-	
																								B142 B143
ONHX-W 	060608-W				○		○	●			○	○				0.255	0.630	0.236	0.031	0.238	0.157	45	-	
	080608-W				○		○		○		◆	○				0.324	0.795	0.236	0.031	0.306	0.217	45	-	
ONMX-MF 	060608-MF			○			○	●	○	○	●	○	○			0.261	0.630	0.236	0.031	-	0.157	45	-	
	080608-MF				●		○	◆	○		●	○	●			0.329	0.795	0.236	0.031	-	0.157	45	-	
	0606ANN-MF						○	●	●	○	●	●	●			0.261	0.630	0.236	0.031	0.041	0.157	45	-	
	0806ANN-MF				●		◆	●	○	○	◆	○	○			0.329	0.795	0.236	0.031	0.060	0.217	45	-	
ONMX-MM 	060608-MM			○	●		◆	◆	○	●	◆	●	●			0.261	0.630	0.236	0.031	-	0.157	45	-	
	080608-MM			○	●		◆	◆	◆	○	◆	●	●			0.329	0.795	0.236	0.031	-	0.217	45	-	
	0606ANN-MM				●		◆	●	○	○	◆	●	●			0.261	0.630	0.236	0.031	0.041	0.157	45	-	
	0806ANN-MM				●		○	◆		○	◆	●	●			0.329	0.795	0.236	0.031	0.060	0.217	45	-	

●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			NC5330	PC210F	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	CN30	H01	H05
	Steel	P	⇕	● ⇕	● ⇕	● ⇕	● ⇕				⇕	⇕	⇕			
	Stainless steel	M		● ⇕					⇕	⇕	⇕	⇕	⇕			
	Cast iron	K		● ⇕	● ⇕	● ⇕		●			⇕	⇕	⇕	●	●	
	Non-ferrous metal	N													● ⇕	
	Heat resistant alloy, Titanium alloy	S		⇕						⇕	⇕	⇕	⇕			
	Hardened steel	H		⇕	● ⇕	● ⇕					⇕	⇕	⇕			

Machining types

● Continuous cutting
⇕ General cutting
⇕ Interrupted cutting

Picture	Designation	Cermet	Coated										Uncoated		Dimension (inch)				Geometry	Page
		CN30	NC5330	PC210F	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	IC	S/S1	RE	
PNEJ	1223N						●				○					-	1/2	0.091	-	
	1225N						○									-	1/2	0.098	-	
	1230N						○				●					-	1/2	0.118	-	
	1235N						●				●					-	1/2	0.138	-	
	1240N						●				●					-	1/2	0.157	-	
	1245N						●				●					-	1/2	0.177	-	
	1250N						○				○					-	1/2	0.197	-	
	1255N						●				○					-	1/2	0.217	-	
	1260N										○					-	1/2	0.236	-	
	1265N						○				●					-	1/2	0.256	-	
	1270N										○					-	1/2	0.276	-	
	1275N						○				●					-	1/2	0.295	-	
	1285N						○									-	1/2	0.335	-	
PNEJ-C	1223N-C03															-	1/2	0.091	-	
	1230N-C03															-	1/2	0.118	-	
	1235N-C03															-	1/2	0.138	-	
	1240N-C05															-	1/2	0.157	-	
	1245N-C05															-	1/2	0.177	-	
	1250N-C05															-	1/2	0.197	-	
	1255N-C05						○									-	1/2	0.217	-	
	1260N-C05															-	1/2	0.236	-	
	1265N-C05															-	1/2	0.256	-	
	1270N-C05															-	1/2	0.276	-	
	1275N-C05															-	1/2	0.295	-	
RDCT-MA	10T3M0-MA													◆		-	25/64	0.156	-	
	1204M0-MA													◆		-	15/32	0.187	-	
RDHW	0501M0F								○							-	0.197	0.063	-	
	0501M0E								●							-	0.197	0.063	-	
	0501M0S															-	0.197	0.063	-	
	06T1M0F								○							-	0.236	0.078	-	
	06T1M0E								●							-	0.236	0.078	-	
	06T1M0S								○		○	○				-	0.236	0.078	-	
	0702M0F								○		○	○				-	0.276	0.094	-	
	0702M0E								●		○	○	○			-	0.276	0.094	-	
	0702M0S								○		○	○				-	0.276	0.094	-	
	0803M0F								○							-	0.315	0.125	-	
	0803M0E								●		○	○				-	0.315	0.125	-	
	0803M0S								○		○	○				-	0.315	0.125	-	
	1605M0F								○		○	○				-	0.630	0.219	-	
	1605M0E								○							-	0.630	0.219	-	
	1605M0S								○							-	0.630	0.219	-	
	2006M0F								○		○	○				-	0.787	0.250	-	
	2006M0E								○							-	0.787	0.250	-	
	2006M0S								○		○	○				-	0.787	0.250	-	

※ C03 : chamfer 0.3 mm
C05 : chamfer 0.5 mm

- B224 B225 B230 B231 B236 B237
- B226 ~ B229 B232 ~ B237

● : Korea Stock ◆ : US Stock ○ : Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	◓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (inch)		Geometry	Page
		CN30	NC5330	NCM325	NCM535	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	IC	S/S1		
RDKT-MF	**10T3M0-MF**			○			○		●		◆	○	○			0.394	0.156		B224 ~ B226 ~ B230 ~ B232 ~ B236 ~ B237
	1204M0-MF						●		●		◆	○	○			0.472	0.187		
	1605M0-MF										○	○	○			0.630	0.219		
RDKT-ML	**1605M0-ML**										○	○	○			0.630	0.219		B226 B232 B236 B237
RDKT-MM	**10T3M0-MM**			●			●	●	●		◆	●	○			0.394	0.156		B224 ~ B227 ~ B230 ~ B233 ~ B236 ~ B237
	1204M0-MM			●	○		◆	●	◆		◆	●	○			0.472	0.187		
	1605M0-MM			○	○		●		○		○	○	○			0.630	0.219		
	2006M0-MM			○			●		○		○	○	○			0.787	0.250		
RDKW	**0501M0E**						●				○	○				0.197	0.063		B228 B229 B234 B235
	06T1M0E						●		○							0.236	0.078		
	0702M0E						●				○	○	○			0.276	0.094		
	0803M0E						●				○	○	○			0.315	0.125		
REKR-MM	**170400-MM**			○							○					0.701	0.187		B61
RNMX-ML	**1204M0E-ML**				○		●			●	●					0.472	0.187		B146 B147
RNMX-MM	**1204M0S-MM**				○											0.472	0.187		
RPCT-MA	**10T3M0-MA**													◆		0.394	0.156		B243 ~ B246 ~ B248 ~ B254
	1204M0-MA													◆		0.472	0.187		
	1606M0-MA													◆		0.630	0.250		
	2007M0-MA													◆		0.787	0.276		

●: Korea Stock ◆: US Stock ○: Made to order

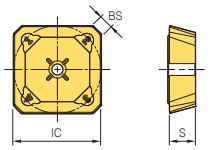
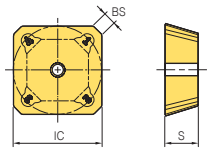
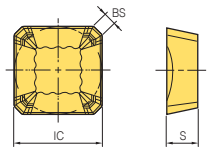
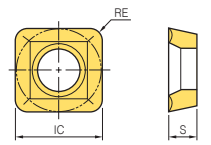
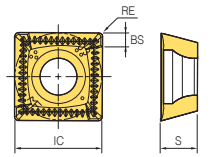
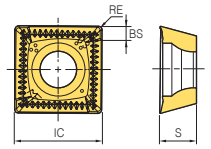
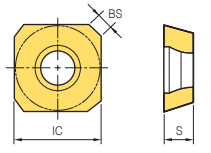
Workpiece		
Steel	P	● ● ●

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated								Uncoated			Dimension (inch)						Geometry	Page
		CN30	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC5300	PC5535	PD1010	ST30A	G10	H01	H05	IC	S/S1	RE	BS	APMX	KAPR (°)	
SDCN	42M												●			4/8	2/16	-	0.057	0.236	45	▶Cutting-edge geometry • G: Light Side, Sharpe Edge • S20: STS • RH: Strengthened edge ▶Sub-cutting-edge geometry • M: AEFN • MT: AETN	B47 B48 B57 B58
	42M-G													●		4/8	2/16	-	0.057	0.236	45		
	42MT	●		○	●							●				4/8	2/16	-	0.057	0.236	45		
	42MT-RH															4/8	2/16	-	0.056	0.236	45		
	42MT-S20							●								4/8	2/16	-	0.057	0.236	45		
	53M												●			5/8	3/16	-	0.057	0.315	45		
	53M-G													●		5/8	3/16	-	0.057	0.315	45		
	53MT	●		●	○							●				5/8	3/16	-	0.057	0.315	45		
	53MT-RH															5/8	3/16	-	0.056	0.315	45		
	53MT-S20							●								5/8	3/16	-	0.057	0.315	45		
	1203AEEN-RH															4/8	2/16	-	0.056	0.354	45		
	1203AESN			○												4/8	2/16	-	0.057	0.236	45		
	1203AESN-RH															4/8	2/16	-	0.056	0.236	45		
	1504AEEN-RH						●		●							5/8	3/16	-	0.056	0.315	45		
	1504AESN			○												5/8	3/16	-	0.057	0.315	45		
	1504AESN-RH						●									5/8	3/16	-	0.056	0.315	45		
SDET-MA	09M402R-MA													◆	●	0.375	0.154	0.008	-	0.276	90		B211 ~ B216
	09M404R-MA													○		0.375	0.154	0.016	-	0.276	90		
	09M405R-MA													○		0.375	0.154	0.020	-	0.276	90		
	130504R-MA										●			◆	●	0.531	0.219	0.016	-	0.433	90		
SDET-MF	09M405R-MF															0.375	0.154	0.020	-	0.276	90		
	130508R-MF															0.531	0.219	0.031	-	0.433	90		
SDET-MM	09M405R-MM															0.375	0.154	0.020	-	0.276	90		
	130508R-MM															0.531	0.219	0.031	-	0.433	90		
SDKN-CM	42MT-CM	●														4/8	2/16	-	0.059	0.236	45		-

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Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated										Uncoated		Dimension (inch)						Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	RE	BS	APMX	KAPR (°)		
SDKN-MU	**42AESN-MU**							●								4/8	2/16	-	0.086	0.236	45		B47 B48 B57 B58
	53AESN-MU							●								5/8	3/16	-	0.083	0.315	45		
SDKN-SU	**42AESN-SU**							◆			●	●				4/8	2/16	-	0.069	0.236	45		
	53AESN-SU							◆			●	●				5/8	3/16	-	0.067	0.315	45		
SDKR-MX	**42AESN-MX**															4/8	2/16	-	0.057	0.236	-		
	42AEN-MX			●												4/8	2/16	-	0.057	0.236	45		
	53AESN-MX				●											5/8	3/16	-	-	0.315	45		
	53AEN-MX			●												5/8	3/16	-	0.057	0.315	45		
SDMT-MM	**090308-MM**			○		○		●			●	○				0.375	0.125	0.031	-	0.374	90		B315 B346
SDXT-MA	**09M405R-MA**													◆	○	0.375	0.157	0.020	-	0.276	90		E211 ~ E216
	130508R-MA													◆	●	0.531	0.219	0.031	-	0.433	90		
SDXT-MF	**09M403R-MF**										○	○				0.375	0.157	0.012	-	0.276	90		E211 ~ E216
	09M403L-MF							○								0.375	0.157	0.012	-	0.276	90		
	09M404R-MF															0.375	0.157	0.016	-	0.276	90		
	09M404L-MF															0.375	0.157	0.016	-	0.276	90		
	09M405R-MF			●	○	○		●	●	●	●	○	●			0.375	0.157	0.020	-	0.276	90		
	09M405L-MF			○												0.375	0.157	0.020	-	0.276	90		
	130508R-MF			●	○	○		○	●	●	●	○	●			0.531	0.219	0.031	-	0.433	90		
SDXT-MM	**09M405R-MM**			●	●	○		●	●	●	◆		●			0.375	0.157	0.020	-	0.276	90		
	09M405L-MM			○	○	○		○	●		○	○				0.375	0.157	0.020	-	0.276	90		
	130508R-MM			◆	●	○		◆	●	●	●		●			0.531	0.219	0.031	-	0.433	90		
	130508L-MM				○							○				0.531	0.219	0.031	-	0.433	90		
	130538-MM			○				○								0.531	0.219	0.150	-	0.433	90		
SECA	**43AFSN**			●												4/8	3/16	-	0.105	-	45		-
	43AFTN	●						●		●						4/8	3/16	-	0.105	-	45		
	43AFFN															4/8	3/16	-	0.105	-	45		
	43AFEN															4/8	3/16	-	0.105	-	45		
	53AFSN															5/8	3/16	-	0.110	-	45		
	53AFTN															5/8	3/16	-	0.110	-	45		
	53AFFN															5/8	3/16	-	0.110	-	45		

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Workpiece			Machining types
	Steel	P	● Continuous cutting
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	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated								Uncoated				Dimension (inch)						Geometry	Page
		CN30	NCM325	NCM335	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ND3000	ST30A	G10	H01	H05	IC	S/S1	RE	BS	APMX	KAPR (°)		
SECN	42AFFN							○					●	●		4/8	2/16	-	0.093	0.217	45	▶Shape of Edge · S20: STS · RH: Strengthened edge, STS	B49 B50
	42AFTN	●	○	○	○		◆					●				4/8	2/16	-	0.093	0.217	45		
	42AFEN					◆		◆		○						4/8	2/16	-	0.093	0.217	45		
	42AFSN		◆	◆	○						●					4/8	2/16	-	0.093	0.217	45		
	42AFEN-RH					●		●								4/8	2/16	-	0.093	0.217	45		
	42AFSN-RH															4/8	2/16	-	0.093	0.217	45		
	42AFTN-S20						●									4/8	2/16	-	0.093	0.217	45		
	53AFFN							○					●			5/8	3/16	-	0.075	0.295	45		
	53AFTN	●					○									5/8	3/16	-	0.075	0.295	45		
	53AFSN			○												5/8	3/16	-	0.075	0.295	45		
	53AFSN-RH					●										5/8	3/16	-	0.094	0.295	45		
SEET-MA	0903AGFN-MA													◆	●	0.375	0.125	-	0.057	0.157	45		
	14M4AGFN-MA													◆	●	0.551	0.157	-	0.071	0.256	45		
SEET-MF	0903AGSN-MF		○	○	○	◆	◆	●	○							0.375	0.125	-	0.057	0.157	45		B205 ~ B210
	14M4AGSN-MF					◆	◆	●	○							0.551	0.157	-	0.071	0.256	45		
SEET-MM	0903AGSN-MM		●	○	○	●		●	○							0.375	0.125	-	0.057	0.157	45		
	14M4AGSN-MM		○	●	●	●	●	●	○	●						0.551	0.157	-	0.071	0.256	45		
SEEW	0903AGTN															0.375	0.125	-	0.057	0.157	45		
	14M4AGTN	●														0.551	0.157	-	0.057	0.256	45		
SEEW-W	14M4AGFN-W				○											0.551	0.157	-	0.071	0.256	45		B206 B208 B210
	14M4AGSN-W		○						○							0.551	0.157	-	0.071	0.256	45		
	14M4AGTN-W				○	●	○									0.551	0.157	-	0.071	0.256	45		
SEKN-SU	42AFSN-SU				◆			○								4/8	2/16	-	0.073	-	45		B49 B50
	53AFSN-SU				◆			○		●						5/8	3/16	-	0.075	-	45		

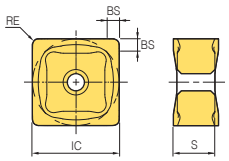
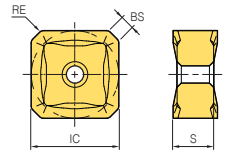
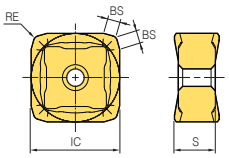
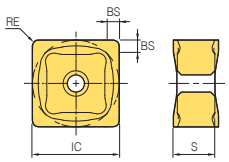
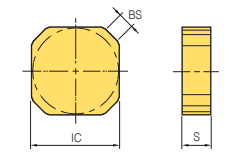
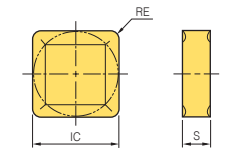
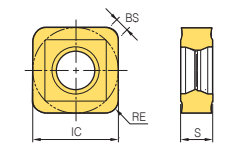
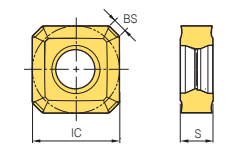
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		CN30	NC5330	NCM325	NCM335	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	RE	BS	APMX	KAPR (°)	
SEKR-MX	**42AFSN-MX**			◆ ●				○		◆	○		○			4/8	2/16	2/64	0.094	0.217	45	B49 B50
	53AFSN-MX			◆ ○				○		◆	○		○			5/8	3/16	2/64	0.094	0.295	45	
SEMN	**43AZ**															4/8	3/16	-	0.079	-	-	-
SEXT-MF	**0903AGSN-MF**		○	○	○			○	●	○	◆	○	○			0.375	0.125	0.031	0.057	0.157	45	B205 ~ B210
	14M4AGSN-MF				○			○	●	○	◆	○	●			0.551	0.157	0.031	0.071	0.256	45	
SEXT-MM	**0903AGSN-MM**		○	○				◆	●	○	◆	○	●			0.375	0.125	0.031	0.057	0.157	45	
	14M4AGSN-MM		○	◆	○	○		◆	◆	◆	◆	○	◆			0.551	0.157	0.031	0.071	0.256	45	
SEXT-MR	**0903AGSN-MR**							○		○						0.375	0.125	0.031	0.057	0.157	45	
	14M4AGSN-MR		○	○						◆	◆					0.551	0.157	0.031	0.071	0.256	45	
SFCN	**42EFR**													●		4/8	2/16	-	0.098	0.315	75	B51
SNC(M)F-MF	**SNCF 1206ANN-MF**							○								0.500	0.238	0.031	0.083	-	45	B127 B128
	1507ANN-MF							○								0.625	0.267	0.031	0.083	-	45	
	SNMF 1206ANN-MF															0.500	0.238	0.031	0.083	-	45	
	1507ANN-MF															0.625	0.267	0.031	0.083	-	45	
SNC(M)F-MF	**SNCF 1206ENN-MF**							○								0.500	0.238	0.031	0.071	-	75	B129 B130
	1507ENN-MF							○								0.625	0.267	0.031	0.071	-	75	
	SNMF 1206ENN-MF							●								0.500	0.238	0.031	0.071	-	75	
	1507ENN-MF							○								0.625	0.267	0.031	0.071	-	75	

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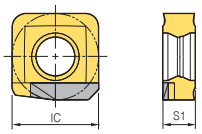
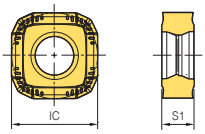
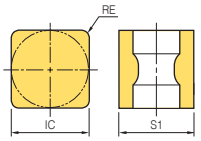
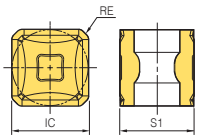
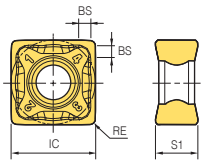
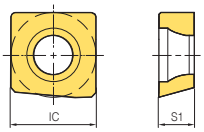
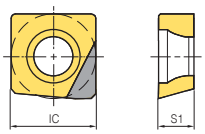
Picture	Designation	Cermet	Coated								Uncoated			Dimension (inch)						Geometry	Page
		CN30	NC5330	NCM325	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ST30A	H01	H05	IC	S/S1	RE	BS	APMX	KAPR (°)	
SNC(M)F-MF	SNMF 1206QNN-MF						●									0.500	0.238	0.031	0.039	-	88		B131
	SNCF 1206QNN-MF						○			○	○					0.500	0.238	0.031	0.039	-	88		
SNC(M)F-MM	SNMF 1206ANN-MM															0.500	0.238	0.031	0.083	-	45		B127 B128
	1507ANN-MM			○	○											0.625	0.267	0.031	0.083	-	45		
	SNCF 1206ANN-MM															0.500	0.238	0.031	0.083	-	45		
	1507ANN-MM						○									0.625	0.267	0.031	0.083	-	45		
SNC(M)F-MM	SNMF 1206ENN-MM						●									0.500	0.238	0.031	0.071	-	75		B129 B130
	1507ENN-MM			○	○		●									0.625	0.267	0.031	0.071	-	75		
	SNCF 1206ENN-MM															0.500	0.238	0.031	0.071	-	75		
	1507ENN-MM						○									0.625	0.267	0.031	0.071	-	75		
SNC(M)F-MM	SNMF 1206QNN-MM						●									0.500	0.238	0.031	0.039	-	88		B131
	SNCF 1206QNN-MM															0.500	0.238	0.031	0.039	-	88		
SNCN	43ENN			●									●			4/8	3/16	-	0.050	-	75		B52
	53ENN															5/8	3/16	-	0.055	0.453	75		
SNEF	435															4/8	3/16	0.075	-	-	-		-
	535															5/8	3/16	0.075	-	-	-		
SNEU-MF	120420-MF															0.500	0.187	0.079	-	-	90		-
SNEU-MF	1204ANN-MF															0.500	0.187	-	0.085	-	90		-

●: Korea Stock ◆: US Stock ○: Made to order

Workpiece		
Steel	P	
Stainless steel	M	
Cast iron	K	
Non-ferrous metal	N	
Heat resistant alloy, Titanium alloy	S	
Hardened steel	H	

Machining types

- ● Continuous cutting
- ⧓ General cutting
- ⧔ Interrupted cutting

Picture	Designation	Cermet	Coated							Uncoated		PCD			Dimension (inch)						Geometry	Page
		CN30	NCM535	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05	DP90	DP150	DP200	IC	S/S1	RE	BS	APMX	KAPR (°)		
SNEU-TBW	**1204-TBW**															0.500	0.187	-	0.197	-	90		-
SNEU-WMF	**1204R-WMF**															0.500	0.187	-	0.138	-	90		-
SNEX	**101010**															0.394	0.394	0.039	-	-	90		-
	1010ZNN															0.394	0.394	0.031	0.056	-	45		
SNEX-CU1	**101010-CU1**															0.394	0.394	0.039	-	-	90		-
	1010ZNN-CU1															0.394	0.394	0.031	0.056	-	45		
	121212-CU1															0.500	0.500	0.047	-	-	90		
	1212ZNN-CU1															0.500	0.500	0.039	0.067	-	45		
SNEX-MA	**1206ANN-MA**										●					0.500	0.250	0.031	0.061	0.236	45		B116 B117 B120 B121 B124 B125
	1206ENN-MA										●					0.500	0.250	0.039	0.052	0.354	75		
	1206QNN-MA										●					0.500	0.250	0.031	0.055	0.453	88		
	120612-MA										●					0.500	0.250	0.047	-	0.453	-		
SNEX-ML	**1206ANN-ML**		○				○	◆	○	◆						0.500	0.250	0.031	0.061	0.236	45		B116 ~ B125
	1206ENN-ML		○					◆	○	◆						0.500	0.250	0.039	0.052	0.354	75		
	1206QNN-ML		○					●	○	●						0.500	0.250	0.031	0.055	0.453	88		
	120612-ML		○					◆	○							0.500	0.250	0.047	-	0.453	-		
	1507ANN-ML		○						○	●						0.625	0.313	0.031	0.093	0.295	45		
	1507ENN-ML		○						○							0.625	0.313	0.039	0.085	0.433	75		
SNEW	**09T3ADFR**										●					0.375	0.156	-	0.071	-	-		B155 ~ B156
SNEW-NAF	**09T3ADTR-NAF**												●	○	●	0.375	0.156	-	0.071	-	-		
	09T3ADTR-NAW													○	●	0.375	0.156	-	0.083	-	-		
	NAW: Wiper insert																						
SNEW-XAF	**09T3ADTR-XAF**												●		●	0.375	0.156	-	0.071	-	-		
	09T3ADTR-XAW												●		●	0.375	0.156	-	0.083	-	-		
	XAW: Wiper insert																						

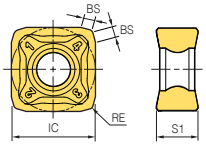
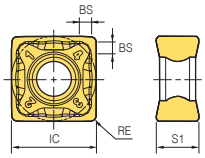
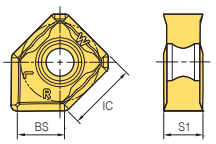
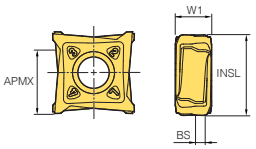
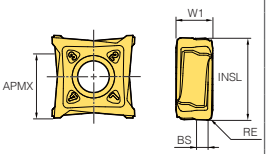
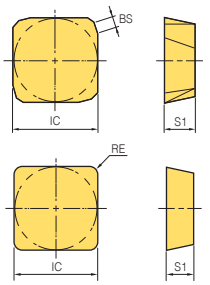
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✖ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (inch)						Geometry	Page
		CN30	NC5330	NCM5350	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	RE	BS	APMX	KAPR (°)		
SNHT-WX	1102308R-WX										●					0.433	0.090	0.031	0.029	-	90		-
	110308R-WX										●					0.433	0.120	0.031	0.029	-	90		
	1203508R-WX										●					0.500	0.140	0.031	0.024	-	90		
	120408R-WX															0.500	0.160	0.031	0.024	-	90		
	1204508R-WX										●					0.500	0.179	0.031	0.024	-	90		
	120508R-WX										●					0.500	0.196	0.031	0.024	-	90		
	1205408R-WX										◆					0.500	0.215	0.031	0.024	-	90		
	120608R-WX										○					0.500	0.236	0.031	0.024	-	90		
	1206508R-WX										○					0.500	0.256	0.031	0.024	-	90		
	120708R-WX										○					0.500	0.276	0.031	0.024	-	90		
	1207508R-WX										○					0.500	0.295	0.031	0.024	-	90		
	1102308L-WX										●					0.433	0.090	0.031	0.029	-	90		
	110308L-WX										●					0.433	0.120	0.031	0.029	-	90		
	120308L-WX										○					0.500	0.128	0.031	0.024	-	90		
	1203508L-WX										●					0.500	0.140	0.031	0.024	-	90		
	120408L-WX										○					0.500	0.160	0.031	0.024	-	90		
	1204508L-WX										●					0.500	0.179	0.031	0.024	-	90		
	120508L-WX										●					0.500	0.196	0.031	0.024	-	90		
	1205408L-WX										◆					0.500	0.215	0.031	0.024	-	90		
	120608L-WX										○					0.500	0.236	0.031	0.024	-	90		
	1206508L-WX										○					0.500	0.256	0.031	0.024	-	90		
	120708L-WX										○					0.500	0.276	0.031	0.024	-	90		
	1207508L-WX										○					0.500	0.295	0.031	0.024	-	90		
SNKN	1204ENN			○			○	●			○					4/8	3/16	-	0.050	-	75		B52
	1504ENN			○			○				○					5/8	3/16	-	0.055	-	75		
SNM(E)X-MF	SNMX 1206ANN-MF			●			◆	◆	○	●	◆	●	◆			0.500	0.250	0.031	0.061	0.236	45		B116 ~ B119
	1507ANN-MF						◆	●		○	●	○	●			0.625	0.313	0.031	0.093	0.295	45		
	SNEX 1206ANN-MF			○			◆	◆	○	○	◆	○	●			0.500	0.250	0.031	0.061	0.236	45		
	1507ANN-MF			○			○	●		○		○	○			0.625	0.313	0.031	0.093	0.295	45		
SNM(E)X-MF	SNMX 1206ENN-MF						●	●	○	●	◆	●	●			0.500	0.250	0.039	0.052	0.354	75		B120 ~ B123
	1507ENN-MF						◆	●		○	●	○	●			0.625	0.313	0.039	0.085	0.433	75		
	SNEX 1206ENN-MF			○			○	●	○	○	◆	○	●			0.500	0.250	0.039	0.052	0.354	75		
	1507ENN-MF			○			○	●		○	●	○	○			0.625	0.313	0.039	0.085	0.433	75		
SNM(E)X-MF	SNMX 1206QNN-MF			●			●	◆		○	●	●	●			0.500	0.250	0.031	0.055	0.453	88		B124 B125
	120612-MF			○			○	●		○	●	○				0.500	0.250	0.047	-	0.453	-		
	SNEX 1206QNN-MF			○			●	●	○	○	●	○	●			0.500	0.250	0.031	0.055	0.453	88		
	120612-MF			○			○	●		○	●	○				0.500	0.250	0.047	-	0.453	-		
SNM(E)X-MM	SNMX 1206ANN-MM		●	●			◆	◆	◆	●	◆	●	◆			0.500	0.250	0.031	0.061	0.236	45		B116 ~ B119
	1507ANN-MM			●			◆	●	○	○	●	○	●			0.625	0.313	0.031	0.093	0.295	45		
	SNEX 1206ANN-MM			○			◆	◆	◆	○	◆	○	◆			0.500	0.250	0.031	0.061	0.236	45		
	1507ANN-MM			○				●		○	●	○	○			0.625	0.313	0.031	0.093	0.295	45		

●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Cermet	Coated									Uncoated			Machining types
			CN30	NC5330	NCM325	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	ST30A	G10	H01	
	Steel	P	⬢	●	●	●	⬢				⬢	⬢	✱	⬢			● Continuous cutting
	Stainless steel	M		●					⬢	✱	⬢	⬢	✱				⬢ General cutting
	Cast iron	K		●		●		●			⬢	⬢	✱		⬢	●	✱ Interrupted cutting
	Non-ferrous metal	N														●	
	Heat resistant alloy, Titanium alloy	S							✱	⬢	⬢	⬢	✱				
	Hardened steel	H									⬢	⬢	✱				

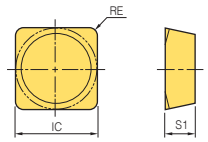
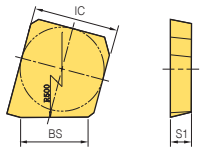
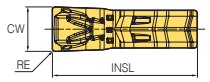
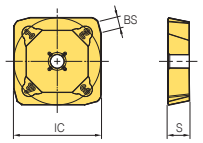
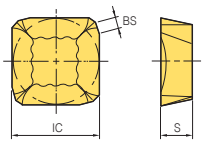
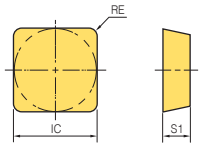
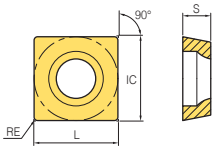
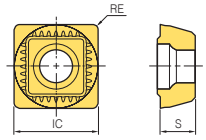
Picture	Designation		Cermet	Coated									Uncoated			Dimension (inch)							Geometry	Page
			CN30	NC5330	NCM325	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	ST30A	G10	H01	INSL	IC/ W1	S/S1	RE	BS	APMX	KAPR (°)		
SNM(E)X-MM 	SNMX	1206ENN-MM			●	●	◆	○	●	◆	●	●				0.500	0.500	0.250	0.039	0.052	0.354	75		B120 ~ B123
		1507ENN-MM			○		◆	●	○	○	◆	○	●				0.625	0.625	0.314	0.039	0.085	0.433	75		
	SNEX	1206ENN-MM				○	○	◆	○	○	●	○	○				0.500	0.500	0.250	0.039	0.052	0.354	75		
		1507ENN-MM				○	○	●		○	●	○	○				0.625	0.625	0.314	0.039	0.085	0.433	75		
SNM(E)X-MM 	SNMX	1206QNN-MM			◆		◆	◆	○	●	◆	●	●				0.500	0.500	0.250	0.031	0.055	0.453	88		E124 E125
		120612-MM			○	●	◆		○	●	○	○					0.500	0.500	0.250	0.047	-	0.453	88		
	SNEX	1206QNN-MM			○	○	◆		○	●	○	●					0.500	0.500	0.250	0.031	0.055	0.453	88		
		120612-MM			○		●		○								0.500	0.500	0.250	0.047	-	0.453	88		
SNEX-W 	1206ANN-W				○	◆	◆			◆	○	○				0.500	0.500	0.250	-	0.300	0.236	45		E116 E117
SOKX-ML 	1406XPNR-ML							●		◆						0.570	0.258	-	0.031	0.053	0.433	90		E327 E328
	140608PNR-ML							●		◆						0.570	0.258	-	0.031	0.067	0.433	90		
SOKX-MM 	1406XPNR-MM							●		●						0.570	0.258	-	0.031	0.053	0.433	90		E327 E328
	140608PNR-MM							●		●						0.570	0.258	-	0.031	0.067	0.433	90		
SPCN 	1203EDR		●		●				●					●	●	●	4/8	4/8	2/16	-	0.055	0.354	75		B53 B54
	1203EDR-RH						○										4/8	4/8	2/16	-	0.055	0.354	75		
	1203EDL													●			4/8	4/8	2/16	-	0.055	0.354	75		
	1203EDR-G														●		4/8	4/8	2/16	-	0.055	0.354	75		
	1203EDR-RN																4/8	4/8	2/16	-	0.055	0.354	75		
	1203EDER-RH							●		●							4/8	4/8	2/16	2/64	0.064	0.354	75		
	1203EDSR-RH							●									4/8	4/8	2/16	2/64	0.064	0.354	75		
	1203EDTR-RH																4/8	4/8	2/16	2/64	0.055	0.354	75		
	1203EDR-S20								●								4/8	4/8	2/16	-	0.055	0.354	75		
	150412T																5/8	5/8	3/16	-	-	0.472	75		
	1504EDR		●		●									●	●		5/8	5/8	3/16	-	0.055	0.472	75		
	1504EDSR																5/8	5/8	3/16	-	0.055	0.472	75		
	1504EDL							●									5/8	5/8	3/16	-	0.055	0.472	75		
	1504EDR-G															●	5/8	5/8	3/16	-	0.055	0.472	75		
	1504EDR-RN																5/8	5/8	3/16	-	0.055	0.472	75		
	1504EDER-RH							●		●							5/8	5/8	3/16	-	0.065	0.472	75		
	1504EDSR-RH							●									5/8	5/8	3/16	-	0.065	0.472	75		
	1504EDTR-RH						○										5/8	5/8	3/16	-	0.065	0.472	75		
	1504EDR-S20								●								5/8	5/8	3/16	-	0.055	0.472	75		

SPCN150412T

- G: Light Side, Sharpe Edge
- S20: STS
- RH: Strengthened edge

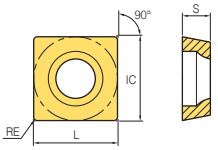
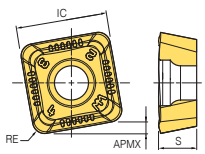
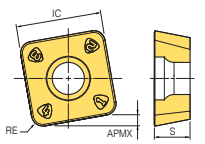
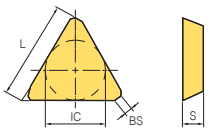
● : Korea Stock ◆ : US Stock ○ : Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬣ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated								Uncoated			Dimension (inch)								Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ST30A	G10	H01	INSL	IC	S/S1	RE	BS	APMX	KAPR (°)	CW		
SPEN-WC	**120416-WC**															4/8	4/8	3/16	1/16	-	-	-	-		-
	150412-WC															5/8	5/8	3/16	5/64	-	-	-	-		
	150416-WC															5/8	5/8	3/16	3/32	-	-	-	-		
	150420-WC															5/8	5/8	3/16	-	-	-	-	-		
	190424-WC															6/8	6/8	3/16	-	-	-	-	-		
SPEX	**1203EDR-1**															4/8	4/8	2/16	-	0.402	-	-	-		B53 B54
	1203EDL-1															4/8	4/8	2/16	-	0.402	-	-	-		
	1504EDR-1															5/8	5/8	3/16	-	0.402	-	-	-		
	1504EDL-1															5/8	5/8	3/16	-	0.402	-	-	-		
SPFN-N	**200-N**						○			○						0.346	0.087	-	1/128	-	-	-	0.087		-
	300-N						○									0.386	0.118	-	1/128	-	-	-	0.118		
	400-N						○			○						0.386	0.157	-	0.010	-	-	-	0.157		
SPKN-MU	**42EDSR-MU**						●									4/8	4/8	2/16	-	0.074	0.472	75	-		B53 B54
	53EDSR-MU						●									5/8	5/8	3/16	-	0.076	0.472	75	-		
SPKN-SU	**42EDSR-SU**						●			●	●					4/8	4/8	2/16	-	0.065	0.472	75	-		
	42EDSL-SU						●									4/8	4/8	2/16	-	0.075	0.472	75	-		
	53EDSR-SU						●			●	●					5/8	5/8	3/16	-	0.067	0.472	75	-		
	53EDSL-SU						●									5/8	5/8	3/16	-	0.067	0.472	75	-		
SPKR-MX	**42EDSR-MX**			●	●											4/8	4/8	2/16	-	0.055	0.354	75	-		
	42EDSL-MX															4/8	4/8	2/16	-	0.055	0.354	75	-		
	53EDR-MX			●												5/8	5/8	3/16	-	0.057	0.472	75	-		
	53EDSR-MX															5/8	5/8	3/16	-	0.057	0.472	75	-		
SPMN	**4208**												●			4/8	4/8	2/16	2/64	-	0.307	90	-		B349
SPMT	**060304**			●	○		○									0.250	0.250	0.125	0.016	-	0.217	90	-		B315 B343 B345
SPMT-KC	**110408-KC**						◆	○		◆	○		●	●		0.449	0.449	0.189	0.031	-	0.374	90	-		B349

●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬌ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

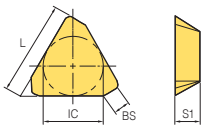
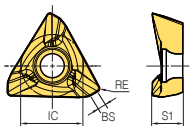
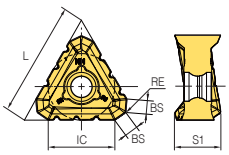
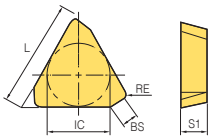
Picture	Designation	Cermet	Coated									Uncoated			Dimension (inch)							Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	ST30A	G10	H01	INSL	IC	S/S1	RE	BS	APMX	KAPR (°)		
SPMT-MM	**432-MM**						●			●						0.500	0.500	0.187	0.031	-	0.453	90		B315 B343 B346
	442-MMN															0.500	0.500	0.219	0.031	-	0.5	90		
SQMT-MF	**120516R-MF**									○						-	0.472	0.197	0.063	-	0.059	10		B268 ~ B271
	140520R-MF									○						-	0.551	0.219	0.079	-	0.079	10		
SQMT-MM	**120516R-MM**							○								-	0.472	0.197	0.063	-	0.059	10		
	140520R-MM						○	○		○						-	0.551	0.219	0.079	-	0.079	10		
SQMT-ML	**120516R-ML**						○	○		○						-	0.472	0.197	0.063	-	0.059	10		
	140520R-ML						○	○		○						-	0.551	0.219	0.079	-	0.079	10		
SQMW	**120516**									○						-	0.472	0.197	0.063	-	0.059	10		-
	140520									○						-	0.551	0.219	0.079	-	0.079	10		
TEC(E)N	**TECN 22R**															0.433	2/8	2/16	-	0.039	0.315	90		B59
	22TR	●											●			0.433	2/8	2/16	2/64	0.021	0.315	90		
	32R													●		0.650	3/8	2/16	-	0.039	0.512	90		
	32R-G														○	0.650	3/8	2/16	-	0.039	0.512	90		
	32TR	●		●				○					●			0.650	3/8	2/16	2/64	0.021	0.512	90		
	32TR-S20								●							0.650	3/8	2/16	2/64	0.021	0.512	90		
	43R-G														○	0.866	4/8	3/16	-	0.038	0.650	90		
	43TR							○					○			0.866	4/8	3/16	2/64	0.058	0.650	90		
TEEN	**32TR**												●			0.650	3/8	2/16	2/64	0.021	0.512	90	▶**Shape of Edge** • **G**: Light Side, Sharpe Edge • **S20**: STS • **ZH**: Hole added	
	43TR-Z						●		●							0.866	4/8	3/16	2/64	0.058	0.650	90		
	43TR-ZH													●		0.866	4/8	3/16	2/64	0.058	0.650	90		
	43R														●	0.866	4/8	3/16	-	0.077	0.650	90		
	43R-G												●			0.866	4/8	3/16	-	0.077	0.650	90		
	43TR	●		◆	●									●		0.866	4/8	3/16	2/64	0.058	0.650	90		
	43TR-S20								●							0.866	4/8	3/16	2/64	0.058	0.650	90		

●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			NC5330	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	ST30A	G10	H01
	Steel	P	◓	●	●	✱	●	◓			◓	◓	◓		
	Stainless steel	M		●		✱				◓	✱	◓	◓		
	Cast iron	K		●			●		●		◓	◓		◓	●
	Non-ferrous metal	N													●
	Heat resistant alloy, Titanium alloy	S									◓	◓			
	Hardened steel	H									◓	◓			

Machining types

● Continuous cutting
◓ General cutting
✱ Interrupted cutting

Picture	Designation	Cermet	Coated										Uncoated			Dimension (inch)							Geometry	Page
		CN30	NC5330	NCM325	NCM335	NCM535	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	ST30A	G10	H01	INSL	IC	S/S1	RE	BS	APMX	KAPR (°)		
TFCN	**42PFR**														●	0.866	4/8	2/16	-	0.095	0.630	90		B55
	42PFL															0.866	4/8	2/16	-	0.095	0.630	90		
TNKT-ML	**110508PEER-ML**						●			●	●	●				-	0.315	0.177	0.031	0.051	0.315	90		B258 ~ B261
	160608PEER-ML						●			○	●	●				-	0.461	0.217	0.031	0.062	0.453	90		
	200708PEER-ML						●			●	●	●				-	0.571	0.276	0.031	0.079	0.610	90		
TNKT-MM	**110508PESR-MM**						●	●		○	●	●				-	0.315	4.531	0.031	0.051	0.315	90		
	160608PESR-MM						●	●		○	●	●				-	0.461	0.218	0.031	0.060	0.453	90		
	200708PESR-MM						●	●		○	●	●				-	0.571	0.277	0.031	0.079	0.610	90		
TNMX-NM	**2710AZNR-NM**		●			●	●	○	●		●	○				1.063	5/8	0.394	1/32	0.104	0.709	45		B65 ~ B67
	2710AZNL-NM															1.063	5/8	0.394	1/32	0.104	0.709	45		
	3012PNR-NM										●	○				1.181	0.687	0.471	0.031	0.138	0.787	90		
TPCN	**22PPN**	●											●	●		0.433	2/8	2/16	-	0.028	0.315	90	 • G: Light Side, Sharpe Edge • S20: STS • RH: Strengthened edge	B56
	32PDR	●		●										●		0.650	3/8	2/16	-	0.047	0.512	90		
	32PPN	●		●									●	●		0.650	3/8	2/16	-	0.047	0.512	90		
	32PPR														●	0.650	3/8	2/16	-	0.047	0.512	90		
	32PPR-G															0.650	3/8	2/16	-	0.047	0.512	90		
	32PPSR							●			●					0.650	3/8	2/16	-	0.047	0.512	90		
	32PPTR-RH															0.650	3/8	2/16	-	0.047	0.512	90		
	32PDER-RH	●		●									●	●		0.650	3/8	2/16	-	0.059	0.512	90		
	32PDSR-RH															0.650	3/8	2/16	2/64	0.059	0.512	90		
	32PDR-S20														●	0.650	3/8	2/16	2/64	0.047	0.512	90		
	32PDR-RN												●			0.650	3/8	2/16	-	0.059	0.512	90		
	43PDR				●											0.650	3/8	2/16	-	0.056	0.709	90		
	43PDR-RN															0.866	4/8	3/16	-	0.070	0.709	90		
	43PDR-G															0.866	4/8	3/16	-	0.056	0.709	90		
	43PDL							●			●					0.866	4/8	3/16	-	0.056	0.709	90		
	43PDSR							●								0.866	4/8	3/16	-	0.056	0.709	90		
	43PDTR								●							0.866	4/8	3/16	-	0.056	0.709	90		
	43PPN															0.866	4/8	3/16	-	0.050	0.709	90		
	43PPTN															0.866	4/8	3/16	-	0.050	0.709	90		
	43PDER-RH															0.866	4/8	3/16	2/64	0.070	0.709	90		
	43PDSR-RH															0.866	4/8	3/16	2/64	0.070	0.709	90		
	43PDR-S20															0.866	4/8	3/16	-	0.056	0.709	90		

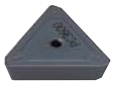
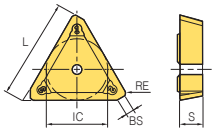
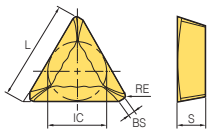
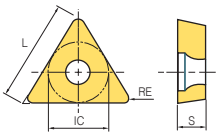
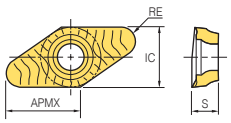
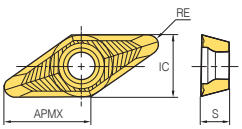
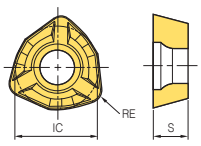
●: Korea Stock ◆: US Stock ○: Made to order

※ In this page, TPC(K)N □□□□P~N is for FC·HC and □□□□P~R is for Cutter (face).

Workpiece			CN30	NCM325	NCM335	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05
	Steel	P	◓	●	✱	●	◓	◓				◓	◓	✱		
	Stainless steel	M			✱					◓	✱	◓	◓	✱		
	Cast iron	K				◓	◓		●			◓	◓	✱	●	●
	Non-ferrous metal	N													●	◓
	Heat resistant alloy, Titanium alloy	S									✱	◓	◓	✱		
	Hardened steel	H				●	◓					◓	◓	✱		

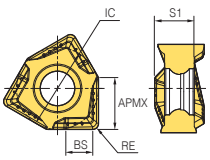
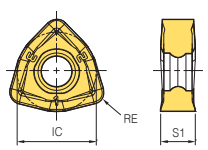
Machining types

● Continuous cutting
◓ General cutting
✱ Interrupted cutting

Picture	Designation	Cermet	Coated										Uncoated		Dimension (inch)							Geometry	Page
		CN30	NCM325	NCM335	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	IC/W1	S/S1	RE	BS	APMX	KAPR (°)		
TPKN-MU 	**43PDSR-MU**						●									0.866	4/8	3/16	2/64	0.077	0.709	90		B56
TPKN-SU 	**32PDSL-SU**						●									0.650	3/8	1/8	2/64	0.074	0.512	90		
	32PDSR-SU						●									0.650	3/8	1/8	2/64	0.069	0.512	90		
	43PDSL-SU						●									0.866	4/8	3/16	2/64	0.078	0.709	90		
	43PDSR-SU						●				●		●			0.866	4/8	3/16	2/64	0.078	0.709	-		
TPKR-MX 	**32PDSR-MX**								●							0.650	3/8	1/8	-	0.047	0.512	90		
	32PPR-MX		●													0.650	3/8	1/8	-	0.047	0.512	90		
	32PPSN-MX															0.650	3/8	1/8	-	0.047	0.512	90		
	32PPSR-MX			●												0.650	3/8	1/8	-	0.047	0.512	90		
	43PDR-MX		●													0.866	4/8	3/16	0.039	0.054	0.709	90		
	43PDSR-MX		●	●												0.866	4/8	3/16	0.039	0.054	0.709	90		
TWX-KC 	**16R-KC**						◆			◆	○			◆		0.650	0.375	0.156	0.031	-	-	60		B351
	22R-KC						●			◆	○					0.866	0.500	0.187	0.031	-	-	60		
VCKT-MA 	**220530N-MA**													◆		0.614	0.500	0.219	0.118	-	0.591	90		B355 B356
VDKT-MA 	**11T210N-MA**													◆		0.438	0.250	0.113	0.047	-	0.315	90		B356 B357
	11T220N-MA													○		0.264	0.250	0.113	0.079	-	0.315	90		
WDKT-MH 	**080316ZDSR-MH**			○			●	●	●		●	○	●			-	0.125	0.125	0.063	-	0.039	15		B308 ~ B314
	10T320ZDSR-MH			○			●	●	●		●	○	●			-	0.156	0.156	0.079	-	0.059	15		
	130520ZDSR-MH						●	●	●	○	●	○	●			-	0.219	0.219	0.079	-	0.079	15		
	150625ZDSR-MH						●	●	●		●	○	●			-	0.250	0.250	0.098	-	0.098	15		

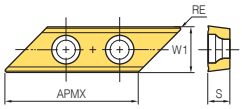
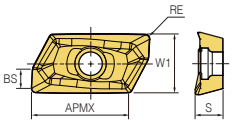
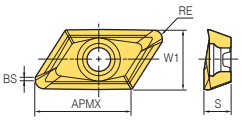
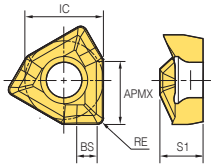
● : Korea Stock ◆ : US Stock ○ : Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬣ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated									Uncoated		Dimension (inch)						Geometry	Page
		CN30	NC5330	NCM5335	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5535	PC5400	H01	H05	IC	S/S1	RE	BS	APMX	KAPR (°)		
WNGX-MA	040304PNFR-MA													◆		0.276	0.136	0.016	0.063	0.169	90		
	040308PNFR-MA													●		0.276	0.136	0.031	0.047	0.169	90		
	040312PNFR-MA													◆		0.276	0.136	0.047	0.031	0.169	90		
	040316PNFR-MA													◆		0.276	0.136	0.063	0.016	0.169	90		
	080604PNFR-MA													◆		0.512	0.252	0.016	0.161	0.323	90		
	080608PNFR-MA													◆		0.512	0.252	0.031	0.146	0.323	90		
	080612PNFR-MA															0.512	0.252	0.047	0.130	0.323	90		
	080616PNFR-MA													◆		0.512	0.252	0.063	0.114	0.323	90		
	080620PNFR-MA													◆		0.512	0.252	0.079	0.098	0.323	90		
WNGX-ML	040304PNER-ML						○	●		◆	◆	○	◆			0.276	0.136	0.016	0.063	0.169	90		B108 ~ B113
	040308PNER-ML						○			○	◆	○	◆			0.276	0.136	0.031	0.047	0.169	90		
	040312PNER-ML									○	◆	○	○			0.276	0.136	0.047	0.031	0.169	90		
	040316PNER-ML			○						○	◆	○	○			0.276	0.136	0.063	0.016	0.169	90		
	080604PNER-ML						●			◆	◆	○	◆			0.512	0.252	0.016	0.161	0.323	90		
	080608PNER-ML			●			●	●		●	●	●	●			0.512	0.252	0.031	0.146	0.323	90		
	080612PNER-ML			○			○			○	◆	○	○			0.512	0.252	0.047	0.130	0.323	90		
	080616PNER-ML			○			○			○	◆	○	○			0.512	0.252	0.063	0.114	0.323	90		
	080620PNER-ML									○	◆	○	○			0.512	0.252	0.079	0.098	0.323	90		
WNGX-MM	040304PNSR-MM			○			◆	●		○	◆	○	◆			0.276	0.136	0.016	0.063	0.169	90		
	040308PNSR-MM						○			○	◆	○	◆			0.276	0.136	0.031	0.047	0.169	90		
	040312PNSR-MM									○	◆	○	○			0.276	0.136	0.047	0.031	0.169	90		
	040316PNSR-MM						○			○	◆	○	○			0.276	0.136	0.063	0.016	0.169	90		
	080604PNSR-MM						●			○	◆	○	◆			0.512	0.252	0.016	0.161	0.323	90		
	080608PNSR-MM			●			◆	◆		●	◆	●	◆			0.512	0.252	0.031	0.146	0.323	90		
	080612PNSR-MM									○	◆	○	○			0.512	0.252	0.047	0.130	0.323	90		
	080616PNSR-MM			○			○			○	◆	○	○			0.512	0.252	0.063	0.114	0.323	90		
	080620PNSR-MM			○						○	◆	○	○			0.512	0.252	0.079	0.098	0.323	90		
WNMX-MF	060312ZNN-MF						○			○	◆	○	●			0.250	0.125	0.047	0.039	0.039	14		
	09T316ZNN-MF						◆			○	◆	○	◆			0.375	0.156	0.063	0.059	0.059	14		
	130520ZNN-MF						○			○	◆	●	◆			0.500	0.219	0.079	0.079	0.079	14		
	160720ZNN-MF						○			○	●	○	●			0.630	0.276	0.079	0.098	0.098	14		
WNMX-ML	060312ZNN-ML									○	●	○	◆			0.250	0.125	0.047	0.039	0.039	14		B297 ~ B307
	09T316ZNN-ML									○	◆	○	◆			0.375	0.156	0.063	0.059	0.059	14		
	130520ZNN-ML									○	◆	○	◆			0.500	0.219	0.079	0.079	0.079	14		
	160720ZNN-ML									○	●	○	○			0.630	0.276	0.079	0.098	0.098	14		
WNMX-MM	060312ZNN-MM				●	●	◆		○	○	◆	●	◆			0.250	0.125	0.047	0.039	0.039	14		
	09T316ZNN-MM			○	●	●	◆	◆	◆	○	◆	◆	◆			0.375	0.156	0.063	0.059	0.059	14		
	130520ZNN-MM			○	●	●	◆	◆	◆	●	◆	●	◆			0.512	0.219	0.079	0.079	0.079	14		
	160720ZNN-MM						◆			○	◆	○	◆			0.630	0.276	0.079	0.098	0.098	14		

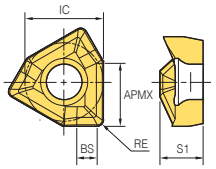
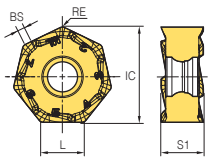
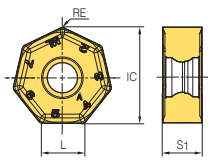
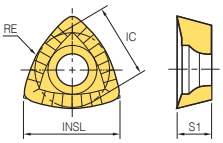
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⬢ General cutting
	Cast iron	K	✱ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated								Uncoated				Dimension (inch)						Geometry	Page
		CN30	NC5330	NCM535	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	PD1010	ST30A	G10	H01	H05	IC/W1	S/S1	RE	BS	APMX	KAPR (°)		
XCET-KC 	310404ER-KC				◆			◆				●	●			0.375	0.177	0.016	0	1.024	90		B350
XDET-MA 	190504PEFR-MA										○		◆	◆		0.736	0.198	0.016	0.150	0.669	90		B376 B377
	190508PEFR-MA										○		◆	◆		0.736	0.197	0.031	0.132	0.669	90		
	190512PEFR-MA										○		◆	○		0.736	0.197	0.047	0.117	0.669	90		
	190516PEFR-MA										○		◆	○		0.736	0.196	0.063	0.103	0.669	90		
	190520PEFR-MA										○		◆	○		0.736	0.196	0.079	0.086	0.669	90		
	190524PEFR-MA										○		◆	◆		0.736	0.195	0.094	0.071	0.669	90		
	190530PEFR-MA										○		◆	◆		0.736	0.194	0.118	0.046	0.669	90		
	190532PEFR-MA										○		◆	◆		0.736	0.194	0.126	0.038	0.669	90		
	190540PEFR-MA										○		◆	◆		0.736	0.191	0.157	0.065	0.669	90		
	190550PEFR-MA										○		◆	◆		0.736	0.189	0.197	0.027	0.669	90		
XEKT-MA 	19M504FR-MA										◆		◆	●		-	0.197	0.016	0.055	0.669	90		B360 ~ B364
	19M508FR-MA										◆		◆	●		-	0.197	0.031	0.039	0.669	90		
	19M512FR-MA										◆		◆			-	0.197	0.047	0.025	0.669	90		
	19M516FR-MA										◆		◆			-	0.197	0.063	0.013	0.669	90		
	19M518FR-MA												◆			-	0.197	0.071	0.019	0.669	90		
	19M520FR-MA										◆		◆	●		-	0.197	0.079	0.033	0.669	90		
	19M530FR-MA										◆		◆	●		-	0.197	0.118	0.026	0.669	90		
	19M532FR-MA										◆		◆	○		-	0.197	0.126	0.019	0.669	90		
	19M540FR-MA										◆		◆	●		-	0.197	0.157	0.021	0.669	90		
	19M550FR-MA										◆		◆			-	0.197	0.197	0.016	0.669	90		
	250604FR-MA												●			-	0.250	0.016	0.061	0.906	90		
	250608FR-MA												◆			-	0.250	0.031	0.046	0.906	90		
	250612FR-MA												●			-	0.250	0.047	0.030	0.906	90		
	250616FR-MA												○			-	0.250	0.063	0.014	0.906	90		
	250620FR-MA												●			-	0.250	0.079	0.058	0.906	90		
	250630FR-MA												○			-	0.250	0.118	0.022	0.906	90		
	250632FR-MA												●			-	0.250	0.126	0.014	0.906	90		
	250640FR-MA												○			-	0.250	0.157	0.047	0.906	90		
	250650FR-MA												●			-	0.250	0.197	0.015	0.906	90		
XEKT-ML 	19M504ER-ML							○	○							-	0.197	0.016	0.055	0.669	90		
	19M508ER-ML							○								-	0.197	0.031	0.039	0.669	90		
	19M512ER-ML							○								-	0.197	0.047	0.025	0.669	90		
	19M516ER-ML							○								-	0.197	0.063	0.013	0.669	90		
	19M518ER-ML							○								-	0.197	0.071	0.019	0.669	90		
	19M520ER-ML							○								-	0.197	0.079	0.033	0.669	90		
	19M530ER-ML							○								-	0.197	0.118	0.026	0.669	90		
	19M532ER-ML							○								-	0.197	0.126	0.019	0.669	90		
	19M540ER-ML							○								-	0.197	0.157	0.021	0.669	90		
	19M550ER-ML							○								-	0.197	0.197	0.016	0.669	90		
	250604ER-ML							○								-	0.250	0.016	0.061	0.906	90		
	250608ER-ML							○	○							-	0.250	0.031	0.046	0.906	90		
	250612ER-ML							○								-	0.250	0.047	0.030	0.906	90		
	250616ER-ML							○								-	0.250	0.063	0.014	0.906	90		
	250620ER-ML							○								-	0.250	0.079	0.058	0.906	90		
	250630ER-ML							○								-	0.250	0.118	0.022	0.906	90		
	250632ER-ML							○								-	0.250	0.126	0.014	0.906	90		
	250640ER-ML							○								-	0.250	0.157	0.047	0.906	90		
	250650ER-ML							○								-	0.250	0.197	0.015	0.906	90		
XNCT-MA 	080504PNFR-MA												●			0.394	0.217	0.016	0.101	0.323	90		B79 B80 B82 B83
	080508PNFR-MA												●			0.394	0.217	0.031	0.090	0.323	90		
	080512PNFR-MA												●			0.394	0.217	0.047	0.090	0.323	90		
	080520PNFR-MA												●			0.394	0.217	0.079	0.055	0.323	90		
	120608PNFR-MA															0.512	0.256	0.031	0.109	0.472	90		

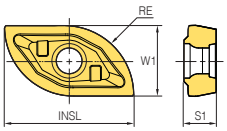
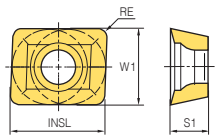
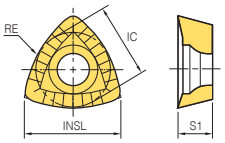
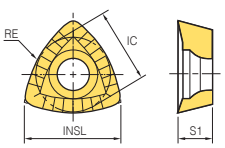
●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Cermet	Coated										Uncoated		Machining types
			CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9540	PC5300	PC5535	PC5400	H01	H05	
	Steel	P	⇕	●	●	●	⇕	⇕			⇕	⇕	✱			● Continuous cutting
	Stainless steel	M		●						✱	⇕	⇕	✱			⇕ General cutting
	Cast iron	K		●	●	⇕	⇕		●		⇕	⇕	✱	●	●	✱ Interrupted cutting
	Non-ferrous metal	N												●	⇕	
	Heat resistant alloy, Titanium alloy	S								✱	⇕	⇕	✱			
	Hardened steel	H				●	⇕				⇕	⇕	✱			

Picture	Designation	Cermet	Coated										Uncoated		Dimension (inch)							Geometry	Page
		CN30	NC5330	NCM535	PC2505	PC2510	PC3700	PC6100	PC9540	PC5300	PC5535	PC5400	H01	H05	INSL	IC/W1	S/S1	RE	BS	APMX	KAPR (°)		
XNKT-ML 	060405PNER-ML					●	◆	●	◆	◆	●	◆			-	0.256	0.157	0.020	0.051	0.224	90		B78 ~ B83
	060408PNER-ML			○			○	●	○	◆	●	◆			-	0.256	0.157	0.031	0.043	0.224	90		
	080504PNER-ML						○		○	●	○	◆			-	0.394	0.217	0.016	0.117	0.323	90		
	080508PNER-ML			●		●	◆	◆	◆	◆	●	◆			-	0.394	0.217	0.031	0.087	0.323	90		
	080512PNER-ML									◆	○	◆			-	0.394	0.217	0.047	0.071	0.323	90		
	080516PNER-ML								○	◆	○	◆			-	0.394	0.217	0.063	0.056	0.323	90		
	080520PNER-ML									●	●	●			-	0.394	0.217	0.079	0.041	0.323	90		
	120608PNER-ML			○			●	●	◆	●	○	●			-	0.512	0.256	0.031	0.109	0.472	90		
	120612PNER-ML								○		○				-	0.512	0.256	0.047	0.093	0.472	90		
	120616PNER-ML								○	○	○				-	0.512	0.256	0.063	0.078	0.472	90		
	120620PNER-ML								○		○				-	0.512	0.256	0.079	0.063	0.472	90		
XNKT-MM 	060405PNSR-MM				●	●	◆	●	●	◆	●	◆			-	0.256	0.157	0.020	0.051	0.224	90		
	060408PNSR-MM				●	●	◆	●	○	◆	●	◆			-	0.256	0.157	0.031	0.043	0.224	90		
	080504PNSR-MM						◆		○	●	○	◆			-	0.394	0.217	0.016	0.101	0.323	90		
	080508PNSR-MM			●	●	●	◆	●	◆	◆	●	◆			-	0.394	0.217	0.031	0.087	0.323	90		
	080512PNSR-MM				●	●	◆		○	◆	○	◆			-	0.394	0.217	0.047	0.071	0.323	90		
	080516PNSR-MM					●	◆		○	◆	●	◆			-	0.394	0.217	0.063	0.056	0.323	90		
	080520PNSR-MM				●		○		○	◆	○	◆			-	0.394	0.217	0.079	0.043	0.323	90		
	120604PNSR-MM									●					-	0.512	0.256	0.016	0.122	0.472	90		
	120608PNSR-MM						◆	●	○	◆	●	◆			-	0.512	0.256	0.031	0.109	0.472	90		
	120612PNSR-MM								○	◆	○	●			-	0.512	0.256	0.047	0.093	0.472	90		
	120616PNSR-MM								○	◆	○	◆			-	0.512	0.256	0.063	0.078	0.472	90		
	120620PNSR-MM					●			○	◆	○	◆			-	0.512	0.256	0.079	0.063	0.472	90		
XNMX-ML  [Right handed type]	0606XNR-ML			◆				◆	◆	◆	●	●			0.577	0.551	0.256	0.031	0.039	0.138	51.429		B140
XNMX-MM 	0606XNR-MM						●		○	◆	○	○			-	0.551	0.039	0.031	0.039	0.137	-		
XNMX-ML  [Neutral type]	060608-ML			○			○		◆	◆	●	●			0.577	0.551	0.236	0.031	0	0.189	51.429		B140
XNMX-MM 	060608-MM						●		○	◆	○	○			-	0.551	0.236	0.031	-	0.189	-		
ZDMT-R-MM 	080310R-MM						●			○	○				0.413	0.265	0.126	0.394	-	-	-		B345
	110312.5R-MM						○			●	○				0.413	0.334	0.144	0.492	-	-	-		
	130416R-MM						●			●	○				0.413	0.413	0.187	0.630	-	-	-		

●: Korea Stock ◆: US Stock ○: Made to order

Workpiece			Machining types
	Steel	P	● Continuous cutting
	Stainless steel	M	⧓ General cutting
	Cast iron	K	⧔ Interrupted cutting
	Non-ferrous metal	N	
	Heat resistant alloy, Titanium alloy	S	
	Hardened steel	H	

Picture	Designation	Cermet	Coated										Uncoated		Dimension (inch)				Geometry	Page
		CN30	NC5330	NCM325	NCM535	PC2505	PC2510	PC3700	PC6100	PC9530	PC5300	PC5535	PC5400	H01	H05	INSL	IC/W1	S/S1	RE	
ZPET-MM Internal	080M-MM							○								0.630	0.315	0.138	0.315		B343
	090M-MM						●	●			●	○				0.697	0.284	0.169	0.354		
	100M-MM						●	●			●	○	○			0.709	0.409	0.177	0.394		
	110M-MM											○				0.873	0.433	0.189	0.433		
	125M-MM							●			●	○				0.906	0.508	0.209	0.492		
	130M-MM						●	●			●	○				1.012	0.512	0.209	0.512		
	140M-MM							●				○				1.072	0.551	0.248	0.551		
	150M-MM											○	○			1.102	0.606	0.276	0.591		
	160M-MM											○				1.122	0.646	0.276	0.630		
	200M-MM											○				1.496	0.815	0.315	0.787		
	250M-MM							○				○				1.890	1.020	0.374	0.984		
ZPET-MM External	080S-MM							○								0.591	0.260	0.315	0.315		
	090S-MM						●	●			●	○				0.610	0.291	0.146	0.354		
	100S-MM							●			●	○	○			0.610	0.331	0.394	0.394		
	110S-MM										○	○				0.711	0.354	0.173	0.433		
	125S-MM							●			●	○				0.807	0.421	0.492	0.492		
	130S-MM						●	●			●	○				0.874	0.433	0.173	0.519		
	140S-MM							●								0.948	0.433	0.224	0.551		
	150S-MM											○	○			0.984	0.488	0.591	0.591		
	160S-MM											○				1.024	0.528	0.630	0.630		
	200S-MM										○	○				1.260	0.657	0.787	0.787		
	250S-MM							○			○	○				1.575	0.815	0.984	0.984		
ZPMT-MM	1504PPSR-MM							●			●					0.624	0.500	0.187	0.039		B315
	1505PPSR-MM															0.624	0.500	0.227	0.039		
ZPMT-R-MM	160520R-MM							●			●	○				0.612	0.500	0.219	0.787		B346
	160525R-MM							●			●	○				0.618	0.500	0.219	0.984		
	160531.5R-MM										●					0.641	0.500	0.219	1.240		
ZPMT-R-MR	160525R-MR							○			○	○	○			0.617	0.500	0.219	0.984		

●: Korea Stock ◆: US Stock ○: Made to order

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for Face Milling	Mill-max	ADNA 4000/5000+		45°	Ø3~Ø12	Excellent cutting-edge strength and chip flow	●					B47 B48
		AEA 4000/5000		45°	Ø3~Ø12	Low cutting load and good machinability	●					B49 B50
		EFA 4000	Al 	75°	Ø3~Ø12	High rake angle to prevent welding	●					B51
		ENA 4000		75°	Ø3~Ø12	Economical because double sided inserts applied	●					B52
		EPNA 4000/5000+		75°	Ø3~Ø12	Double posi rake angle and low cutting force	●					B53 B54
		PFA 4000	Al 	90°	Ø3~Ø12	High rake angle and good machinability	●	●	●			B55
		PPNA 4000		90°	Ø3~Ø12	Double posi rake angle and low cutting force	●	●	●			B56
	Turbo Mill	ADSA 4000/5000		45°	Ø0.75~Ø2.5	Anti-vibration	●					B57 B58
		PESA 2000/3000/ 4000		90°	Ø2~Ø2.5	High rake angle, Cutting efficiency	●	●	●			B59
	Double Mill	AFOA4000		45°	Ø3~Ø5	High rake angle low cutting force Economical (8 corners available)	●					B60
		AFOA5000			Ø3~Ø12							B61

Al Cutter for aluminum

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for Face Milling	Power Buster	PBACA5000		45°	Ø3~Ø12	Double-sided Insert High depth High feed roughing	●					B65
		PBZCA5000		90°	Ø3~Ø12		●					B66
		PBPCMA6000			Ø3~Ø12		●	●				B67
	Aero Mill	APDA A type	Al 	90°	Ø3~Ø12	Aluminum cutter body suitable for high speed machining, Both cemented carbides and PCD inserts are available, G2.5 balance possible	●					B150
	Aero Mill - Plus	APDA-PB	Al 	90°	Ø3~Ø12	Prevent overload to the spindle bearings through weight reduction of the Al alloy body and enable high-speed processing	●					B152 B153
	Aero Mill-Mini	MAPDSA	Al 	90°	Ø1.25~Ø1.5	Suitable for small-sized machining center-Carbide, PCD insert Application-Balancing class G2.5	●					B156
		MAPDA	Al 	90°	Ø1.5~Ø2.5		●					B155
	Rich Mill	RM8ACA4000 RMH8ACA4000		45°	Ø2~Ø15	8 corners available Double-sided insert for steel, cast iron, stainless steel, aluminum	●					B116 B117
		RM8ACA5000 RMH8ACA5000			Ø3~Ø15		●					B118 B119
		RM8ECA4000 RMH8ECA4000		75°	Ø2~Ø15	8 corners available Double-sided insert for steel, cast iron	●					B120 B121
		RM8ECA5000 RMH8ECA5000			Ø3~Ø15		●					B122 B123

Al Cutter for aluminum

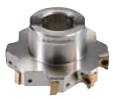
Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for Face Milling	Rich Mill	RM8QCA4000 RMH8QCA4000		88°	Ø2.5~Ø8	8 corners available Reduced cutting interruption at cast Iron	●					B124 B125
		RMT8AA 4000/5000		45°	Ø3~Ø12		●					B127 B128
		RMT8EA 4000/5000		75°	Ø3~Ø12	Easy insert change and good machinability due to latch clamping system 8 corners available Excellent surface finish	●					B129 B130
		RMT8QA 4000		88°	Ø3~Ø12		●					B131
		RMX8ACA- SA14		45°	Ø2~Ø5	Double sided insert with 8 corners Stable cutting performance due to double reversal positive relief surface Good machinability in stainless cutting with High helix cutting edge	●					B136
		RM14XCA- XN06		51°	Ø2~Ø6	Double sided insert with 14 corners Suitable for automobile components machining	●					B140
		RM16ACA 6000/8000		45°	Ø2.5~Ø15	16 corners available Wiper inserts can be applied for good surface finish Strong insert and powerful clamping	●					B142 B143
		RMRCA-RN12		-	Ø2~Ø5	High cost efficiency due to double sided round typed cutting edge Excellent rotating prevention by strong clamping system Suitable for Inconel cutting	●					B146
Cutters for Molds	Rich Mill	RM3PCA3000		90°	Ø1.5~Ø3	Perfect perpendicularity Strong clamping	●	●	●		●	B78
		RM3PCA4000			Ø1.5~Ø5							B79
		RM3PCA5000			Ø3~Ø5							B80
		RM4PCA3000		90°	Ø1.5~Ø4	4 corners available High rake angle insert reduces cutting force. Excellent insert rigidity	●	●	●		●	B90 B91
		RM4PCA4000			Ø2~Ø6							

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for Molds	Rich Mill	RM4ZCA3000		90°	Ø1.5~Ø2	4 corners available In vertical machining, the maximum cutting depth for RM4Z3000: 0.354 inch, RM4Z4000: 0.551 inch	●	●	●		●	B95
		RM4ZCA4000			Ø2.5~Ø4							
		RM6PCA-WN04		90°	Ø1.5~Ø2.5	Improved productivity and high-quality shouldering through high speed and high feed machining	●	●	●		●	B108
		RM6PCA-WN08			Ø2~Ø5							B109
	Alpha Mill-X	AMXCA-AD10/12/17		90°	Ø1.5~Ø5	High rake angle cutting edge and chip breaker reduce cutting load and improve chip evacuation. High rigidity due to special design	●	●	●	●	●	B162 B163
	Alpha Mill	AMCA 1000S/1500S/2000S		90°	Ø1.5~Ø4	3-dimensional shape and high rake angle lowers cutting load and ensures better chip evacuation Inner coolant system for better chip control increases tool life Wide size range of inserts enlarges application range. Various types of Alpha Mills available for high depth of cut and high feed machining	●	●	●	●	●	B173~ B175
		AMCA 3000S/3000S-K/4000S		90°	Ø1.5~Ø5		●	●	●	●	●	B176~ B178
		AMCA 1000SE 2000SE 3000SE		75°	Ø1.5~Ø4		●					B179~ B180
		AMCA 2000M 3000M 4000M		90°	Ø2~Ø5		●	●	●	●	●	B181~ B183
	Future Mill	FMACA3000		45°	Ø2~Ø5	Accurate inserts and cutter, Excellent chip flow	●					B205
		FMACA4000			Ø2~Ø8							B206
		FMACA3000-A		45°	Ø2.5~Ø5	Excellent in high speed cutting and tapping center, low power machine due to light aluminum body	●					B207
		FMACA4000-A			Ø2.5~Ø12							B208
		FMPCA3000		90°	Ø2~Ø4	4 corners available various inserts can be applied to machine for different types of workpiece	●	●	●			B211
		FMPCA4000			Ø2.5~Ø5							B212
		FMPCA3000-A		90°	Ø2.5~Ø4	Excellent in high speed cutting and tapping center, low power machine due to light aluminum body	●	●	●			B213 B214
		FMPCA4000-A			Ø2.5~Ø12							

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for Molds	Future Mill	FMRCA3000		-	Ø1.5~Ø4	4~8 corners available Double contact faces between insert & seat part of cutter for stable clamping Excellent rotating-free machining	●	●	●	●	●	B224
		FMRCA4000			Ø2~Ø5							B225
		FMRCA5000		-	Ø2~Ø5		●	●	●	●	●	B226
		FMRCA6000			Ø2.5~Ø6							B227
	Future Mill P-positive	FMRCA 3000 4000 5000 6000		-	Ø1.5~Ø8	Stable clamping system enables stable machining and productivity Varied product line-up ensures wide application range Optimal shape and grade with high hardness for hard-to-cut material machining.	●	●	●	●	●	B243~ B246
	Triple Mill	TPMCA-TN16		90°	Ø2~Ø5	3-cornered insert for shouldering -Reduced cutting resistance due to high rake angled cutting edge and chip breaker	●	●	●			B258
		TPMCA-TN20			Ø2.5~Ø5							B259
	HFMD	HFMDCA-LN06		-	Ø1.25~Ø2.5	Double sided with 4 corners insert for small diameter machining For high feed and multi-functional machining Strong clamping realizes stable machining.	●	●	●		●	B276
		HFMDCA-LN10		-	Ø1.5~Ø4							B277
	HQM	HQMSA-SQ12		10°	Ø1.25~Ø1.5	4corners available, Highfeed multi-Function, strong cutting edge	●	●	●	●	●	B270
		HQMSA-SQ14		10°	Ø1.25~Ø1.5	4corners available, Highfeed multi-Function, strong cutting edge	●	●	●	●	●	B271
	HRM	HRMCA13		15°	Ø2~Ø3	Powerful clamping by double clamping system 3 corners available high feed cutting with low cutting load	●	●	●		●	B301
		HRMCA15			Ø2.5~Ø6							B309
	HRMD	HRMDCA09		14°	Ø1.5~Ø4	Double side insert with 6 corner High feed cutting with strong simple screw-on clamp	●	●	●		●	B297
		HRMDCA13			Ø2~Ø5							B298
		HRMDCA16			Ø3~Ø12							B299
	Tangen-Pro	TP2PCA-LN08		90°	Ø1.5~Ø2.5	High-quality results available even under harsh cutting conditions, thanks to the stable clamping force	●	●	●			B319
		TP2PCA-LN14			Ø1.5~Ø5							B320
		TP2PCA-LN17			Ø1.5~Ø5							B321
		TP8PCA-SO14		90°	Ø40~Ø125	Application of 8-corner double-sided tangential insert Quality can be ensured even under harsh conditions with stable clamping force	●	●	●			B327

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for Aluminum	Pro-A Mill	PACA 2000/4000	Al 	90°	Ø1.5~Ø4	Buffed insert controls chip flow without built-up edge	●	●	●	●	●	B355
	Pro-X Mill	PAXCA5000	Al 	90°	Ø1.5~Ø5	Powerful clamping Excellent body rigidity for rectangular and curve machining	●	●	●	●	●	B360
		PAXCA6000			Ø2~Ø5							B361
	Pro-L Mill	PALCA	Al 	90°	Ø2.5	High helix and high depth of cut High perpendicularity Low cutting load	●	●	●	●	●	B367
	Pro-V Mill	PAVCA-XD19	Al 	90°	Ø1.5~Ø5	Exclusive milling tool for high speed aluminum machining with key to key way structure ensures stable clamping.	●	●	●	●	●	B376
Indexable Side Cutter	Tangential type / Full-side cutter	TAFCPA		-	Ø4~Ø12	Various cutting depth can be possible because of adjustable length control. Medium to Roughing based on strengthened edge		●	●			B383
		TAFCBA		-	Ø4~Ø12		●	●	●			B383
	Tangential type / Half-side cutter	TAHCPA		-	Ø4~Ø12			●	●			B384
		TAHCBA		-	Ø4~Ø12		●	●	●			B384
Indexable Side Cutter	Radial type / Full-side cutter	RAFCPA		-	Ø4~Ø12	Wide range of machining width with only one side cutter due to adjustable cutting-edge height Suitable for medium and finishing in narrow width side cutting due to good chip evacuation by 3-dimensional chip breaker		●	●			B385
		RAFCBA		-	Ø4~Ø12		●	●	●			B385
	Radial type / Half-side cutter	RAHCPA		-	Ø4~Ø12			●	●			B386
		RAHCBA		-	Ø4~Ø12		●	●	●			B386

Al Cutter for aluminum

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Side Cutters	Full-side cutter	SPPA		-	Ø3~Ø8	Economical by using pentagonal insert Suitable for narrow & deep grooving			●			B387
		SPBA		-	Ø3~Ø8	Economical by using pentagonal insert Suitable for narrow & deep grooving			●			B388
		SPSA		-	Ø2~Ø8	For narrow and deep width grooving			●			B389
	Full-side cutter	RM4PFCBA		-	Ø3~Ø6	4 corner usage with double-sided insert can be economical			●			B97 B98
		RM4PFCPA		-	Ø3~Ø6				●			B101 B102
	Half-side cutter	RM4PHCBA		-	Ø3~Ø6	4 corner usage with double-sided insert can be economical			●			B99 B100
		RM4PHCPA		-	Ø3~Ø6				●			B103 B104
	Wind Mill	WFSBA		-	Ø3~Ø8	The nose R shape of insert ensures long tool life. Wide applications with various widths and corner R sizes.	●	●	●			B392
		WFSPA		-	Ø3~Ø8			●	●			B394
Cutters for Face Milling	Turbo Mill	ADSA 4000/5000		45°	Ø2~Ø2.5	Uneven insert spacing prevents chattering	●					B57 B58
		PESA 2000/3000/4000		90°	Ø0.75~Ø2.5	Good machinability due to the high rake angle	●	●	●			B59
Cutters for Molds	Rich Mill	RM3PSA3000		90°	Ø0.75~Ø1.5	Perfect perpendicularity Strong clamping	●	●	●		●	B81
		RM3PSA4000			Ø1.25~Ø2.5							B82
		RM4PSA3000		90°	Ø0.562~Ø2	4 corners available High rake angle insert reduces cutting force Excellent insert rigidity	●	●	●		●	B92
		RM4PSA4000			Ø1.25~Ø2.5		●	●	●		●	B93

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for Molds	Rich Mill	RM4ZSA3000		90°	Ø1~Ø1.5	In vertical machining, the maximum cutting width: 0.354 inch	●	●	●		●	B96
		RM6PSA-WN04		90°	Ø0.75~Ø1.25	Improved productivity and high-quality shouldering through high speed and high feed machining	●	●	●		●	B110
		RM6PSA-WN08			Ø1.25~Ø2							B111
		RMRSA-RN12		-	Ø1.25~Ø2.5	High cost efficiency due to double sided round typed cutting edge Excellent rotating prevention by strong clamping system Suitable for Inconel cutting	●					B147
	Alpha Mill-X	AMXSA-AD10/12/17		90°	Ø0.75~Ø1.5	High rake angle cutting edge and chip breaker reduce cutting resistance and improve chip evacuation. High rigidity due to special design	●	●	●	●	●	B164 B165
	Alpha Mill	AMSA 1000S/1500S 2000S/3000S 3000S-K/4000S		90°	Ø0.438~Ø2.5	The combination of a 3-dimensional curve design & high rake angle helps chip-evacuation effectively with a low cutting force Inner coolant system The various range of inserts can provide the widened choice High depth and high feed can be available during operation	●	●	●	●	●	B184~ B191
		AMSA 1000SE/2000SE 3000SE		75°	Ø1~Ø2.5		●					B192 B193
		AMSA 1000M/1500M 2000M/4000M		90°	Ø0.625~Ø2		●	●	●	●	●	B194~ B196
		AMSA 1000MH/1500MH 2000MH/3000MH(-K)		90°	Ø0.562~Ø1.5		●	●	●	●	●	B197 B198
	Future Mill	FMASA3000		45°	Ø1~Ø2.5	For precision machining Excellent chip evacuation	●					B209
		FMASA4000			Ø2~Ø2.5							B210
		FMPSA3000		90°	Ø1~Ø2.5	4 corners available Strong cutting-edge with low cutting load	●					B215
		FMPSA4000			Ø1.5~Ø2.5							B216
		FMRSA 1000/1500/2000 2500/3000/4000 5000/6000		-	Ø0.312~Ø2.5	2 touch clamping system, convenient insert change	●	●	●	●	●	B228~ B233
	Future Mill P-positive	FMRSA 2500/3000 4000/5000 6000		-	Ø0.688~Ø2	P-positive relief angle ensures high rigidity and high machinability in die steel and high-resistant alloy machining Flat clearance face of insert prevents interference and revolution while machining	●	●	●	●	●	B247~ B250

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for Molds	Triple Mill	TPMSA-TN11		90°	Ø1.0~Ø1.5	3-cornered insert for shouldering Reduced cutting resistance due to high rake angled cutting edge and chip breaker	●	●	●			B260
		TPMSA-TN16			Ø1.25~Ø1.5							B261
	HFMD	HFMDSA-LN04		-	Ø0.375~Ø0.750	Double sided insert with 4 corners for small diameter machining For high feed and multi-functional machining Strong clamping system for stable machining	●	●	●	●	●	B278 B279
		HFMDSA-LN06			Ø0.625~Ø1.5							B280 B281
		HFMDSA-LN10			Ø1.0~Ø1.5							B282
	HFM	HFMSA 1000		13°	Ø0.563~Ø0.813	Apply helix cutting-edge on insert, low cutting load and reinforce toughness on corner Increased rigidity with double relief angle (11, 13), prevent interference with high feed To apply the negative axial rake angle when set up the holder, increased chipping resistance	●	●	●	●	●	B289 B290
	HRM	HRMSA 08/10/13/15		15°	Ø0.75~Ø2.5	Powerful clamping by double clamping system 3 corners available High feed cutting with low cutting load	●	●	●	●	●	B310~ B312
	HQM	HQMCA-SQ12		10°	Ø2~Ø4	4corners available, Highfeed multi-Function, strong cutting edge	●	●	●	●	●	B268
		HQMCA-SQ14		10°	Ø2~Ø4		●	●	●	●	●	B269
	HRMD	HRMDSA 06/09/13		14°	Ø0.68~Ø2.5	6 corners available, High feed, multi-function, only one screw application	●	●	●	●	●	B300~ B304
	Tangen-Pro	TP2PSA-LN08		90°	Ø0.75~Ø1	High-quality results available even under harsh cutting conditions, thanks to the stable clamping force	●	●	●			B322
		TP2PSA-LN14			Ø1~Ø2							B323
		TP2PSA-LN17			Ø1.25~Ø2							B324
		TP8PSA-SO14		90°	Ø32~Ø40	Application of 8-corner double-sided tangential insert Quality can be ensured even under harsh conditions with stable clamping force	●	●	●			B328
	Tank Mill	THEA		90°	Ø0.984~ Ø1.968	Right-hand helix angle employed for good chip evacuation. Special surface treatment prevents body breaking and improves rigidity. Strong cutting-edge	●	●				B315
	Laser Mill	LBEA□□ LREA□□		-	Ø0.312~Ø1.5	Indexable ball endmill for precise mold. Rigid holder with simple design finishing MQL is available	●	●	●	●		B334 B336 B337
		LBEA□□-C LREA□□-C		-	Ø0.312~Ø1.5	ndexable ball endmill for precise mold. Rigid holder with simple design finishing MQL is available Carbide shank	●	●	●			B333 B335

Type	Cutter	Designation	Picture	KAPR	Diameter range	Features	Application					Page
							Facing	Shouldering	Slotting	Copying	Ramping, Helical	
Cutters for Molds	Mach Mill	GBEA		-	Ø0.63~Ø1.969	Helical design of edge can reduce the force during operation. Safe application to prevent rotation guarantee the increased tool life	●	●	●	●		B341~ B342
		BREA		-	Ø0.787~Ø2.48	Flute type chip-pocket can make chip-evacuation Customized edge design can prevent the breakage of holder's body	●	●	●	●		B345 B346
	Chamfer Tool	CEA		75°	Ø1~Ø1.217	For Back & Front high quality chamfering and various Chamfering angle machining	●					B349
				60°	Ø1~Ø1.413							
				45°	Ø0.281~Ø1.587							
				30°	Ø1~Ø1.72							
				30°	Ø0.203~Ø1.384	Various chamfer degrees available Effective long chamfer cutting available	●	●	●			B350
				45°	Ø0.203~Ø1.896							
				60°	Ø0.203~Ø2.278							
				45°	Ø0.87~Ø1.14	Centering, Grooving, Chamfering	●	●	●		●	B351
	T-Cutter	TFEA		90°	Ø0.83~Ø1.97	For slotting	●	●	●	●	●	B352
Cutters for Aluminum	Pro-A Mill	PASA 2000/4000		90°	Ø0.5~Ø1.5 Ø1.25~Ø1.5	Polished face increases chip flow and reduces built-up edge	●	●	●	●	●	B356
	Pro-X Mill	PAXSA 5000/6000		90°	Ø0.75~Ø1.5 Ø1.25~Ø1.5	Square shoulder and corner machining	●	●	●	●	●	B362 B363
	Pro-L Mill	PALSA-HR (Single-edge)		90°	Ø1.25~Ø2.5	High helix and high depth of cut High perpendicularity Low cutting load	●	●	●	●	●	B368 B369
		PALSA-HM (Multi-edge)			Ø2.5		●	●	●	●	●	B370
	Pro-XL Mill	PXLA		90°	Ø1.5~Ø3	Improved surface finish and perpendicularity achieved by a single pass with the deep cutting-edges	●	●				B372
	Pro-V Mill	PAVSA-XD19		90°	Ø1~Ø1.5	Exclusive milling tool for high speed aluminum machining with key to key way structure ensures stable machining.	●	●	●	●	●	B377
Thread Milling	-	TMA		-	Ø0.35~Ø1.81	For internal and external threading	●					C17

FMRMA type

B234~B237
B251~B254





LBEA-MHD type

B337



PAMA type

B357



PAXMA type

B364



AMMA type

B199~B201



RM3PMA type

B83



RM4PMA type

B94





Steel Shank type

B378



Carbide Shank type

B379

B KORLOY Modular Adaptors

RM4ZMA type
B96



RM6PMA type
B112, B113



HFMDMA type
B283~B285



HFMMA type
B291



HRMMA type
B313, B314



HRMDMA type
B305~B307



GBEMA type
B343





Steel Shank type
B378



Carbide Shank type
B379

ADNA4000



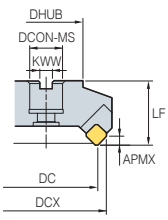


Fig. 1

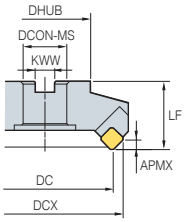


Fig. 2

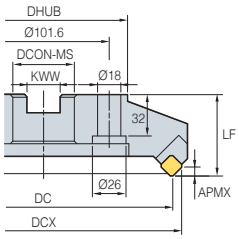


Fig. 3

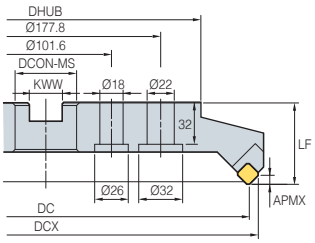


Fig. 4



KAPR 45°

- GAMP : 15°
- GAMF : -4°

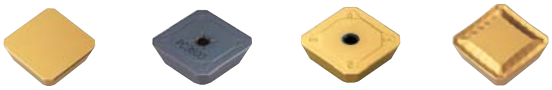
(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
ADNA	4300R/L	○		4	3	3.543	2.205	1	0.375	2	0.24	4.2	1
	4400R/L	○		5	4	4.543	2.874	1 1/4	0.5	2	0.24	5.5	2
	4500R/L	○		6	5	5.543	3.389	1 1/2	0.625	2.5	0.24	9.5	2
	4600R/L	○		8	6	6.543	4.882	2	0.75	2.5	0.24	14.1	2
	4800R/L	○		10	8	8.539	5.118	2 1/2	1	2.5	0.24	19.1	3
	41000R/L	○		12	10	10.539	7.087	2 1/2	1	2.5	0.24	30.8	3
	41200R/L	○		14	12	12.539	9.449	2 1/2	1	2.5	0.24	46.2	4

◆: US stock ○: Made to order

Available inserts

SDCN SDKN-MU SDKN-SU SDKR-MX



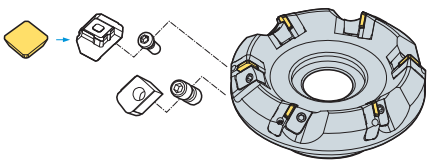
Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SDCN	42M													●			B19
	42M-G															●	
	42MT	●		○	●									●			
	42MT-RH																
	42MT-S20									●							
	42AEEN																
	42AEEN-RH																
	42AESN																
	42AESN-RH																
SDKN	42AESN-MU							●									B20
	42AESN-SU							◆				●	●				
SDKR	42AESN-MX																B20
	42AETN-MX																
	42AEN-MX			●													

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6510** **G10**

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø3~Ø12	LADN4R/L	WEPN4R/L	DHA0821F	LTX0514	HW40

Available inserts **B19, B20** Available arbors and bolt **E94 ~ E95**

ADNA5000+



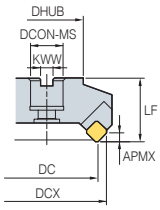


Fig. 1

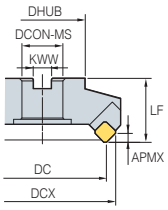


Fig. 2

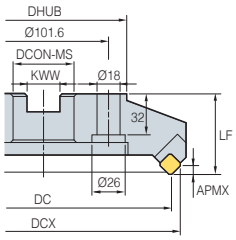


Fig. 3

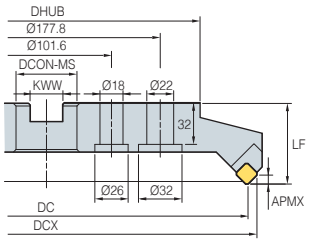


Fig. 4



KAPR 45°

- GAMP : 15°
- GAMF : -4°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
ADNA	5300R/L+	○		4	3	3.724	2.205	1	0.374	2	0.32	4.4	1
	5400R/L+	○		5	4	4.724	2.874	1 1/4	0.5	2	0.32	5.9	2
	5500R/L+	○		6	5	5.72	3.389	1 1/2	0.625	2.5	0.32	9.5	2
	5600R/L+	○		8	6	6.524	4.882	2	0.75	2.5	0.32	14.3	2
	5800R/L+	○		10	8	8.72	5.118	2 1/2	1	2.5	0.32	20.0	3
	51000R/L+	○		12	10	10.72	7.087	2 1/2	1	2.5	0.32	31.9	3
	51200R/L+	○		14	12	12.72	9.449	2 1/2	1	2.5	0.32	46.2	4

◆: US stock ○: Made to order

Available inserts

SDCN SDKN-MU SDKN-SU SDKR-MX



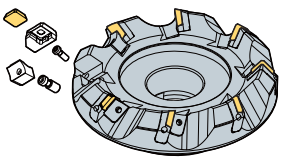
Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SDCN	53M													●			B19
	53M-G															●	
	53MT	●		●	○									●			
	53MT-RH																
	53MT-S20									●							
	53AEEN																
	53AEEN-RH								●			●					
	53AESN																
	53AESN-RH								●								
SDKN	53AESN-MU							●									B20
	53AESN-SU							◆				●	●				
SDKR	53AESN-MX				●												B20
	53AETN-MX																
	53AEN-MX			●													

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø3~Ø12	LADN5R/L	WHPS5R/L	WHX0817 WHX0813*	LTX0514	HW40

Available inserts **B19, B20** Available arbors and bolt **E94 ~ E95**

*:Ø3

AEA4000



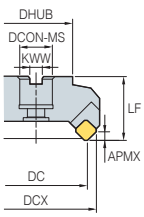


Fig. 1

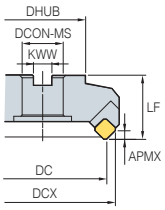


Fig. 2

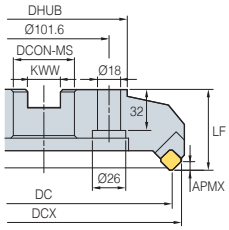


Fig. 3

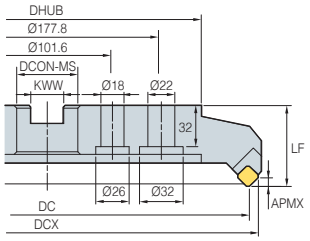


Fig. 4



KAPR 45°

- GAMP : 20°
- GAMF : -3°

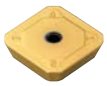
(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
AEA	4300R/L	○		4	3	3.516	2.205	1	0.375	2	0.22	3.7	1
	4400R/L	○		5	4	4.516	2.874	1 1/4	0.5	2	0.22	6.4	2
	4500R/L	○		6	5	5.516	3.389	1 1/2	0.625	2.5	0.22	9.7	2
	4600R/L	○		8	6	6.516	4.882	2	0.75	5.5	0.22	13.4	2
	4800R/L	○		10	8	8.516	5.118	2 1/2	1	2.5	0.22	19.6	3
	41000R/L	○		12	10	10.516	7.087	2 1/2	1	2.5	0.22	34.5	3
	41200R/L	○		15	12	12.512	9.449	2 1/2	1	2.5	0.22	55.2	4

◆: US stock ○: Made to order

Available inserts

SECN SEKN-SU SEKR-MX

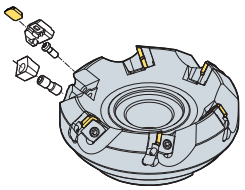

Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SECN	42AFFN											○			●	●	
	42AFTN	●		○	○			○		◆				●			
	42AFEN								◆			◆	○				
	42AFSN			◆	◆			○									B21
	42AFEN-RH								●			●					
	42AFTN-RH																
	42AFTN-S20									●							
SEKN	42AFSN-SU							◆				○					B21
SEKR	42AFSN-MX			◆	●			○		◆		○	○				B22

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Wrench	Wrench
Ø3~Ø12	LADN4R/L	WEPN4R/L	DHA0821F	LTX0514	HW40

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E95**

AEA5000



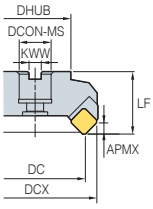


Fig. 1

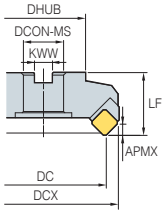


Fig. 2

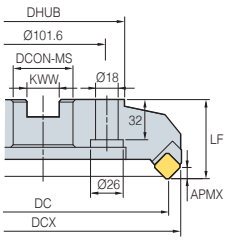


Fig. 3

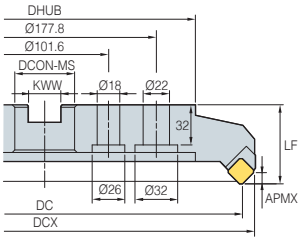


Fig. 4



KAPR 45°

- GAMP : 20°
- GAMF : -3°

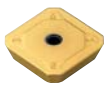
(inch)

	Designation	Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
AEA	5300R/L	○		4	3	3.693	2.205	1	0.375	2	0.3	3.7	1
	5400R/L	○		5	4	4.689	2.874	1 1/4	0.5	2	0.3	6.4	2
	5500R/L	○		6	5	5.689	3.389	1 1/2	0.625	2.5	0.3	9.7	2
	5600R/L	○		8	6	6.685	4.882	2	0.75	2.5	0.3	13.4	2
	5800R/L	○		10	8	8.689	5.118	2 1/2	1	2.5	0.3	19.6	3
	51000R/L	○		12	10	10.685	7.087	2 1/2	1	2.5	0.3	34.5	3
	51200R/L	○		15	12	12.685	9.449	2 1/2	1	2.5	0.3	55.2	4

◆: US stock ○: Made to order

Available inserts

SECN SEKN-SU SEKR-MX

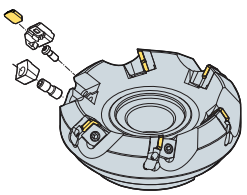

	Designation	Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SECN	53AFFN											○		●			
	53AFTN	●								○							
	53AFEN																
	53AFSN				○												
	53AFEN-RH																B21
	53AFSN-RH								●								
	53AFTN-S20																
SEKN	53AFSN-SU							◆				○	●				
	53AFSN-MX			●						●							
SEKR	53AFSN-MX			◆	○			○		◆		○	○				B22

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø3~Ø12	LAE5R/L	WAE5R/L	DHA0821F	LTX0512	HW40

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E95**

EFA4000



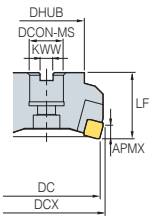


Fig. 1

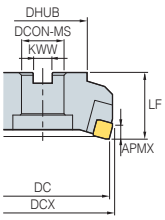


Fig. 2

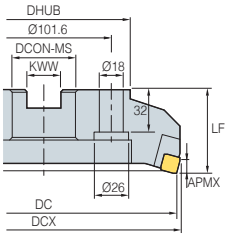


Fig. 3

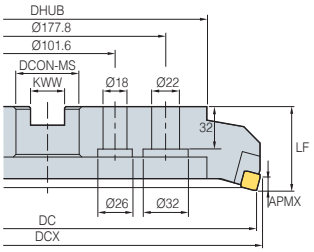


Fig. 4



KAPR 75°

- GAMP : 18°
- GAMF : 11°

(inch)

	Designation	Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
EFA	EFA4300R/L	○		5	3	3.24	2.205	1	0.375	2	0.33	3.1	1
	EFA4400R/L	○		6	4	4.24	2.874	1 1/4	0.5	2	0.33	4.6	2
	EFA4500R/L	○		8	5	5.24	3.389	1 1/2	0.625	2.5	0.33	8.4	2
	EFA4600R/L	○		10	6	6.24	4.882	2	0.75	2.5	0.33	12.5	2
	EFA4800R/L	○		12	8	8.24	5.118	2 1/2	1	2.5	0.33	18.5	3
	EFA41000R/L	○		16	10	10.24	7.087	2 1/2	1	2.5	0.33	30.4	3
	EFA41200R/L	○		20	12	12.236	9.449	2 1/2	1	2.5	0.33	47.5	4

◆: US stock ○: Made to order

Available inserts

SFCN



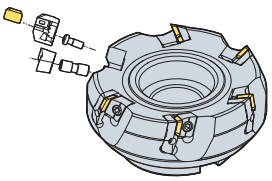
Designation	Cermet CN30	Coated NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC3300	PC5400	Uncoated ST30A	G10	H01	Page
SFCN 42EFR															●	B22

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
K	820~1312	0.008~0.002	H01
N	984~1312	0.002~0.012	H01

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø3~Ø12	LEF4R/L LEF4R1*/L1*	WEFR/L	DHA0821F	LTX0512	HW40

Available inserts **B22** Available arbors and bolt **E94 ~ E95**

*: Ø3~Ø4

ENA4000



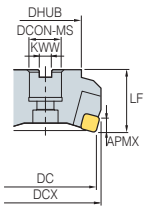


Fig. 1

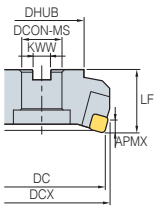


Fig. 2

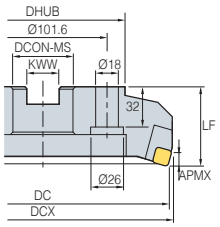


Fig. 3

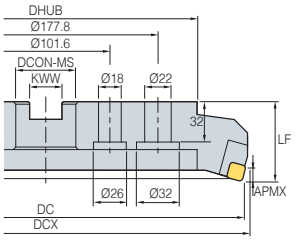


Fig. 4



KAPR 75°

- GAMP : -6°
- GAMF : -5°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
ENA	4300R/L	○		5	3	3.209	2.205	1	0.375	2	0.33	3.1	1
	4400R/L	○		6	4	4.209	2.874	1 1/4	0.5	2	0.33	4.6	2
	4500R/L	○		8	5	5.209	3.389	1 1/2	0.625	2.5	0.33	8.4	2
	4600R/L	○		10	6	6.209	4.882	2	0.75	2.5	0.33	12.5	2
	4800R/L	○		12	8	8.209	5.118	2 1/2	1	2.5	0.33	18.5	3
	41000R/L	○		16	10	10.209	7.087	2 1/2	1	2.5	0.33	30.4	3
	41200R/L	○		20	12	12.276	9.449	2 1/2	1	2.5	0.33	47.5	4

◆: US stock ○: Made to order

Available inserts

SNCN SNKN





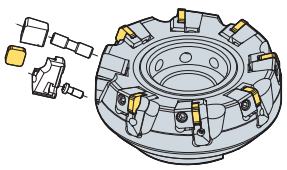
Designation		Cermet CN30	Coated NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
SNCN	43ENN			●										●			B23
SNKN	1204ENN				○			○	●			○					B25

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø3~Ø12	LEN4R/L	WENR/L WENR1*/L1*	DHA0830 DHA0825*	LTX0512	HW40

Available inserts **B23, B25** Available arbors and bolt **E94 ~ E95**

*:Ø3~Ø4

EPNA4000



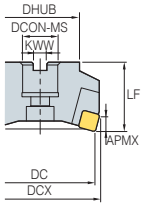


Fig. 1

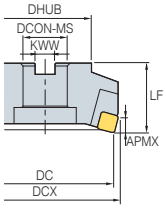


Fig. 2

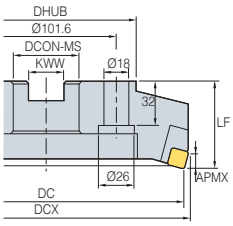


Fig. 3

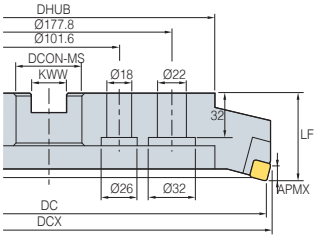


Fig. 4



KAPR 75°

- GAMP : 7°
- GAMF : 0°

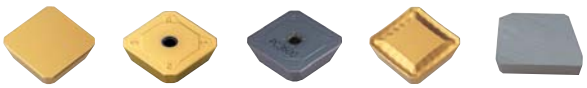
(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
EPNA	4300R/L	○		5	3	3.213	2.205	1	0.375	2	0.35	3.1	1
	4400R/L	○		6	4	4.209	2.874	1 1/4	0.5	2	0.35	4.6	2
	4500R/L	○		8	5	5.209	3.389	1 1/2	0.625	2.5	0.35	8.4	2
	4600R/L	○		10	6	6.24	4.882	2	0.75	2.5	0.35	12.5	2
	4800R/L	○		12	8	8.209	5.118	2 1/2	1	2.5	0.35	18	3
	41000R/L	○		16	10	10.209	7.087	2 1/2	1	2.5	0.35	29.7	3
	41200R/L	○		20	12	12.209	9.449	2 1/2	1	2.5	0.35	46.4	4

◆: US stock ○: Made to order

Available inserts

SPCN SPKN-SU SPKN-MU SPKR-MX SPEX



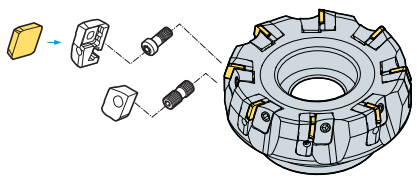
Designation		Cermet	Coated								Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPCN	42EDR	●		●						●				●	●	●	B26
	42EDL													●			
	42EDR-G															●	
	42EDER-RH								●			●					
	42EDSR-RH								●								
	42EDTR-RH																
	42EDR-S20									●							
SPKN	42EDSR-MU							●									B27
	42EDSR-SU							●				●	●				
	42EDSL-SU							●									
SPKR	42EDSR-MX			●	●												B27
	42EDSL-MX																
SPEX	42EDR/L-1																B26

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø3~Ø12	LEPN4R/L LEPN4R1*/L1*	WEPN4R/L	DHA0821F DHA0817F*	LTX0514	HW40

Available inserts **B26, B27** Available arbors and bolt **E94 ~ E95**

*:Ø3~Ø4

EPNA5000+



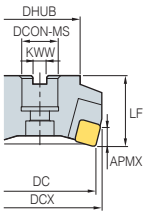


Fig. 1

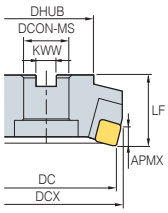


Fig. 2

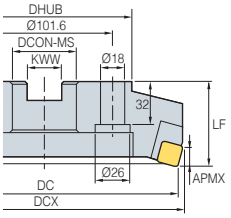


Fig. 3

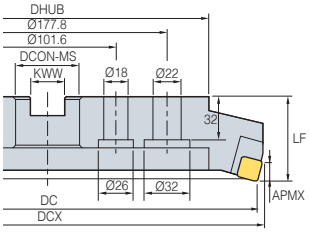


Fig. 4



KAPR 75°

- GAMP : 7°
- GAMF : 0°

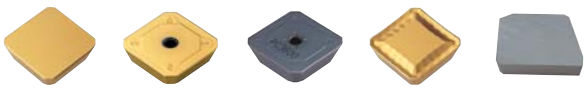
(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
EPNA	5300R/L+	○		5	3	3.28	2.205	1	0.374	2	0.47	3.8	1
	5400R/L+	○		6	4	4.28	2.874	1 1/4	0.5	2	0.47	5.5	1
	5500R/L+	○		8	5	5.28	3.389	1 1/2	0.625	2.5	0.47	8.4	2
	5600R/L+	○		10	6	6.362	4.882	2	0.75	2.5	0.47	12.1	2
	5800R/L+	○		12	8	8.358	5.118	2 1/2	1	2.5	0.47	17.6	3
	51000R/L+	○		16	10	10.28	7.087	2 1/2	1	2.5	0.47	32.6	3
	51200R/L+	○		20	12	12.276	9.449	2 1/2	1	2.5	0.47	49.4	4

◆: US stock ○: Made to order

Available inserts

SPCN SPKN-SU SPKN-MU SPKR-MX SPEX



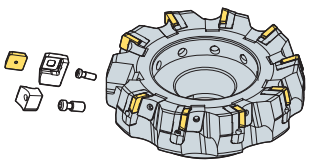
Designation		Cermet	Coated									Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPCN	5312T																B26
	53EDR	●		●										●	●		
	53EDSR																
	53EDL								●								
	53EDR-G															●	
	53EDER-RH								●			●					
	53EDSR-RH								●								
	53EDTR-RH							○									
	53EDR-S20									●							
SPKN	53EDSR-MU							●									B27
	53EDSR-SU							●				●	●				
	53EDSL-SU							●									
SPKR	53EDR-MX			●													B27
	53EDSR-MX																
SPEX	53EDR/L-1																B26

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø80~Ø315	LEPN5R/L LEPN5R1*/L1*	WHPS5R/L	WHX0817 WHX0813*	LTX0514	HW40

Available inserts **B26, B27** Available arbors and bolt **E94 ~ E95**

*: Ø3

PFA4000



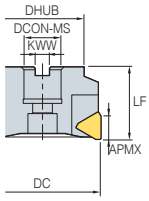


Fig. 1

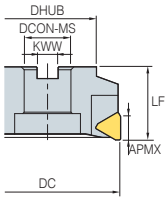


Fig. 2

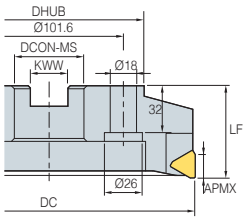


Fig. 3

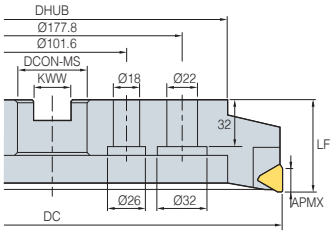


Fig. 4




KAPR 90°

- GAMP : 15°
- GAMF : 14°

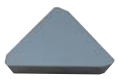
(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
PFA	4300R/L	○		4	3	3.004	2.205	1	0.375	2	0.63	2.6	1
	4400R/L	○		4	4	4	2.874	1 1/4	0.5	2	0.63	4.0	2
	4500R/L	○		7	5	5	3.389	1 1/4	0.625	2.5	0.63	6.8	2
	4600R/L	○		9	6	6	4.882	2	0.75	2.5	0.63	12.3	2
	4800R/L	○		11	8	8	5.118	2 1/2	1	2.5	0.63	19.4	3
	41000R/L	○		15	10	10	7.087	2 1/2	1	2.5	0.63	35.2	3
	41200R/L	○		19	12	12	9.449	2 1/2	1	2.5	0.63	48.4	4

◆: US stock ○: Made to order

Available inserts

TFCN



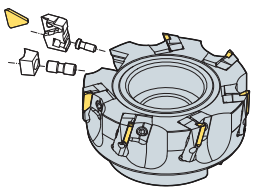
Designation		Cermet CN30	Coated NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
TFCN	42PFR															●	B29
	42PFL																

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	NCM325 PC3700 ST30A
M	150~600 150~400	0.008~0.002 0.008~0.002	PC9530
K	500~900 300~600	0.012~0.002 0.012~0.002	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø3~Ø12	LPF4R/L LPF4R1**/L1**	WPFR/L	DHA0821F DHA0817F*	LTX0512	HW40

Available inserts **B29** Available arbors and bolt **E94 ~ E95**

*: Ø3~Ø4/ **: Ø3~Ø5

PPNA4000



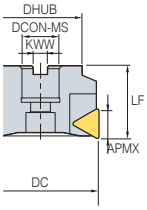


Fig. 1

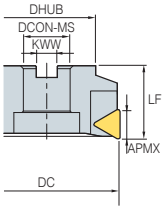


Fig. 2

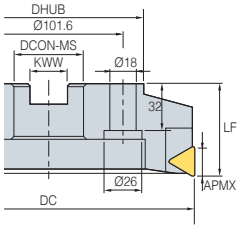


Fig. 3

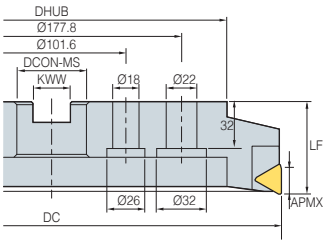


Fig. 4




KAPR 90°

- GAMP : 7°
- GAMF : 0°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
PPNA	4300R/L			5	3	3.012	2.205	1	0.375	2	0.7	2.9	1
	4400R/L			6	4	4.012	2.874	1 1/4	0.5	2	0.7	4.2	2
	4500R/L			8	5	5.012	3.389	1 1/4	0.625	2.5	0.7	7.7	2
	4600R/L			10	6	6.012	4.882	2	0.75	2.5	0.7	12.3	2
	4800R/L			12	8	8.008	5.118	2 1/2	1	2.5	0.7	17.8	3
	41000R/L			16	10	10.008	7.087	2 1/2	1	2.5	0.7	29.3	3
	41200R/L			20	12	12.008	9.449	2 1/2	1	2.5	0.7	47.1	4

◆: US stock ○: Made to order

Available inserts

TPCN TPKN-SU TPKN-MU TPKR-MX



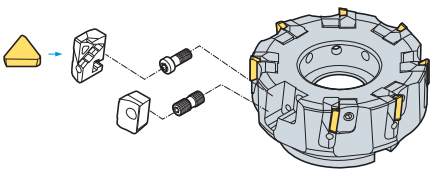
Designation		Cermet	Coated									Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TPCN	43PDR	●		●										●	●		B29
	43PDR-G																
	43PDL								●			●					
	43PDSR				●												
	43PDTR																
	43PDR-RH																
	43PDER-RH								●			●					
	43PDSR-RH								●								
	43PDR-S20									●							
TPKN	43PDSR-MU							●									B30
	43PDSR-SU							●				●	●				
	43PDSL-SU							●									
TPKR	43PDR-MX			●													B30
	43PDSR-MX			●	●												
	43PPR-MX																

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



Parts

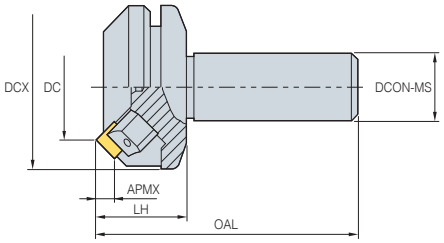
Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø3~Ø12	LPPN4R/L LPPN4R1*/L1*	WPPN4R/L	DHA0821F DHA0817F*	LTX0514	HW40

Available inserts **B29, B30** Available arbors and bolt **E94 ~ E95**

*: Ø3~Ø4

ADSA4000







KAPR 45°

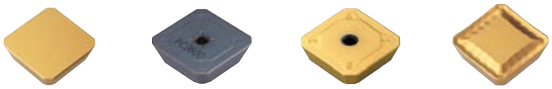
- GAMP : 15°
- GAMF : -3°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	lbs
ADSA	4200R/L	○		3	2	2.531	1 1/4	1.575	4.724	0.26	4
	4250R/L	○		4	2 1/2	3.028	1 1/4	1.575	4.724	0.26	5.1

◆: US stock ○: Made to order

Available inserts



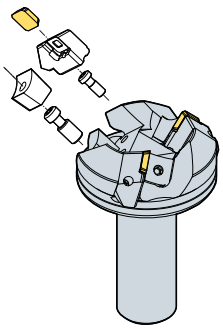
Designation		Cermet	Coated									Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SDCN	42M														●		B19
	42M-G															●	
	42MT	●		○	●									●			
	42MT-RH																
	42MT-S20									●							
	42AEEN																
	42AEEN-RH																
	42AESN																
	42AESN-RH																
SDKN	42AESN-MU							●									B20
	42AESN-SU							◆				●	●				
SDKR	42AESN-MX																
	42AETN-MX																
	42AEN-MX			●													

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



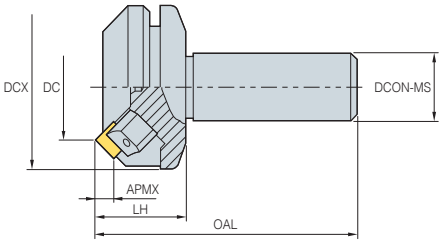
Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø2~Ø2 1/2	LASS4R/L	WASR/L	WTX0817	LTX0512	TW25

Available inserts **B19, B20**

ADSA5000







KAPR 45°

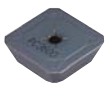
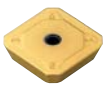
- GAMP : 15°
- GAMF : -3°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	lbs
ADSA	5200R/L	○		3	2	2.669	1 1/4	1.575	4.724	0.33	4.2
	5250R/L	○		4	2 1/2	3.169	1 1/4	1.575	4.724	0.33	5.3

◆: US stock ○: Made to order

Available inserts

SDCN	SDKN-MU	SDKN-SU	SDKR-MX
			

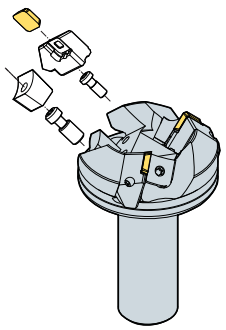
Designation		Cermet	Coated									Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SDCN	53M														●		B19
	53M-G															●	
	53MT	●		●	○									●			
	53MT-RH																
	53MT-S20								●								
	53AEEN																
	53AEEN-RH								●			●					
	53AESN																
	53AESN-RH								●								
SDKN	53AESN-MU							●									B20
	53AESN-SU							◆				●	●				
SDKR	53AESN-MX				●												B20
	53AETN-MX																
	53AEN-MX		●														

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø2~Ø2 1/2	LASS4R/L	WASR/L	WTX0817	LTX0512	TW25

Available inserts **B19, B20**

PESA2000/3000/4000



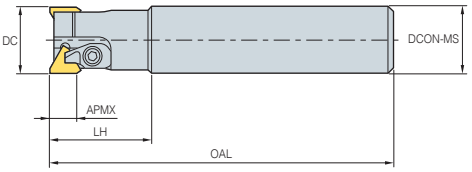


Fig. 1

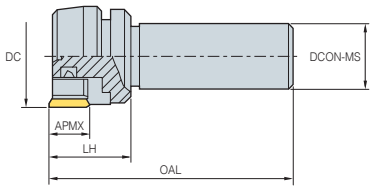


Fig. 2





KAPR 90°

- GAMP : 10°~15°
- GAMF : 2°~-3°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
PESA	2075R/L	○		2	3/4	3/4	1.181	4.331	0.32	0.7	1
	2100R/L	○		2	1	1	1.378	4.724	0.32	1.1	1
	3125R/L	○		2	1 1/4	1 1/4	1.772	6.299	0.51	2.2	1
	3150R/L	○		2	1 1/2	1 1/4	1.772	6.299	0.51	2.9	1
	4200R/L	○		3	2	1 1/4	1.575	4.724	0.65	2.6	2
	4200R/L-S150			3	2	1 1/2	1.575	4.724	0.65	3.3	2
	4250R/L	○		4	1 1/2	1 1/4	1.575	4.724	0.65	3.3	2

◆: US stock ○: Made to order

Available inserts

TECN TEEN



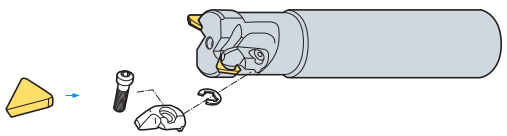

Designation			Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
2000 type	TECN	22R																B28
		22TR	●												●			
3000 type	TECN	32R														●		B28
		32TR	●			●					○				●			
		32TR-S20									●							
4000 type	TEEN	43R														●		B28
		43R-G															●	
		43TR	●	◆	●										●			
		43TR-S20									●							
		43TR-Z													●			
		43TR-ZH									●							

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench	Wrench	Clamp	Ring
Ø3/4~Ø1(2000 type)	-	-	-	CHX0407	HW25L	-	CH4R1	ER03
Ø1 1/4~1 1/2(3000 type)	-	-	-	CHX0510	HW30L	-	CH5R1	ER04
Ø2~Ø2 1/2(4000 type)	LPTS4R/L	WPTSR	DHA0815	LTX0512	-	HW40	-	-

Available inserts **B28**

AFOA4000



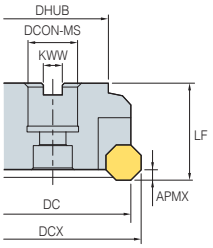


Fig. 1

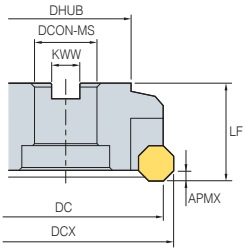


Fig. 2



KAPR 45°

- GAMP : 15°
- GAMF : 5°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
AFOA	4300R/L	○		5	3	3.319	2.205	1	0.375	2	0.26	3.1	1
	4400R/L	○		6	4	4.319	2.874	1 1/4	0.5	2	0.26	4.4	2
	4500R/L	○		8	5	5.319	3.389	1 1/2	0.625	2.5	0.26	6.8	2

◆: US stock ○: Made to order

Available inserts

OFCW OFKT-MF OFKT-MM OFKT-MA



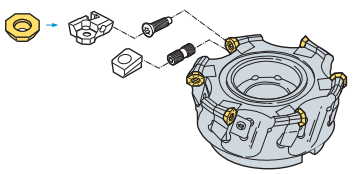
Designation		Cermet	Coated								Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
OFCW	05T3SN			○													B14
	05T3FN																
	05T308FN																
OFKT	05T3SN-MF			○	○				●	○							B14 B15
	05T308SN-MF																
	05T3SN-MM			◆				●		●							
	05T308SN-MM			○	○					○		○					
	05T3FN-MA															◆	
	05T3EN-MA																

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1,000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	**NCM325** **PC3700** **ST30A**
M	150~600 150~400	0.008~0.002 0.008~0.002	**PC9530**
K	500~900 300~600	0.012~0.002 0.012~0.002	**PC6100** **G10**

Assembling

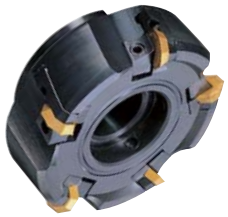


Parts

Specification	Locator	Wedge	Wedge screw	Screw	Wrench
Ø3~Ø5	LAF04R/L	WAF04R/L	DHA0815	FTKA0408	TW15S

Available inserts **B14, B15**

AFOA5000



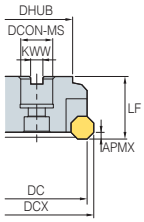


Fig. 1

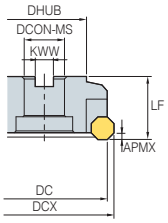


Fig. 2

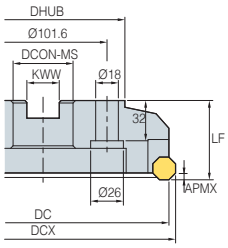


Fig. 3

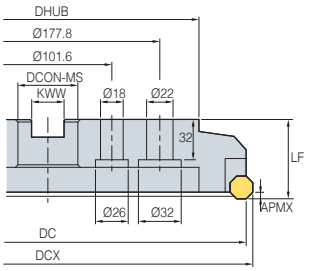


Fig. 4



KAPR 45°

- GAMP : 15°
- GAMF : 5°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
AFOA	5300R/L	○		5	3	3.441	2.205	1	0.375	2	0.37	3.1	1
	5400R/L	○		6	4	4.441	2.874	1 1/4	0.5	2	0.37	4.4	2
	5500R/L	○		8	5	5.441	3.389	1 1/2	0.625	2.5	0.37	6.8	2
	5600R/L	○		10	6	6.437	4.882	2	0.75	2.5	0.37	11.4	2
	5800R/L	○		12	8	8.437	5.118	2 1/2	1	2.5	0.37	16.5	3
	51000R/L	○		16	10	10.437	7.087	2 1/2	1	2.5	0.37	35.4	3
	51200R/L	○		20	12	12.449	9.449	2 1/2	1	2.5	0.37	50.2	4

◆: US stock ○: Made to order

Available inserts

OFKT-MM OFKT-MA OFCN OFKR-MF



OFKR-MM OFKR-MA REKR-MM



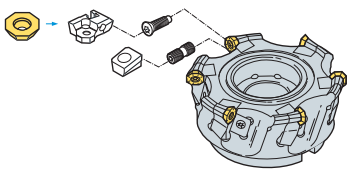
Designation		Cermet	Coated									Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
OFCN	0704SN		◆	○	○		○	●	○		○	○				B14
	0704FN															
	070408SN		○													
	070408FN															
OFKR	0704SN-MF		◆	●	○		○		○		○					B14
	070408SN-MF		○						○							
	0704SN-MM		◆	●	○		●	●	●		○	●				
	070408SN-MM		●	○	○				○		○					
	0704FN-MA														◆	
	0704EN-MA															
OFKT	0704SN-MM		◆				○				○	○				B14 B15
	0704FN-MA														●	
	0704EN-MA															
REKR	170400-MM		○								○					B17

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc(sfm)	cutting condition fz(ipt)	Grade
P	500~1,000 400~800 300~600	0.006~0.002 0.008~0.002 0.008~0.002	NCM325 PC3700 ST30A
M	150~600 150~400	0.008~0.002 0.008~0.002	PC9530
K	500~900 300~600	0.012~0.002 0.012~0.002	PC6100 G10

Assembling



Parts

Specification	Locator	Wedge	Wedge screw	Locator screw	Wrench
Ø3~ Ø12	LAF05R/L LAF05R*/L-1*	WEFR/L	DHA0821F	LTX0512	HW40

Available inserts **B14, B15, B17** Available arbors and bolt **E94 ~ E95**

*: Ø3~Ø4

New serrated edge design increases productivity by reducing insert cutting load

Power Buster

- New tooling utilizing a specially designed serrated edge to increase productivity by reducing the cutting load.
- Double-sided 6 corner insert geometry ensures high rigidity, long tool life and cost efficiency
- The serrated edge divides the chips into smaller pieces. This feature provides excellent chip control, reduces interference of the cutter and ensures good durability of the cutter body.
- Two types of inserts are available-TNMX27 for PBA (Approach angle: 45°) and PBZ (KAPR: 80°), and TNMX30 for PBP (KAPR: 90°)
- Application: High depth of cut and feed rate (Steel, Cast iron)

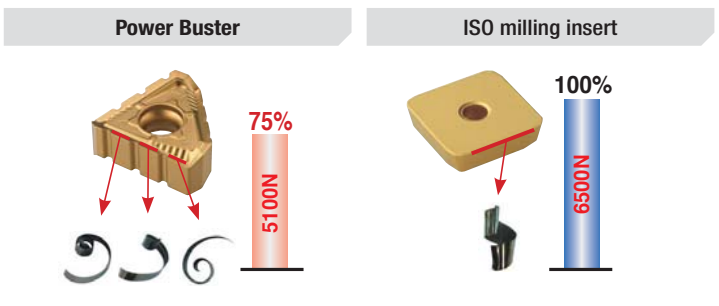
Code system

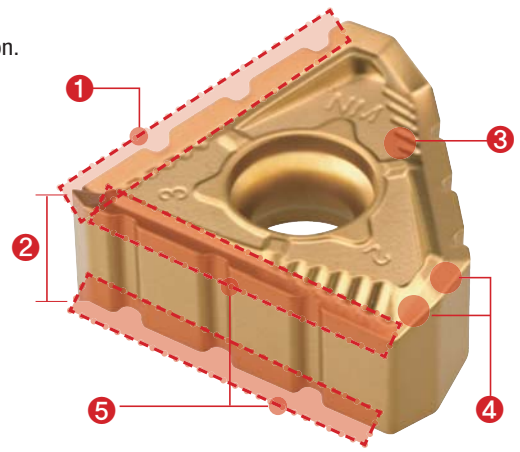
PB	A	C	A	5	400	R/L	-	M
Power Buster	**KAPR** A : 45° Z : 80° P : 90°	**Cutter type** C: Cutter	**Arbor type** A : Inch M : Metric NO code : Asia	**Inscribed circle of insert** 5 : 5/8 6 : 0.687	**Tool diameter** DC : 4inch	**Hand** R: Right L: Left		**No of tooth** No code: Coarse pitch M: Close pitch 8: 8 teeth

Features of insert

❶ Major cutting-edge (Serrated edge)

- Low cutting force
- Ideal for chip control, divides chips into small pieces for proper chip evacuation.
- Ideal edge design for Steel and Cast iron rough milling
- Comparison of chip control and cutting force

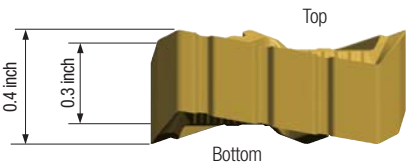




Workpiece	4140
Cutting condition	**vc** = 656 sfm, **ap** = 0.32 inch, **ae** = 3.54 inch, **fz** = 0.012 ipt

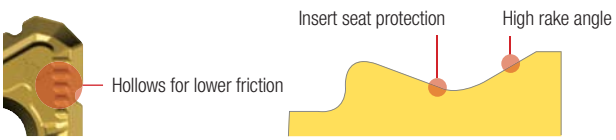
❷ Thicker insert

- Thick insert guarantees high rigidity
- Balanced insert design for stable mounting



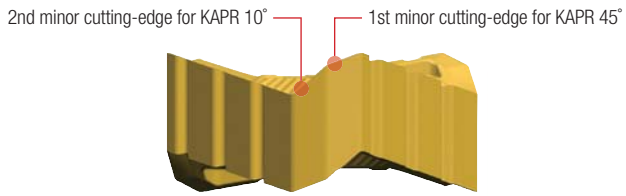
❸ NM Chip breaker

- High rake angle for low cutting force
- Good chip flow at various feed and depth of cut
- Inserts are protected with seats for a precise mounting
- Low friction and good heat evacuation at high depth cut



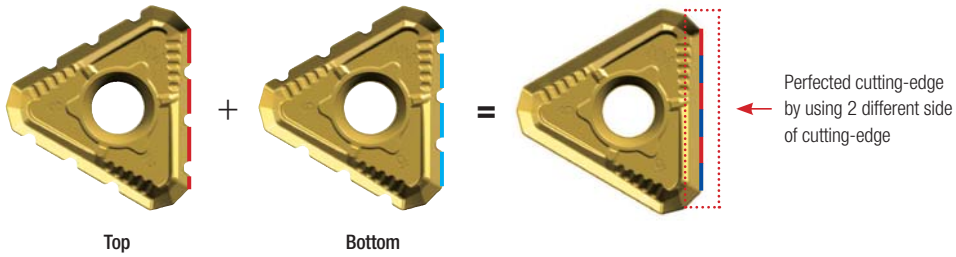
❹ Insert shape applied to PBA/Z cutters (KAPR: 45°/80°)

– High rake angle to avoid interference with chip
– Calculated minor cutting-edge angel for both KAPR 45° & 80° cutter



❺ Mirror system

– Cutting-edge on the both side of insert covers all overlapped cutting area



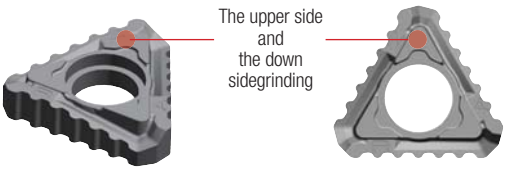
Features of cutter

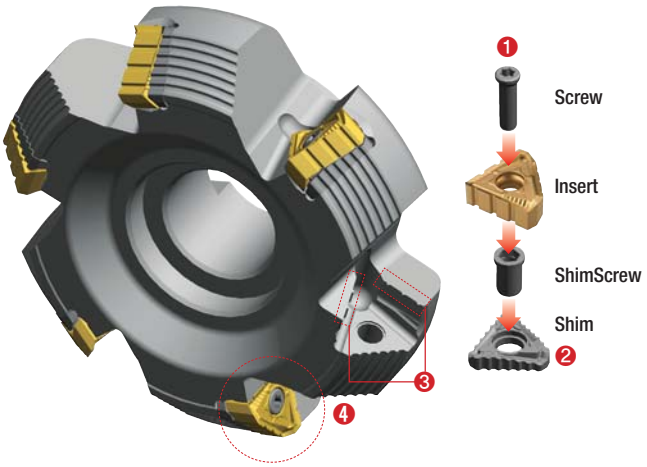
❶ Screw-on clamping system

– Simple and strong screw on clamping system

❷ Better rigidity & Stable Assembly system

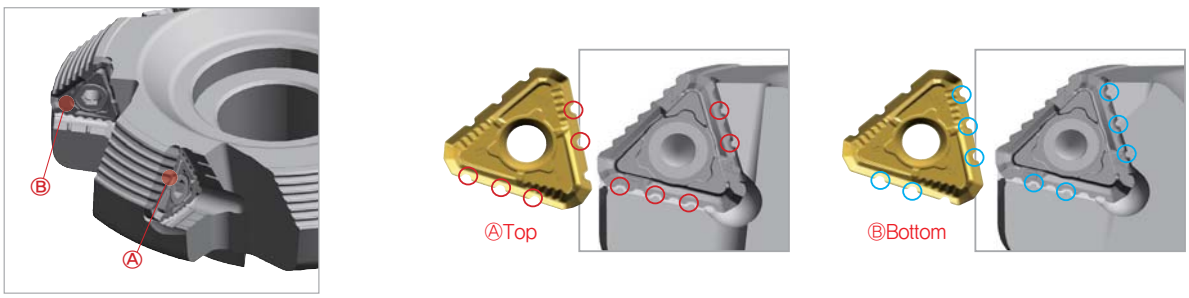
– The shim protects the cutter from insert damage
– High accuracy shim ensures tighter clamping





❸ Foolproof System

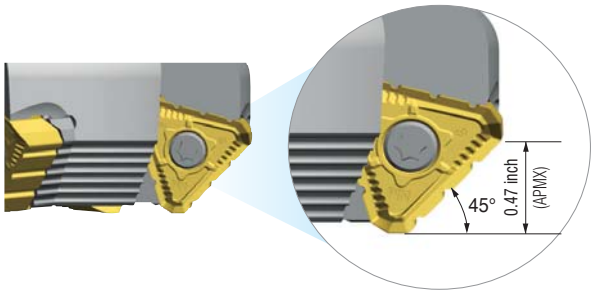
– Insert serrations match pocket design to prevent improper seating and alignment



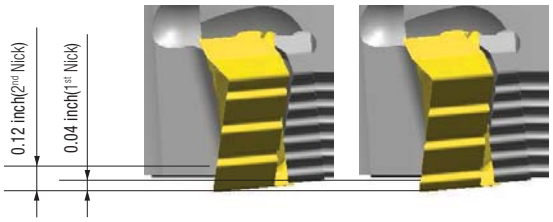
❹ Multi-application system

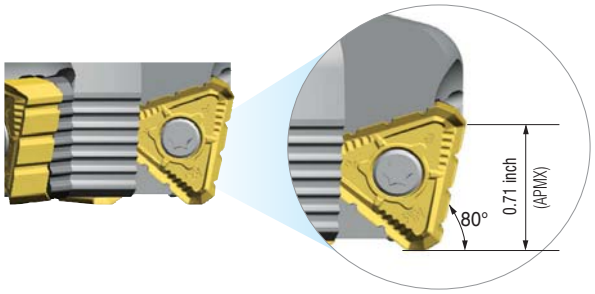
– Same insert for multi-use (45˚and 80˚)

PBA/PBZ

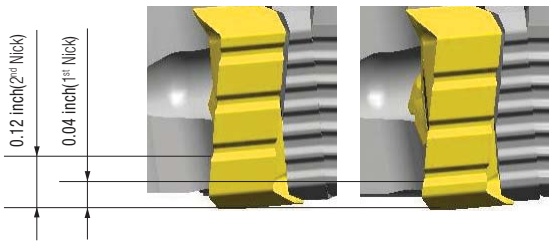


KAPR 45° ⇨ The serrations are effective with a depth of cut larger than 0.04 inch

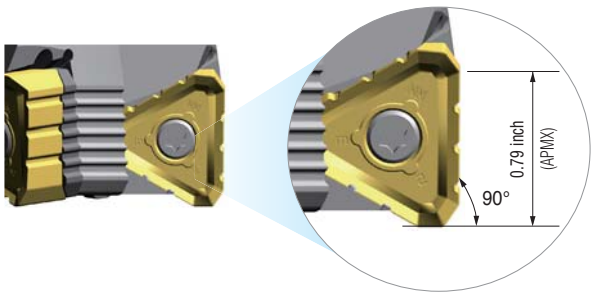




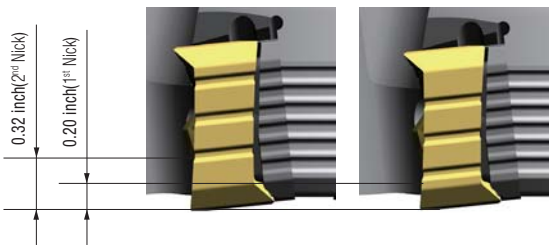
KAPR 80° ⇨ The serrations are effective with a depth of cut larger than 0.12 inch



PBP

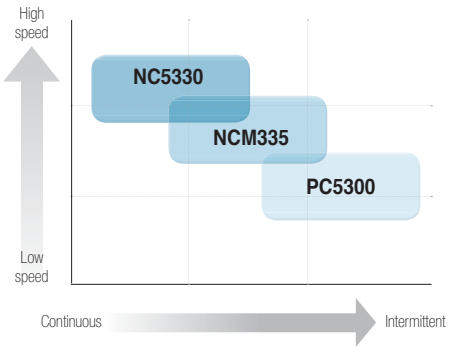


KAPR 90° ⇨ The serrations are effective with a depth of cut larger than 0.20 inch



Recommended cutting conditions

ISO	Workpiece		Material	NC5330	NCM335	PC5300
				fz (ipt)		
				0.004-0.008-0.012	0.004-0.008-0.012	0.004-0.008-0.012
				vc (sfm)		
P	Carbon steel	-	1213	1312	1099	919
		-	-	1198	1001	837
		-	-	1115	935	787
	Low alloy steel (Alloy constituent < 5%)	-	-	919	771	640
		Hardened	-	541	459	377
	High alloy steel (Alloy constituent > 5%)	Annealed	H13	689	591	492
		Hardened	M2, M35	574	476	394
K	Gray cast iron	Low tensile	No 30 B, No 35 B	410	-	476
		Hight tensile	No 45 B, No 50 B	344	-	394
		Ferric	60-40-18, 80-55-06	262	-	312
		Pearlitic	100-70-03	246	-	279



PBACA5000



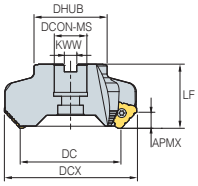


Fig. 1

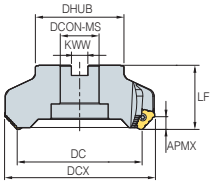


Fig. 2

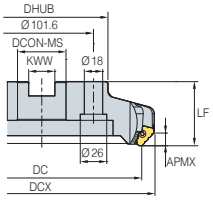


Fig. 3

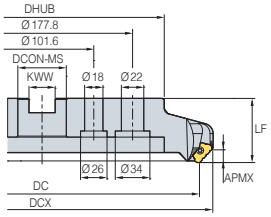


Fig. 4



KAPR 45°

- GAMP : -5°
- GAMF : -11°

(inch)

	Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
Coarse pitch	PBACA	5300R/L	◆		4	3	4.104	2.244	1	0.374	0.248	0.472	2.9	1
		5400R/L	◆		4	4	4.891	2.638	1.25	0.5	0.319	0.472	4.6	2
		5500R/L	◆		6	5	5.875	3.425	1.5	0.626	0.394	0.472	9.3	2
		5600R/L	◆		8	6	7.253	4.213	2	0.748	0.433	0.472	11.7	2
		5800R/L	◆		10	8	8.827	5.118	2.5	1	0.551	0.472	18.3	3
		51000R/L			12	10	10.795	7.087	2.5	1	0.551	0.472	30.0	3
		51200R/L			14	12	13.354	9.449	2.5	1	0.551	0.472	43.9	4
Close pitch	PBACA	5300R/L-M	◆		6	3	4.104	2.244	1	0.374	2	0.472	2.8	1
		5400R/L-M	◆		6	4	4.891	2.638	1.25	0.5	2	0.472	4.6	2
		5500R/L-M	◆		8	5	5.875	3.425	1.5	0.626	2.5	0.472	9.1	2
		5600R/L-M	○		10	6	7.253	4.213	2	0.748	2.5	0.472	11.6	2
		5800R/L-M	○		12	8	8.827	5.118	2.5	1	2.5	0.472	17.9	3
		51000R/L-M			14	10	10.795	7.087	2.5	1	2.5	0.472	29.7	3
		51200R/L-M			16	12	13.354	9.449	2.5	1	2.5	0.472	43.4	4

◆: US stock ○: Made to order

Available inserts

TNMX-NM



	Designation		Cermet CN30	Coated NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	Uncoated ST30A	G10	H01	Page
TNMX	2710AZNR-NM			●			●				●	○	●		●	○				B29
	2710AZNL-NM																			

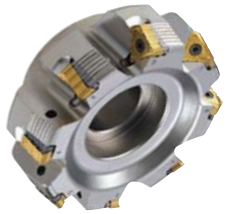
●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø3~Ø12	FTGA0518	ST53AZR	SHXN0712F	TW20-100

Available inserts **B29** Available arbors and bolt **E94 ~ E95**

PBZCA5000



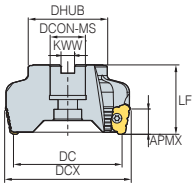


Fig. 1

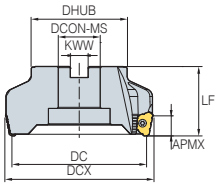


Fig. 2

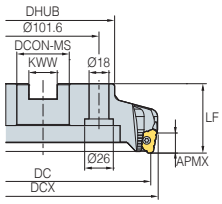


Fig. 3

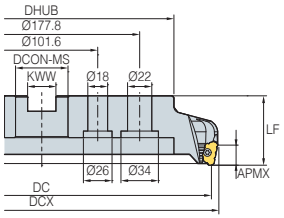


Fig. 4



KAPR 80°

- GAMP : -5°
- GAMF : -12°

(inch)

	Designation	Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
Coarse pitch	PBZCA 5300R/L	○		4	3	3.590	2.244	1	0.374	2	0.709	2.2	1
	5400R/L	◆		4	4	4.377	2.638	1.25	0.5	2.5	0.709	3.5	2
	5500R/L	◆		6	5	5.361	3.425	1.5	0.626	2.5	0.709	7.5	2
	5600R/L	◆		8	6	6.738	4.213	2	0.748	2.5	0.709	9.7	2
	5800R/L	◆		10	8	8.313	5.118	2.5	1	2.5	0.709	15.7	3
	51000R/L	○		12	10	10.157	7.087	2.5	1	2.5	0.709	27.6	3
	51200R/L	○		14	12	12.843	9.449	2.5	1	2.5	0.709	41.3	4
Close pitch	PBZCA 5300R/L-M	◆		6	3	3.590	2.244	1	0.374	2	0.709	2.2	1
	5400R/L-M	◆		6	4	4.377	2.638	1.25	0.5	2.5	0.709	3.5	2
	5500R/L-M	◆		8	5	5.361	3.425	1.5	0.626	2.5	0.709	7.9	2
	5600R/L-M	○		10	6	6.738	4.213	2	0.748	2.5	0.709	9.7	2
	5800R/L-M	○		12	8	8.313	5.118	2.5	1	2.5	0.709	15.7	3
	51000R/L-M	○		14	10	10.157	7.087	2.5	1	2.5	0.709	27.3	3
	51200R/L-M	○		16	12	12.843	9.449	2.5	1	2.5	0.709	40.8	4

◆: US stock ○: Made to order

Available inserts

TNMX-NM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TNMX	2710AZNR-NM		●			●				●	○	●		●	○				B29
	2710AZNL-NM																		

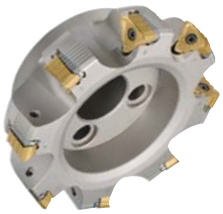
●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø3~Ø12	FTGA0518	ST53AZR	SHXN0712F	TW20-100

Available inserts **B29** Available arbors and bolt **E94 ~ E96**

PBPCA6000



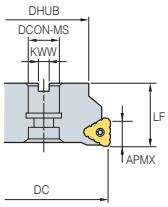


Fig. 1

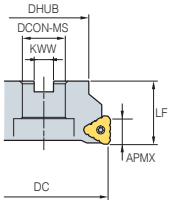


Fig. 2

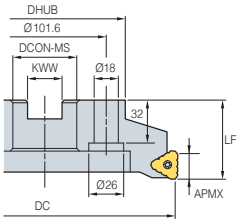


Fig. 3

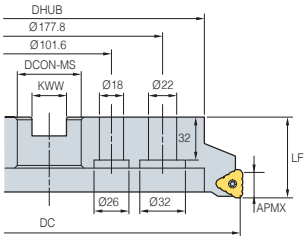


Fig. 4



KAPR 90°

- GAMP : -5°
- GAMF : -12°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
PBPCA	6300R-4	○		4	3	2.205	2.205	1	0.374	2	0.787	1.706	1
	6400R-6	○		6	4	2.874	2.874	1.25	0.5	2	0.787	2.754	2
	6500R-6			6	5	3.937	3.937	1.5	0.626	2.5	0.787	6.25	2
	6600R-8			8	6	4.331	4.331	2	0.752	2.5	0.787	9.56	3
	6800R-10			10	8	5.118	5.118	2.5	1	2.5	0.787	12	3
	61000R-12			12	10	7.087	7.087	2.5	1	2.5	0.787	22.12	3
	61200R-14			14	12	9.449	9.449	2.5	1	2.5	0.787	34.59	4

◆: US stock ○: Made to order

Available inserts

TNMX-NM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TNMX	3012PNR-NM													●					B29

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø3~Ø12	FTGA0518	ST53PNR	SHXN0712F	TW20-100

Available inserts **B29** Available arbors and bolt **E96**

Rich Mill series is one of innovations that provides more available cutting-edges by double-sided insert and longer tool life for our customers

Rich Mill Series

- Rich Mill series is one of the innovations that provides more available cutting-edges with double-sided inserts and longer tool life for our customers
- The unique geometry and special cutting-edge guarantees low cutting loads and long tool life
- Rich Mill series has a wide application range from steel and stainless steel to cast iron and aluminum
- Applying negative inserts makes it even stronger and provides longer tool life
- Rich Mill series has both screw-on clamping system and latch clamping system

Code system

RM16 A C A 4 400 H R - M

Number of edges
RM3 : Number of edges-3
RM4 : Number of edges-4
RM6 : Number of edges-6
RM8 : Number of edges-8
RM8-X : Number of edges-8 (High helix)
RM14 : Number of edges-14
RM16 : Number of edges-16
RMT8 : Number of edges-8 (Latch Clamp)
RMH8 : Number of edges-8 (Shim)
RMR : Number of edges-8 (Round Type)

Approach angle
A : 45°
D : 30°
E : 15°
F : 5°
P : 0°
Q : 2°
Z : Plunging

Tool type
C : Cutter
S : Shank

Arbors type
A : Inch
M : Metric
NO code : Asia

Inscribed circle of insert
3 : 9.525
4 : 12.7
5 : 15.875

Tool diameter
400 : Ø4

Coolant type
H : Oil hole
NO code : None

Hand
R : Right
L : Left

Pitch type
M : Close
H : Extra Close

RMX8 A C A 250 R - 100 - 6 - SA14

Rich Mill RM8-X

Approach angle
A: 45°

Tool type
C : Cutter

Arbors type
A : Inch
M : Metric
NO code : Asia

Machining diameter
250: Ø2.5 inch

Oil hole & Hand
R : Oil hole, Right
NR : None, Right

Internal diameter
100: Ø1.00 inch

No. of tooth
6 : 6 teeths

Available insert
SA14: SAGX14 (SNXM14 is available)

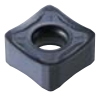
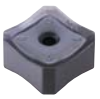
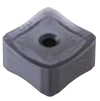
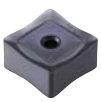
Cutters

Type	KAPR	Designation	Picture	Cutter diameter	Available inserts		Features	Page
RM3	90°	**RM3PCA3000**		Ø1.5~Ø3	XNKT060405PNER-ML XNKT060408PNER-ML	XNKT060405PNSR-MM XNKT060408PNSR-MM	 • Economical 3 corners • Perfect perpendicularity • Longer tool life due to direct injection into the cutting-edge of insert	B78
		RM3PCA4000		Ø1.5~Ø5	XNCT080508PNFR-MA XNKT080508PNER-ML XNKT080508PNSR-MM	XNKT080512PNSR-MM XNKT080516PNSR-MM XNKT080520PNSR-MM		B79
		RM3PCA5000		Ø3~Ø5	XNCT120608PNER-MA XNKT120608PNER-ML XNKT120612PNER-ML XNKT120616PNER-ML XNKT120620PNER-ML	XNKT120608PNSR-MM XNKT120612PNSR-MM XNKT120616PNSR-MM XNKT120620PNSR-MM		B80
RM4	90°	**RM4PCA3000**		Ø1.5~Ø4	LNEX100605PNR-MF LNMX100605PNR-MF LNEX100605PNR-MM LNMX100605PNR-MM LNEX100608PNR-MF LNMX100608PNR-MF	LNEX100608PNR-MM LNMX100608PNR-MM LNEX100605PNR-MA LNEX100605PNL-MM LNMX100605PNL-MM	 • Economical 4 corners • Screw on type for slotting, facing	B90
		RM4PCA4000		Ø2~Ø6	LNEX151004PNR-MF LNMX151004PNR-MF LNEX151004PNR-MM LNMX151004PNR-MM LNEX151008PNR-MF LNMX151008PNR-MF LNEX151008PNR-MM LNMX151008PNR-MM	LNEX151016PNR-MF LNMX151016PNR-MF LNEX151016PNR-MM LNMX151016PNR-MM LNEX151004PNR-MA LNEX151008PNR-MA LNEX151008PNL-MM LNMX151008PNL-MM		B91
		RM4ZCA3000		Ø1.5~Ø2	LNEX100605PNL-MM	LNMX100605PNL-MM	 • Economical 4 corners • Optimal insert application for vertical machining	B95
		RM4ZCA4000		Ø2.5~Ø4	LNEX151008PNL-MM	LNMX151008PNL-MM		

Cutters

Type	KAPR	Designation	Picture	Cutter diameter	Available inserts		Features	Page
RM6	90°	**RM6PCA-WN04**		Ø1.5~Ø2.5	WNGX040304PNFR-MA WNGX040308PNFR-MA WNGX040312PNFR-MA WNGX040316PNFR-MA WNGX040304PNER-ML WNGX040308PNER-ML	WNGX040312PNER-ML WNGX040316PNER-ML WNGX040304PNSR-MM WNGX040308PNSR-MM WNGX040312PNSR-MM WNGX040316PNSR-MM	• Improved productivity and high-quality shouldering through high speed and high feed machining	B108
		RM6PCA-WN08		Ø2.0~Ø5.0	WNGX080604PNFR-MA WNGX080608PNFR-MA WNGX080612PNFR-MA WNGX080616PNFR-MA WNGX080620PNFR-MA WNGX080604PNER-ML WNGX080608PNER-ML WNGX080612PNER-ML	WNGX080616PNER-ML WNGX080620PNER-ML WNGX080604PNSR-MM WNGX080608PNSR-MM WNGX080612PNSR-MM WNGX080616PNSR-MM WNGX080620PNSR-MM		B109
RM8	45°	**RM8ACA4000**		Ø2~Ø10	SNEX1206ANN-MA SNEX1206ANN-MF SNMX1206ANN-MF SNEX1206ANN-ML	SNEX1206ANN-MM SNMX1206ANN-MM SNEX1206ANN-W	• Economical 8 corners • Low cutting load and excellent smooth cutting • Economical 8 corners • Low cutting load and excellent smooth cutting	B116
		RM8ACA5000		Ø3~Ø12	SNEX1507ANN-MF SNMX1507ANN-MF SNEX1507ANN-ML	SNEX1507ANN-MM SNMX1507ANN-MM		B118
	75°	**RM8ECA4000**		Ø2~Ø8	SNEX1206ENN-MA SNEX1206ENN-MF SNMX1206ENN-MF	SNEX1206ENN-ML SNEX1206ENN-MM SNMX1206ENN-MM		B120
		RM8ECA5000		Ø3~Ø12	SNEX1507ENN-MF SNMX1507ENN-MF SNEX1507ENN-ML	SNEX1507ENN-MM SNMX1507ENN-MM		B122
	88°	**RM8QCA4000**		Ø2.5~Ø8	SNEX1206QNN-MA SNEX1206QNN-MF SNMX1206QNN-MF SNEX1206QNN-ML SNEX1206QNN-MM SNMX1206QNN-MM	SNEX120612-MA SNEX120612-MF SNMX120612-MF SNEX120612-ML SNEX120612-MM SNMX120612-MM		B124

Cutters

Type	KAPR	Designation	Picture	Cutter diameter	Available inserts			Features	Page
RM8	45°	**RMH8ACA4000**		Ø3~Ø15	SNEX1206ANN-MA SNEX1206ANN-MF SNMX1206ANN-MF	SNEX1206ANN-ML SNEX1206ANN-MM SNMX1206ANN-MM SNEX1206ANN-W		• Economical 8 corners • Low cutting load and excellent smooth cutting • Economical 8 corners • Low cutting load and excellent smooth cutting	B116
		RMH8ACA5000		Ø3~Ø15	SNEX1507ANN-MF SNMX1507ANN-MF SNEX1507ANN-ML	SNEX1507ANN-MM SNMX1507ANN-MM			B118
	75°	**RMH8ECA4000**		Ø3~Ø15	SNEX1206ENN-MA SNEX1206ENN-MF SNMX1206ENN-MF	SNEX1206ENN-ML SNEX1206ENN-MM SNMX1206ENN-MM			B120
		RMH8ECA5000		Ø3~Ø15	SNEX1507ENN-MF SNMX1507ENN-MF SNEX1507ENN-ML	SNEX1507ENN-MM SNMX1507ENN-MM			B122
	88°	**RMH8QCA4000**		Ø3~Ø8	SNEX1206QNN-MA SNEX1206QNN-MF SNMX1206QNN-MF SNEX1206QNN-ML SNEX1206QNN-MM SNMX1206QNN-MM	SNEX120612-MA SNEX120612-MF SNMX120612-MF SNEX120612-ML SNEX120612-MM SNMX120612-MM			B124
RMT8	45°	**RMT8AA 4000/5000**		Ø3~Ø12	SNCF1206ANN-MF SNCF1507ANN-MF SNMF1206ANN-MF SNMF1507ANN-MF	SNCF1206ANN-MM SNCF1507ANN-MM SNMF1206ANN-MM SNMF1507ANN-MM		• Economical 8 corners • Excellent tool life and surface toughness due to low cutting resistance and high rake edge geometry • Good performance with increased chipping resistance	B127 B128
	75°	**RMT8EA 4000/5000**		Ø3~Ø12	SNCF1206ENN-MF SNCF1507ENN-MF SNMF1206ENN-MF SNMF1507ENN-MF	SNCF1206ENN-MM SNCF1507ENN-MM SNMF1206ENN-MM SNMF1507ENN-MM			B129 B130
	88°	**RMT8QA4000**		Ø3~Ø12	SNCF1206QNN-MF	SNMF1206QNN-MF			B131

Cutters

Type	KAPR	Designation	Picture	Cutter diameter	Available inserts			Features	Page
RM8-X	45°	**RMX8ACA-SA14**		Ø2~Ø5	SAGX140808ANER-ML	SAGX140808ANER-MM SNMX140808ANER-MM		• Double sided insert with 8 corners • Stable cutting performance due to double reversal positive relief surface • Good machinability in stainless cutting with High	B136
RM14	51°	**RM14XCA-XN06**		Ø2~Ø6	XNMX0606XNR-ML	XNMX060608-ML	 	• Reduced vibration with the application of maximum approach angle on heptangonal shape • Stable clamping from wedge type clamping structure • Available for multiple-staged cutting without interference of the cutter's side wall	B140
RM16	45°	**RM16ACA 6000/8000**		Ø2.5~Ø8	ONHX060608-MF ONMX060608-MF ONHX0606ANN-MF ONMX0606ANN-MF ONHX080608-MF ONMX080608-MF ONHX0806ANN-MF ONMX0806ANN-MF ONHX060608-ML ONHX080608-ML ONHX060608-MM	ONMX060608-MM ONHX0606ANN-MM ONMX0606ANN-MM ONHX080608-MM ONMX080608-MM ONHX0806ANN-MM ONMX0806ANN-MM ONHX060608-MA ONHX060608-W ONHX080608-MA ONHX080608-W		• Economical 16 corners • Wiper insert for surface roughness	B142 B143
RMR	-	**RMRCA-RN12**		Ø2~Ø5	RNMX1204M0E-ML			• High cost efficiency due to double sided round typed cutting edge • Excellent rotating prevention by strong clamping system • Suitable for Inconel cutting	B146

Shanks/Modulars

Type	KAPR	Designation	Picture	Cutter diameter	Available inserts			Features	Page
RM3	90°	**RM3PSA3000**		Ø0.75~Ø1.5	XNKT060405PNER-ML	XNKT060405PNSR-MM		• Economical 3 corners • Perfect perpendicular shouldering operation multi milling tool	B81
		RM3PSA4000		Ø1.25~Ø2.5	XNKT080508PNER-ML XNKT080508PNSR-MM XNKT080512PNSR-MM	XNKT080516PNSR-MM XNKT080520PNSR-MM			B82
		RM3PA 3000/4000		Ø0.75~Ø2	XNKT060405PNER-ML XNKT060405PNSR-MM XNKT060408PNER-ML XNKT060408PNSR-MM XNCT080504PNFR-MA XNCT080508PNFR-MA XNCT080512PNFR-MA XNCT080520PNFR-MA	XNKT080508PNER-ML XNKT080508PNSR-MM XNKT080512PNER-ML XNKT080512PNSR-MM XNKT080516PNER-ML XNKT080516PNSR-MM XNKT080520PNER-ML XNKT080520PNSR-MM			B83
RM4	90°	**RM4PSA3000**		Ø0.562~Ø2	LNEX100605PNR-MF LNMX100605PNR-MF LNEX100605PNR-MM LNMX100605PNR-MM LNEX100608PNR-MF LNMX100608PNR-MF	LNEX100608PNR-MM LNMX100608PNR-MM LNEX100605PNR-MA LNEX100605PNL-MM LNMX100605PNL-MM		• Economical 4 corners • Screw on type for slotting, facing	B92
		RM4PSA4000		Ø1.25~Ø2.5	LNEX151004PNR-MF LNMX151004PNR-MF LNEX151004PNR-MM LNMX151004PNR-MM LNEX151008PNR-MF LNMX151008PNR-MF LNEX151008PNR-MM LNMX151008PNR-MM	LNEX151016PNR-MF LNMX151016PNR-MF LNEX151016PNR-MM LNMX151016PNR-MM LNEX151004PNR-MA LNEX151008PNR-MA LNEX151008PNL-MM LNMX151008PNL-MM			B93
		RM4ZSA3000		Ø1~Ø1.5	LNEX100605PNL-MM	LNMX100605PNL-MM	 	• Economical 4 corners • Optimal insert application for vertical machining	B96
		RM4PMA3000		Ø0.562~Ø2	LNEX100605PNR-MF LNMX100605PNR-MF LNEX100605PNR-MM LNMX100605PNR-MM LNEX100608PNR-MF LNMX100608PNR-MF	LNEX100608PNR-MM LNMX100608PNR-MM LNEX100605PNR-MA LNEX100605PNL-MM LNMX100605PNL-MM		• Economical 4 corners • Screw on type for slotting, facing	B94
		RM4ZMA3000		Ø1~Ø1.5	LNEX100605PNL-MM	LNMX100605PNL-MM		• Economical 4 corners • Optimal insert application for vertical machining	B96

Shanks/Modulars

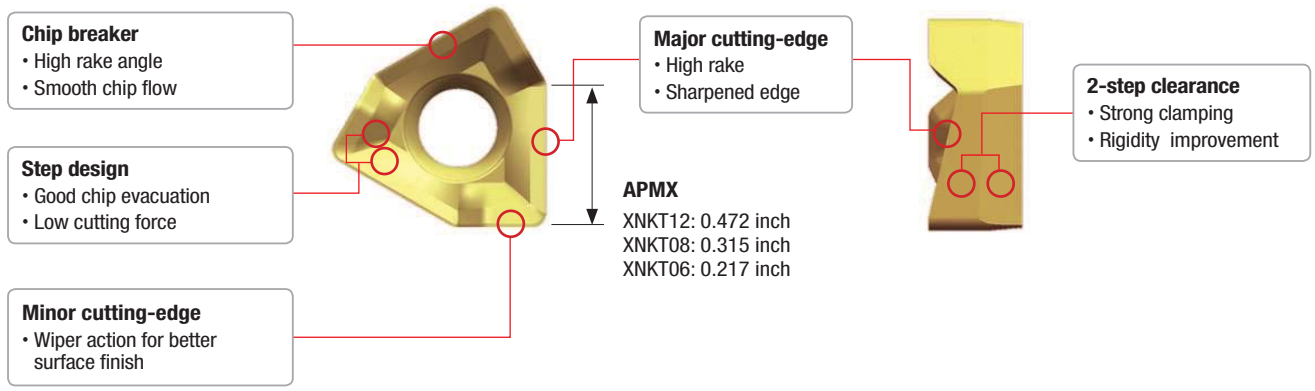
Type	KAPR	Designation	Picture	Cutter diameter	Available inserts		Features	Page
RM6	90°	**RM6PSA-WN04**		Ø0.75~Ø1.25	WNGX040304PNFR-MA WNGX040308PNFR-MA WNGX040312PNFR-MA WNGX040316PNFR-MA WNGX040304PNER-ML WNGX040308PNER-ML	WNGX040312PNER-ML WNGX040316PNER-ML WNGX040304PNSR-MM WNGX040308PNSR-MM WNGX040312PNSR-MM WNGX040316PNSR-MM	• Improved productivity and high-quality shouldering through high speed and high	B110
		RM6PSA-WN08		Ø1.25~Ø2	WNGX080604PNFR-MA WNGX080608PNFR-MA WNGX080612PNFR-MA WNGX080616PNFR-MA WNGX080620PNFR-MA WNGX080604PNER-ML WNGX080608PNER-ML WNGX080612PNER-ML	WNGX080616PNER-ML WNGX080620PNER-ML WNGX080604PNSR-MM WNGX080608PNSR-MM WNGX080612PNSR-MM WNGX080616PNSR-MM WNGX080620PNSR-MM		B111
		RM6PMA-WN04		Ø0.75~Ø1.25	WNGX040304PNFR-MA WNGX040308PNFR-MA WNGX040312PNFR-MA WNGX040316PNFR-MA WNGX040304PNER-ML WNGX040308PNER-ML	WNGX040312PNER-ML WNGX040316PNER-ML WNGX040304PNSR-MM WNGX040308PNSR-MM WNGX040312PNSR-MM WNGX040316PNSR-MM		B112
		RM6PMA-WN08		Ø1.25~Ø1.5	WNGX080604PNFR-MA WNGX080608PNFR-MA WNGX080612PNFR-MA WNGX080616PNFR-MA WNGX080620PNFR-MA WNGX080604PNER-ML WNGX080608PNER-ML WNGX080612PNER-ML	WNGX080616PNER-ML WNGX080620PNER-ML WNGX080604PNSR-MM WNGX080608PNSR-MM WNGX080612PNSR-MM WNGX080616PNSR-MM WNGX080620PNSR-MM		B113
RMR	-	**RMRSA-RN12**		Ø1.25~Ø2.5	RNMX1204M0E-ML RNMX1204M0S-MM		• High cost efficiency due to double sided round typed cutting edge • Excellent rotating prevention by strong clamping system • Suitable for Inconel cutting	B147

Rich Mill RM3

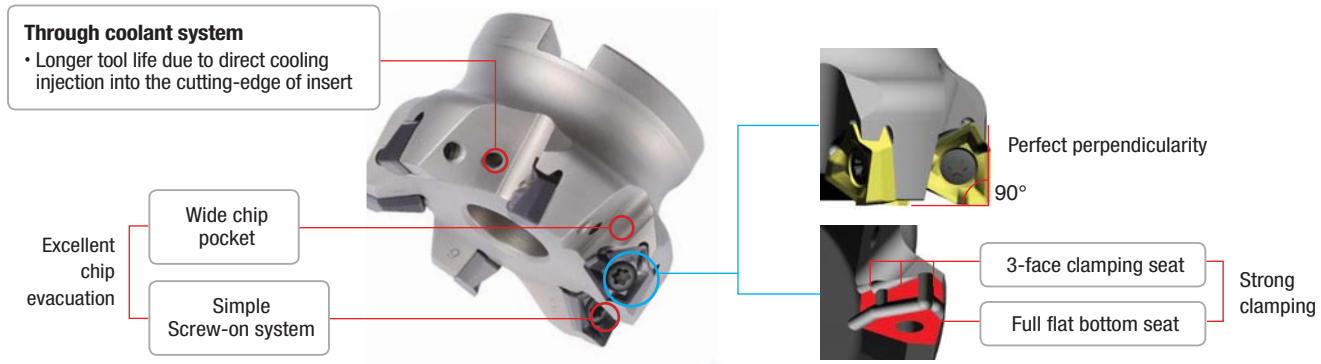
Features

- **High Quality** - True 90° shouldering operation
- **High Productivity** - Strong thick insert and 3-face clamping ensure stable operation even tough condition.
- **High Economics** - Long tool life due to optimized manufacturing process

Features of insert

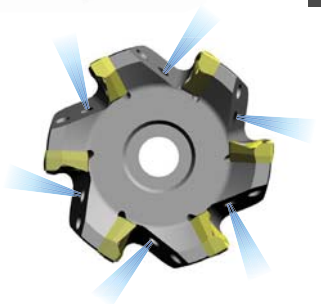


Features of cutter



Through coolant system

- Exclusive through coolant bolt required
- Effective coolant distribution directly to cutting-edge
- Coolant supporting arbor required



Features of cutter

Insert		Cutting-edge	Uses	Features
MA			Aluminum	Superior cutting quality for aluminum due to sharp cutting-edge and buffed surface
ML			Light	Superior cutting quality for light and light cutting, difficult-to-cut material machining through the low cutting load of chip breaker
MM			General	Suitable for various cutting due to special shape design for general cutting

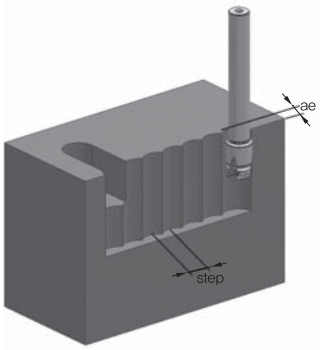
Rich Mill RM3

Max step in plunging

(inch)

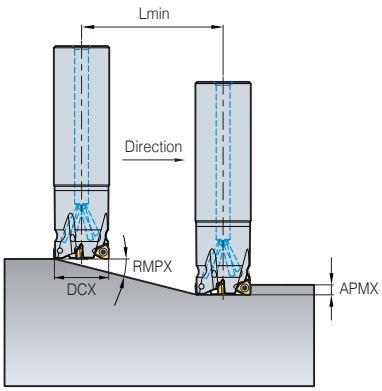
Type	max. ae
3000 type	0.098
4000 type	0.118
5000 type	0.138

ae	Cutter diameter(Ø)								
	Ø0.75	Ø1	Ø1.25	Ø1.5	Ø2	Ø2.5	Ø3	Ø4	Ø5
	Max step								
0.039	0.335	0.389	0.437	0.480	0.556	0.622	0.683	0.790	0.884
0.079	0.460	0.539	0.607	0.669	0.778	0.873	0.959	1.111	1.245
0.118	0.546	0.645	0.731	0.808	0.943	1.061	1.167	1.354	1.519
0.138	-	-	-	-	-	-	1.258	1.459	1.637

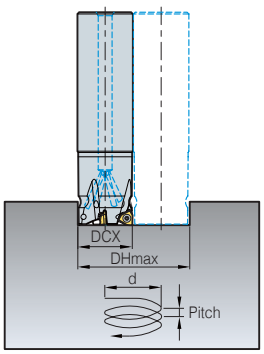


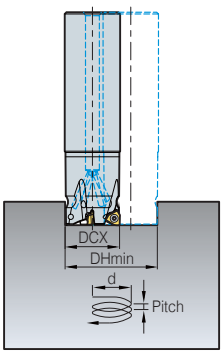
Ramping and helical cutting

Ramping



Helical cutting





(inch)

Type	DCX	APMX	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
			RMPX	Lmin	RMPX	Max. pitch	RMPX	Max. pitch	RMPX	Max. pitch
3000 type	0.75	0.217	17.5	0.708	1.400	0.217	1.440	0.217	1.212	0.220
	1.00	0.217	9.5	1.294	1.900	0.217	1.940	0.217	1.712	0.220
	1.25	0.217	6.5	1.901	2.400	0.217	2.440	0.217	2.212	0.220
	1.50	0.217	5.0	2.475	2.900	0.217	2.940	0.217	2.712	0.220
	2.00	0.217	3.5	3.540	3.900	0.217	3.940	0.217	3.712	0.220
	2.50	0.217	2.5	4.959	4.900	0.217	4.940	0.217	4.712	0.207
	3.00	0.217	2.0	6.201	5.900	0.217	5.940	0.217	5.712	0.201
4000 type	1.00	0.315	23.0	0.742	1.800	0.315	1.920	0.315	1.529	0.310
	1.25	0.315	13.0	1.312	2.300	0.315	2.300	0.315	2.029	0.310
	1.50	0.315	9.0	1.989	2.800	0.315	2.920	0.315	2.529	0.310
	2.00	0.315	5.5	3.271	3.800	0.315	3.920	0.315	3.529	0.310
	2.50	0.315	4.0	4.504	4.800	0.315	4.920	0.315	4.529	0.310
	3.00	0.315	3.0	6.010	5.800	0.315	5.920	0.315	5.529	0.310
	4.00	0.315	2.0	9.019	7.800	0.315	7.920	0.315	7.529	0.297
	5.00	0.315	1.5	12.028	9.800	0.303	9.920	0.307	9.529	0.288
5000 type	3.00	0.472	5.5	4.906	5.744	0.472	5.906	0.472	5.439	0.470
	4.00	0.472	3.5	7.724	7.744	0.472	7.913	0.472	7.439	0.470
	5.00	0.472	3.0	9.015	9.752	0.472	9.921	0.472	9.439	0.470

* Please be sure to use cutting oil or air for ramping and helical machining
Lmin = ap/tan (RPMX)

Rich Mill RM3

Application guideline for grade

Workpiece		P		M	K	N
		Carbon steel	Alloy steel	Stainless steel	Cast iron	Aluminum
Chip breaker	First choice	MM	MM	ML	ML	MA
	Second choice	ML	ML	-	MM	-
Grades	High speed machining	PC3700	PC3700	PC5300	PC6510	H01
	General machining	PC5400	PC5300	PC5400	PC5300	
	Interrupted machining	PC5400	PC5400	PC5400	PC5400	

Recommended cutting condition _ RM3 3000 type

Workpiece		Grade	Cutting conditions				Cutting conditions			
			vc (sfm)	fz (ipt)	APMX (inch)	Available insert	vc (sfm)	fz (ipt)	APMX (inch)	Available insert
P	steel	PC3700	524~885	0.010~0.002	0.217	XNKT0604□□ PNSR-MM	524~885	0.008~0.002	0.217	XNKT0604□□ PNER-ML
		PC5300	492~787	0.010~0.002			492~787	0.010~0.002		
		PC5400	426~688	0.010~0.002			426~688	0.010~0.002		
M	Stainless steel	PC5300	295~492	0.008~0.002			295~492	0.006~0.002		
		PC5400	229~393	0.008~0.002			229~393	0.006~0.002		
K	Cast iron	PC6510	459~754	0.012~0.003			459~754	0.010~0.003		
		PC5300	393~656	0.012~0.003			393~656	0.010~0.003		

※ Maximum cutting conditions: vc (sfm) = 1148, fz (ipt) = 0.020 according to the cutting environment

Recommended cutting condition _ RM3 4000 type

Workpiece		Grade	Cutting conditions				Cutting conditions			
			vc (sfm)	fz (ipt)	APMX (inch)	Available insert	vc (sfm)	fz (ipt)	APMX (inch)	Available insert
P	steel	PC3700	524~885	0.012~0.002	0.315	XNKT0805□□ PNSR-MM	524~885	0.010~0.002	0.315	XNKT0805□□ PNER-ML
		PC5300	492~787	0.012~0.002			492~787	0.010~0.002		
		PC5400	426~688	0.012~0.002			426~688	0.010~0.002		
M	Stainless steel	PC5300	295~492	0.010~0.002			295~492	0.008~0.002		
		PC5400	229~393	0.010~0.002			229~393	0.008~0.002		
K	Cast iron	PC6510	459~754	0.014~0.003			459~754	0.012~0.003		
		PC5300	393~656	0.014~0.003			393~656	0.012~0.003		
N	Aluminum	H01	1312~3937	0.016~0.004		XNCT0805□□ PNFR-MA	-	-	-	-

※ Maximum cutting conditions: vc (sfm) = 1148, fz (ipt) = 0.028 according to the cutting environment

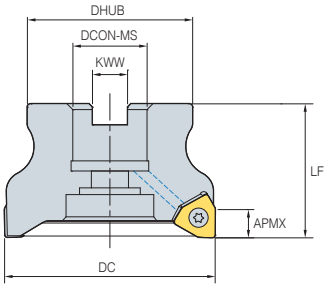
Recommended cutting condition _ RM3 5000 type

Workpiece		Grade	Cutting conditions				Cutting conditions			
			vc (sfm)	fz (ipt)	max ap (inch)	Available insert	vc (sfm)	fz (ipt)	max ap (inch)	Available insert
P	steel	PC3700	524~885	0.012~0.002	0.472	XNKT1206□□ PNSR-MM	524~885	0.010~0.002	0.472	XNKT1206□□ PNER-ML
		PC5300	492~787	0.012~0.002			492~787	0.010~0.002		
		PC5400	426~688	0.012~0.002			426~688	0.010~0.002		
M	Stainless steel	PC5300	295~492	0.010~0.002			295~492	0.008~0.002		
		PC5400	229~393	0.010~0.002			229~393	0.008~0.002		
K	Cast iron	PC6510	459~754	0.014~0.003			459~754	0.012~0.003		
		PC5300	393~656	0.014~0.003			393~656	0.012~0.003		
N	Aluminum	H01	1312~3937	0.016~0.004		XNCT1206□□ PNFR-MA	-	-	-	-

※ Maximum cutting conditions: vc (sfm) = 1148, fz (ipt) = 0.028 according to the cutting environment

RM3PCA3000







KAPR 90°

- GAMP : -5°
- GAMF : -9°~-6°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
RM3PCA	3150HR	◆	5	1.5	1.417	0.5	0.252	1.5	0.216	0.44
	3150HR-M		6	1.5	1.417	0.5	0.252	1.5	0.216	0.44
	3200HR	◆	6	2	1.772	0.75	0.315	1.75	0.216	0.66
	3200HR-M		7	2	1.772	0.75	0.315	1.75	0.216	0.66
	3250HR	○	7	2.5	2.205	1	0.374	1.75	0.216	1.08
	3250HR-M	◆	8	2.5	2.205	1	0.374	1.75	0.216	1.08
	3300HR	○	8	3	2.205	1	0.374	2	0.216	1.92
	3300HR-M	◆	10	3	2.205	1	0.374	2	0.216	1.94

◆: US stock ○: Made to order

Available inserts



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNKT	060405PNER-ML								●	◆	●		◆	◆	◆				B33
	060405PNSR-MM							●	●	◆	●		●	◆	◆				
	060408PNER-ML					○				○	●		○	●	●				
	060408PNSR-MM							●	●	◆	●		○	●	●				

●: Korea stock ◆: US stock ○: Made to order

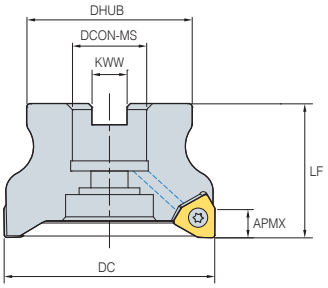
Parts

Specification	Screw	Wrench
Ø1.50~Ø3.00	FTNA0306	TW09S

Available inserts **B33** Available arbors and bolt **E94 ~ E95**

RM3PCA4000





KAPR 90°

- GAMP : -5°
- GAMF : -8°~-6°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
RM3PCA	4150HR	○	3	1.5	1.417	0.5	0.252	1.5	0.315	0.45
	4150HR-M	◆	4	1.5	1.417	0.5	0.252	1.5	0.315	0.45
	4200HR	◆	4	2	1.772	0.75	0.315	1.75	0.315	0.72
	4200HR-M	◆	5	2	1.772	0.75	0.315	1.75	0.315	0.72
	4250HR	○	5	2.5	2.205	1	0.374	1.75	0.315	1.15
	4250HR-M	◆	6	2.5	2.205	1	0.374	1.75	0.315	1.15
	4300HR	◆	5	3	2.205	1	0.374	2	0.315	1.81
	4300HR-M	◆	7	3	2.205	1	0.374	2	0.315	1.81
	4400HR	◆	7	4	2.874	1.25	0.5	2	0.315	3.51
	4400HR-M	◆	8	4	2.874	1.25	0.5	2	0.315	3.51
	4400HR-1.5	◆	7	4	3.386	1.5	0.625	2	0.315	3.44
	4400HR-M-1.5	◆	8	4	3.386	1.5	0.625	2	0.315	3.44
	4500HR	○	8	5	3.937	1.5	0.626	2.5	0.315	7.24
	4500HR-M	◆	10	5	3.937	1.5	0.626	2.5	0.315	7.3

◆: US stock ○: Made to order

Available inserts

XNCT-MA XNKT-ML XNKT-MM



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNCT	080504PNFR-MA																	●	B32 B33
	080508PNFR-MA																	●	
	080512PNFR-MA																	●	
	080520PNFR-MA																	●	
XNKT	080504PNER-ML									○			○	●	◆				
	080504PNSR-MM									◆			○	●	◆				
	080508PNER-ML					●			●	◆	◆		◆	◆	◆				
	080508PNSR-MM					●		●	●	◆	●		◆	◆	◆				
	080512PNER-ML													◆	◆				
	080512PNSR-MM							●	●	◆			○	◆	◆				
	080516PNER-ML												○	◆	◆				
	080516PNSR-MM								●	◆			○	◆	◆				
	080520PNER-ML													●	●				
	080520PNSR-MM							●	●	○			○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

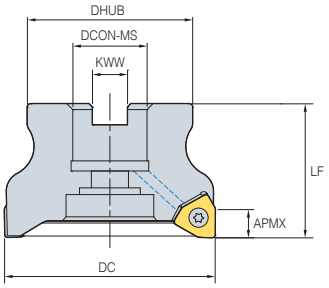
Parts

Specification	Screw	Wrench
Ø1.50~Ø5.00	FTNA0408	TW15S

Available inserts **B32, B33** Available arbors and bolt **E94 ~ E95**

RM3PCA5000







KAPR 90°

- GAMP : -5°
- GAMF : -7°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
RM3PCA	5300HR	○	5	3	2.205	1	1.3	2	0.5	1.73
	5300HR-M	◆	7	3	2.205	1	1.3	2	0.5	1.76
	5400HR	◆	7	4	2.874	1.25	1.614	2	0.5	3.3
	5400HR-M	◆	8	4	2.874	1.25	1.614	2	0.5	3.33
	5400HR-1.5		7	4	2.874	1.5	1.969	2	0.5	2.87
	5400HR-M-1.5		8	4	2.874	1.5	1.969	2	0.5	2.89
	5500HR		8	5	3.937	1.5	1.969	2.5	0.5	7.01
	5500HR-M		10	5	3.937	1.5	1.969	2.5	0.5	7.01

◆: US stock ○: Made to order

Available inserts

XNCT-MA XNKT-ML XNKT-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNCT	120608PNFR-MA																		B32 B33
XNKT	120604PNSR-MM													●					
	120608PNER-ML									●	●		●	●	●				
	120608PNSR-MM									◆	●		●	◆	◆				
	120612PNER-ML													●	●				
	120612PNSR-MM												○	◆	●				
	120616PNER-ML													●	●				
	120616PNSR-MM												○	◆	◆				
	120620PNER-ML													●	●				
	120620PNSR-MM								●				○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø3.00~Ø5.00	FTNA0511	TW20-100

Available inserts **B32, B33** Available arbors and bolt **E94 ~ E95**

RM3PSA3000



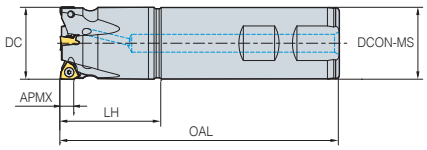


Fig. 1

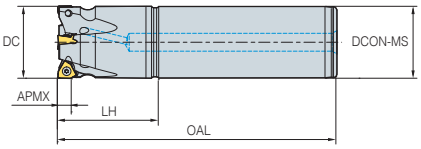


Fig. 2



KAPR 90°

- GAMP : -5°
- GAMF : -16°~-9°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
RM3PSA	3075HR-2S075	◆	2	0.75	0.75	1.378	3.346	0.217	0.34	1
	3075HR-2M075	◆	2	0.75	0.75	1.378	5.906	0.217	0.62	1
	3075HR-2L075	◆	2	0.75	0.75	1.378	7.874	0.217	0.86	2
	3100HR-2S100	◆	2	1.00	1.00	1.575	3.937	0.217	0.73	1
	3100HR-2M100	○	2	1.00	1.00	1.575	5.906	0.217	1.12	1
	3100HR-2L100	◆	2	1.00	1.00	1.575	7.874	0.217	1.51	2
	3100HR-3S100	◆	3	1.00	1.00	1.575	3.937	0.217	0.72	1
	3100HR-3M100	◆	3	1.00	1.00	1.575	5.906	0.217	1.11	1
	3100HR-3L100	◆	3	1.00	1.00	1.575	7.874	0.217	1.5	2
	3125HR-4S125	○	4	1.25	1.25	1.654	3.937	0.217	1.16	1
	3125HR-4L125	◆	4	1.25	1.25	1.654	7.874	0.217	2.47	2
	3150HR-4S125	○	4	1.50	1.25	1.654	4.331	0.217	1.5	1
	3150HR-4L125	◆	4	1.50	1.25	1.654	7.874	0.217	2.65	2
	3150HR-5S125	○	5	1.50	1.25	1.654	4.331	0.217	1.49	1
	3150HR-5L125	◆	5	1.50	1.25	1.654	7.874	0.217	2.64	2

◆: US stock ○: Made to order

Available inserts

XNKT-ML XNKT-MM





	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNKT	060405PNER-ML								●	◆	●		◆	◆	◆				B33
	060405PNSR-MM							●	●	◆	●		●	◆	◆				
	060408PNER-ML					○				○	●		○	●	●				
	060408PNSR-MM							●	●	◆	●		○	●	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.75~Ø1.50	FTNA0306	TW09S

Available inserts **B33**

RM3PSA4000



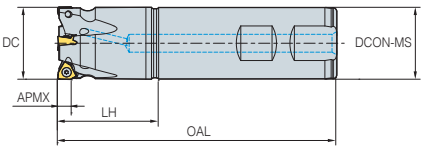


Fig. 1

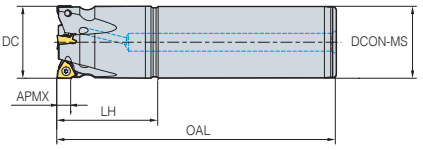


Fig. 2



KAPR 90°

- GAMP : -5°
- GAMF : -11°~-7°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
RM3PSA	RM3PSA4100HR-2L100	◆	2	1	1	1.575	7.874	0.315	1.32	1
	RM3PSA4100HR-2S100	◆	2	1	1	1.575	4.528	0.315	0.82	2
	RM3PSA4125HR-4L125	◆	4	1.25	1.25	1.654	7.874	0.315	2.49	1
	RM3PSA4125HR-4S125	◆	4	1.25	1.25	1.654	4.922	0.315	1.5	2
	RM3PSA4150HR-4L125	◆	4	1.5	1.25	1.654	7.874	0.315	2.69	1
	RM3PSA4150HR-4S125	◆	4	1.5	1.25	1.654	5.315	0.315	1.79	2
	RM3PSA4200HR-4L125	○	4	2	1.25	1.654	7.874	0.315	3.04	1
	RM3PSA4200HR-4S125	◆	4	2	1.25	1.654	5.315	0.315	2.18	2
	RM3PSA4200HR-5L125	○	5	2	1.25	1.654	7.874	0.315	3.09	1
	RM3PSA4200HR-5S125	◆	5	2	1.25	1.654	4.331	0.315	2.21	2

◆: US stock ○: Made to order

Available inserts

XNCT-MA



XNKT-ML



XNKT-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XNCT	080504PNFR-MA																	●	B32 B33
	080508PNFR-MA																	●	
	080512PNFR-MA																	●	
	080520PNFR-MA																	●	
XNKT	080504PNER-ML									○			○	●	◆				
	080504PNSR-MM									◆			○	●	◆				
	080508PNER-ML					●			●	◆	◆		◆	◆	◆				
	080508PNSR-MM					●		●	●	◆	●		◆	◆	◆				
	080512PNER-ML													◆	◆				
	080512PNSR-MM							●	●	◆			○	◆	◆				
	080516PNER-ML												○	◆	◆				
	080516PNSR-MM								●	◆			○	◆	◆				
	080520PNER-ML													●	●				
	080520PNSR-MM							●	●	○			○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

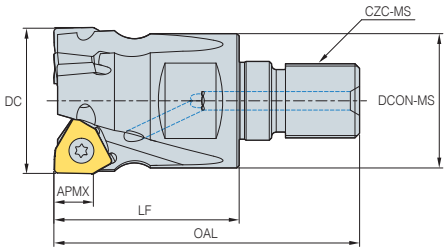
Parts

Specification	Screw	Wrench
Ø1.00~Ø2.00	FTNA0408	TW15S

Available inserts **B32, B33**

RM3PMA3000/4000





KAPR 90°

- GAMP : -5°
- GAMF : -16°~-7°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
RM3PMA	3075HR-2-M10	◆	2	0.75	0.689	1.181	1.969	10	0.217	0.13
	3100HR-3-M12	◆	3	1	0.906	1.378	2.283	12	0.217	0.22
	3125HR-4-M16	○	4	1.25	1.142	1.575	2.598	16	0.217	0.47
	3150HR-5-M16	○	5	1.5	1.142	1.575	2.598	16	0.217	0.58
RM3PMA	4125HR-3-M16	○	3	1.25	1.142	1.575	2.598	16	0.315	0.47
	4150HR-4-M16	○	4	1.5	1.142	1.969	2.992	16	0.315	0.73
	4200HR-5-M16	○	5	2	1.142	2.165	3.189	16	0.315	1.09

◆: US stock ○: Made to order

Available inserts

XNCT-MA XNKT-ML XNKT-MM



Designation			Cermet	Coated											Uncoated			Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
3000 type	XNKT	060405PNER-ML								●	◆	●		◆	◆	◆				B33
		060405PNSR-MM							●	●	◆	●		●	◆	◆				
		060408PNER-ML					○				○	●		○	●	●				
		060408PNSR-MM							●	●	◆	●		○	●	●				
4000 type	XNCT	080504PNFR-MA																	●	B32 B33
		080508PNFR-MA																	●	
		080512PNFR-MA																	●	
		080520PNFR-MA																	●	
	XNKT	080504PNER-ML									○			○	●	◆				
		080504PNSR-MM									◆			○	●	◆				
		080508PNER-ML					●			●	◆	◆		◆	◆	◆				
		080508PNSR-MM					●		●	●	◆	●		◆	◆	◆				
		080512PNER-ML													◆	◆				
		080512PNSR-MM							●	●	◆			○	◆	◆				
		080516PNER-ML												○	◆	◆				
		080516PNSR-MM								●	◆			○	◆	◆				
		080520PNER-ML													●	●				
		080520PNSR-MM							●	●	○			○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
RM3PMA	3075HR-2-M10	MATA-M10
	3100HR-3-M12	MATA-M12
	3125HR-4-M16	MATA-M16
	3150HR-5-M16	MATA-M16
RM3PMA	4125HR-3-M16	MATA-M16
	4150HR-4-M16	MATA-M16
	4200HR-5-M16	MATA-M16

Designation: RM3PMA4125HR-3-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MATA-M16-137-S125S
Adaptor threading measure (M16)

Parts

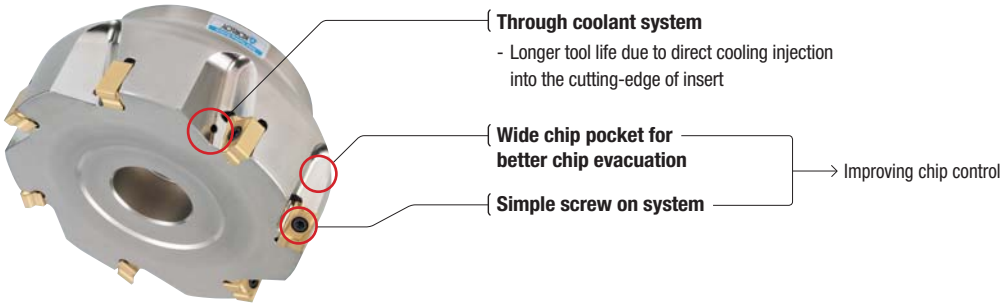
Specification	Screw	Wrench
Ø0.75~Ø1.50(3000 type)	FTNA0306	TW09S
Ø1.25~Ø2.00(4000 type)	FTNA0408	TW15S

Available inserts **B32, B33** Available adaptors **B378, B379**

Rich Mill RM4

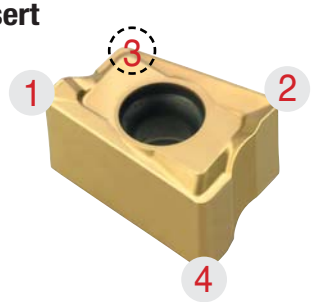
Features of cutter

- 4 cutting - edges can be used by using double-sided insert
- High rake angle chip breaker and cutting-edge can make smooth cutting with low cutting load
- Strong negative insert
- High efficiency, economical, multi-functional tool



Economical 4 cutting-edges by using double-sided insert

- RM4, as a multi-functional milling tool, offers economical 4 cutting-edges by using an innovative double-sided insert
- Special designed chip breaker consists of high rake angle and strong cutting-edge to decrease the cutting load
- RM4 is multi-functional tool that can cover facing, side cutting, shouldering, slotting, ramping & helical cutting
- Optimal matching of the special cutting-edge geometry with variety of new grades provides consistence & long tool life of insert

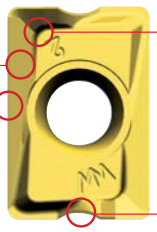


Features of insert

- Double-sided insert using 4 cutting-edges
- High rake angle chip breaker, cutting-edge
- Flexibility of product
- High efficiency, economical, multi-functional tool
- Negative insert has strong cutting-edge

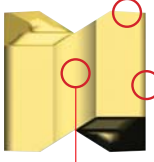
Chip breaker
- High rake angle chip breaker
- Improving chip control

Major cutting-edge
- High rake angle chip breaker
- Better surface roughness



Step design
- Improving chip control
- Reducing cutting load

Concave design
- 4 cutting-edges
- Minimize interference



Minor cutting-edge
- Special design of cutting-edge to improve surface roughness

Clearance face
- Strong negative face
- Strong cutting-edge

Uses

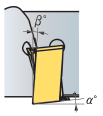
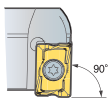


Rich Mill RM4

Features of chip breakers

Insert		Cutting-edge	Uses	Features
MA			Aluminum, Light machining	With sharp edge application the better productivity has been accomplished, especially for Aluminum or low force cut
MF			Light cutting	Due to low cutting load, it is good for light cutting and difficult-to-cut material
MM			General cutting	It is suitable design for general milling

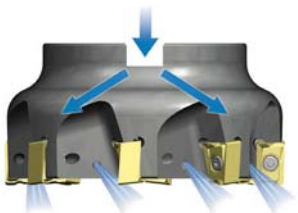
Setting configuration

Shape	Setting angle of insert	Features
		High rake chip breaker & positive setting angle for low cutting load → Improving machinability
		Multi applications for facing, shouldering, slotting, ramping, helical cutting, etc

Through coolant system

- By using on exclusive coolant bolt (hexagonal socket bolt) powerful cooling & better chip evacuation can be acquired
- To get optimal chip control, the direction of coolant injection has been designed to reach to each cutting-edge directly (through coolant arbor is required)



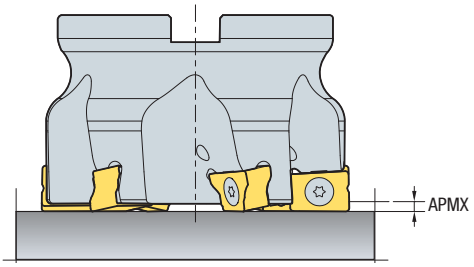


» Through coolant system for decreasing cutting heat and good chip evacuation

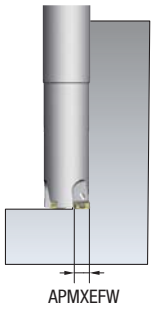
Rich Mill RM4Z

The depth of cut by machining type

• In horizontal machining, APMX (inch)



• In plunging, APMXEFW (inch)

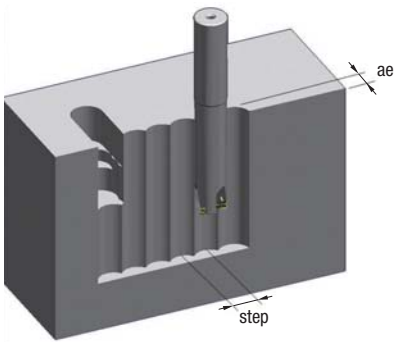


RM4Z	Horizontality	Verticality	
	APMX(inch)	APMXEFW(inch)	step
RM4Z3000	0.059	0.354	< 0.7D
RM4Z4000	0.098	0.551	< 0.7D

Max step in plunging

(inch)

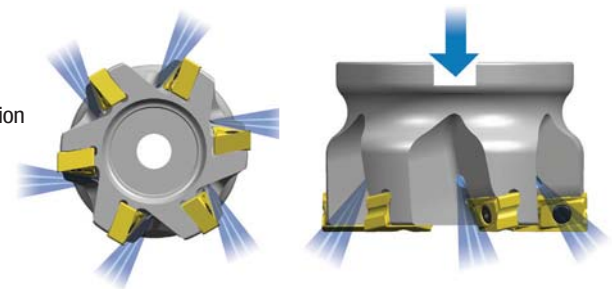
ae	Cutter Diameter						
	1.00	1.25	1.50	2.00	2.50	3.00	4.00
	max step						
0.039	0.386	0.433	0.476	0.555	0.622	0.681	0.787
0.079	0.535	0.606	0.783	0.776	0.870	0.957	1.110
0.118	0.642	0.728	0.807	0.941	1.059	1.165	1.350
0.157	0.724	0.827	0.917	1.075	1.215	1.335	1.555
0.197	0.791	0.909	1.012	1.189	1.346	1.484	1.728
0.236	0.846	0.976	1.091	1.287	1.461	1.614	1.882
0.276	0.890	1.035	1.161	1.378	1.563	1.732	2.024
0.315	0.925	1.083	1.220	1.457	1.657	1.839	2.154
0.354	0.953	1.126	1.272	1.524	1.740	1.933	2.272
0.394	-	-	-	-	1.819	2.024	2.382
0.433	-	-	-	-	1.890	2.106	2.484
0.472	-	-	-	-	0.776	2.185	2.579
0.512	-	-	-	-	2.016	2.256	2.669
0.551	-	-	-	-	2.071	2.323	2.756



Through coolant system

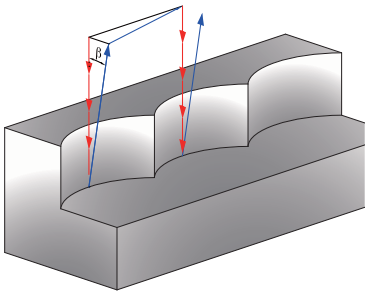
- Exclusive hexagonal coolant socket bolt provides excellent cooling and chip evacuation
- Direct coolant injection to cutting-edge improves cooling effectiveness
- Coolant type arbor should be used

∗Coolant bolt is not included, it is for sale



Rich Mill RM4Z

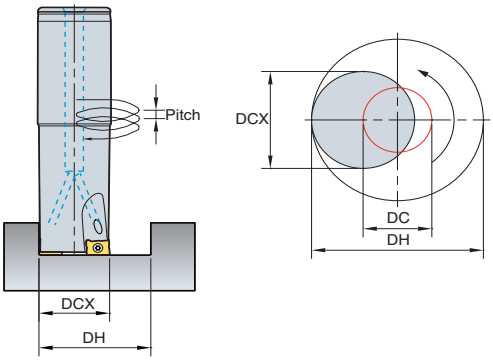
Programming tip



Plunging feed direction
Tool escape
β Escape angle (β ≥ 1°)

• When your tool steps back after plunging, please get over 1° more escape angle

Helical machining



DH = DH-DCX

DC = Tool center path
DH = Desire hole diameter
DCX = Tool diameter

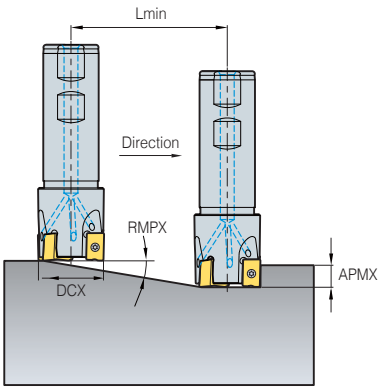
(inch)

Designation		DCX	Helical data			
			Min. machining Dia. ØDHmin	Max. pitch	Max. machining Dia. ØDHmax	Max. pitch
RM4ZSA	3100HR-L100	1.00	1.921	0.075	1.213	0.017
	3125HR-L125	1.25	2.421	0.038	1.674	0.013
	3150HR-L125	1.50	2.921	0.023	2.174	0.011
RM4ZCA	3150HR	1.50	2.921	0.023	2.174	0.011
	3200HR	2.00	3.921	0.021	3.174	0.012
RM4ZMA	3100HR-M12	1.00	1.921	0.075	1.213	0.017
	3125HR-M16	1.25	2.421	0.038	1.674	0.013
	3150HR-M16	1.50	2.921	0.023	2.174	0.011
RM4ZCA	4250HR	2.50	4.921	0.039	3.780	0.021
	4300HR	3.00	5.921	0.032	4.780	0.019
	4400HR	4.00	7.921	0.021	6.780	0.015

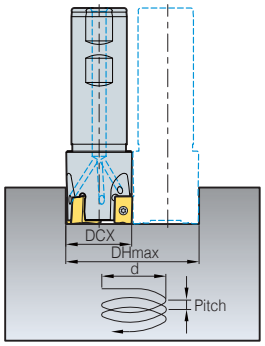
Rich Mill RM4Z

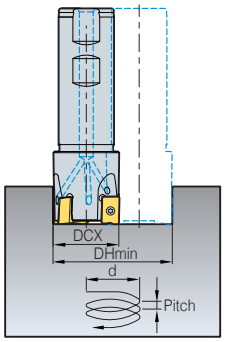
Ramping and helical cutting

Ramping



Helical cutting





(inch)

Designation	DCX	APMX	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
			RMPX	Lmin	DHmin	Max. pitch	DHmax	Max. pitch	DHmin	Max. pitch
3056HR	0.562	0.354	5.6	3.92	0.99	0.13	1.069	0.15	0.785	0.06
3062HR	0.625	0.354	4.2	5.14	1.116	0.11	1.195	0.13	0.911	0.06
3068HR	0.688	0.354	3.5	6.27	1.242	0.11	1.321	0.12	1.037	0.06
3075HR	0.75	0.354	2.9	7.42	1.366	0.1	1.445	0.11	1.161	0.06
3100HR	1	0.354	1.8	12.4	1.866	0.08	1.945	0.09	1.661	0.06
3125HR	1.25	0.354	1.2	17.64	2.366	0.07	2.445	0.08	2.161	0.06
3150HR	1.5	0.354	0.9	23.04	2.866	0.07	2.945	0.07	2.661	0.06
3200HR	2	0.354	0.6	33.7	3.866	0.06	3.945	0.07	3.661	0.05
3150HR	1.5	0.354	0.9	23.04	2.866	0.07	2.945	0.07	2.661	0.06
3200HR	2	0.354	0.6	33.7	3.866	0.06	3.945	0.07	3.661	0.05
3250HR	2.5	0.354	0.5	44.27	4.866	0.06	4.945	0.06	4.661	0.05
3300HR	3	0.354	0.3	56.44	5.866	0.06	5.945	0.06	5.661	0.05
3400HR	4	0.354	0.2	77.85	7.866	0.05	7.945	0.06	7.661	0.05
4125HR	1.25	0.551	2.5	9.024	2.366	0.15	2.445	0.16	2.161	0.12
4150HR	1.5	0.551	2	11.283	2.866	0.14	2.945	0.15	2.661	0.12
4200HR	2	0.551	2	11.283	3.866	0.19	3.945	0.2	3.661	0.18
4250HR	2.5	0.551	2	11.283	4.866	0.24	4.945	0.25	4.661	0.23
4200HR	2	0.551	2	11.283	3.866	0.19	3.945	0.2	3.661	0.18
4250HR	2.5	0.551	2	11.283	4.866	0.24	4.945	0.25	4.661	0.23
4300HR	3	0.551	1.5	15.046	5.866	0.22	5.945	0.23	5.661	0.21
4400HR	4	0.551	1	22.572	7.866	0.19	7.945	0.2	7.661	0.2
4500HR	5	0.551	1	22.572	9.866	0.25	9.945	0.26	9.661	0.25
4600R	6	0.551	0.5	45.148	11.866	0.15	11.945	0.15	11.661	0.15

* Please be sure to use cutting oil or air for ramping and helical machining
Lmin = ap/tan (RPMX)

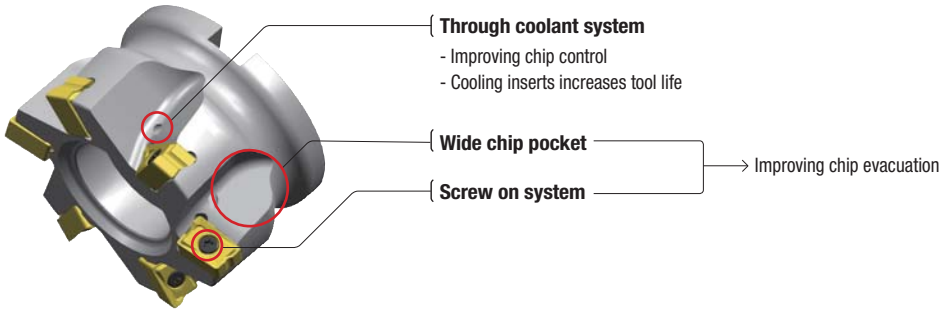
Recommended cutting conditions

ISO	Grade	LNM(E)X100605PNR-MF		LNM(E)X100605PNR-MM		LNEX100605PNR-MA		APMX (inch)	LNM(E)X151008PNR-MF		LNM(E)X151008PNR-MM		LNEX151008PNR-MA		APMX (inch)
		vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	
P	NCM535	-	-	-	-	-	-	0.354	490~985	0.01~0.002	390~985	0.012~0.002	490~985	0.008~0.001	0.551
P	PC3700	490~985	0.010~0.002	390~985	0.012~0.002	490~985	0.008~0.001		490~985	0.01~0.002	390~985	0.012~0.002	490~985	0.008~0.001	
M	PC5300	390~590	0.010~0.002	330~590	0.012~0.002	390~655	0.008~0.001		390~590	0.01~0.002	330~590	0.012~0.002	390~665	0.008~0.001	
K	PC6510	490~985	0.012~0.003	390~985	0.014~0.003	-	-		490~985	0.012~0.003	390~985	0.014~0.003	-	-	

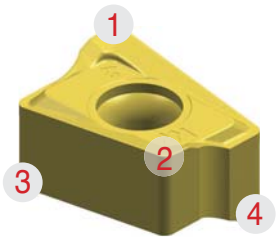
Rich Mill RM4Z

Features

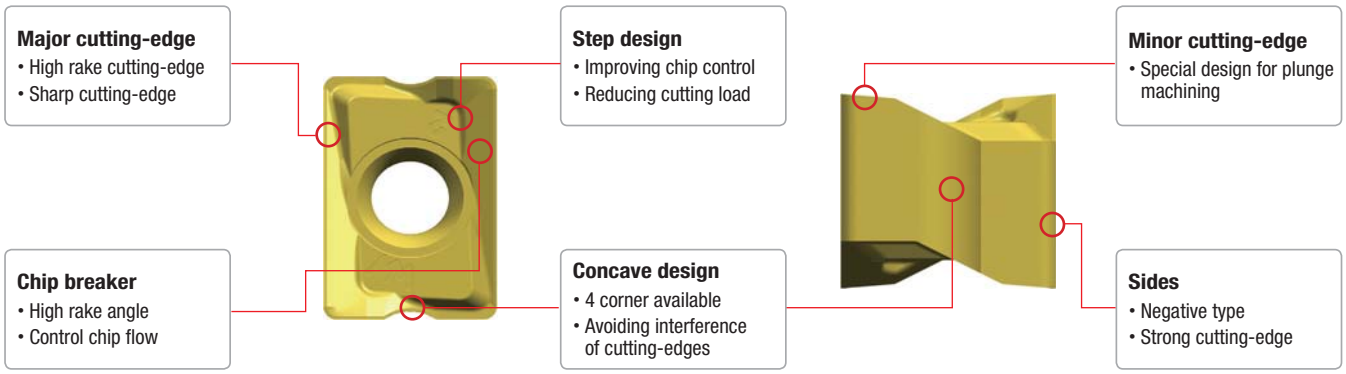
- Rich mill series RM4Z is a plunge mill for high efficiency vertical machining such as slotting and pocketing in roughing applications
- Rich mill series RM4Z is a highly efficient milling tool for plunging, shouldering and facing. It makes operations more economical with the use of its double-sided 4-corner insert
- Plunge machining reduces lead time for high productivity and precision machining.
- In plunging the max depth of RM4Z 3000 type is 0.354 inch and that of RM4Z 4000 type is 0.551 inch



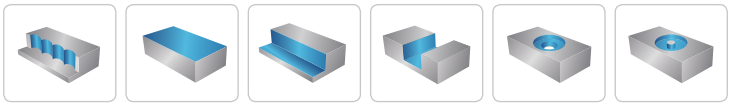
- Double-sided insert ···› 4 corner available
- High rake angle chip breaker and cutting-edge
- Various available machining types
- High efficiency and economical insert
- Negative type insert - Strong cutting-edge



Features of insert



Uses



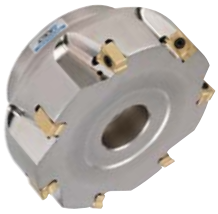
Plunging | Facing | Shouldering | Slotting | Counter Boring | Helical cutting

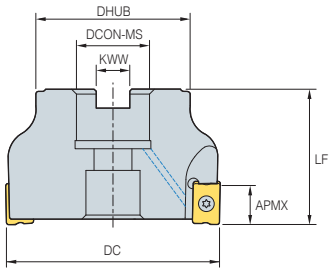
Recommended cutting conditions

ISO	Grade	LNM(E)X100605PNL-MM				LNM(E)X151008PNL-MM			
		vc (sfm)	fz (ipt)	APMXEFW(inch)	APMX(inch)	vc (sfm)	fz (ipt)	APMXEFW(inch)	APMX(inch)
P	PC3700	350~820	0.010~0.002	0.354	0.059	400~820	0.010~0.002	0.551	0.098
M	PC5300	270~600	0.008~0.002			330~600	0.008~0.002		
K	PC6100	350~820	0.012~0.003			400~820	0.012~0.003		

* APMXEFW (inch): (Plunging) max. radial depth of cut ** APMX (inch): (Shouldering/Facing) max. depth of cut

RM4PCA3000












KAPR 90°

- GAMP : -6°
- GAMF : -19°~-13°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
RM4PCA	3150HR	○	4	1.5	1.417	0.5	0.25	1.5	0.354	0.5
	3150HR-M	◆	5	1.5	1.417	0.5	0.25	1.5	0.354	0.5
	3200HR	○	5	2	1.772	0.75	0.313	1.75	0.354	0.8
	3200HR-M	◆	7	2	1.772	0.75	0.313	1.75	0.354	0.8
	3250HR	○	7	2.5	2.205	1	0.375	1.75	0.354	1.3
	3250HR-M	◆	9	2.5	2.205	1	0.375	1.75	0.354	1.3
	3300HR	◆	8	3	2.205	1	0.375	2	0.354	2.7
	3300HR-M	◆	10	3	2.205	1	0.375	2	0.354	2.7
	3400HR	◆	9	4	2.874	1.25	0.5	2	0.354	4.3
	3400HR-M	◆	12	4	2.874	1.25	0.5	2	0.354	4.2

◆: US stock ○: Made to order

Available inserts

LNEX-MA



LNM(E)X-MF



LNM(E)X-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF									○	●	○		◆	◆				B11
	100605PNR-MM									◆	◆	◆		◆	◆				
	100605PNR-MA																	◆	
	100608PNR-MF									◆	●			◆	●				
	100608PNR-MM									○	●			◆	●				
LNMX	100605PNR-MF									○	●	○		◆	◆				
	100605PNR-MM									◆	◆	◆		◆	◆				
	100608PNR-MF									○	●			●	●				
	100608PNR-MM									◆				◆	●				

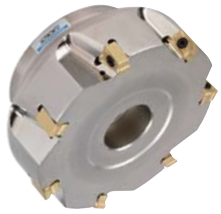
●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.50~Ø4.00	FTKA0307	TW09S

Available inserts **B11** Available arbors and bolt **E94, E96**

RM4PCA4000



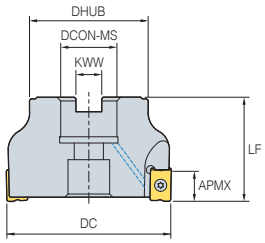


Fig. 1

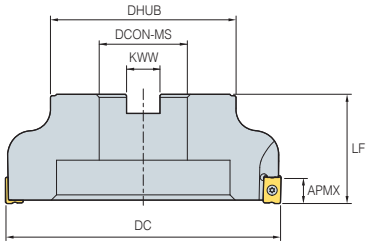


Fig. 2



KAPR 90°

- GAMP : -6°
- GAMF : -19°~-13°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RM4PCA	4200HR	◆	3	2	1.772	0.75	0.313	1.75	0.551	0.8	1
	4200HR-M	◆	4	2	1.772	0.75	0.313	1.75	0.551	0.8	1
	4250HR	◆	4	2.5	2.205	1	0.375	1.75	0.551	1.2	1
	4250HR-M	◆	6	2.5	2.205	1	0.375	1.75	0.551	1.3	1
	4300HR	◆	5	3	2.205	1	0.375	2	0.551	2.6	1
	4300HR-M	◆	6	3	2.205	1	0.375	2	0.551	2.5	1
	4400HR	◆	5	4	2.874	1.25	0.5	2	0.551	4	1
	4400HR-M	◆	8	4	2.874	1.25	0.5	2	0.551	4	1
	4500HR	◆	7	5	3.386	1.5	0.625	2.5	0.551	8.3	1
	4500HR-M	◆	10	5	3.386	1.5	0.625	2.5	0.551	8.1	1
	4600R	◆	8	6	4.882	2	0.75	2.5	0.551	10.5	2
	4600R-M	◆	11	6	4.882	2	0.75	2.5	0.551	10.4	2

◆: US stock ○: Made to order

Available inserts

LNEX-MA



LNM(E)X-MF



LNM(E)X-MM



Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNEX	151004PNR-MF									○	●			◆	●			B11
	151004PNR-MM									○	●			◆	●			
	151004PNR-MA															◆		
	151008PNR-MF									○	◆	○	○	◆	◆			
	151008PNR-MM					○				◆	●			◆	◆			
	151008PNR-MA															◆		
	151016PNR-MF									○	●			●	◆			
	151016PNR-MM									○								

Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	151004PNR-MF									●	●			●	●			B11
	151004PNR-MM										●				●			
	151008PNR-MF					●				●	●			●	●			
	151008PNR-MM					●				●	●	●		●	●			
	151016PNR-MF										●			●	●			
	151016PNR-MM									●	●				●			

●: Korea stock ◆: US stock ○: Made to order

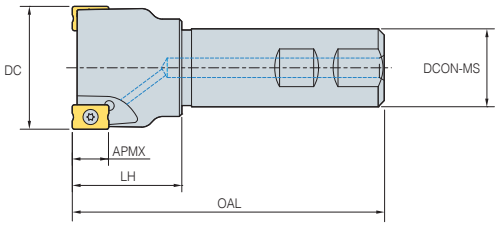
Parts

Specification	Screw	Wrench
Ø2.00~Ø6.00	FTKA0412B	TW15S

Available inserts **B11** Available arbors and bolt **E94, E96**

RM4PSA3000





KAPR 90°

- GAMP : -6°
- GAMF : -39°~-16°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
RM4PSA	3056HR-S062	◆	1	0.562	0.625	0.906	3.543	0.354	0.2
	3062HR-S062	◆	1	0.625	0.625	0.984	3.543	0.354	0.2
	3068HR-S062	◆	2	0.688	0.625	0.906	3.543	0.354	0.3
	3075HR-S075	◆	2	0.75	0.75	1.181	3.937	0.354	0.5
	3075HR-S075M		3	0.75	0.75	1.181	3.937	0.354	0.5
	3100HR-S100	◆	2	1	1	1.378	4.528	0.354	0.8
	3100HR-S100M	◆	3	1	1	1.378	4.528	0.354	0.8
	3125HR-S125	◆	3	1.25	1.25	1.575	4.921	0.354	1.5
	3125HR-S125M	◆	4	1.25	1.25	1.575	4.921	0.354	1.5
	3150HR-S125	◆	4	1.5	1.25	1.654	5.118	0.354	1.9
	3150HR-S125M	◆	5	1.5	1.25	1.654	5.118	0.354	1.9
	3150HR-S150	◆	4	1.5	1.5	1.654	5.118	0.354	2.6
	3150HR-S150M	◆	5	1.5	1.5	1.654	5.118	0.354	2.6
	3200HR-S125	○	5	2	1.25	1.772	5.315	0.354	2.3
	3200HR-S125M	◆	7	2	1.25	1.772	5.315	0.354	2.3
	3200HR-S150	○	5	2	1.5	1.772	5.315	0.354	3
	3200HR-S150M	◆	7	2	1.5	1.772	5.315	0.354	3

◆: US stock ○: Made to order

Available inserts

LNEX-MA



LNM(E)X-MF



LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF									○	●	○		◆	◆				B11
	100605PNR-MM									◆	◆			◆	◆				
	100605PNR-MA																	●	
	100605PNL-MM									○	●			◆	●				
	100608PNR-MF									●	●			◆	●				
	100608PNR-MM									○	●			●	●				
LNMX	100605PNR-MF									○	●	○		◆	◆				
	100605PNR-MM									◆	◆	◆		◆	◆				
	100608PNR-MF									○	●			●	●				
	100608PNR-MM									◆		●		◆	●				

●: Korea stock ◆: US stock ○: Made to order

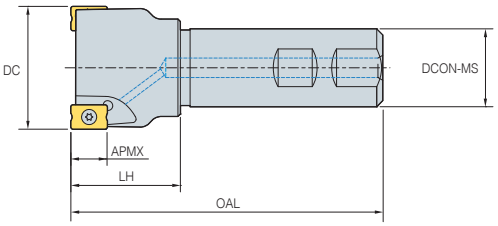
Parts

Specification	Screw	Wrench
Ø0.562~Ø2.000	FTKA0307	TW09S

Available inserts **B11**

RM4PSA4000





KAPR 90°

- GAMP : -6°
- GAMF : -24°~-14°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
RM4PSA	4125HR-S125	◆	2	1.25	1.25	1.575	4.921	0.551	1.5
	4125HR-S125M	◆	3	1.25	1.25	1.575	5.118	0.551	1.5
	4150HR-S125	◆	3	1.5	1.25	1.654	5.118	0.551	1.8
	4150HR-S125M	◆	4	1.5	1.25	1.654	5.118	0.551	1.8
	4150HR-S150	◆	3	1.5	1.5	1.654	5.315	0.551	2.5
	4200HR-S125	○	3	2	1.25	1.772	5.315	0.551	2.2
	4200HR-S125M	◆	4	2	1.25	1.772	5.315	0.551	2.2
	4200HR-S150	○	3	2	1.5	1.772	5.315	0.551	3
	4200HR-S150M	◆	4	2	1.5	1.772	5.315	0.551	2.9
	4250HR-S125	○	4	2.5	1.25	1.772	5.315	0.551	2.8
	4250HR-S125M	◆	6	2.5	1.25	1.772	5.315	0.551	2.7
	4250HR-S150	○	4	2.5	1.5	1.772	5.315	0.551	3.6
	4250HR-S150M	◆	6	2.5	1.5	1.772	5.315	0.551	3.5

◆: US stock ○: Made to order

Available inserts

LNEX-MA LNM(E)X-MF LNM(E)X-MM





	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151004PNR-MF									○	●			●	●				B11
	151004PNR-MM									○	●			◆	●				
	151004PNR-MA																	◆	
	151008PNR-MF									○	◆	○	○	◆	◆				
	151008PNR-MM					○				◆	●			◆	◆				
	151008PNR-MA																	◆	
	151016PNR-MF									○	●			●	◆				
	151016PNR-MM									○	●								
LNMX	151004PNR-MF									◆	●			◆	●				
	151004PNR-MM									○	◆			○	●				
	151008PNR-MF					●				◆	●	○		◆	◆				
	151008PNR-MM					●				◆	●	●		◆	◆				
	151016PNR-MF									○	●	○		◆	●				
	151016PNR-MM									○	●				●				

●: Korea stock ◆: US stock ○: Made to order

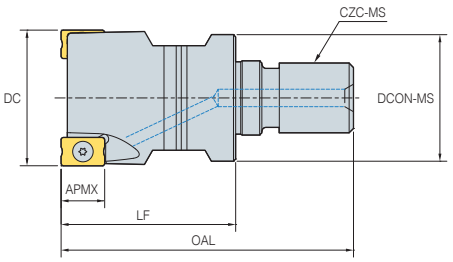
Parts

Specification	Screw	Wrench
Ø1.250~Ø2.500	FTKA0412B	TW15S

Available inserts **B11**

RM4PMA3000





KAPR 90°

- GAMP : -6°
- GAMF : -39°~-16°

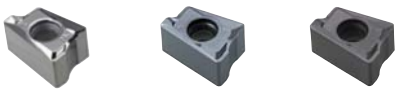
(inch)

Designation		Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
RM4PMA	3056HR-M06	○	1	0.563	0.433	0.984	1.575	M06	0.354	0.04
	3063HR-M08	○	1	0.625	0.571	0.984	1.654	M08	0.354	0.04
	3068HR-M08	○	2	0.688	0.571	0.984	1.654	M08	0.354	0.07
	3075HR-M10	◆	2	0.75	0.689	1.181	2.008	M10	0.354	0.13
	3100HR-M12	◆	2	1	0.906	1.378	2.323	M12	0.354	0.24
	3125HR-M16	◆	3	1.25	1.142	1.575	2.638	M16	0.354	0.46
	3150HR-M16	◆	4	1.5	1.142	1.575	2.638	M16	0.354	0.57
	3200HR-M16	○	5	2	1.142	1.772	2.835	M16	0.354	0.9

◆: US stock ○: Made to order

Available inserts

LNEX-MA | LNM(E)X-MF | LNM(E)X-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF									○	●	○		◆	◆				B11
	100605PNR-MM									◆	◆	◆		◆	◆				
	100605PNR-MA																	◆	
	100608PNR-MF									◆	●			◆	●				
	100608PNR-MM									○	●			◆	●				
LNMX	100605PNR-MF									○	●	○		◆	◆				
	100605PNR-MM									◆	◆	◆		◆	◆				
	100608PNR-MF									○	●			●	●				
	100608PNR-MM									◆				◆	●				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
RM4PMA	3056HR-M06	MATA-M06
	3063HR-M08	MATA-M08
	3068HR-M08	
	3075HR-M10	MATA-M10
	3100HR-M12	MATA-M12
	3125HR-M16	MATA-M16
	3150HR-M16	
	3200HR-M16	

Designation: RM4PMA3125HR-M16
Modular Head Threading Measure size (M16)

II

Adaptor spec.: MATA-M16-137-S125S
Adaptor Threading Measure (M16)

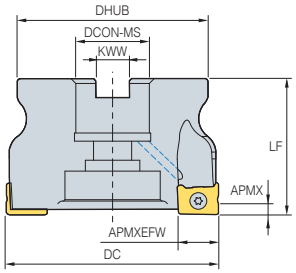
Parts

Specification	Screw	Wrench
Ø0.563~Ø2.000	FTKA0307	TW09S

Available inserts **B11** Available adaptors **B400**

RM4ZCA3000/4000





KAPR 90°

- GAMP : -11°
- GAMF : -12°~-10°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
RM4ZCA	3150HR	◆	4	1.5	1.417	0.5	0.25	1.5	0.059	0.4
	3200HR	◆	5	2	1.85	0.75	0.313	1.75	0.059	0.7
RM4ZCA	4250HR	◆	5	2.5	2.283	1	0.375	1.75	0.098	1.2
	4300HR	◆	6	3	2.677	1	0.375	1.75	0.098	2.4
	4400HR	◆	7	4	3.15	1.25	0.5	2	0.098	3.7

◆: US stock ○: Made to order

Available inserts

LNM(E)X-MM



Designation			Cermet	Coated											Uncoated			Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
3000 type	LNEX	100605PNL-MM									○	●			●	○				B11
	LNMX	100605PNL-MM									◆	◆			◆	●				
4000 type	LNEX	151008PNL-MM									○	●			○	○				
	LNMX	151008PNL-MM									○		○		◆	○				

●: Korea stock ◆: US stock ○: Made to order

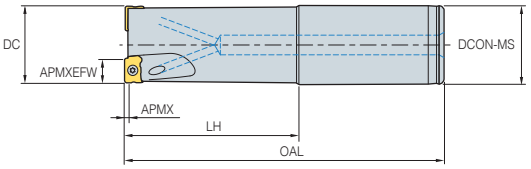
Parts

Specification	Screw	Wrench
Ø1.50~Ø2.00(3000 type)	FTKA0307	TW09S
Ø2.50~Ø4.00(4000 type)	FTKA0412B	TW15S

Available inserts **B11** Available arbors and bolt **E94, E96**

RM4ZSA3000







KAPR 90°

- GAMP : -11°
- GAMF : -17°~-14°

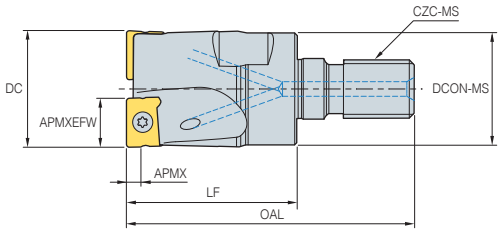
(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
RM4ZSA	3100HR-L100	◆	2	1	1	5	8	0.059	1.3
	3125HR-L125	◆	3	1.25	1.25	5	8.5	0.059	2.4
	3150HR-L125	○	4	1.5	1.5	1.654	10	0.059	3.3

◆: US stock ○: Made to order

RM4ZMA3000







KAPR 90°

- GAMP : -11°
- GAMF : -17°~-14°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
RM4ZMA	3100HR-M12	○	1	0.906	1.378	2.323	M12	0.059	0.2	0.1
	3125HR-M16	○	1.25	1.142	1.575	2.638	M16	0.059	0.4	0.2
	3150HR-M16	○	1.5	1.142	1.575	2.638	M16	0.059	0.6	0.3

◆: US stock ○: Made to order

Available inserts

LNM(E)X-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNL-MM									○	●			●	○				B11
LNMX	100605PNL-MM									◆	◆			◆	●				

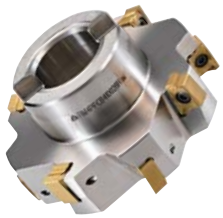
●: Korea stock ◆: US stock ○: Made to order

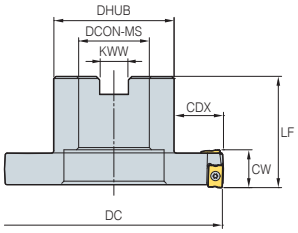
Parts

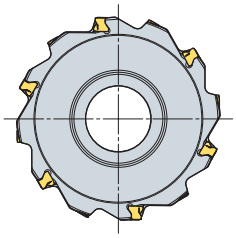
Specification	Screw	Wrench
Ø1.000~Ø1.500	FTKA0307	TW09S

Available inserts **B11**

RM4PFCBA3000







(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	CW	CDX
RM4PFCBA	3300043R	○	10	3	1.575	1	0.375	2	0.433	0.673
	3300051R	○	10	3	1.575	1	0.375	2	0.512	0.673
	3300059R	○	10	3	1.575	1	0.375	2	0.591	0.673
	3300066R	○	10	3	1.575	1	0.375	2	0.669	0.673
	3400043R	○	12	4	2.126	1.25	0.5	2	0.433	0.898
	3400051R	○	12	4	2.126	1.25	0.5	2	0.512	0.898
	3400059R	○	12	4	2.126	1.25	0.5	2	0.591	0.898
	3400066R	○	12	4	2.126	1.25	0.5	2	0.669	0.898
	3500043R	○	14	5	2.756	1.5	0.625	2.5	0.433	1.083
	3500051R	○	14	5	2.756	1.5	0.625	2.5	0.512	1.083
	3500059R	○	14	5	2.756	1.5	0.625	2.5	0.591	1.083
	3500066R	○	14	5	2.756	1.5	0.625	2.5	0.669	1.083
	3600043R	○	16	6	2.756	1.5	0.625	2.5	0.433	1.583
	3600051R	○	16	6	2.756	1.5	0.625	2.5	0.512	1.583
	3600059R	○	16	6	2.756	1.5	0.625	2.5	0.591	1.583
	3600066R	○	16	6	2.756	1.5	0.625	2.5	0.669	1.583

◆: US stock ○: Made to order

Available inserts

LNM(E)X-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MM									◆	◆			◆	◆				B11
	100605PNL-MM									○	●			●	●				
LNMX	100605PNR-MM									◆	◆	◆		◆	◆				
	100605PNL-MM									◆	◆			◆	●				

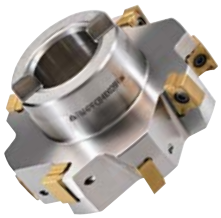
●: Korea stock ◆: US stock ○: Made to order

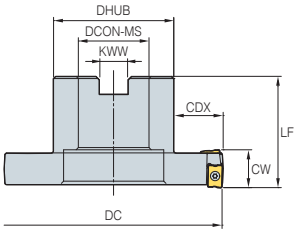
Parts

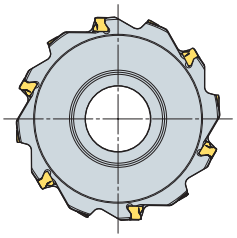
Specification	Screw	Wrench
Ø3.0~Ø6.0	FTKA0307	TW09S

Available inserts **B11** Available arbors and bolt **E94**

RM4PFCBA4000







(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	CW	CDX
RM4PFCBA	4300086R	○	6	3	1.575	1	0.375	2	0.866	0.673
	4300094R	○	6	3	1.575	1	0.375	2	0.945	0.673
	4300102R	○	6	3	1.575	1	0.375	2	1.024	0.673
	4300110R	○	6	3	1.575	1	0.375	2	1.102	0.673
	4400086R	○	8	4	2.126	1.25	0.5	2	0.866	0.898
	4400094R	○	8	4	2.126	1.25	0.5	2	0.945	0.898
	4400102R	○	8	4	2.126	1.25	0.5	2	1.024	0.898
	4400110R	○	8	4	2.126	1.25	0.5	2	1.102	0.898
	4500086R	○	10	5	2.756	1.5	0.625	2.5	0.866	1.083
	4500094R	○	10	5	2.756	1.5	0.625	2.5	0.945	1.083
	4500102R	○	10	5	2.756	1.5	0.625	2.5	1.024	1.083
	4500110R	○	10	5	2.756	1.5	0.625	2.5	1.102	1.083
	4600086R	○	12	6	2.756	1.5	0.625	2.5	0.866	1.583
	4600094R	○	12	6	2.756	1.5	0.625	2.5	0.945	1.583
	4600102R	○	12	6	2.756	1.5	0.625	2.5	1.024	1.583
	4600110R	○	12	6	2.756	1.5	0.625	2.5	1.102	1.583

◆: US stock ○: Made to order

Available inserts

LNM(E)X-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151008PNR-MM					○				●	●			◆	●				B11
	151008PNL-MM									○	●			●	●				
LNMX	151008PNR-MM					●				◆	◆	◆	○	◆	◆				
	151008PNL-MM									○		○		◆	●				

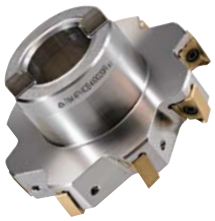
●: Korea stock ◆: US stock ○: Made to order

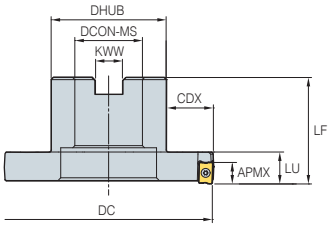
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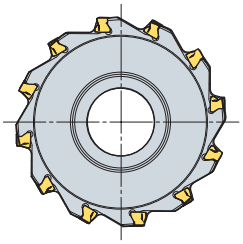
Specification	Screw	Wrench
Ø3.0~Ø6.0	FTKA0412B	TW15S

Available inserts **B11** Available arbors and bolt **E94**

RM4PHCBA3000







(inch)

Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	CW	CDX
RM4PHCBA 3300059R	○	10	3	1.575	1	0.375	2	0.591	0.673
3400059R	○	12	4	2.126	1.25	0.5	2	0.591	0.898
3500059R	○	14	5	2.756	1.5	0.625	2.5	0.591	1.083
3600059R	○	16	6	2.756	1.5	0.625	2.5	0.591	1.583

◆: US stock ○: Made to order

Available inserts

LNEX-MA LNM(E)X-MF LNM(E)X-MM





Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF									○	●	○		◆	◆				B11
	100605PNR-MM									◆	●	○		◆	◆				
	100605PNR-MA																	◆	
	100608PNR-MF									◆	●			◆	●				
	100608PNR-MM									○	●			●	●				
LNMX	100605PNR-MF									○	●	○		◆	◆				
	100605PNR-MM									◆	●	●		◆	●				
	100608PNR-MF									◆	●			◆	●				
	100608PNR-MM									◆		○		◆	●				

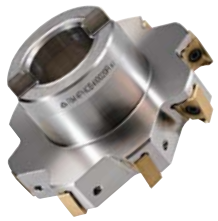
●: Korea stock ◆: US stock ○: Made to order

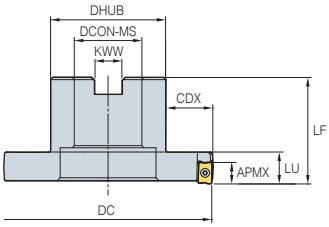
Parts

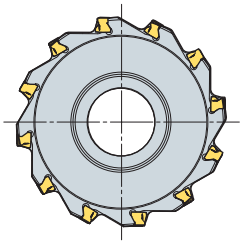
Specification	Screw	Wrench
Ø3.0~Ø6.0	FTKA0307	TW09S

Available inserts **B11** Available arbors and bolt **E94**

RM4PHCBA4000







(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	CW	CDX
RM4PHCBA	4300078R	○	6	3	1.575	1	0.375	2	0.787	0.673
	4400078R	○	8	4	2.126	1.25	0.5	2	0.787	0.898
	4500078R	○	10	5	2.756	1.5	0.625	2.5	0.787	1.083
	4600078R	○	12	6	2.756	1.5	0.625	2.5	0.787	1.583

◆: US stock ○: Made to order

Available inserts

LNEX-MA



LNM(E)X-MF



LNM(E)X-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151004PNR-MF									○	●			●	●				B11
	151004PNR-MM									○	●			◆	●				
	151004PNR-MA																	◆	
	151008PNR-MF									○	◆	○	○	◆	●				
	151008PNR-MM					○				◆	●			◆	◆				
	151008PNR-MA																	◆	
	151016PNR-MF									○	●			●	◆				
	151016PNR-MM									○	●			●	●				
LNMX	151004PNR-MF									◆	●			◆	●				
	151004PNR-MM									○	●			◆	●				
	151008PNR-MF					●				◆	●	○		◆	◆				
	151008PNR-MM					●				●	●	●		●	●				
	151016PNR-MF									○	●	○		◆	●				
	151016PNR-MM									◆	◆			◆	◆				

●: Korea stock ◆: US stock ○: Made to order

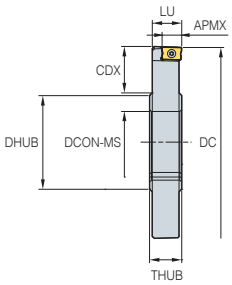
Parts

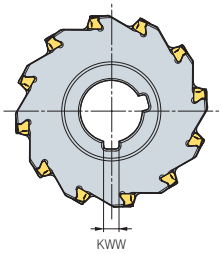
Specification	Screw	Wrench
Ø3.0~Ø6.0	FTKA0412B	TW15S

Available inserts **B11** Available arbors and bolt **E94**

RM4PFCPA3000







(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	THUB	CW	CDX
RM4PFCPA	3300043R	○	10	3	1.634	1	0.25	0.433	0.433	0.604
	3300051R	○	10	3	1.634	1	0.25	0.512	0.512	0.604
	3300059R	○	10	3	1.634	1	0.25	0.591	0.591	0.604
	3300066R	○	10	3	1.634	1	0.25	0.669	0.669	0.604
	3400043R	○	12	4	1.89	1.25	0.313	0.433	0.433	0.945
	3400051R	○	12	4	1.89	1.25	0.313	0.512	0.512	0.945
	3400059R	○	12	4	1.89	1.25	0.313	0.591	0.591	0.945
	3400066R	○	12	4	1.89	1.25	0.313	0.669	0.669	0.945
	3500043R	○	14	5	2.283	1.5	0.375	0.433	0.433	1.28
	3500051R	○	14	5	2.283	1.5	0.375	0.512	0.512	1.28
	3500059R	○	14	5	2.283	1.5	0.375	0.591	0.591	1.28
	3500066R	○	14	5	2.283	1.5	0.375	0.669	0.669	1.28
	3600043R	○	16	6	2.283	1.5	0.375	0.433	0.433	1.78
	3600051R	○	16	6	2.283	1.5	0.375	0.512	0.512	1.78
	3600059R	○	16	6	2.283	1.5	0.375	0.591	0.591	1.78
	3600066R	○	16	6	2.283	1.5	0.375	0.669	0.669	1.78

◆: US stock ○: Made to order

Available inserts

LNM(E)X-MM



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MM									◆	●	○		◆	◆				B11
	100605PNL-MM									○	●			●	●				
LNMX	100605PNR-MM									◆	◆	◆		◆	◆				
	100605PNL-MM									◆	●			◆	●				

●: Korea stock ◆: US stock ○: Made to order

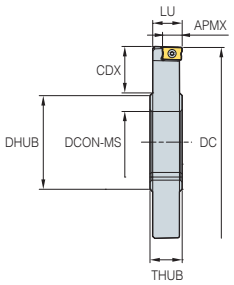
Parts

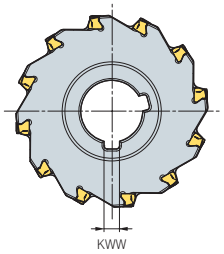
Specification	Screw	Wrench
Ø3.0~Ø6.0	FTKA0307	TW09S

Available inserts **B11**

RM4PFCPA4000







(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	THUB	CW	CDX
RM4PFCPA	4300086R	○	6	3	1.634	1	0.25	0.866	0.866	0.604
	4300094R	○	6	3	1.634	1	0.25	0.945	0.945	0.604
	4300102R	○	6	3	1.634	1	0.25	1.024	1.024	0.604
	4300110R	○	6	3	1.634	1	0.25	1.102	1.102	0.604
	4400086R	○	8	4	1.89	1.25	0.313	0.866	0.866	0.945
	4400094R	○	8	4	1.89	1.25	0.313	0.945	0.945	0.945
	4400102R	○	8	4	1.89	1.25	0.313	1.024	1.024	0.945
	4400110R	○	8	4	1.89	1.25	0.313	1.102	1.102	0.945
	4500086R	○	10	5	2.283	1.5	0.375	0.866	0.866	1.28
	4500094R	○	10	5	2.283	1.5	0.375	0.945	0.945	1.28
	4500102R	○	10	5	2.283	1.5	0.375	1.024	1.024	1.28
	4500110R	○	10	5	2.283	1.5	0.375	1.102	1.102	1.28
	4600086R	○	12	6	2.283	1.5	0.375	0.866	0.866	1.78
	4600094R	○	12	6	2.283	1.5	0.375	0.945	0.945	1.78
	4600102R	○	12	6	2.283	1.5	0.375	1.024	1.024	1.78
	4600110R	○	12	6	2.283	1.5	0.375	1.102	1.102	1.78

◆: US stock ○: Made to order

Available inserts

LNM(E)X-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151008PNR-MM					○				◆	●			◆	●				B11
	151008PNL-MM									○	●			●	●				
LNMX	151008PNR-MM					●				◆	◆	◆	○	◆	◆				
	151008PNL-MM									○		○		◆	●				

●: Korea stock ◆: US stock ○: Made to order

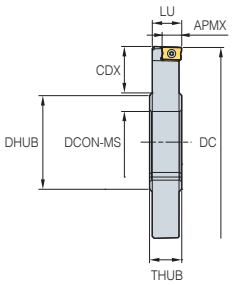
Parts

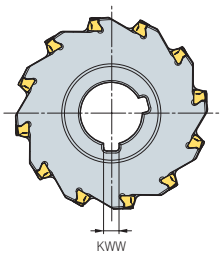
Specification	Screw	Wrench
Ø3.0~Ø6.0	FTKA0412B	TW15S

Available inserts **B11**

RM4PHCPA3000







(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	THUB	CW	CDX
RM4PHCPA	3300059R	○	10	3	1.634	1	0.25	0.65	0.594	0.604
	3400059R	○	12	4	1.89	1.25	0.313	0.65	0.594	0.945
	3500059R	○	14	5	2.283	1.5	0.375	0.65	0.594	1.28
	3600059R	○	16	6	2.283	1.5	0.375	0.65	0.594	1.78

◆: US stock ○: Made to order

Available inserts

LNEX-MA



LNM(E)X-MF



LNM(E)X-MM



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	100605PNR-MF									○	●	○		◆	◆				B11
	100605PNR-MM									◆	●	○		◆	◆				
	100605PNR-MA																	◆	
	100608PNR-MF									◆	●			◆	●				
	100608PNR-MM									○	●			●	●				
LNMX	100605PNR-MF									○	●	○		◆	◆				
	100605PNR-MM									◆	●	●		◆	●				
	100608PNR-MF									◆	●			◆	●				
	100608PNR-MM									◆		○		◆	●				

●: Korea stock ◆: US stock ○: Made to order

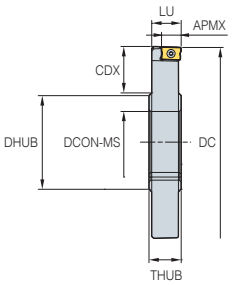
Parts

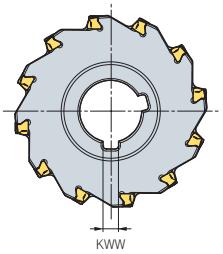
Specification	Screw	Wrench
Ø3.0~Ø6.0	FTKA0307	TW09S

Available inserts **B11**

RM4PHCPA4000







(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	THUB	CW	CDX
RM4PHCPA	4300078R	○	6	3	1.634	1	0.25	0.866	0.78	0.604
	4400078R	◆	8	4	1.89	1.25	0.313	0.866	0.78	0.945
	4500078R	○	10	5	1.89	1.5	0.375	0.866	0.78	1.28
	4600078R	○	12	6	1.89	1.5	0.375	0.866	0.78	1.78

◆: US stock ○: Made to order

Available inserts

LNEX-MA



LNM(E)X-MF



LNM(E)X-MM



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNEX	151004PNR-MF									○	●			●	●				B11
	151004PNR-MM									○	●			◆	●				
	151004PNR-MA																	◆	
	151008PNR-MF									○	◆	○	○	◆	●				
	151008PNR-MM					○				◆	●			◆	◆				
	151008PNR-MA																	◆	
	151016PNR-MF									○	●			●	◆				
	151016PNR-MM									○	●			●	●				
LNMX	151004PNR-MF									◆	●			◆	●				
	151004PNR-MM									○	●			◆	●				
	151008PNR-MF					●				◆	●	○		◆	◆				
	151008PNR-MM					●				●	●	●		●	●				
	151016PNR-MF									○	●	○		◆	●				
	151016PNR-MM									◆	◆			◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø3.0~Ø6.0	FTKA0412B	TW15S

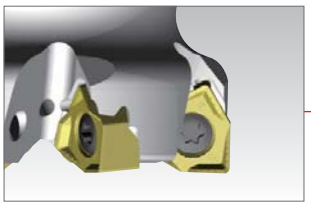
Available inserts **B11**

Rich Mill RM6

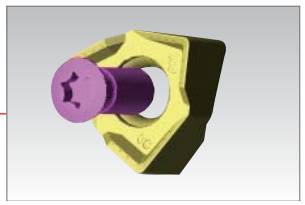
Features

- **Stable clamping** - 3 clamping surfaces on the side and strong clamping screws
  → Improves cutting stability
- **High quality results** - High precision, excellent perpendicularity, outstanding surface finish on the flank, accurate tolerance
- **High productivity** - High rake angle and sharp cutting-edges for lower cutting resistance
  → Ideal for high speed and high feed machining

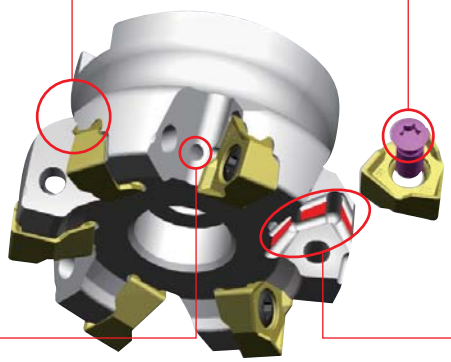
Features of cutter

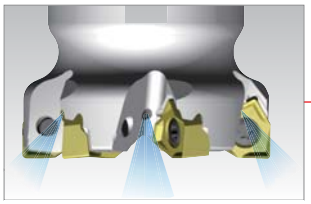


Streamlined holder design
- Improved chip evacuation in deep shouldering and slotting



Strong clamping screws
- Strong clamping screws enable rigid clamping





Through coolant system
- Improved chip flow and tool life thanks to insert cooling



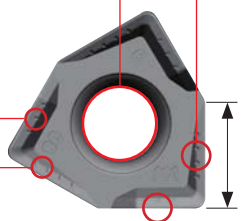
3-side supporting system
- Stable tool life

Features of insert

Higher clamping stability
- Wide clamping areas and strong clamping screws for rigid clamping

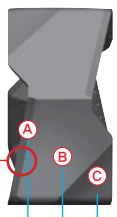
High rake angle chip breaker
- Maintains stable clamping
- Induces smooth chip flow
  → Increases insert life

Wide minor cutting-edges
- Improved surface finish
- Enable multi-purpose machining incl. plunging



APMX
WNGX08: 0.323 inch
WNGX04: 0.157 inch

High rake cutting-edges
- Improved machinability and reduces cutting resistance



3-level flank relief surface
- Enhances rigidity and enables stable clamping
  → Improves cutting stability

Rich Mill RM6

Features of chip breakers

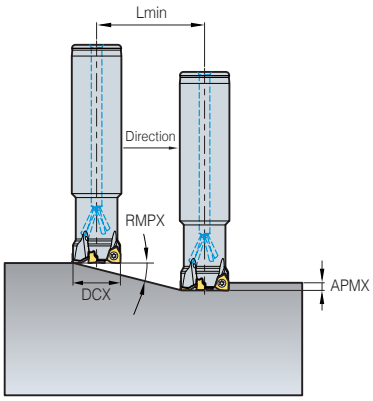
Insert		Cutting-edge	Uses	Features
MA			For aluminum	Sharp cutting-edges for excellent cutting performance in aluminum machining Buffed surface for excellent chip flow and welding resistance
ML			For light cutting	Chip breaker design of low cutting resistance, ideal for light cutting and machining hard-to-cut materials Excellent tool life and quality results
MM			For general cutting	Chip breaker design ideal for general shoulder milling and most applications

Application guideline for grade

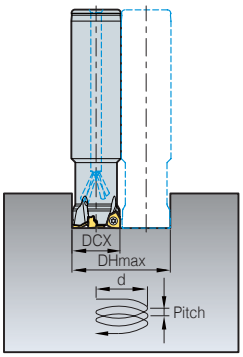
Workpiece		P		M	K	N
		Carbon steel	Alloy steel	Stainless steel	Cast iron	Non-ferrous metal
Shape	1st recommended	MM	MM	ML	ML	MA
	2nd recommended	ML	ML	-	MM	MA
Grades	High speed milling	PC3700	PC3700	PC5300	PC6100	H01
	General milling	PC5400	PC5300	PC5400	PC5300	H01
	Interrupted milling	PC5400	PC5400	PC5400	PC5400	H01

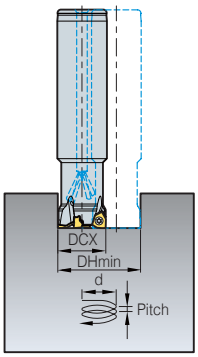
Ramping and helical cutting

Ramping



Helical cutting





(inch)

Designation		DCX	APMX	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
				RMPX	Max. pitch	DHmin	Max. pitch	DHmin	Max. pitch	DHmin	Max. pitch
RM6PSA	125R-2W125-500-WN08	Ø1.25	0.315	0.8	22.6	2.1	0.03	2.43	0.05	1.476	0.02
	150R-3W125-500-WN08	Ø1.50	0.315	0.5	36.1	2.6	0.03	2.93	0.03	1.976	0.01
	200R-4W125-500-WN08	Ø2.00	0.315	0.3	60.2	3.6	0.02	3.93	0.03	2.976	0.01
RM6PCA	250R-100-6-WN08	Ø2.50	0.315	0.2	90.3	4.6	0.02	4.93	0.02	3.976	0.01
	300R-100-7-WN08	Ø3.00	0.315	0.2	90.3	5.6	0.03	5.93	0.03	4.976	0.01
	400R-150-8-WN08	Ø4.00	0.315	0.1	180.5	7.6	0.02	7.93	0.02	6.976	0.01
	500R-150-11-WN08	Ø5.00	0.315	0.1	180.5	9.6	0.02	9.93	0.02	8.976	0.01

Lmin = ap/tan (RPMX)

Lmin : Cutting length at min. rake angle
APMX : Max. depth of cut
RPMX : Available rake angle for ramping

Rich Mill RM6

Recommended cutting condition _ RM6 WNGX04

Workpiece		Grade	WNGX040304PNSR-MM			WNGX040304PNER-ML			WNGX040304PNFR-MA		
			vc (sfm)	fz (ipt)	APMX (inch)	vc (sfm)	fz (ipt)	APMX (inch)	vc (sfm)	fz (ipt)	APMX (inch)
P	Steel	PC3700	525~886	0.010~0.002	0.169	525~886	0.008~0.002	0.169	-	-	0.169
		PC5300	492~787	0.010~0.002		492~787	0.010~0.002		-	-	
		PC5400	427~689	0.010~0.002		427~689	0.010~0.002		-	-	
M	Stainless steel	PC5300	295~492	0.008~0.002		295~492	0.004~0.002		-	-	
		PC5400	230~394	0.008~0.002		230~394	0.004~0.002		-	-	
K	Cast iron	PC6510	459~755	0.012~0.008		459~755	0.010~0.008		-	-	
		PC5300	394~656	0.012~0.008		394~656	0.010~0.008		-	-	
N	Non-ferrous metal	H01	-	-	-	-	-	-	1640~3281	0.008~0.002	0.169

※ The above data refer to general cutting conditions and can be adjustable up to 984 sfm and 0.016 ipt depending on user environment.

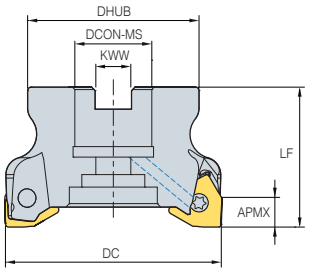
Recommended cutting condition _ RM6 WNGX08

Workpiece		Grade	WNGX080608PNSR-MM			WNGX080608PNER-ML			WNGX080608PNFR-MA		
			vc (sfm)	fz (ipt)	APMX (inch)	vc (sfm)	fz (ipt)	APMX (inch)	vc (sfm)	fz (ipt)	APMX (inch)
P	Steel	PC3700	525~886	0.010~0.002	0.323	525~886	0.008~0.002	0.323	-	-	0.323
		PC5300	492~787	0.010~0.002		492~787	0.010~0.002		-	-	
		PC5400	427~689	0.010~0.002		427~689	0.010~0.002		-	-	
M	Stainless steel	PC5300	295~492	0.008~0.002		295~492	0.004~0.002		-	-	
		PC5400	230~394	0.008~0.002		230~394	0.004~0.002		-	-	
K	Cast iron	PC6510	459~755	0.012~0.008		459~755	0.010~0.008		-	-	
		PC5300	394~656	0.012~0.008		394~656	0.010~0.008		-	-	
N	Non-ferrous metal	H01	-	-	-	-	-	-	1640~3281	0.002~0.008	0.323

※ The above data refer to general cutting conditions and can be adjustable up to 984 sfm and 0.016 ipt depending on user environment.

RM6PCA-WN04













KAPR 90°

- GAMP : -6°
- GAMF : -14°~-11°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
RM6PCA	150R-050-6-WN04	◆	6	1.5	1.417	0.5	0.252	1.5	0.169	0.421
	150R-050-7-WN04	◆	7	1.5	1.417	0.5	0.252	1.5	0.169	0.422
	200R-075-8-WN04	◆	8	2	1.772	0.75	0.315	1.75	0.169	0.772
	200R-075-9-WN04	◆	9	2	1.772	0.75	0.315	1.75	0.169	0.772
	250R-100-10-WN04	◆	10	2.5	2.205	1	0.374	1.75	0.169	1.194
	250R-100-11-WN04	◆	11	2.5	2.205	1	0.374	1.75	0.169	1.196

◆: US stock ○: Made to order

Available inserts

WNGX-MA



WNGX-ML



WNGX-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNGX	040304PNFR-MA																	◆	B31
	040308PNFR-MA																	●	
	040312PNFR-MA																	◆	
	040316PNFR-MA																	◆	
	040304PNER-ML									●	●		◆	◆	◆				
	040308PNER-ML					●				●	●		●	●	●				
	040312PNER-ML					○				○			○	◆	○				
	040316PNER-ML					○				○			○	◆	○				
	040304PNSR-MM					○				◆	●		○	◆	◆				
	040308PNSR-MM									○			○	◆	◆				
	040312PNSR-MM												○	◆	○				
	040316PNSR-MM									○			○	◆	○				

●: Korea stock ◆: US stock ○: Made to order

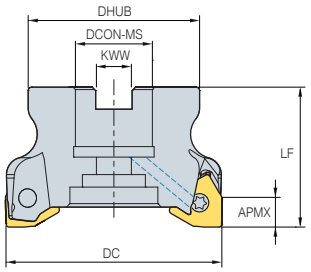
Parts

Specification	Screw	Wrench
Ø1.5~Ø2.5	ETNA02506	TW07S

Available inserts **B31** Available arbors and bolt **E96**

RM6PCA-WN08





KAPR 90°

- GAMP : -6°
- GAMF : -14°~-11°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
RM6PCA	200R-075-4-WN08	◆	4	2	1.772	0.75	0.315	1.75	0.323	0.662
	200R-075-5-WN08	◆	5	2	1.772	0.75	0.315	1.75	0.323	0.687
	250R-100-5-WN08	◆	5	2.5	2.205	1	0.374	1.75	0.323	1.091
	250R-100-6-WN08	◆	6	2.5	2.205	1	0.374	1.75	0.323	1.076
	300R-100-7-WN08	◆	7	3	2.205	1	0.374	2	0.323	1.735
	300R-100-9-WN08	◆	9	3	2.205	1	0.374	2	0.323	1.715
	400R-150-8-WN08	◆	8	4	3.385	1.5	0.626	2	0.323	3.397
	400R-150-11-WN08	◆	11	4	3.385	1.5	0.626	2	0.323	3.44
	500R-150-11-WN08	◆	11	5	3.937	1.5	0.626	2.5	0.323	7.528
	500R-150-14-WN08	◆	14	5	3.937	1.5	0.626	2.5	0.323	7.409

◆: US stock ○: Made to order

Available inserts

WNGX-MA WNGX-ML WNGX-MM





Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	080604PNFR-MA															◆		B31
	080608PNFR-MA															◆		
	080612PNFR-MA																	
	080616PNFR-MA															◆		
	080620PNFR-MA															◆		
	080604PNER-ML									●			◆	◆	◆			
	080608PNER-ML					●				●	●		●	●	●			
	080612PNER-ML					○				○			○	◆	○			

Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	080616PNER-ML													●				B31
	080620PNER-ML													●				
	080604PNSR-MM									●				●	●			
	080608PNSR-MM				●					●	●		●	●	●			
	080612PNSR-MM													●				
	080616PNSR-MM													●				
	080620PNSR-MM													●				

●: Korea stock ◆: US stock ○: Made to order

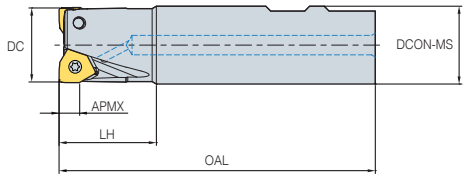
Parts

Specification	Screw	Wrench
Ø2.0~Ø5.0	FTNA0511/FTNA0513	TW20-100

Available inserts **B31** Available arbors and bolt **E94, E96**

RM6PSA-WN04













KAPR 90°

- GAMP : -6°
- GAMF : -20°~-14°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
RM6PSA	075R-2W075-450-WN04	◆	2	0.75	0.75	1.378	4.5	0.169	0.447
	075R-3W075-450-WN04	◆	3	0.75	0.75	1.378	4.5	0.169	0.447
	100R-3W100-450-WN04	◆	3	1	1	1.378	4.5	0.169	0.85
	100R-4W100-450-WN04	◆	4	1	1	1.378	4.5	0.169	0.845
	125R-5W125-450-WN04	◆	5	1.25	1.25	1.378	4.5	0.169	1.356
	125R-6W125-450-WN04	◆	6	1.25	1.25	1.378	4.5	0.169	1.359

◆: US stock ○: Made to order

Available inserts

WNGX-MA



WNGX-ML



WNGX-MM



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNGX	040304PNFR-MA															◆	B31
	040308PNFR-MA															●	
	040312PNFR-MA															◆	
	040316PNFR-MA															◆	
	040304PNER-ML							●	●		◆	◆	◆				
	040308PNER-ML			●				●	●		●	●	●				
	040312PNER-ML			○				○			○	◆	○				
	040316PNER-ML			○				○			○	◆	○				
	040304PNSR-MM			○				◆	●		○	◆	◆				
	040308PNSR-MM							○			○	◆	◆				
	040312PNSR-MM										○	◆	○				
	040316PNSR-MM							○			○	◆	○				

●: Korea stock ◆: US stock ○: Made to order

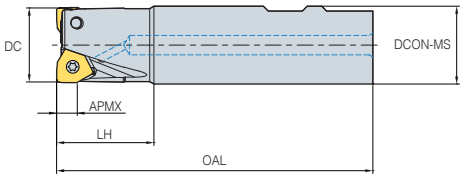
Parts

Specification	Screw	Wrench
Ø0.75~Ø1.25	ETNA02506	TW07S

Available inserts **B31**

RM6PSA-WN08





KAPR 90°

- GAMP : -6°
- GAMF : -20°~-14°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
RM6PSA	125R-2W125-500-WN08	◆	2	1.25	1.25	1.575	5	0.323	1.463
	150R-3W125-500-WN08	◆	3	1.5	1.25	1.575	5	0.323	1.492
	150R-4W125-500-WN08	◆	4	1.5	1.25	1.575	5	0.323	1.482
	200R-4W125-500-WN08	◆	4	2	1.25	1.575	5	0.323	1.631
	200R-5W125-500-WN08	◆	5	2	1.25	1.575	5	0.323	1.656

◆: US stock ○: Made to order

Available inserts

WNGX-MA WNGX-ML WNGX-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNGX	080604PNFR-MA																	◆	B31
	080608PNFR-MA																	◆	
	080612PNFR-MA																		
	080616PNFR-MA																	◆	
	080620PNFR-MA																	◆	
	080604PNER-ML									●			◆	◆	◆				
	080608PNER-ML					●				●	●		●	●	●				
	080612PNER-ML					○				○			○	◆	○				
	080616PNER-ML					○				○			○	●	○				
	080620PNER-ML					○				○			○	●	○				
	080604PNSR-MM									●			○	◆	◆				
	080608PNSR-MM					●				◆	◆		●	◆	◆				
	080612PNSR-MM												○	◆	○				
	080616PNSR-MM					○				○			○	◆	○				
	080620PNSR-MM					○							○	◆	○				

●: Korea stock ◆: US stock ○: Made to order

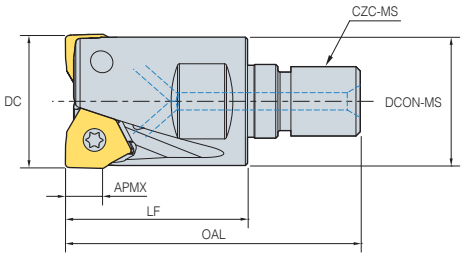
Parts

Specification	Screw	Wrench
Ø1.25~Ø2.00	FTNA0513	TW20-100

Available inserts **B31**

RM6PMA-WN04







KAPR 90°

- GAMP : -6°
- GAMF : -9°~-6°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
RM6PMA	075R-2-M10-WN04	○	2	0.75	0.689	1.181	1.969	M10	0.12	0.12
	075R-3-M10-WN04	○	3	0.75	0.689	1.181	1.969	M10	0.119	0.119
	100R-4-M12-WN04	○	4	1	0.906	1.181	2.087	M12	0.212	0.212
	100R-5-M12-WN04	○	5	1	0.906	1.181	2.087	M12	0.209	0.209
	125R-5-M16-WN04	○	5	1.25	1.142	1.575	2.598	M16	0.461	0.461
	125R-6-M16-WN04	○	6	1.25	1.142	1.575	2.598	M16	0.466	0.466

◆: US stock ○: Made to order

Available inserts

WNGX-MA



WNGX-ML



WNGX-MM



Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	040304PNFR-MA																◆	B31
	040308PNFR-MA																●	
	040312PNFR-MA																◆	
	040316PNFR-MA																◆	
	040304PNER-ML									●	●		◆	◆	◆			
	040308PNER-ML					●				●	●		●	●	●			
	040312PNER-ML					○				○			○	◆	○			
	040316PNER-ML					○				○			○	◆	○			
	040304PNSR-MM					○				◆	●		○	◆	◆			
	040308PNSR-MM									○			○	◆	◆			
	040312PNSR-MM												○	◆	○			
	040316PNSR-MM									○			○	◆	○			

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	080604PNFR-MA																●	B31
	080608PNFR-MA																●	
	080612PNFR-MA																	
	080616PNFR-MA																●	
	080620PNFR-MA																●	
	080604PNER-ML									●			●	●				
	080608PNER-ML					●				●	●		●	●				
	080612PNER-ML													●				
	080616PNER-ML													●				
	080620PNER-ML													●				
	080604PNSR-MM									●				●	●			
	080608PNSR-MM					●				●	●		●	●	●			
	080612PNSR-MM													●				
	080616PNSR-MM													●				
	080620PNSR-MM													●				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
RM6PMA	075R-2-M10-WN04	MATA-M10
	075R-3-M10-WN04	MATA-M10
	100R-4-M12-WN04	MATA-M12
	100R-5-M12-WN04	MATA-M12
	125R-5-M16-WN04	MATA-M16
	125R-6-M16-WN04	MATA-M16

Designation: RM6PMA125R-5-M16-WN04
Modular Head Threading Measure size (M16)

II

Adaptor spec.: MATA-M16-354-S125S-C
Adaptor Threading Measure (M16)

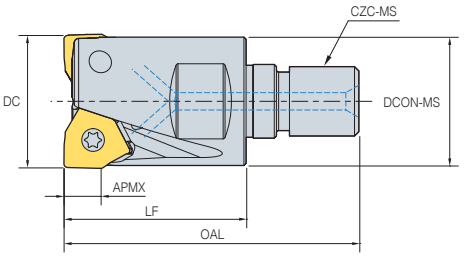
Parts

Specification	Screw	Wrench
Ø0.75~Ø1.25	ETNA02506	TW07S

Available inserts **B31** Available adaptors **B378, B379**

RM6PMA-WN08







KAPR 90°

- GAMP : -6°
- GAMF : -9°~-6°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
RM6PMA	125R-2-M16-WN08	○	2	1.25	1.142	1.693	2.717	M16	0.439	0.439
	150R-3-M16-WN08	○	3	1.5	1.142	1.693	2.717	M16	0.505	0.505
	150R-4-M16-WN08	○	4	1.5	1.142	1.693	2.717	M16	0.505	0.505

◆: US stock ○: Made to order

Available inserts

WNGX-MA WNGX-ML WNGX-MM



Designation		Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	040304PNFR-MA															◆		B31
	040308PNFR-MA															●		
	040312PNFR-MA															◆		
	040316PNFR-MA															◆		
	040304PNER-ML									●	●		◆	◆	◆			
	040308PNER-ML					●				●	●		●	●	●			
	040312PNER-ML					○				○			○	◆	○			
	040316PNER-ML					○				○			○	◆	○			
	040304PNSR-MM					○				◆	●		○	◆	◆			
	040308PNSR-MM									○			○	◆	◆			
	040312PNSR-MM												○	◆	○			
	040316PNSR-MM									○			○	◆	○			

Designation		Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
WNGX	080604PNFR-MA																●	B31
	080608PNFR-MA																●	
	080612PNFR-MA																	
	080616PNFR-MA																●	
	080620PNFR-MA																●	
	080604PNER-ML									●				●	●			
	080608PNER-ML					●				●	●			●	●			
	080612PNER-ML													●				
	080616PNER-ML													●				
	080620PNER-ML													●				
	080604PNSR-MM									●				●	●			
	080608PNSR-MM					●				●	●		●	●	●			
	080612PNSR-MM													●				
	080616PNSR-MM													●				
	080620PNSR-MM													●				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
RM6PMA	125R-2-M16-WN08	MATA-M16
	150R-3-M16-WN08	MATA-M16
	150R-4-M16-WN08	MATA-M16

Designation: RM6PMA125R-2-M16-WN08
Modular Head Threading Measure size (M16)

=

Adaptor spec.: MATA-M16-354-S125S-C
Adaptor Threading Measure (M16)

Parts

Specification	Screw	Wrench
Ø1.25~Ø1.50	FTNA0513	TW20-100

Available inserts B31 Available adaptors B378, B379

Rich Mill RM8

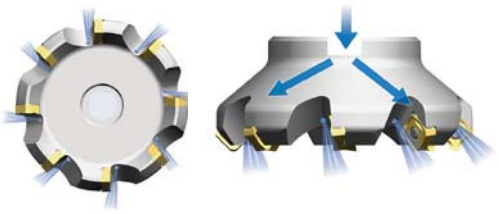
Features

- Double-sided insert to use 8 cutting-edges
- The unique geometry and high rake angle of cutting-edge guarantees excellent surface finish
  Applicable for various workpieces like steel, stainless steel, cast iron, aluminum
- Combined with the innovative geometry and various grades provided the tool offers durability and excellent tool life
- Various pitches and chip breakers can be applicable for diverse machining
- Light Rich Mill cutter can be useful for high speed machining and low power machine



Through coolant system

- Exclusive coolant bolt is adapted to get better chip evacuation and more powerful cooling.
  To get optimal chip evacuation, the direction of coolant injection has been designed to reach to each cutting-edge directly. Through coolant arbor is required



[Through coolant system for decreasing cutting heat and good chip evacuation]

Features of chip breakers

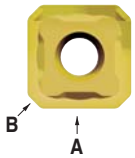
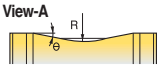
Insert		Cutting-edge	Uses	Features
MA			For aluminum	Due to sharp cutting-edge and buffed surface, it has good chip flow and welding resistance
ML			For hard-to-cut material	Chip breaker with low cutting load is optimal for machining hard-to-cut materials
MF			For light cutting	Due to low cutting load, it is good for light cutting and difficult-to-cut material
MM			For general cutting	It is suitable design for general milling
W			For wiper	Specialized edge design can be suitable for excellent surface roughness operation

Uses



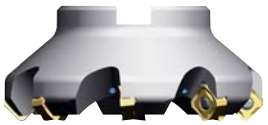
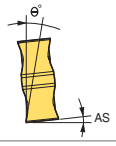
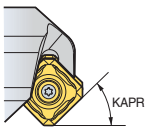
Facing

Features of insert

Insert	Cutting-edge	Features
	View-A 	High rake chip breaker & positive setting angle for low cutting load
	View-B 	Designed wiper technology in minor cutting-edge for improved surface roughness
	Chip breaker 	Low cutting load due to the positive setting and high rake angle chip breaker

Rich Mill RM8

Features of cutter

Picture	Setting angle of insert	Features
		High rake angle makes positive setting angle for low cutting load
		Suitable for facing and chamfering • RM8A KAPR = 45° • RM8E KAPR = 75° • RM8Q KAPR = 88°

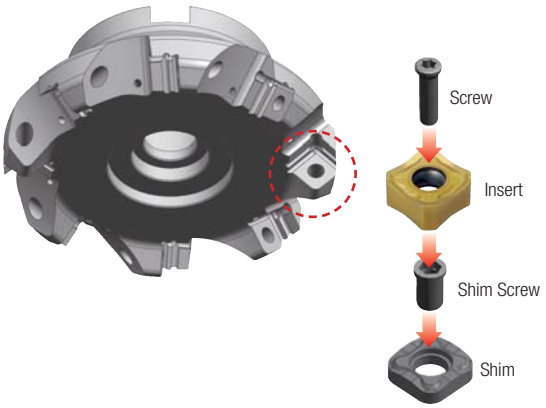
Recommended cutting condition

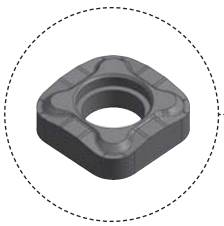
ISO	Grade	SNM(E)X1206A(E)NN-MF		SNM(E)X1206A(E)NN-MM		SNEX1206A(E)NN-MA		APMX (inch)	SNM(E)X1507A(E)NN-MF		SNM(E)X1507A(E)NN-MM		APMX (inch)
		vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	
P	NC5330	-	-	490~985	0.014~0.004	-	-	RM8A 0.236 RM8E 0.354 RM8Q 0.453	-	-	490~985	0.014~0.004	RM8A 0.295 RM8E 0.433
P	NCM535	655~985	0.012~0.002	490~985	0.014~0.004	655~1150	0.010~0.001		655~985	0.012~0.002	490~985	0.014~0.004	
P	PC3700	655~985	0.012~0.002	490~985	0.014~0.004	655~1150	0.010~0.001		655~985	0.012~0.002	490~985	0.014~0.004	
M	PC9530	490~985	0.014~0.003	490~985	0.012~0.002	-	-		490~985	0.014~0.003	490~985	0.012~0.002	
M	PC5300	490~985	0.014~0.003	490~985	0.016~0.004	-	-		490~985	0.014~0.003	490~985	0.016~0.004	
K	PC6510	330~590	0.002	390~590	0.014~0.004	390~955	0.008~0.001		-	-	-	-	
K	PC5300	-	-	-	-	-	-		330~590	0.002	390~590	0.014~0.004	

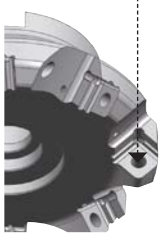
Rich Mill RMH8

Features

- Screw on clamping system - Adaptable and Stable clamping system
- Reinforced rigidity and enhanced clamping power
  - Appling shim system, prevent cutter damage when insert breaks
- Adapting/exchangeable shim
  - Using various kinds of cutter (Cutting edge angle 45°, 75°, 88°)
  - Stable clamping power with insert







RMH8A
(KAPR 45°)



RMH8E
(KAPR 75°)



RMH8Q
(KAPR 88°)

RM8ACA4000



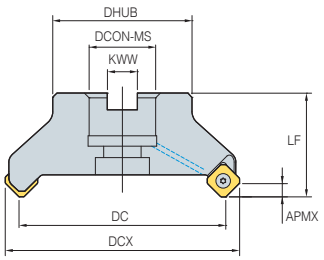


Fig. 1

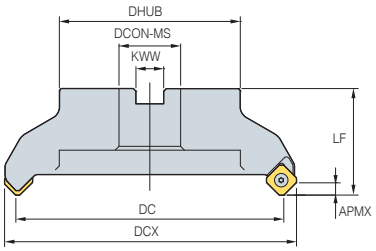


Fig. 2

KAPR 45°

- GAMP : -6°
- GAMF : -9°~-6°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RM8ACA	4200HR-M	◆	4	2	2.496	1.772	0.75	0.313	1.75	0.236	1.1	1
	4200HR-H	○	6	2	2.496	1.772	0.75	0.313	1.75	0.236	1.1	1
	4250HR-M	◆	6	2.5	3.008	2.205	1	0.375	1.75	0.236	1.5	1
	4250HR-H	○	8	2.5	3.008	2.205	1	0.375	1.75	0.236	1.5	1
	4300HR	◆	5	3	3.682	2.205	1	0.375	2	0.236	2.6	1
	4300HR-M	◆	7	3	3.682	2.205	1	0.375	2	0.236	2.6	1
	4300HR-H	◆	10	3	3.682	2.205	1	0.375	2	0.236	2.9	1
	4400HR	◆	6	4	4.469	2.874	1.25	0.5	2	0.236	3.7	1
	4400HR-M	◆	8	4	4.469	2.874	1.25	0.5	2	0.236	3.7	1
	4400HR-H	◆	12	4	4.469	2.874	1.25	0.5	2	0.236	3.7	1
	4500HR	◆	8	5	5.451	3.386	1.5	0.625	2.5	0.236	7.9	1
	4500HR-M	◆	10	5	5.451	3.386	1.5	0.625	2.5	0.236	7.9	1
	4500HR-H	○	16	5	5.451	3.386	1.5	0.625	2.5	0.236	8.1	1
	4600R	◆	10	6	6.829	4.882	2	0.75	2.5	0.236	10.6	2
	4600R-M	◆	12	6	6.829	4.882	2	0.75	2.5	0.236	11.7	2
	4600R-H	◆	18	6	6.829	4.882	2	0.75	2.5	0.236	11.9	2
	4800R-M	◆	14	8	8.402	5.118	2.5	1	2.5	0.236	15.6	2
	4800R-H	○	24	8	8.402	5.118	2.5	1	2.5	0.236	15.6	2
	41000R-M	◆	16	10	10.370	7.087	2.5	1	2.5	0.236	26.2	2
	41000R-H	○	30	10	10.370	7.087	2.5	1	2.5	0.236	26.4	2

◆: US stock ○: Made to order

Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA | SNEX-W



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
SNEX	1206ANN-MF					○				◆	◆		○	◆	●			
	1206ANN-ML					○						○		◆	◆			
	1206ANN-MM					○				◆	◆	◆	○	◆	◆			B24
	1206ANN-MA																●	B25
	1206ANN-W					○				◆	◆			◆	○			B26
SNMX	1206ANN-MF					●				◆	◆	○	●	◆	◆			
	1206ANN-MM		●			●				◆	◆	◆	●	◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.0~Ø10.0	FTKA0410	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RMH8ACA4000

Shim type



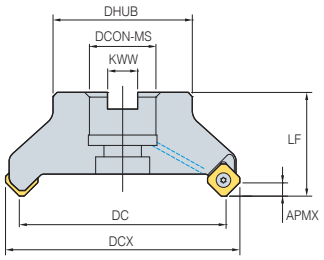


Fig. 1

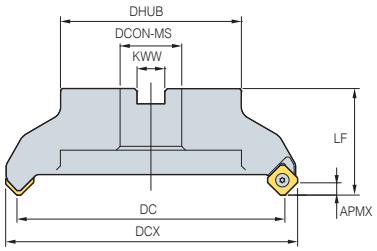


Fig. 2




KAPR 45°

- GAMP : -6°
- GAMF : -9°~-6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMH8ACA	4300HR-M	○	7	3	3.682	2.205	1	0.375	2	0.236	2.6	1
	4400HR-M	○	8	4	4.469	2.874	1.25	0.5	2	0.236	3.7	1
	4500HR-M	○	10	5	5.451	3.386	1.5	0.625	2.5	0.236	7.9	1
	4600R-M	○	12	6	6.829	4.882	2	0.75	2.5	0.236	10.6	2
	4800R-M	○	14	8	8.404	5.118	2.5	1	2.5	0.236	15.6	2
	41000R-M	○	16	10	10.370	7.087	2.5	1	2.5	0.236	26.2	2
	41200R-M	○	20	12	12.931	9.449	2.5	1	2.5	0.236	40.8	2
	41500R-M	○	26	15	16.278	9.843	2.5	1	3	0.236	81.8	2

◆: US stock ○: Made to order

Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA | SNEX-W







Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206ANN-MF					○				◆	◆		○	◆	●				B24 B25 B26
	1206ANN-ML					○						○		◆	◆				
	1206ANN-MM					○				◆	◆	◆	○	◆	◆				
	1206ANN-MA																	●	
	1206ANN-W					○				◆	◆			◆	○				
SNMX	1206ANN-MF					●				◆	◆	○	●	◆	◆				
	1206ANN-MM		●			●				◆	◆	◆		◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø3.0~Ø15.0	FTKA0412B	SS42RM8	SHXN0609F	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RM8ACA5000

Shim type



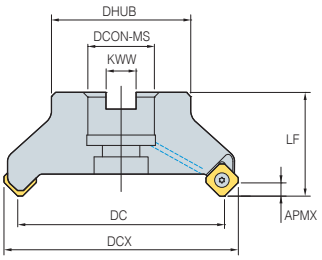


Fig. 1

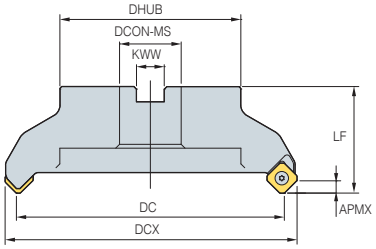


Fig. 2

KAPR 45°

- GAMP : -6°
- GAMF : -9°~-6°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RM8ACA	5300HR-M	○	6	3	3.795	2.205	1	0.375	2	0.295	2.6	1
	5400HR-M	○	7	4	4.583	2.874	1.25	0.5	2	0.295	3.7	1
	5500HR-M	○	8	5	5.567	3.386	1.5	0.625	2.5	0.295	7.9	1
	5600H-M	○	10	6	6.945	4.882	2	0.75	2.5	0.295	10.6	2
	5800H-M	○	12	8	8.520	5.118	2.5	1	2.5	0.295	15.6	2
	51000H-M	○	15	10	10.488	7.087	2.5	1	2.5	0.295	26.2	2
	51200H-M	○	20	12	13.047	9.449	2.5	1	2.5	0.295	47.5	2

◆: US stock ○: Made to order

Available inserts

SNM(E)X-MF



SNEX-ML



SNM(E)X-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ANN-MF					○				○	●		○	●	●				B24 B25 B26
	1507ANN-ML					○								●	●				
	1507ANN-MM					○					●		○	●	●				
SNMX	1507ANN-MF					●				◆	●		○	●	●				
	1507ANN-MM					●				◆	●	○	○	●	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø3.0~Ø12.0	FTGA0513	TW20-100

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RMH8ACA5000

Shim type



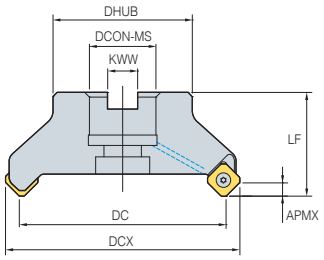


Fig. 1

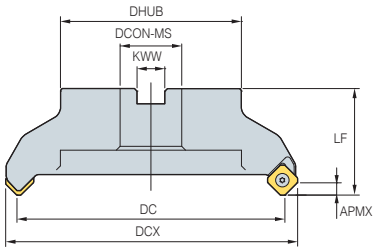


Fig. 2

KAPR 45°

- GAMP : -6°
- GAMF : -9°~-6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMH8ACA	5300HR-M	○	6	3	3.795	2.205	1	0.375	2	0.295	2.6	1
	5400HR-M	○	7	4	4.583	2.874	1.25	0.5	2	0.295	5.4	1
	5500HR-M	○	8	5	5.567	3.386	1.5	0.625	2.5	0.295	7.8	1
	5600R-M	○	10	6	6.945	4.882	2	0.75	2.5	0.295	10.8	2
	5800R-M	○	12	8	8.520	5.118	2.5	1	2.5	0.295	15.4	2
	51000R-M	○	15	10	10.488	7.087	2.5	1	2.5	0.295	25.8	2
	51200R-M	○	20	12	13.047	9.449	2.5	1	2.5	0.295	41.4	2
	51500R-M	○	22	15	16.394	9.843	2.5	1	3	0.295	81.8	2

◆: US stock ○: Made to order

Available inserts

SNM(E)X-MF



SNEX-ML



SNM(E)X-MM



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ANN-MF					○				○	●		○	●	●				B24 B25 B26
	1507ANN-ML					○								●	●				
	1507ANN-MM					○					●		○	●	●				
SNMX	1507ANN-MF					●				◆	●		○	●	●				
	1507ANN-MM					●				◆	●	○	○	●	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø3.0~Ø15.0	FTGA0513	SS53RM8	SHXN0712F	TW20-100

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RM8ECA4000



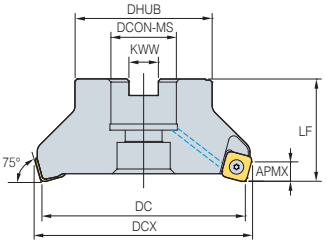


Fig. 1

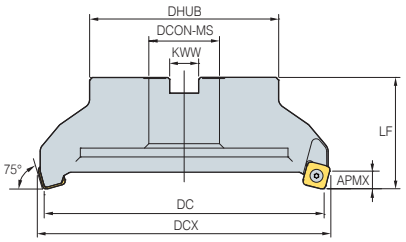


Fig. 2

KAPR 75°

- GAMP : -6°
- GAMF : -8°~-6°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RM8ECA	4200HR-M	○	4	2	2.200	1.772	0.75	0.313	1.75	0.354	1.1	1
	4250HR-M	○	6	2.5	2.713	1.772	0.75	0.313	1.75	0.354	1.3	1
	4300HR	○	5	3	3.381	2.205	1	0.375	2	0.354	2.6	1
	4300HR-M	○	7	3	3.381	2.205	1	0.375	2	0.354	2.4	1
	4400HR	○	6	4	4.169	2.874	1.25	0.5	2	0.354	3.7	1
	4400HR-M	◆	8	4	4.169	2.874	1.25	0.5	2	0.354	5.5	1
	4500HR	○	8	5	5.153	3.386	1.5	0.625	2.5	0.354	6.6	1
	4500HR-M	○	10	5	5.153	3.386	1.5	0.625	2.5	0.354	6.8	1
	4600R	○	10	6	6.532	4.882	2	0.75	2.5	0.354	9.9	2
	4600R-M	○	12	6	6.532	4.882	2	0.75	2.5	0.354	8.8	2
	4800R-M	○	16	8	8.107	5.118	2.5	1	2.5	0.354	13	2

◆: US stock ○: Made to order

Available inserts

	SNM(E)X-MF	SNEX-ML	SNM(E)X-MM	SNEX-MA
				

	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206ENN-MF					○				○	●	○	○	◆	●				B24 B25 B26
	1206ENN-ML					○								◆	◆				
	1206ENN-MM					○				○	◆	○	○	●	●				
	1206ENN-MA										●							●	
SNMX	1206ENN-MF					●				●	●	○	●	◆	●				
	1206ENN-MM					●				●	◆		●	◆	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.0~Ø8.0	PTKA0411-R3	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94, E158**

RMH8ECA4000

Shim type



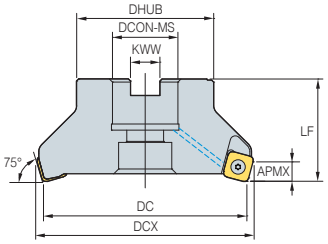


Fig. 1

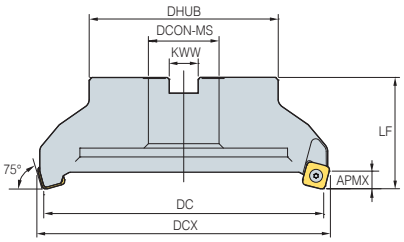


Fig. 2

KAPR 75°

- GAMP : -6°
- GAMF : -8°~-6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMH8ECA	4300HR-M	○	7	3	3.358	2.205	1	0.375	2	0.354	2.3	1
	4400HR-M	○	8	4	4.169	2.874	1.25	0.5	2	0.354	5.4	1
	4500HR-M	○	10	5	5.153	3.386	1.5	0.625	2.5	0.354	6.5	1
	4600R-M	○	12	6	6.532	4.882	2	0.75	2.5	0.354	8.6	2
	4800R-M	○	16	8	8.107	5.118	2.5	1	2.5	0.354	12.8	2
	41000R-M	○	16	10	10.076	7.087	2.5	1	2.5	0.354	23.6	2
	41200R-M	○	20	12	12.637	9.449	2.5	1	2.5	0.354	39.2	2
	41500R-M	○	24	15	15.980	9.843	2.5	1	3	0.354	69	2

◆: US stock ○: Made to order

Available inserts

		SNM(E)X-MF	SNEX-ML	SNM(E)X-MM	SNEX-MA
					

Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206ENN-MF					○				○	●	○	○	◆	●				B24 B25 B26
	1206ENN-ML					○								◆	◆				
	1206ENN-MM					○				○	◆	○	○	●	●				
	1206ENN-MA										●							●	
SNMX	1206ENN-MF					●				●	●	○	●	◆	●				
	1206ENN-MM					●				●	◆		●	◆	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø3.0~Ø15.0	PTKA0411-R3	SS42RM8	SHXN0609F	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94, E158**

RM8ECA5000



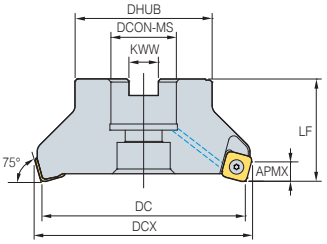


Fig. 1

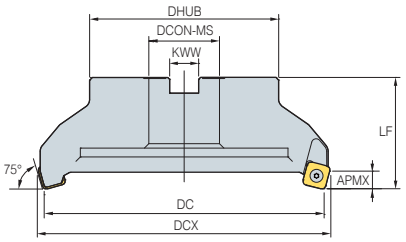


Fig. 2

KAPR 75°

- GAMP : -6°
- GAMF : -8°~-6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RM8ECA	5300HR-M	○	6	3	3.464	2.205	1	0.375	2	0.433	2.6	1
	5400HR-M	○	7	4	4.228	2.874	1.25	0.5	2	0.433	3.7	1
	5500HR-M	○	8	5	5.212	3.386	1.5	0.625	2.5	0.433	7.9	1
	5600R-M	○	10	6	6.590	4.882	2	0.75	2.5	0.433	10.6	2
	5800R-M	○	12	8	8.165	5.118	2.5	1	2.5	0.433	15.6	2
	51000R-M	○	15	10	10.133	7.087	2.5	1	2.5	0.433	26.2	2
	51200R-M	○	20	12	12.692	9.449	2.5	1	2.5	0.433	47.5	2

◆: US stock ○: Made to order

Available inserts

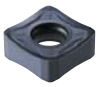
SNM(E)X-MF



SNEX-ML



SNM(E)X-MM



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ENN-MF					○				○	●		○	●	●				B24 B25 B26
	1507ENN-ML					○								●	●				
	1507ENN-MM					○				○	●		○	●	●				
SNMX	1507ENN-MF					●				◆	●		○	●	●				
	1507ENN-MM			○		●				◆	●	○	○	◆	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø3.0~Ø12.0	FTGA0513	TW20-100

Available inserts B24 ~ B26 Available arbors and bolt E94 ~ E96

RMH8ECA5000

Shim type



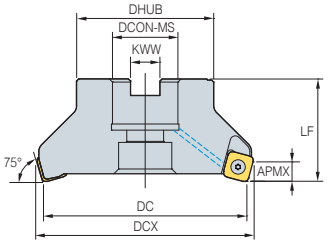


Fig. 1

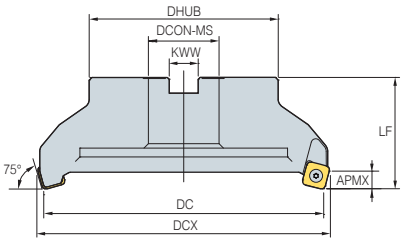


Fig. 2

KAPR 75°

- GAMP : -6°
- GAMF : -8°~-6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMH8ECA	5300HR-M	○	6	3	3.441	2.205	1	0.375	2	0.433	2.3	1
	5400HR-M	○	7	4	4.228	2.874	1.25	0.5	2	0.433	4.5	1
	5500HR-M	○	8	5	5.212	3.386	1.5	0.625	2.5	0.433	7.3	1
	5600R-M	○	10	6	6.590	4.882	2	0.75	2.5	0.433	9.5	2
	5800R-M	○	12	8	8.165	5.118	2.5	1	2.5	0.433	13.8	2
	51000R-M	○	15	10	10.133	7.087	2.5	1	2.5	0.433	23.8	2
	51200R-M	○	20	12	12.692	9.449	2.5	1	2.5	0.433	39	2
	51500R-M	○	22	15	16.039	9.843	2.5	1	3	0.433	77.4	2

◆: US stock ○: Made to order

Available inserts

SNM(E)X-MF



SNEX-ML



SNM(E)X-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1507ENN-MF					○				○	●		○	●	●				B24 B25 B26
	1507ENN-ML					○								●	●				
	1507ENN-MM					○				○	●		○	●	●				
SNMX	1507ENN-MF					●				◆	●		○	●	●				
	1507ENN-MM			○		●				◆	●	○	○	◆	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø3.0~Ø15.0	FTGA0513	SS53RM8	SHXN0712F	TW20-100

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RM8QCA4000

Shim type



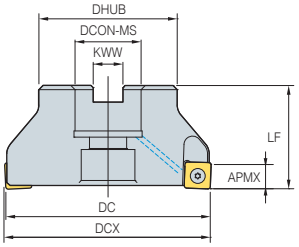


Fig. 1

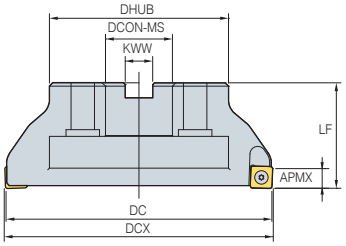


Fig. 2

KAPR 88°

- GAMP : -6°
- GAMF : -8°~-6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RM8QCA	4250HR-M	○	6	2.5	2.515	2.205	1	0.375	1.75	0.453	1.2	1
	4250HR-H	○	8	2.5	2.515	2.205	1	0.375	1.75	0.453	1.2	1
	4300HR-M	○	7	3	3.184	2.205	1	0.375	2	0.453	2.3	1
	4300HR-H	○	10	3	3.184	2.205	1	0.375	2	0.453	2.1	1
	4400HR-M	○	8	4	3.971	2.874	1.25	0.5	2	0.453	3.6	1
	4400HR-H	○	12	4	3.971	2.874	1.25	0.5	2	0.453	3.4	1
	4500HR-M	○	10	5	4.955	3.386	1.5	0.625	2.5	0.453	7.1	1
	4500HR-H	○	14	5	4.955	3.386	1.5	0.625	2.5	0.453	7.1	1
	4600R-M	○	12	6	6.330	4.882	2	0.75	2.5	0.453	8.5	2
	4600R-H	○	18	6	6.330	4.882	2	0.75	2.5	0.453	8.5	2
	4800R-M	○	14	8	7.904	5.118	2.5	1	2.5	0.453	14	2
	4800R-H	○	22	8	7.904	5.118	2.5	1	2.5	0.453	14	2

◆: US stock ○: Made to order

Available inserts

SNM(E)X-MF | SNEX-ML | SNM(E)X-MM | SNEX-MA






Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206QNN-MF					○				●	●	○	○	●	●				B24 B25 B26
	1206QNN-ML					○								●	●				
	1206QNN-MM					○				○	◆		○	●	●				
	1206QNN-MA																	●	
	120612-MF					○				○	●		○	●	●				
	120612-ML					○								◆	●				
	120612-MM					○					●		○						
	120612-MA																	●	
SNMX	1206QNN-MF					●				●	●			●	●				
	1206QNN-MM			◆		●				◆	◆	○	●	◆	●				
	120612-MF					○				○	●			●	●				
	120612-MM					○				●	◆		○	●	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.5~Ø8.0	PTKA0411-R3	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

RMH8QCA4000

Shim type



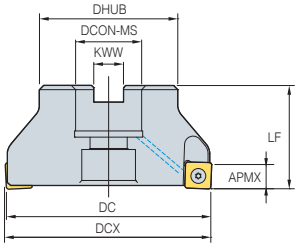


Fig. 1

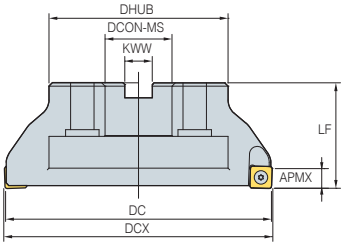


Fig. 2

KAPR 88°

- GAMP : -6°
- GAMF : -8°~-6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMH8QCA	4300HR-M	○	7	3	3.184	2.205	1	0.375	2	0.453	2.3	1
	4400HR-M	○	8	4	3.971	2.874	1.25	0.5	2	0.453	5.4	1
	4500HR-M	○	10	5	4.955	3.386	1.5	0.625	2.5	0.453	6.5	1
	4600R-M	○	12	6	6.330	4.882	2	0.75	2.5	0.453	8.6	2
	4800R-M	○	16	8	7.904	5.118	2.5	1	2.5	0.453	10.8	2

◆: US stock ○: Made to order

Available inserts

SNM(E)X-MF



SNEX-ML



SNM(E)X-MM



SNEX-MA



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNEX	1206QNN-MF					○				●	●	○	○	●	●				B24 B25 B26
	1206QNN-ML					○								●	●				
	1206QNN-MM					○				○	◆		○	●	●				
	1206QNN-MA																	●	
	120612-MF					○				○	●		○	●	●				
	120612-ML					○								◆	●				
	120612-MM					○					●		○						
	120612-MA																	●	
SNMX	1206QNN-MF					●				●	●			●	●				
	1206QNN-MM			◆		●				◆	◆		●	◆	●				
	120612-MF					○				○	●	○		●	●				
	120612-MM					○				●	◆		○	●	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim screw	Wrench
Ø3.0~Ø8.0	PTKA0411-R3	SS42RM8	SHXN0609F	TW15S

Available inserts **B24 ~ B26** Available arbors and bolt **E94 ~ E96**

Rich Mill RMT8

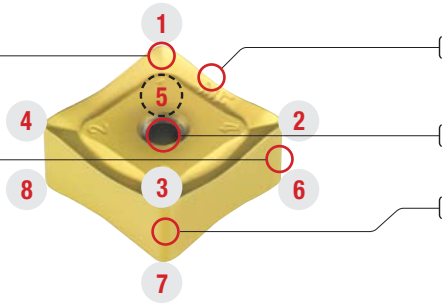
Features

- New latch clamping system provides a powerful cutting force and an easy insert change
- New grades with chipping resistance provides good surface roughness and better tool life
- Due to the specially designed chip breaker, all operations are possible
- RMT with various pitches can replace conventional ISO milling tool

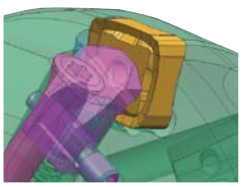
Features of cutter

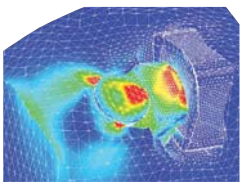


Features of insert (Using R/L)



Clamping force analysis





Features of chip breakers

Insert		Cutting-edge	Use	Features
MF			For fine finishing	Our specialized insert design creates low cutting forces suitable for light cutting, HRSA
MM			For strengthen	Suitable geometry design for general milling has wider ranges of machining

Recommended grades and chip breakers

ISO	Grade	MM	MF
P	NCM535	◎	○
	PC5300	◎	○
M	PC9530	○	◎
K	PC6100	○	◎

◎: Optimum ○: Proper

Recommended cutting condition

(inch)

ISO	Grade	MM		MF	
		vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)
P	NC5330	620~1010	0.014~0.004	620~1010	0.012~0.002
	NCM535	520~880	0.014~0.004	520~880	0.012~0.002
	PC3700	420~680	0.014~0.004	420~680	0.012~0.002
M	PC9530	290~490	0.012~0.002	290~490	0.012~0.002
K	PC6510	450~750	0.016~0.004	450~750	0.014~0.003

RMT8AA4000



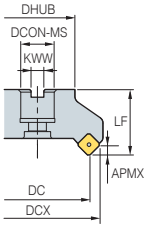


Fig. 1

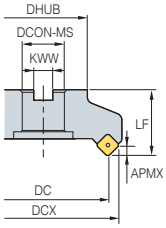


Fig. 2

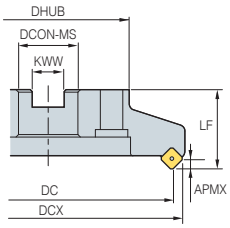


Fig. 3

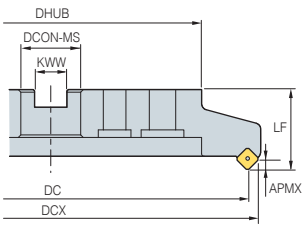


Fig. 4



KAPR 45°

- GAMP : -6°
- GAMF : -6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMT8AA	4300R	○	5	3	3.547	2.205	1	0.374	2	0.157	3.52	1
	4300R-M	○	6	3	3.547	2.205	1	0.374	2	0.157	3.52	1
	4400R	○	6	4	4.547	2.874	1.3	1.5	2	0.157	5.06	2
	4400R-M	○	8	4	4.547	2.874	1.3	1.5	2	0.157	5.06	2
	4500R	○	8	5	5.547	3.386	1.5	1.626	2.5	0.157	9.46	2
	4500R-M	○	10	5	5.547	3.386	1.5	1.626	2.5	0.157	9.46	2
	4600R	○	10	6	6.547	4.882	2	0.748	2.5	0.157	14.3	2
	4600R-M	○	14	6	6.547	4.882	2	0.748	2.5	0.157	14.3	2
	4800R	○	12	8	8.547	5.118	2.5	1	2.5	0.157	19.36	3
	4800R-M	○	18	8	8.547	5.118	2.5	1	2.5	0.157	19.36	3
	41000R	○	16	10	10.547	7.087	2.5	1	2.5	0.157	31.02	3
	41000R-M	○	22	10	10.547	7.087	2.5	1	2.5	0.157	31.02	3
	41200R	○	20	12	12.547	9.449	2.5	1	2.5	0.157	49.06	4
	41200R-M	○	28	12	12.547	9.449	2.5	1	2.5	0.157	49.06	4

◆: US stock ○: Made to order

Available inserts

SNC(M)F-MF



SNC(M)F-MM



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1206ANN-MF									○									B23
	1206ANN-MM																		
SNMF	1206ANN-MF																		
	1206ANN-MM																		

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Screw	Sring	Latch	Wrench
Ø3.0~Ø12.0	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

Available inserts **B23** Available arbors and bolt **E94 ~ E96**

RMT8AA5000



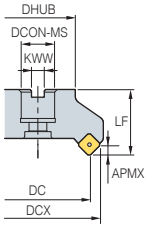


Fig. 1

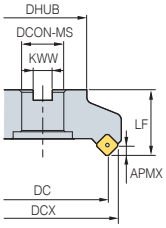


Fig. 2

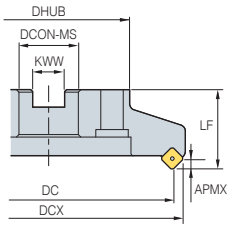


Fig. 3

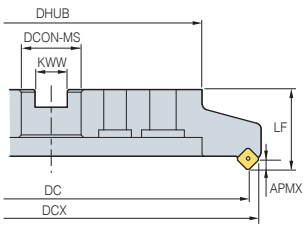


Fig. 4

KAPR 45°

- GAMP : -6°
- GAMF : -6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMT8AA	5300R	○	5	3	3.72	2.205	1	0.374	2	0.236	3.96	1
	5300R-M	○	6	3	3.72	2.205	1	0.374	2	0.236	3.96	1
	5400R	○	6	4	4.72	2.874	1.3	1.5	2	0.236	5.72	2
	5400R-M	○	8	4	4.72	2.874	1.3	1.5	2	0.236	5.72	2
	5500R	○	8	5	5.72	3.386	1.5	1.626	2.5	0.236	9.46	2
	5500R-M	○	10	5	5.72	3.386	1.5	1.626	2.5	0.236	9.46	2
	5600R	○	10	6	6.72	4.882	2	0.748	2.5	0.236	14.3	2
	5600R-M	○	14	6	6.72	4.882	2	0.748	2.5	0.236	14.3	2
	5800R	○	12	8	8.72	5.118	2.5	1	2.5	0.236	19.8	3
	5800R-M	○	18	8	8.72	5.118	2.5	1	2.5	0.236	19.8	3
	51000R	○	16	10	10.72	7.087	2.5	1	2.5	0.236	31.68	3
	51000R-M	○	22	10	10.72	7.087	2.5	1	2.5	0.236	31.68	3
	51200R	○	20	12	12.925	9.449	2.5	1	2.5	0.236	48.84	4
	51200R-M	○	28	12	12.925	9.449	2.5	1	2.5	0.236	48.84	4

◆: US stock ○: Made to order

Available inserts

SNC(M)F-MF SNC(M)F-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1507ANN-MF									○	●								B23
	1507ANN-MM									○									
SNMF	1507ANN-MF																		
	1507ANN-MM																		

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø3.0~Ø12.0	ETKA0625	KHB0417	SPR0415	LTC06SR-RM5	TW20-100

Available inserts **B23** Available arbors and bolt **E94 ~ E96**

RMT8EA4000



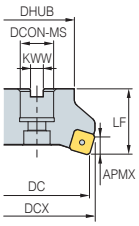


Fig. 1

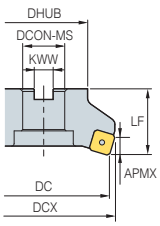


Fig. 2

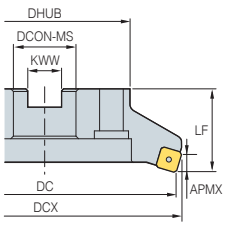


Fig. 3

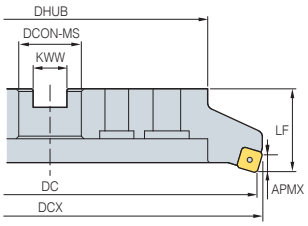


Fig. 4

KAPR 75°

- GAMP : -6°
- GAMF : -8°~-6°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMT8EA	4300R	○	5	3	3.205	2.205	1	0.374	2	0.197	3.3	1
	4300R-M	○	6	3	3.205	2.205	1	0.374	2	0.197	3.3	1
	4400R	○	6	4	4.209	2.874	1.3	0.5	2	0.197	4.4	2
	4400R-M	○	8	4	4.209	2.874	1.3	0.5	2	0.197	4.4	2
	4500R	○	8	5	5.205	3.386	0.5	0.626	2.5	0.197	8.36	2
	4500R-M	○	10	5	5.205	3.386	0.5	0.626	2.5	0.197	8.36	2
	4600R	○	10	6	6.205	4.882	2	0.748	2.5	0.197	12.76	2
	4600R-M	○	14	6	6.205	4.882	2	0.748	2.5	0.197	12.76	2
	4800R	○	12	8	8.205	5.118	2.5	1	2.5	0.197	17.38	3
	4800R-M	○	18	8	8.205	5.118	2.5	1	2.5	0.197	17.38	3
	41000R	○	16	10	10.205	7.087	2.5	1	2.5	0.197	28.6	3
	41000R-M	○	22	10	10.205	7.087	2.5	1	2.5	0.197	28.6	3
	41200R	○	20	12	12.205	9.449	2.5	1	2.5	0.197	45.1	4
	41200R-M	○	28	12	12.205	9.449	2.5	1	2.5	0.197	45.1	4

◆: US stock ○: Made to order

Available inserts

SNC(M)F-MF SNC(M)F-MM




	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1206ENN-MF									○	●								B23
	1206ENN-MM																		
SNMF	1206ENN-MF									●									
	1206ENN-MM									●									

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø3.0~Ø12.0	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

Available inserts **B23** Available arbors and bolt **E94 ~ E96**

RMT8EA5000



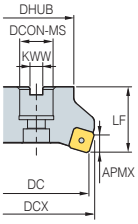


Fig. 1

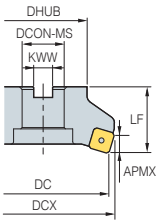


Fig. 2

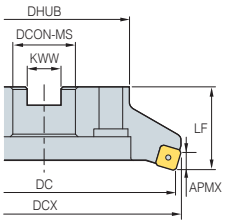


Fig. 3

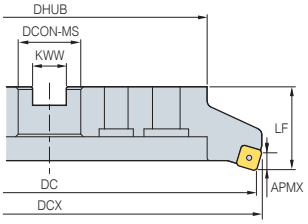


Fig. 4

KAPR 75°

- GAMP : -6°
- GAMF : -8°~-6°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMT8EA	5300R	○	5	3	3.276	2.205	1	0.374	2	0.315	3.08	1
	5300R-M	○	6	3	3.276	2.205	1	0.374	2	0.315	4.18	1
	5400R	○	6	4	4.276	2.874	1.3	0.5	2	0.315	4.18	2
	5400R-M	○	8	4	4.276	2.874	1.3	0.5	2	0.315	4.18	2
	5300R	○	8	5	5.272	3.386	0.5	0.626	2.5	0.315	8.14	2
	5400R-M	○	10	5	5.272	3.386	0.5	0.626	2.5	0.315	8.14	2
	5600R	○	10	6	6.272	4.882	2	0.748	2.5	0.315	12.54	2
	5600R-M	○	14	6	6.272	4.882	2	0.748	2.5	0.315	12.54	2
	5800R	○	12	8	8.272	5.118	2.5	1	2.5	0.315	16.5	3
	5800R-M	○	18	8	8.272	5.118	2.5	1	2.5	0.315	16.5	3
	51000R	○	16	10	10.272	7.087	2.5	1	2.5	0.315	27.28	3
	51000R-M	○	22	10	10.272	7.087	2.5	1	2.5	0.315	27.28	3
	51200R	○	20	12	12.205	9.449	2.5	1	2.5	0.315	43.78	4
	51200R-M	○	28	12	12.205	9.449	2.5	1	2.5	0.315	43.78	4

◆: US stock ○: Made to order

Available inserts

SNC(M)F-MF SNC(M)F-MM




	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1507ENN-MF									○	●								B23
	1507ENN-MM																		
SNMF	1507ENN-MF									○									
	1507ENN-MM			○		○				●									

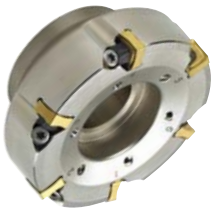
●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø3.0~Ø12.0	ETKA0625	KHB0417	SPR0415	LTC06SR-RM5	TW20-100

Available inserts **B23** Available arbors and bolt **E94 ~ E96**

RMT8QA4000



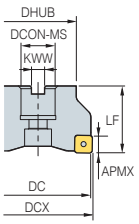


Fig. 1

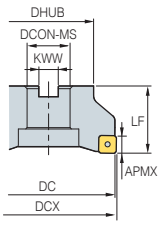


Fig. 2

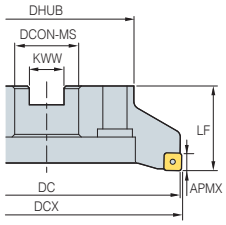


Fig. 3

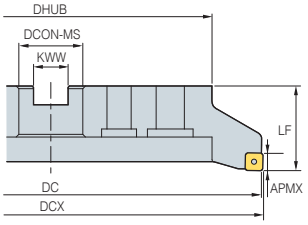


Fig. 4



KAPR 88°

- GAMP : -6°
- GAMF : -11°~-6°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RMT8QA	4300R	○	5	3	3.043	2.205	1	0.374	2	0.197	3.08	1
	4300R-M	○	6	3	3.043	2.205	1	0.374	2	0.197	3.08	1
	4400R	○	6	4	4.039	2.874	1.3	0.5	2	0.197	3.86	2
	4400R-M		8	4	4.039	2.874	1.3	0.5	2	0.197	3.86	2
	4500R	○	8	5	5.039	3.386	1.5	0.626	2.5	0.197	7.92	2
	4500R-M		10	5	5.039	3.386	1.5	0.626	2.5	0.197	7.92	2
	4600R	○	10	6	6.039	4.882	2	0.748	2.5	0.197	12.54	2
	4600R-M		14	6	6.039	4.882	2	0.748	2.5	0.197	12.54	2
	4800R	○	12	8	8.035	5.118	2.5	1	2.5	0.197	16.5	3
	4800R-M	○	18	8	8.035	5.118	2.5	1	2.5	0.197	16.5	3
	41000R	○	16	10	10.035	7.087	2.5	1	2.5	0.197	27.5	3
	41000R-M	○	22	10	10.035	7.087	2.5	1	2.5	0.197	27.5	3
	41200R	○	20	12	12.035	9.449	2.5	1	2.5	0.197	43.78	4
	41200R-M	○	28	12	12.035	9.449	2.5	1	2.5	0.197	43.78	4

◆: US stock ○: Made to order

Available inserts

SNC(M)F-MF



SNC(M)F-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SNCF	1206QNN-MF									○	●			○					B23
	1206QNN-MM										●								
SNMF	1206QNN-MF									●									
	1206QNN-MM									●									

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Screw	Spring	Latch	Wrench
Ø3.0~Ø12.0	ETKA0523	KHB0417	SPR0315	LTC05SR-RM4	TW20-100

Available inserts **B23** Available arbors and bolt **E94 ~ E96**

Rich Mill RM8-X

Features

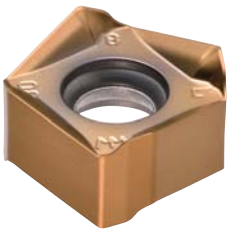
- High helix face milling tool with 8-cornered double-side inserts
- High performance in stainless steel machining due to sharp cutting edge and double reverse positive relief surface structure
- Economic tool by double-sided 8 corners and high helix right-handed shape realizing high depth of cut machining

Features of insert



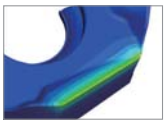
High Helix
- Improved surface finish
- Reduced cutting loa

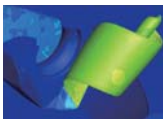


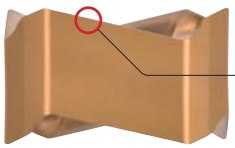


High rake angled major cutting edge/ Variable chip breaker
- Maintain its machinability in high depth of cut
- Enhanced chip control

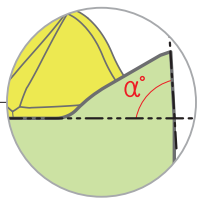
Variable minor cutting edge chip breaker
- Protects its corner on the opposite side
- Enhanced chip control



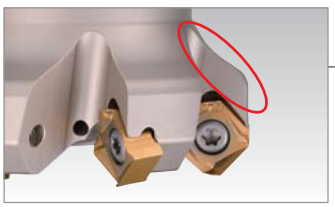




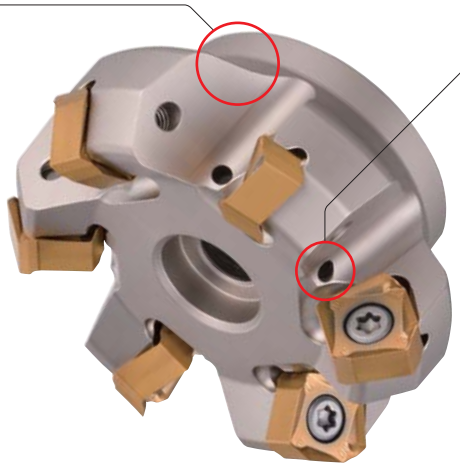
Reversal positive relief angle at the Major cutting edge
- Protects its corner on the opposite side
  - Increased chipping resistance and prevents unexpected breakage

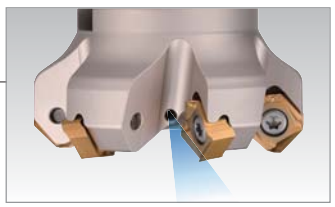


Features of cutter



Steamlined cutter design
- Improved chip evacuation





Internal coolant system
- Improved chip evacuation
- Tool life increase with the inserts' cooling

Recommended grade and cutting edge

Type	SAGX			SNMX		SNGX
Features	Strong relief surface			Sharp relief surface		Sharp relief surface
Workpiece	M	S	H	P	K	N
Shape	SAGX-ML ⟷ SAGX-MM			SNMX-ML ⟷ SNMX-MM		SNGX-MA
	Double reverse positive relief surface			Negative relief surface		Negative relief surface

Type	Recommended insert and grade for different workpieces (●: 1st recommendation)											
	P		M		K		S		H		N	
	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
SAGX140808ANER	○ML ○MM	○PC5300 ○PC3700	●ML ○MM	●PC9540 ○PC5300	○ML ○MM	○PC6510 ○PC5300	●ML ○MM	●PC5300	●MM	●PC2510 ○PC2505	-	-
SNMX140808ANER	●MM	●PC3700	-	-	●MM	●PC6510	-	-	-	-	-	-
SNGX140808ANFR	-	-	-	-	-	-	-	-	-	-	●MA	●H05 ○H01

Recommended cutting conditions

Workpiece		Machining types	Grades	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Continuous cutting	PC3700	235 (180~290)	P30	PC3700 → PC5300
		Interrupted cutting	PC5300	195 (150~240)	P40	
M	Stainless steel	Continuous cutting	PC5300	130 (100~160)	M20	PC5300
					M30	
		Interrupted cutting	PC9540	110 (80~140)	M40	PC9540
K	Cast iron	Continuous cutting	PC6100	180 (140~230)	K05	PC6100
					K10	
		Interrupted cutting	PC5300	145 (110~180)	K20	PC5300
					K30	
H	Hardened steel	Continuous cutting	PC2510	55 (40~70)	H10	PC2510

Recommended cutting conditions

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML, MM
ISO	Workpiece material	AISI	ISO			PC3700	MM	ML	PC5300	MM	ML	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		ap (inch)
P	Non-ferrous alloy steel Mn < 1.65	1025	C25	1500	125	525	0.012	0.010	492	0.012	0.010	0.039 ~0.118
						705	**0.008**	**0.008**	**640**	**0.008**	**0.008**	
						886	0.004	0.004	787	0.004	0.004	
		1045	C45	1700	190	525	0.012	0.010	492	0.012	0.010	
						705	**0.008**	**0.008**	**640**	**0.008**	**0.008**	
						886	0.004	0.004	787	0.004	0.004	
	Low alloy steel ≤ 5%	4140	42CrMo4	1700	175	525	0.012	0.010	492	0.012	0.010	
						705	**0.008**	**0.008**	**640**	**0.008**	**0.008**	
						886	0.004	0.004	787	0.004	0.004	
	High alloy steel > 5%	D2 H13	X40CrMoV5-1	1950	200	492	0.008	0.010	427	0.008	0.010	
						640	**0.006**	**0.008**	**558**	**0.006**	**0.008**	
						787	0.004	0.004	689	0.004	0.004	

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML, MM
ISO	Workpiece material	AISI	ISO			PC9540	ML	MM	PC5300	ML	MM	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		ap (inch)
M	Ferritic/ martensitic	405 430	X6CrAl13 X6Cr17	1800	200	394	0.008	0.010	394	0.008	0.010	0.039 ~0.118
						525	**0.004**	**0.006**	**525**	**0.004**	**0.006**	
						656	0.002	0.004	656	0.002	0.004	
		416 434	X12CrS13 X6CrMo17-1	2850	330	360	0.009	0.010	360	0.009	0.010	
						492	**0.005**	**0.006**	**492**	**0.005**	**0.006**	
						623	0.002	0.004	623	0.002	0.004	
		403 410	X12Cr13	2350	330	328	0.008	0.010	328	0.008	0.010	
						459	**0.004**	**0.006**	**459**	**0.004**	**0.006**	
						591	0.002	0.004	591	0.002	0.004	
	Austenitic	304 316	X5CrNi18-9 X2CrNi18-9 X5CrNiMo17-12-2 XCrNiMo17-12-3	2000	180	230	0.008	0.010	296	0.008	0.010	
						312	**0.004**	**0.006**	**394**	**0.004**	**0.006**	
						394	0.002	0.004	492	0.002	0.004	
	Austenitic/ ferritic (Duplex)	S31803 S32750	-	2450	260	197	0.008	0.010	230	0.008	0.010	
						262	**0.004**	**0.006**	**312**	**0.004**	**0.006**	
						328	0.002	0.004	394	0.002	0.004	

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML, MM
ISO	Workpiece material	AISI	ISO			PC6510	ML	MM	PC5300	ML	MM	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		ap (inch)
K	Gray cast iron	No 30 B	200	900	180	459	0.010	0.012	394	0.010	0.012	0.039 ~0.118
						591	**0.008**	**0.008**	**525**	**0.008**	**0.008**	
						755	0.004	0.004	656	0.004	0.004	
	Nodular graphite cast iron	80-55-06	500-7	870	155	394	0.010	0.012	361	0.010	0.012	
						525	**0.008**	**0.008**	**476**	**0.008**	**0.008**	
						656	0.004	0.004	591	0.004	0.004	

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		ML, MM
ISO	Workpiece material	AISI	ISO			PC5300	ML	MM	
						vc (sfm)	fz (ipt)		ap (inch)
S	Nickel based	15156-3	15156-3	2650	250	98	0.006	0.008	0.039 ~0.118
						147	**0.004**	**0.004**	
						197	0.002	0.004	
		9723	9723	3000	320	98	0.006	0.008	
						131	**0.004**	**0.004**	
						164	0.002	0.004	
	Cobalt based alloy	Stellite	Stellite	3000~3100	300~320	82	0.006	0.008	
						115	**0.004**	**0.004**	
						148	0.002	0.004	
	Titanium alloy steel	5832-11	5832-11	1400	320	98	0.008	0.008	
						164	**0.006**	**0.004**	
						230	0.002	0.004	

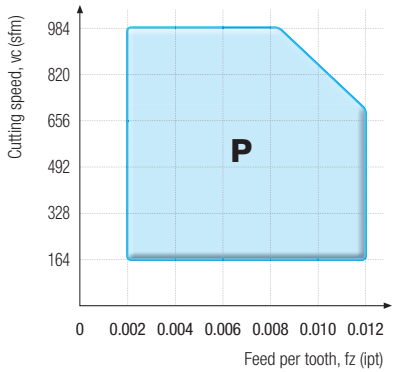
Recommended cutting conditions

Workpiece				Specific cutting force (N/mm²)	Rockwell hardness (HRC)	Grade	C/B	Grade	C/B	MM
ISO	Workpiece material	AISI	ISO			PC2510	MM	PC2505	MM	
						vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	ap (inch)
H	High hardened steel (heat treatment)	H13 (HRC50)	X40CrMoV5-1	2750	50	131	0.006	131	0.008	0.039 ~0.118
						180	**0.004**	**197**	**0.004**	
						230	0.004	262	0.004	

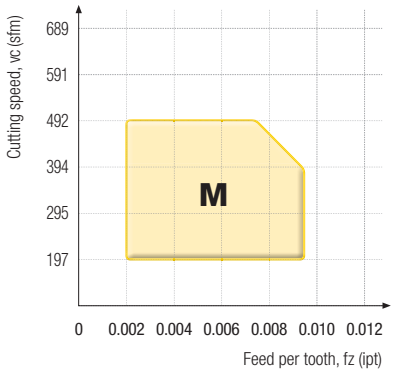
Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B	
ISO	Workpiece material	AISI	ISO			PC5300	MA	
						vc (sfm)	fz (ipt)	ap (inch)
N	Aluminum	6061	AlMg1SiCu	125 ~ 310	30 ~ 65	1,640	0.006	~ 0.217
						2,297	**0.005**	
						3,280	0.003	
		7075	AlZn5.5MgCu	230 ~ 570	60 ~ 150	1,640	0.006	
						2,297	**0.005**	
						3,280	0.003	

Cutting range

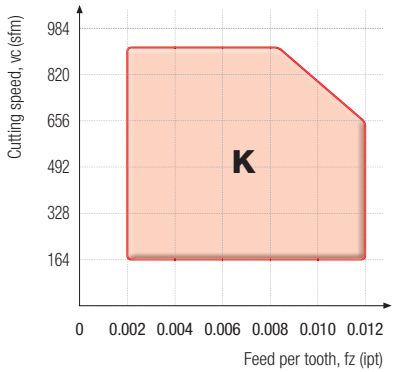
P Steel



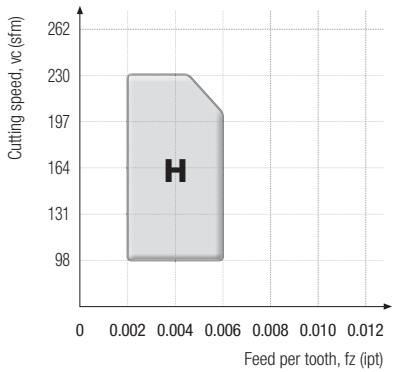
M Stainless steel



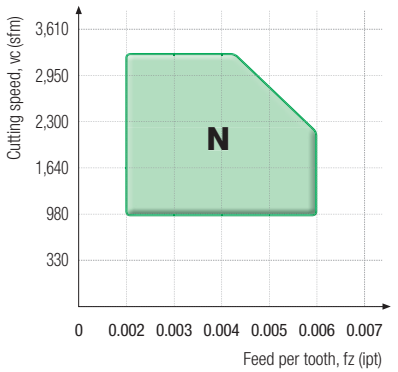
K Cast iron



H Hardened steel

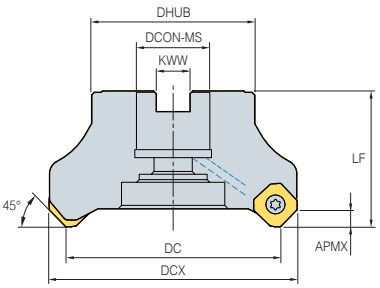


N Aluminum



RMX8ACA-SA14





KAPR 45°

- GAMP : -8°
- GAMF : -11°~-9°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs
RMX8ACA	200R-075-4-SA14	○	4	2	2.492	1.622	0.75	0.409	1.75	0.217	1.058
	200R-075-5-SA14	○	5	2	2.492	1.622	0.75	0.409	1.75	0.217	1.058
	250R-100-5-SA14	○	5	2.5	2.992	2.122	1	0.409	1.75	0.217	1.631
	250R-100-6-SA14	○	6	2.5	2.992	2.122	1	0.409	1.75	0.217	1.653
	300R-100-6-SA14	○	6	3	3.492	2.622	1	0.488	2	0.217	2.05
	300R-100-8-SA14	○	8	3	3.492	2.622	1	0.488	2	0.217	2.094
	400R-125-8-SA14	○	8	4	4.492	3.622	1.25	0.567	2	0.217	3.637
	400R-125-10-SA14	○	10	4	4.492	3.622	1.25	0.567	2	0.217	3.725
	500R-150-8-SA14	○	8	5	5.492	4.622	1.5	0.646	2	0.217	8.419
	500R-150-12-SA14	○	12	5	5.492	4.622	1.5	0.646	2	0.217	8.507

◆: US stock ○: Made to order

Available inserts

SAGX-ML



SAGX-MM



SNMX-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	ST30A	G10	H01	
SAGX	140808ANER-ML										○			●	●				B18
	140808ANER-MM										○			○	●				
SNMX	140808ANER-MM					○					●	●		○	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.00 ~ Ø5.00	FTNA0513	TW20-100

Available inserts **B18** Available arbors and bolt **E96**

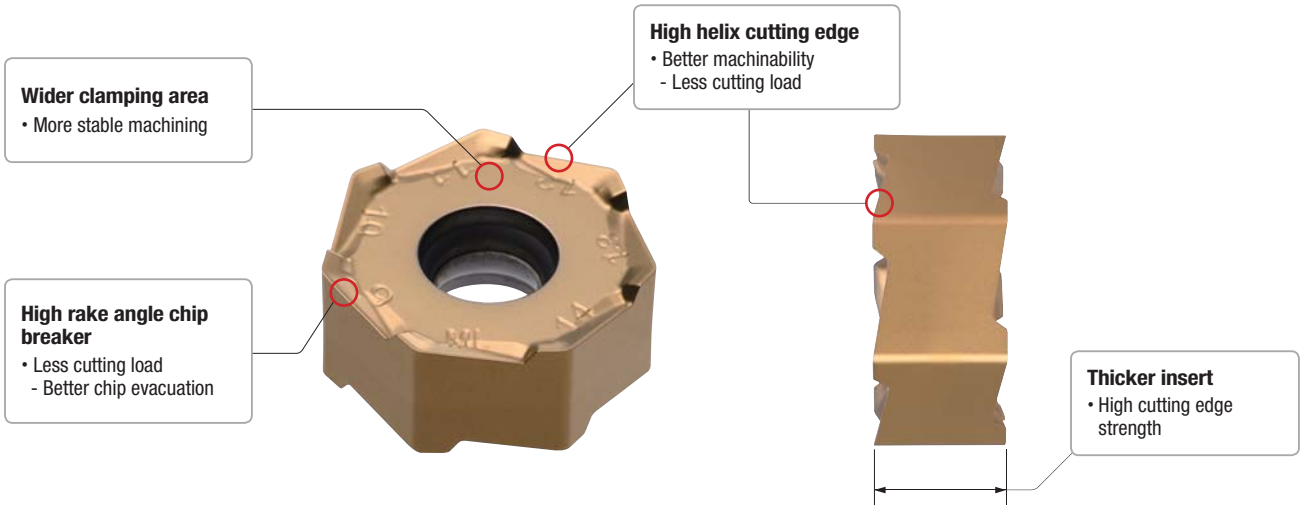
Rich Mill RM14

Features

- Economical face mill with 14 double-sided corners
- Minimized chattering of workpiece due to minimum lead angle and sharp cutting edge
- Reduced cutting resistance and improved chip emissions by high helix angle application

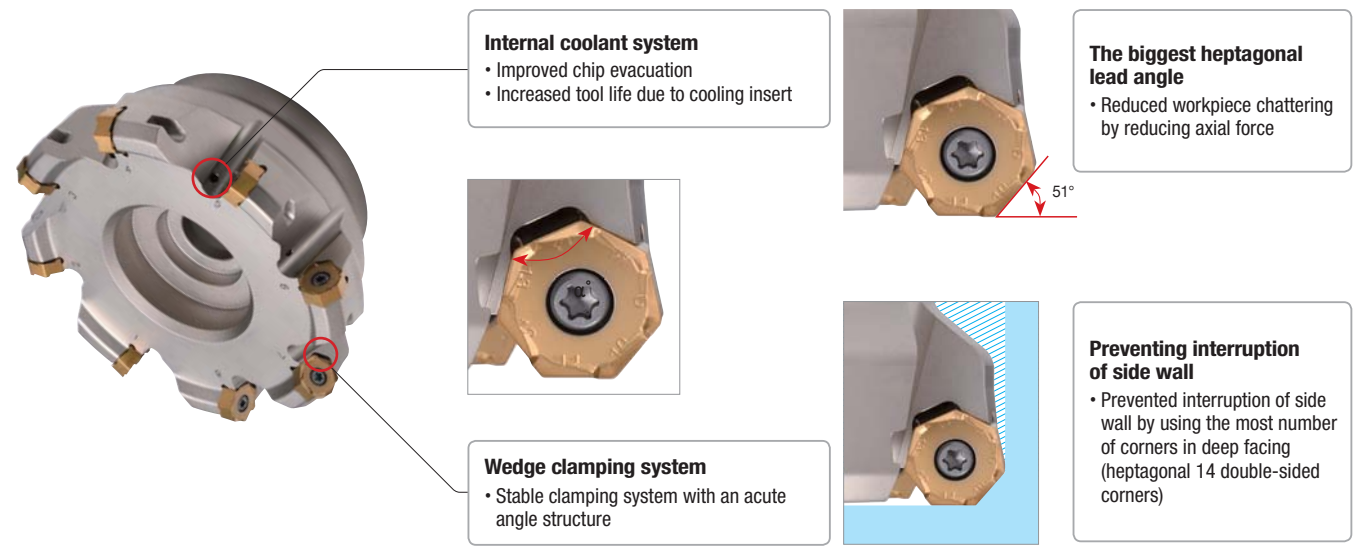
Features of insert

- Wide supporting area of insert ensures stable clamping system.
- High rake angle cutting edge reduces cutting load and increases chip evacuation.
- Thicker insert realizes stability in machining.



Features of cutter

- The biggest heptagonal lead angle reduces chatter in machining.
- Wedge type clamping system ensures stable clamping.
- Stepped machining is available without interruption of side wall of insert.



Rich Mill RM14

Features of chip breakes

Type		Workpiece	Features
Helix	 	• Right handed type • High helix cutting edge	• 1st recommended for P and K series cutting • For high speed and high feed machining
Flat	 	• Neutral type • Flat cutting edge	• 1st recommended for M series cutting • Applicable for both right handed and left handed

Recommended grade and cutting edge

(● : 1st recommendation)

Type	P			M			K		
	Type	C/B	Grade	Type	C/B	Grade	Type	C/B	Grade
Helix	●	○ ML ● MM	● PC3700 ○ PC5300 ○ PC5400	○	○ ML ○ MM	● PC9540 ○ PC5300	●	● ML ○ MM	● PC6100 ○ PC5300 ○ NCM535
Flat	○	○ ML ○ MM	● PC3700 ○ PC5300 ○ PC5400	●	● ML ○ MM	● PC9540 ○ PC5300	○	○ ML ○ MM	● PC6100 ○ PC5300 ○ NCM535

Recommended cutting condition

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML/MM
ISO	Workpiece material	AISI	ISO			PC3700	ML	MM	PC5300	ML	MM	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		ap (inch)
P	Carbon steel Mn < 1.65	1025	C25	1500	125	525	0.01	0.012	492	0.01	0.012	0.039 ~ 0.118
						705	**0.008**	**0.008**	**639**	**0.008**	**0.008**	
						886	0.004	0.004	787	0.004	0.004	
		1045	C45	1700	190	525	0.01	0.012	492	0.01	0.012	
						705	**0.008**	**0.008**	**639**	**0.008**	**0.008**	
						886	0.004	0.004	787	0.004	0.004	
	Low alloy steel ≤ 5%	4140	42CrMo4	1700	175	525	0.01	0.012	492	0.01	0.012	
						705	**0.008**	**0.008**	**639**	**0.008**	**0.008**	
						886	0.004	0.004	787	0.004	0.004	
	High alloy steel > 5%	D2 H13	X40CrMoV5-1	1950	200	492	0.008	0.01	426	0.008	0.01	
						640	**0.006**	**0.008**	**557**	**0.006**	**0.008**	
						787	0.004	0.004	688	0.004	0.004	

Rich Mill RM14

Recommended cutting condition

Workpiece				Specific cutting force (N/mm^2)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML/MM
ISO	Workpiece material	AISI	ISO			PC9540	ML	MM	PC5300	ML	MM	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		ap (inch)
M	Ferritic/ Martensitic series	405 430	X6CrAl13 X6Cr17	1800	200	374	0.008	0.01	374	0.008	0.01	0.039 ~ 0.118
						525	**0.004**	**0.006**	**525**	**0.004**	**0.006**	
						656	0.002	0.004	656	0.002	0.004	
		416 434	X12CrS13 X6CrMo17-1	2850	330	361	0.009	0.01	361	0.009	0.01	
						492	**0.005**	**0.006**	**492**	**0.005**	**0.006**	
						623	0.002	0.004	623	0.002	0.004	
		403 410	X12Cr13	2350	330	328	0.008	0.01	328	0.008	0.01	
						459	**0.004**	**0.006**	**459**	**0.004**	**0.006**	
						591	0.002	0.004	591	0.002	0.004	
	Austenite series	304 316	X5CrNI18-9 X5CrNiMo17-12-2 XCrNiMo17-12-3	2000	180	230	0.008	0.01	295	0.008	0.01	
						312	**0.004**	**0.006**	**394**	**0.004**	**0.06**	
						394	0.002	0.004	492	0.002	0.004	
	Austenite-ferritic series (Duplex)	S31803 S32750	-	2450	260	197	0.008	0.01	230	0.008	0.01	
						262	**0.004**	**0.006**	**312**	**0.004**	**0.006**	
						361	0.002	0.004	394	0.002	0.004	

Workpiece				Specific cutting force (N/mm^2)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML/MM
ISO	Workpiece material	AISI	ISO			PC6510	ML	MM	PC5300	ML	MM	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		ap (inch)
K	Gray cast iron	No 30 B	200	900	180	459	0.01	0.012	394	0.01	0.012	0.039 ~ 0.118
						591	**0.008**	**0.008**	**525**	**0.008**	**0.008**	
						755	0.004	0.004	656	0.004	0.004	
	Ductile cast iron	80-55-06	500-7	870	155	394	0.01	0.012	361	0.01	0.012	
						525	**0.008**	**0.008**	**476**	**0.008**	**0.008**	
						656	0.004	0.004	591	0.004	0.004	

RM14XCA-XN06



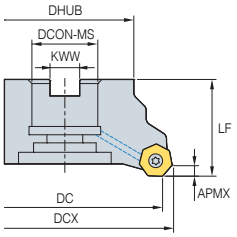


Fig. 1

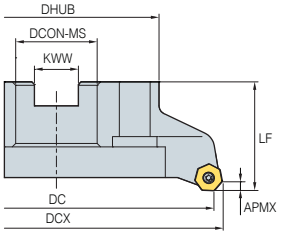


Fig. 2

KAPR 51°

- GAMP : -6°
- GAMF : -9°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RM14XCA	200R-075-5-XN06	◆	5	2	2.306	1.772	0.75	0.315	1.75	0.137	0.75	1
	200R-075-6-XN06	○	6	2	2.306	1.772	0.75	0.315	1.75	0.137	0.75	1
	250R-100-6-XN06	◆	6	2.5	2.817	2.205	1	0.374	1.75	0.137	1.124	1
	250R-100-8-XN06	○	8	2.5	2.817	2.205	1	0.374	1.75	0.137	1.279	1
	300R-100-6-XN06	○	6	3	3.487	2.205	1	0.374	2	0.137	2.161	1
	300R-100-8-XN06	◆	8	3	3.487	2.205	1	0.374	2	0.137	2.381	1
	300R-100-10-XN06	○	10	3	3.487	2.205	1	0.374	2	0.137	2.359	1
	400R-125-10-XN06	◆	10	4	4.274	2.874	1.25	0.5	2	0.137	3.527	1
	400R-125-12-XN06	○	12	4	4.274	2.874	1.25	0.5	2	0.137	3.483	1
	500R-150-12-XN06	◆	12	5	5.258	3.386	1.5	0.626	2.5	0.137	7.562	1
	500R-150-14-XN06	○	14	5	5.258	3.386	1.5	0.626	2.5	0.137	7.496	1
	600R-200-16-XN06	◆	16	6	6.636	4.882	2	0.752	2.5	0.137	10.714	2
	600R-200-18-XN06	○	18	6	6.636	4.882	2	0.752	2.5	0.137	10.67	2

※ In applying XNMX060608-□□ , APMX = 0.189 inch

◆: US stock ○: Made to order

Available inserts

	XNMX-ML	XNMX-ML	XNMX-MM	XNMX-MM
				

Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PC5535	ST30A	G10	H01	
XNMX	0606XNR-ML					●					●		●	●	●	●				B33
	0606XNR-MM									●	●			●						
	060608-ML					○				○			◆	◆	●	●				
	060608-MM									●	●		○	◆	○	○				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.0~Ø6.0	FTKA0412B	TW15S

Available inserts **B33** Available arbors and bolt **E96**

Rich Mill RM16

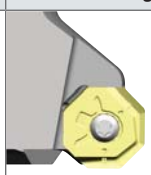
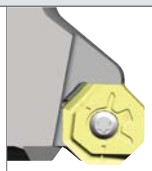
Features

- Economical 16 cutting-edges
- Reduces cost in medium cutting
- Wiper insert can be used for good surface roughness
- Optimal matching of the special cutting-edge geometry with variety of new grades provides consistence & long tool
- When it is used 16 corners, maximum cutting depth is 0.22 inch, but it is used 8 corners, maximum cutting depth is 0.51 inch
- Wiper insert is placed 0.002 inch lower than facing insert in cutter
- When feed is bigger than wiper cutting-edge length (0.28 inch), 2 wiper inserts are placed in symmetrical position

Features of chip breakers

Chip breakers Picture		Cutting-edge	Uses	Features
MA			For aluminum cutting light	With sharp edge application, the better productivity has been accomplished, especially for aluminum cutting
ML			For hard-to-cut material	Chip breaker with low cutting load is optimal for machining hard-to-cut materials
MF			For light cutting	Due to low cutting load, it is good for light cutting and difficult-to-cut material
MM			For general cutting	It is suitable design for general milling
W			For wiper	It has better surface roughness than MM and MF chip breakers

Instruction for wiper insert

Hand	Correct setting	Incorrect setting			
Right hand					
Decision	○	×	×	×	×
Left hand					
Decision	○	×	×	×	×

Instruction for wiper insert

- Well designed chip pocket for better chip flow
- Through coolant system reduces cutting heat and improves chip evacuation



Recommended cutting conditions

(inch)

ISO	Grades	ONM(H)X060608-MM		ONM(H)X060608-MF		ONHX060608-W		ONM(H)X080608-MM		ONM(H)X080608-MF		ONHX080608-W	
		vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)
P	NCM535	500~990	0.014~0.004	660~990	0.012~0.002	660~990	0.008~0.002	500~990	0.016~0.004	660~990	0.014~0.002	660~990	0.010~0.002
P	PC3700	500~990	0.014~0.004	660~990	0.012~0.002	660~990	0.008~0.002	500~990	0.016~0.004	660~990	0.014~0.002	660~990	0.010~0.002
M	PC9530	400~590	0.014~0.004	330~590	0.012~0.002	330~590	0.008~0.002	400~590	0.016~0.004	330~590	0.014~0.002	330~590	0.010~0.002
K	PC6510	500~990	0.016~0.004	500~990	0.014~0.003	500~990	0.010~0.002	500~990	0.018~0.004	500~990	0.016~0.003	500~990	0.012~0.002

RM16ACA6000



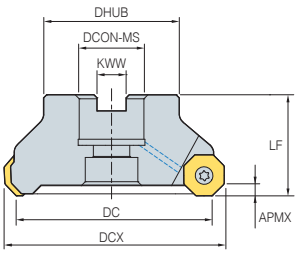


Fig. 1

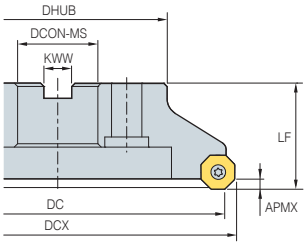


Fig. 2

KAPR 45°

- GAMP : -6°
- GAMF : -6°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RM16ACA	6250HR-M	◆	5	2.5	2.868	2.205	1	0.374	1.75	0.157	1.5	1
	6250HR-H	○	7	2.5	2.868	2.205	1	0.374	1.75	0.157	1.5	1
	6300HR-M	◆	6	3	3.534	2.205	1	0.374	2	0.157	2.6	1
	6300HR-H	○	8	3	3.534	2.205	1	0.374	2	0.157	2.6	1
	6400HR-M	○	7	4	4.325	2.874	1.25	0.5	2	0.157	4.2	1
	6400HR-H	◆	10	4	4.325	2.874	1.25	0.5	2	0.157	4.2	1
	6500HR-M	○	8	5	5.309	3.386	1.5	0.626	2.5	0.157	7.7	1
	6500HR-H	○	14	5	5.309	3.386	1.5	0.626	2.5	0.157	7.7	1
	6600R-M	○	10	6	6.687	4.882	2	0.748	2.5	0.157	9	2
	6600R-H	○	16	6	6.687	4.882	2	0.748	2.5	0.157	9	2
	6800R-M	○	12	8	8.261	5.118	2.5	1.012	2.5	0.157	13.4	2
	6800R-H	○	20	8	8.261	5.118	2.5	1.012	2.5	0.157	13.4	2

◆: US stock ○: Made to order

Available inserts

ONHX-MF | ONHX-ML | ONHX-MM | ONHX-W | ONHX-MA | ONMX-MF | ONMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
ONHX	060608-MM					○				○	◆	○	○	●	●				B15
	060608-MF					○				○	●	○	○	●	●				
	060608-ML					○								◆	●				
	060608-MA																	◆	
	060608-W					○				○	●	●		●					
	0606ANN-MM					○					●	○	○	●	●				
	0606ANN-MF			○						○	●		○	●	●				
ONMX	060608-MM			○		●				◆	◆	○	●	◆	●				
	060608-MF				○	●				○	●	○	○	●	●				
	0606ANN-MM					●				◆	●	○	○	◆	●				
	0606ANN-MF					●				○	●	●	○	●	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.5~Ø8.0	FTGA0513	TW20-100

Available inserts **B15** Available arbors and bolt **E94 ~ E96**

RM16ACA8000



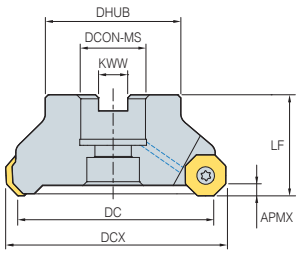


Fig. 1

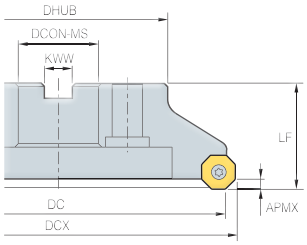


Fig. 2

KAPR 45°

- GAMP : -6°
- GAMF : -6°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
RM16ACA	8250HR-M	◆	5	2.5	2.868	2.205	1	0.374	1.75	0.216	1.5	1
	8250HR-H	◆	6	2.5	2.868	2.205	1	0.374	1.75	0.216	1.5	1
	8300HR-M	◆	6	3	3.534	2.205	1	0.374	2	0.216	2.6	1
	8300HR-H	◆	7	3	3.534	2.205	1	0.374	2	0.216	2.6	1
	8400HR-M	◆	7	4	4.325	2.874	1.25	0.5	2	0.216	4	1
	8400HR-H	◆	9	4	4.325	2.874	1.25	0.5	2	0.216	4	1
	8500HR-M	◆	8	5	5.309	3.386	1.5	0.626	2.5	0.216	7.7	1
	8500HR-H	◆	10	5	5.309	3.386	1.5	0.626	2.5	0.216	7.7	1
	8600R-M	◆	10	6	6.687	4.882	2	0.748	2.5	0.216	9.9	2
	8600R-H	◆	14	6	6.687	4.882	2	0.748	2.5	0.216	9.9	2
	8800R-M	○	12	8	8.261	5.118	2.5	1.012	2.5	0.216	12.8	2
	8800R-H	◆	16	8	8.261	5.118	2.5	1.012	2.5	0.216	12.8	2

◆: US stock ○: Made to order

Available inserts

ONHX-MF | ONHX-ML | ONHX-MM | ONHX-W | ONHX-MA | ONMX-MF | ONMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
ONHX	080608-MM					○				○	●	○	○	●	●				B15
	080608-MF					●				○	◆	○		●	●				
	080608-ML					○							○	◆	●				
	080608-MA																	◆	
	080608-W					○				○	●		○	◆					
	0806ANN-MM					○				○	●	○	○	●	●				
	0806ANN-MF					○				◆	●	○	○	◆	●				
ONMX	080608-MM			○		●				◆	◆	●	●	◆	●				
	080608-MF			○		●				○	●	○	○	●	●				
	0806ANN-MM					●				○	◆	●	○	◆	●				
	0806ANN-MF					●				◆	●	○	○	◆	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.5~Ø8.0	FTGA0513	TW20-100

Available inserts **B15** Available arbors and bolt **E94 ~ E96**

Rich Mill RMR

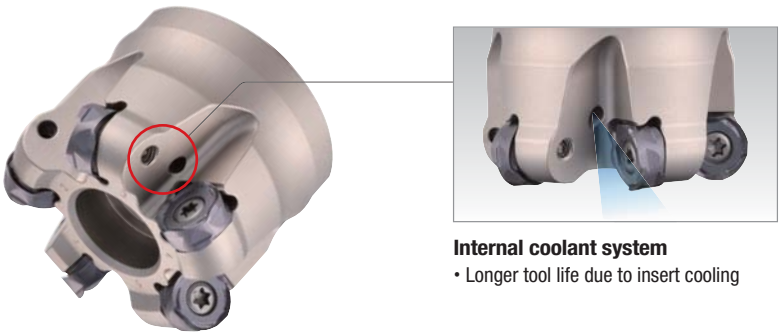
Features

- Improved machining stability with the combination of the reversal positive structure preventing rotation and wide upper and lower clamping sides.
- Helix cutting edge and sharp chip breaker realize smooth cutting.
- Wide minor cutting edge and optimized holder angle enhance high surface finish.

Features of insert



Features of cutter



Internal coolant system
• Longer tool life due to insert cooling

Recommended grade and cutting dege

Type	Recommended grade and cutting dege by workpiece					
	P		M		K	
	C/B	Grade	C/B	Grade	C/B	Grade
1st	MM	PC3700	ML	PC9540	MM	PC6100
2nd	MM	PC5300	MM	PC9540	MM	PC5300

Recommended cutting conditions

ISO	Workpiece materials	AISI	ISO	Specific cutting force (N/mm²)	Brinell hardness (HB)	Wear resistance ← → Toughness						ML/MM
						Grade	C/B		Grade	C/B		
						PC3700	ML	MM	PC5300	ML	MM	
						vc (sfm)	fz (ipt)	fz (ipt)	vc (sfm)	fz (ipt)	fz (ipt)	ap (inch)
P	Non-ferrous alloy steel Mn < 1.65	1025	C25	1500	125	328.1	0.02	0.02	262.5	0.02	0.02	0.04 ~ 0.12
						590.6	**0.012**	**0.012**	**459.3**	**0.012**	**0.012**	
						820.2	0.004	0.004	656.2	0.004	0.004	
		1045	C45	1700	190	262.5	0.02	0.02	262.5	0.02	0.02	
						590.6	**0.012**	**0.012**	**459.3**	**0.012**	**0.012**	
						820.2	0.004	0.004	656.2	0.004	0.004	
	Low alloy steel ≤ 5%	4140	42CrMo4	1700	175	262.5	0.02	0.02	262.5	0.02	0.02	
						524.9	**0.012**	**0.012**	**393.7**	**0.012**	**0.012**	
						754.6	0.004	0.004	623.4	0.004	0.004	
	High alloy steel > 5%	D2 H13	X40CrMoV5-1	1950	200	393.7	0.028	0.028	328.1	0.028	0.028	0.04
						459.3	**0.02**	**0.02**	**393.7**	**0.02**	**0.02**	
						918.6	0.012	0.012	689	0.012	0.012	

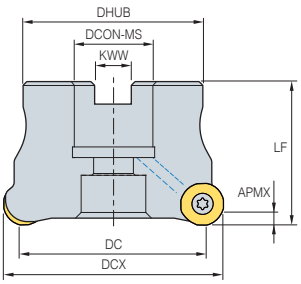
ISO	Workpiece materials	AISI	ISO	Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B	ML
						PC9540	ML	
						vc (sfm)	fz (ipt)	ap (inch)
M	Ferritic/ martensitic	405 430	X6CrAl13 X6Cr17	1800	200	393.7	0.012	0.04 ~ 0.12
						524.9	**0.006**	
						656.2	0.002	
		416 434	X12CrS13 X6CrMo17-1	2850	330	328.1	0.012	
						459.3	**0.006**	
						590.6	0.002	
		403 410	X12Cr13	2350	330	328.1	0.012	
						459.3	**0.006**	
						590.6	0.002	
	Austenitic	304 316	X5CrNI18-9, X2CrNI18-9 X5CrNiMo17-12-2 XCrNiMo17-12-3	2000	180	295.3	0.012	
						393.7	**0.006**	
						492.1	0.002	
	Austenitic-ferritic (Duplex)	S31803 S32750	-	2450	260	196.9	0.012	
						295.3	**0.006**	
						393.7	0.004	

ISO	Workpiece materials	AISI	ISO	Specific cutting force (N/mm²)	Brinell hardness (HB)	Wear resistance ← → Toughness						ML/MM
						Grade	C/B		Grade	C/B		
						PC6510	ML	MM	PC5300	ML	MM	
						vc (sfm)	fz (ipt)	fz (ipt)	vc (sfm)	fz (ipt)	fz (ipt)	ap (inch)
K	Gray cast iron	No 30 B	200	900	180	459.3	0.01	0.012	393.7	0.01	0.012	0.04 ~ 0.12
						590.6	**0.008**	**0.008**	**524.9**	**0.008**	**0.008**	
						754.6	0.004	0.004	656.2	0.004	0.004	
	Nodular graphite cast iron	80-55-06	500-7	870	155	393.7	0.01	0.012	360.9	0.01	0.012	
						524.9	**0.008**	**0.008**	**475.7**	**0.008**	**0.008**	
						656.2	0.004	0.004	590.6	0.004	0.004	

ISO	Workpiece materials	AISI	ISO	Specific cutting force (N/mm²)	Brinell hardness (HB)	Wear resistance ← → Toughness				ML
						Grade	C/B	Grade	C/B	
						UNC840	ML	UPC845	ML	
						vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	ap (inch)
S	Nickel base	Inconel625	15156-3	2650	250	98.4	0.016	82.0	0.016	0.04 ~ 0.12
						147.6	**0.008**	**131.2**	**0.008**	
						196.9	0.002	180.4	0.004	
		Inconel718	9723	3000	320	82.0	0.016	65.6	0.016	
						131.2	**0.008**	**114.8**	**0.008**	
						180.4	0.002	164.0	0.004	
	Cobalt based alloy	Stellite	Stellite	3000 ~ 3100	300 ~ 320	98.4	0.016	65.6	0.016	
						147.6	**0.008**	**114.8**	**0.008**	
						196.9	0.002	164.0	0.004	
	Cobalt based alloy	Ti-6Al-4V	5832-11	1400	320	98.4	0.016	65.6	0.016	
						164.0	**0.008**	**131.2**	**0.008**	
						229.7	0.002	196.9	0.004	

RMRCA-RN12







• GAMP : -7°
• GAMF : -13°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs
RMRCA	200R-075-5-RN12	◆	5	1.622	2	1.771	0.75	0.409	1.75	3.5	0.62
	200R-075-6-RN12	◆	6	1.622	2	1.771	0.75	0.409	1.75	3.5	0.64
	250R-100-6-RN12	◆	6	2.122	2.5	2.204	1	0.409	1.75	3.5	0.99
	250R-100-7-RN12	◆	7	2.122	2.5	2.204	1	0.409	1.75	3.5	1.01
	300R-100-6-RN12	◆	6	2.622	3	2.204	1	0.488	2	3.5	1.83
	300R-100-8-RN12	◆	8	2.622	3	2.204	1	0.488	2	3.5	1.81
	400R-125-7-RN12	◆	7	3.622	4	2.874	1.25	0.567	2	3.5	3.68
	400R-125-9-RN12	◆	9	3.622	4	2.874	1.25	0.567	2	3.5	3.68
	500R-150-10-RN12	◆	10	4.622	5	3.937	1.5	0.646	2	3.5	6.22
	500R-150-12-RN12	◆	12	4.622	5	3.937	1.5	0.646	2	3.5	6.24

◆: US stock ○: Made to order

Available inserts

RNMX-ML



RNMX-MM



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC5300	PC6100	PC9530	PC9540	ST30A	G10	H01	
RNMX	1204M0E-ML					○				●	●			●				B17
	1204M0S-MM					○				●	●	●						

●: Korea stock ◆: US stock ○: Made to order

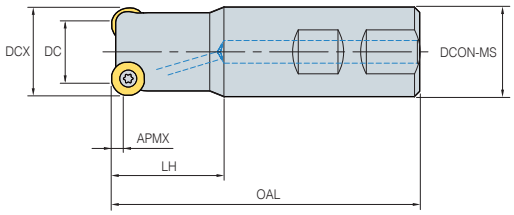
Parts

Specification	Screw	Wrench
Ø2.00~Ø5.00	FTNA0411-A	TW15S

Available inserts **B17** Available arbors and bolt **E96**

RMRSA-RN12







• GAMP : -7°
• GAMF : -15°~-13°

(inch)

	Designation	Stock	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	lbs
RMRSA	125R-2W125-400-RN12	◆	2	0.872	1.25	1.25	1.5	4	3.5	1.23
	125R-3W125-400-RN12	◆	3	0.872	1.25	1.25	1.5	4	3.5	1.21
	125R-2C125-800-RN12	◆	2	0.872	1.25	1.25	1.5	8	3.5	2.4
	125R-3C125-800-RN12	◆	3	0.872	1.25	1.25	1.5	8	3.5	2.4
	150R-3W125-450-RN12	◆	3	1.122	1.5	1.25	1.5	4.5	3.5	1.37
	150R-4W125-450-RN12	◆	4	1.122	1.5	1.25	1.5	4.5	3.5	1.37
	150R-3C125-450-RN12		3	1.122	1.5	1.25	1.5	8	3.5	2.54
	150R-4C125-450-RN12		4	1.122	1.5	1.25	1.5	8	3.5	2.54
	200R-5W150-500-RN12	◆	5	1.622	2	1.5	1.5	5	3.5	2.38
	200R-6W150-500-RN12	◆	6	1.622	2	1.5	1.5	5	3.5	2.38
	250R-6W150-500-RN12	○	6	2.122	2.5	1.5	2	5	3.5	3.15
	250R-7W150-500-RN12	○	7	2.122	2.5	1.5	2	5	3.5	3.15

◆: US stock ○: Made to order

Available inserts

RNMX-ML



RNMX-MM



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC5300	PC6100	PC9530	PC9540	ST30A	G10	H01	
RNMX	1204M0E-ML					○				●	●			●				B17
	1204M0S-MM					○				●	●	●						

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.25~Ø2.50	FTNA0411-A	TW15S

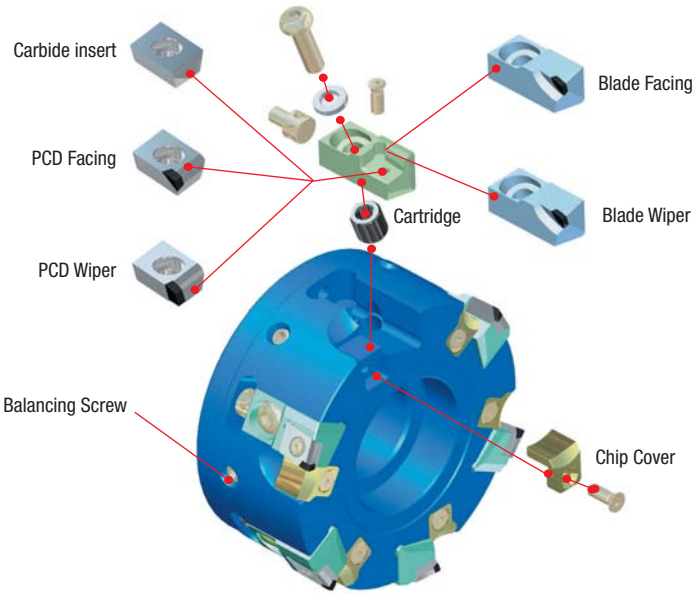
Available inserts **B17**

Lighter tool ensures excellent performance in high speed machining

Aero Mill

- Excellent machining performance can be acquired especially at the high speeds due to the light aluminum cutter body that is 50% of the weight of a conventional steel cutter body
- High speed milling cutter for precise machining
- Special aluminum material and high rake angle of insert provide rigid & stable machining
- High tolerance surface finishes can be acquired due to the low cutting load provided from the high rake angle
- Balanceable up to G2.5 level

Assembly structure of cutter



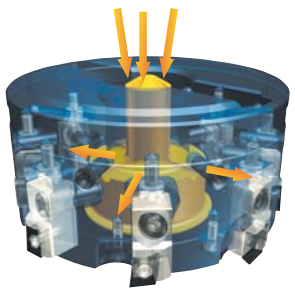
Features of cutter

- Increased stability based on cartridge type application
- Both insert and blade can be available in the same cutter
- Finishing to roughing can be possible because of wide chip pocket space
- Roughing and finishing available with carbide, PCD insert application
- Cutter breakage can be solved by making use of the chip cover

Coolant through system

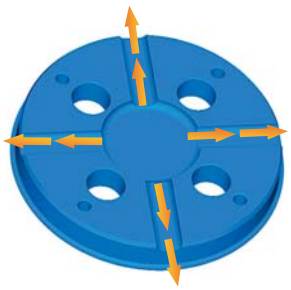
- Specially designed coolant through system provides coolant from the center of the cutter to the insert enhances the cooling rate and chip evacuation.
- Direction of coolant has designed to focus directly to the insert cutting-edge to maximize chip evacuation and improve tool life
- Coolant bolt is applicable up to Ø6, coolant cover is applicable from Ø8 and over.
  Coolant devices are sold separately for through coolant system, through coolant arbor has to be used

Coolant Bolt



For Ø3~Ø6

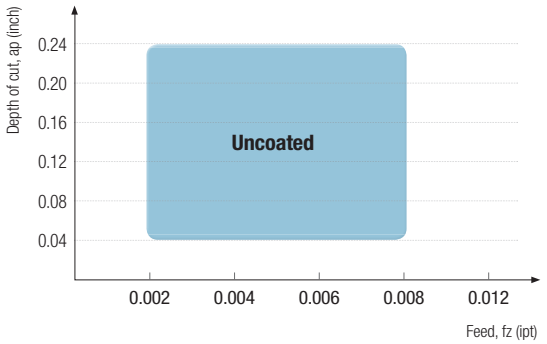
Coolant Cover



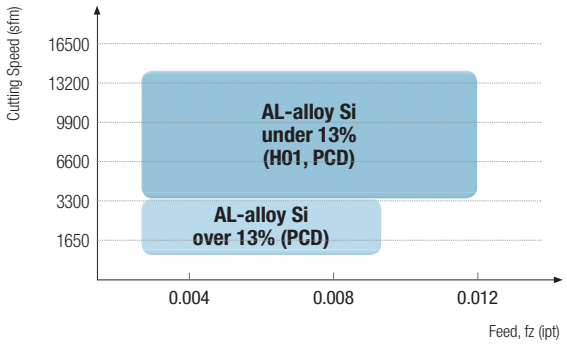
For Ø8 and over

Aero Mill

Application range



Recommended cutting conditions

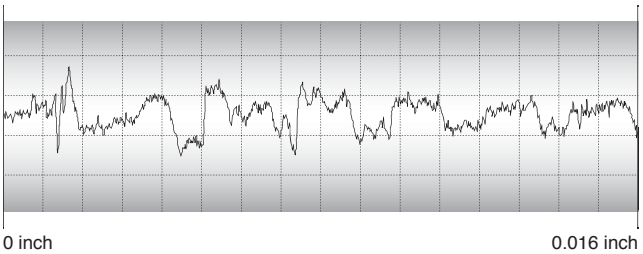


Surface finish

Workpiece A6061

Cutting condition vc = 5200 sfm, vf = 20 ipm, N = 5000 min^{-1}, fz = 0.004 ipt, ap = 0.02 inch, Machine = PCV620

Tools Cutter : APD100R-A6Z(6 Flutes) Insert : CDEW1204R-XCF(H01)



- Rmax : 2.1㎛
- Rz : 1.6㎛
- Ra : 0.3㎛

Max. revolution

Diameter(inch)	Max. revolution (rpm)
Ø3	16,000
Ø4	15,000
Ø5	12,500
Ø6	10,000
Ø8	8,000
Ø10	6,500
Ø12	5,000

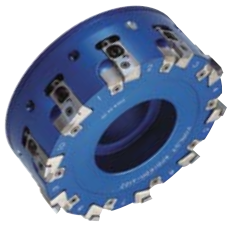
Coolant parts

Diameter (inch)	Type	Designation		Shape	Note
Ø3	Coolant Bolt	CBP080-IN/MM			Extra charge
Ø4	Coolant Bolt	CBP100-IN	CBP100-MM^{-1}		
Ø5	Coolant Bolt	CBP125-IN	CBP125-MM^{-1}		
Ø6	Coolant Bolt	CBP160-IN	CBP160-MM		
Ø8	Coolant Cover	CCP200			
Ø10	Coolant Cover	CCP250			
Ø12	Coolant Cover	CCP315			

• Choice: CBP100-IN:APD type, General for unmarked item

APDA-A

Cartridge + insert



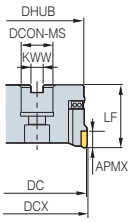


Fig. 1

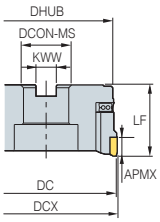


Fig. 2

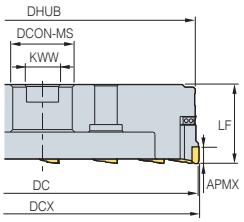


Fig. 3

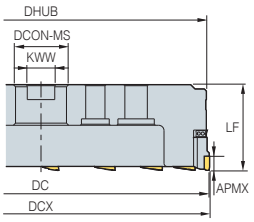


Fig. 4



KAPR 90°

- GAMP : 6°
- GAMF : 5°~9°

(inch)

	Designation	Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
APDA	300R/L-A6Z	○		6	3	3	2.795	1	0.375	2	0.24	1.7	1
	400R/L-A6Z	○		6	4	4	3.772	1.25	0.5	2	0.24	2.1	2
	500R/L-A8Z	○		8	5	5	4.795	1.5	0.625	2.5	0.24	4	2
	600R/L-A10Z	○		10	6	6	5.783	2	0.75	2.5	0.24	6.4	2
	800R/L-A12Z	○		12	8	8	7.783	2.5	1	2.5	0.24	8.8	3
	1000R/L-A16Z	○		16	10	10	9.787	2.5	1	2.5	0.24	13.9	3
	1200R/L-A18Z	○		18	12	12	11.772	2.5	1	3.125	0.24	24.9	4

◆: US stock ○: Made to order

Available inserts

CDEW-XCF



CDEW-XAF,NAF



CDEW-XAW,NAW



	Designation	Uncoated H01	Uncoated G10	Uncoated ST30A	PCD DP200	Page
CDEW	1204R-XCF	●				B7
	1204L-XCF					
	1204R-XAF				●	
	1204L-XAF					
	1204R-NAF				●	
	1204L-NAF					
	1204R-XAW				●	
	1204L-XAW					
	1204R-NAW				●	
	1204L-NAW					

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc (sfm)	cutting condition fz (ipt)	Grade
Aluminum	3300~13200 1650~8250	0.002~0.012 0.002~0.008	DP200 H01

Parts

Specification	Cartridge	Chip cover	Chip cover Screw	Insert screw	Adjust screw	Cartridge Screw	Wrench for insert	Wrench for cartridge
Ø3.0~Ø12.0	LAPDR/L-AJ	CAPDR/L-AJ	PTMA0411	FTNA0411	AZ0514	BHA0619-NYLOK	TW15S	HW50

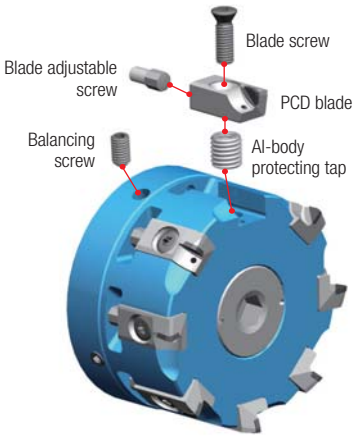
Available inserts **B7** Available arbors and bolt **E94**

High speed milling tool with PCD blade

Aero Mill Plus

- Improve tool life up to 20% with a coolant system that enables direct spray cooling to cutting blades
- Enable high feed milling by increasing the number of cutting blades by 20% through a simply structured coupling method for clamps
- Reduces set up time up to 40% by applying a spanner adjustment method
- Introduce an aluminum cutter body to provide a superior cutting performance during high speed millin

Assembly structure of cutter



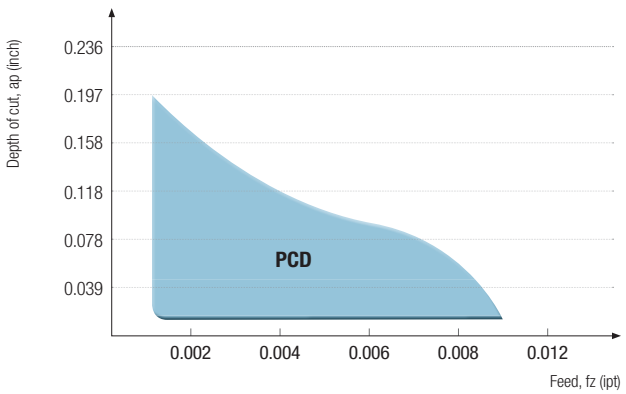
Features of cutter

- Prevent overload to the spindle bearings through weight reduction of the Aℓ alloy body and enable high-speed processing
- Provide PCD Blade-dedicated cutter design to offer stable tool life and increase of applied blades
- Improve the blade life by applying a coolant system that enables direct spray cooling to cutting blades
- Adopt a clamping method with simple structure without set screw
- Reduce weight and apply a coolant bolt that is exclusively used for Aero-Mill Plus that applies coolant to remove internal chip

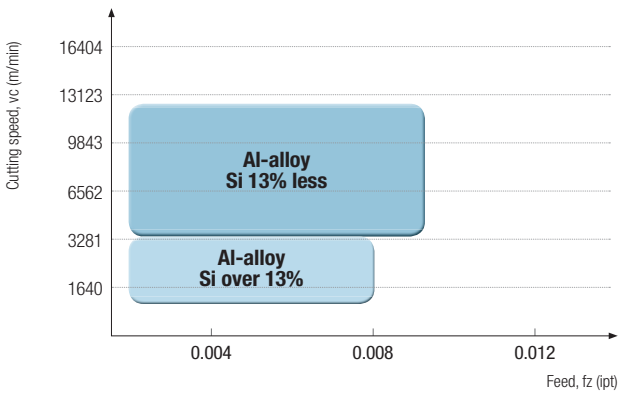
Code system

A	P	D	A	300	R	-	PB	12Z
Aero Mill	KAPR 90°	Relief angle	Full inch type	Diameter (Ø)	Hand (R/L)		Aero mill-plus blade type	Number of tooth

Application range



Recommended cutting speed



Max. RPM

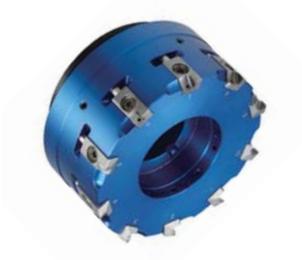
Diameter(inch)	Max. revolution(rpm)
Ø3	20,000
Ø4	18,000
Ø5	16,000
Ø6	13,000
Ø8	10,000
Ø10	8,000
Ø12	7,000

Coolant parts

Diameter (inch)	Type	Designation	Shape	Material	Note
Ø3	Coolant bolt	CB-AMP300-IN		Steel	Included
Ø4		CB-AMP400-IN			
Ø5		CB-AMP500-IN			
Ø6		CB-AMP600-IN			
Ø8	Coolant cover	CCV-AMP800-IN		Aluminum	Extra charge
Ø10		CCV-AMP1000-IN			
Ø12		CCV-AMP1200-IN			

APDA-PB

Blade



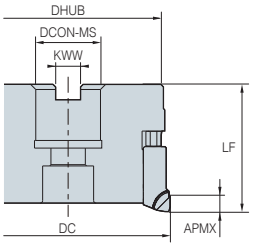


Fig. 1

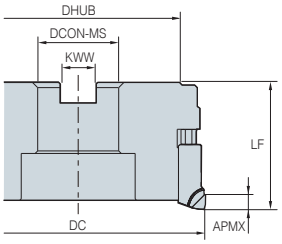


Fig. 2

KAPR 90°

- GAMP : 6°
- GAMF : -4°~1°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
APDA	300R-PB6Z	○		6	3	3	2.902	1	0.375	2	0.196	1.1	1
	300R-PB8Z	○		8	3	3	2.902	1	0.375	2	0.196	1.2	1
	400R-PB6Z	○		6	4	4	3.902	1.25	0.5	2	0.196	2.1	2
	400R-PB8Z	○		8	4	4	3.902	1.25	0.5	2	0.196	2.1	2
	500R-PB8Z	○		8	5	5	4.902	1.5	0.625	2.5	0.196	4.3	2
	500R-PB10Z	○		10	5	5	4.902	1.5	0.625	2.5	0.196	4.2	2
	600R-PB10Z	○		10	6	6	5.902	2	0.75	2.5	0.196	6.6	2
	600R-PB12Z	○		12	6	6	5.902	2	0.75	2.5	0.196	6.8	2

◆: US stock ○: Made to order

Available blades



BAMPR-XAF BAMPR-XAW BAMPR-XAWR

Designation		PCD DP150	Page
BAMPR	XAF	●	B7
	XAW	●	
	XAWR	●	

●: Korea stock ◆: US stock ○: Made to order

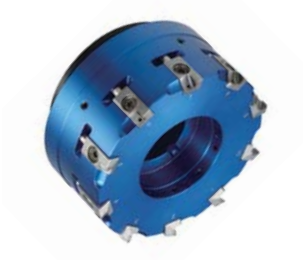
Parts

Specification	Blade screw	Blade adjustable screw	Al-body protecting tap	Balancing screw	Wrench for insert	Wrench for cartridge
Ø3.0~Ø6.0	ETKA0620	AZ0514-SPN6	UZD1010	KHE0610	SPN-6	TW25-100

Available inserts **B7** Available arbors and bolt **E94**

APDA-PB

Blade



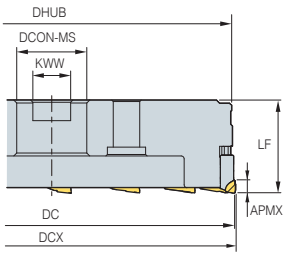


Fig. 1

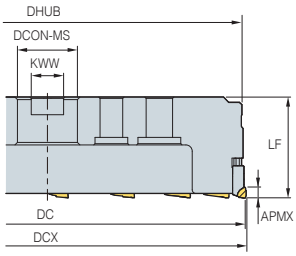


Fig. 2

KAPR 90°

- GAMP : -6°
- GAMF : -39°~-16°

(inch)

Designation		Stock R	Stock L	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
APDA	800R-PB12Z			12	8	8	7.902	2.5	1	2.5	0.196	9.9	1
	1000R-PB16Z	○		16	10	10	9.902	2.5	1	2.5	0.196	15.2	1
	1200R-PB18Z	○		18	12	12	11.902	2.5	1	2.5	0.196	22.1	2

◆: US stock ○: Made to order

Available blades


BAMPR-XAF


BAMPR-XAW


BAMPR-XAWR

Designation		PCD DP150	Page
BAMPR	XAF	●	B7
	XAW	●	
	XAWR	●	

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Blade screw	Blade adjustable screw	Al-body protecting tap	Balancing screw	Wrench for insert	Wrench for cartridge
Ø8.0~Ø12.0	ETKA0620	AZ0514-SPN6	UZD1010	KHE0610	SPN-6	TW25-100

Available inserts **B7** Available arbors and bolt **E94**

Good performance in small-medium size of operations

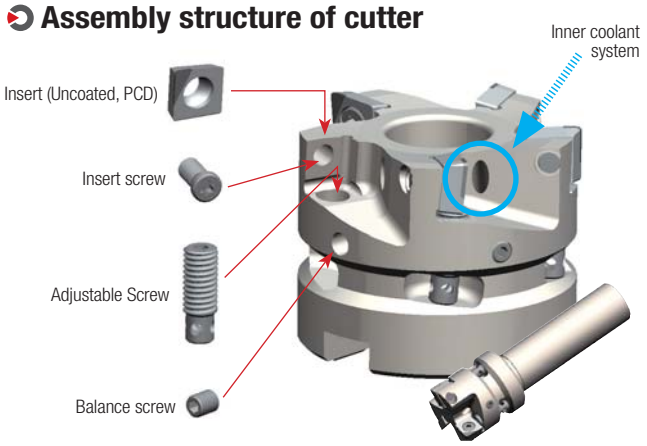
Aero Mill Mini

- Good performance in small-medium size of operations
- Good duration of the steel body
- Choice of Uncoated carbide/PCD grades can be applied to various kind of work material
- Balance level: G2.5

Features of cutter

- Simple and strong design of Screw-on clamping.
- Adjustable range: ± 0.004 inch Max
- Adjustable step: Min. 2 micro meter
- Wide chip pocket area for Roughing and Aluminum machining.
- Inner coolant system

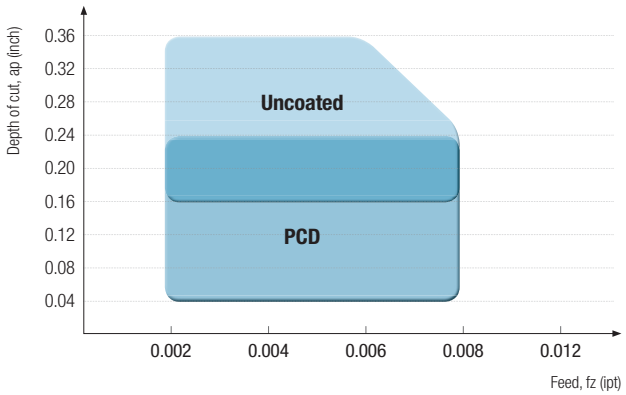
Assembly structure of cutter



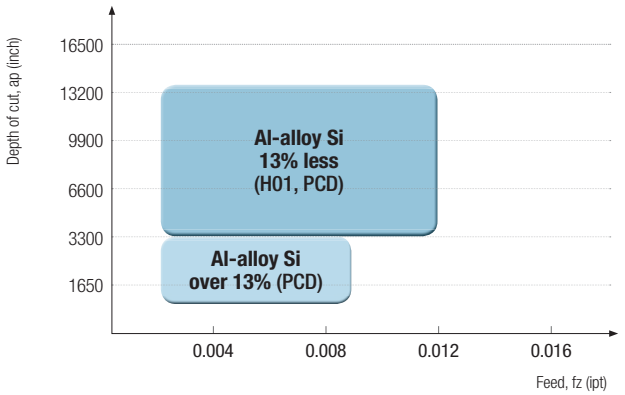
Code system

M	A	P	D	S	A	400	-	H	R	Z4
Mini	**Aero mill**	**Cutting edge angle**	**Insert clearance angle**	**Unmarked:** Cutter **S:** Shank	**A:** Inch	**Diameter (Ø)**		**H:** Coolant	**Hand (R/L)**	**Number of tooth**

Application range



Recommended cutting conditions

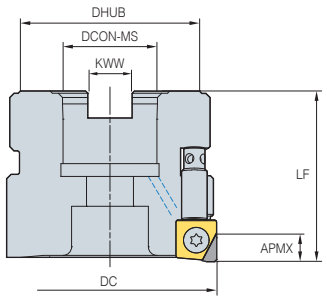


Max. RPM

Diameter(inch)	Max. RPM(rpm)
Ø1.25	26,000
Ø1.50	24,500
Ø2.00	22,000
Ø2.50	20,000

MAPDA000HR/L-Z0





KAPR 90°

• GAMP : 6°
• GAMF : -1°~12°

※ PCD ap: 0.236 inch

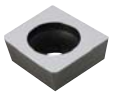
(inch)

	Designation	Stock R	Stock L	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
MAPDA	150HR/L-Z4	○		4	1.5	1.417	0.5	0.252	1.5	0.354	0.24
	200HR/L-Z5	○		5	2	1.772	0.75	0.321	1.75	0.354	0.35
	250HR/L-Z6	○		6	2.5	1.772	0.75	0.321	1.75	0.354	0.65

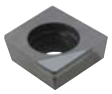
◆: US stock ○: Made to order

Available inserts

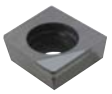
SNEW



SNEW-XAF



SNEW-NAF



Strengthened edge

	Designation	Uncoated H01	Uncoated G10	Uncoated ST30A	Uncoated ST20	PCD DP200	Page
SNEW	09T3ADFR	●					B24
	09T3ADTR-XAF					●	
	09T3ADTR-XAW					●	
	09T3ADTR-NAF					●	
	09T3ADTR-NAW					●	

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc (sfm)	cutting condition fz (ipt)	Grade
Aluminum	3300~13200 1650~8250	0.002~0.012 0.002~0.008	DP200 H01

Coolant bolt (Not included)

Designation	Applicable cutters	Available cutters(Ø)
CB0525	MAPD040HR/L-Z4	Ø1.5
CB1025	MAPD050HR/L-Z5 MAPD063HR/L-Z6	Ø2.0 Ø2.5

• For detailed information on the coolant bolt, please refer to our catalog

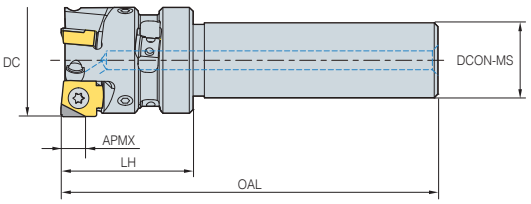
Parts

Specification	Insert screw	Adjust screw	Balance screw	Wrench for insert	Adjust wrench
Ø1.5~Ø2.5	FTKA0408	AHX0617F-NYLOK	KHD0405	TW15S	HW20L

Available inserts B24 Available arbors and bolt E96

MAPDSA000HR/L-Z0





KAPR 90°

- GAMP : 6°
- GAMF : -4°~1°

※ PCD ap: 0.236 inch

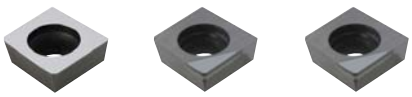
(inch)

Designation		Stock R	Stock L	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
MAPDSA	125HR/L-Z3	○		3	1.25	0.75	1.5	4	0.354	0.35
	150HR/L-Z4	○		4	1.5	0.75	1.5	4	0.354	0.42

◆: US stock ○: Made to order

Available inserts

SNEW SNEW-XAF SNEW-NAF



Strengthened edge

Designation		Uncoated H01	Uncoated G10	Uncoated ST30A	PCD DP200	Page
SNEW	09T3ADFR	●				B24
	09T3ADTR-XAF				●	
	09T3ADTR-XAW				●	
	09T3ADTR-NAF				●	
	09T3ADTR-NAW				●	

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	cutting condition vc (sfm)	cutting condition fz (ipt)	Grade
Aluminum	3300~13200 1650~8250	0.002~0.012 0.002~0.008	DP200 H01

Parts

Specification	Insert screw	Adjust screw	Balance screw	Wrench for insert	Adjust wrench
Ø1.25~Ø1.5	FTKA0408	AHX0617F-NYLOK	KHD0405	TW15S	HW20L

Available inserts B24

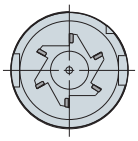
PCD Face Cutter

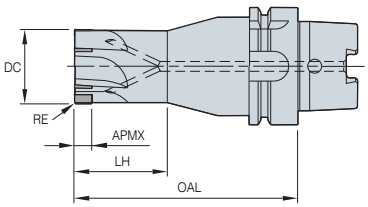
Code system

PDFA	6	2500	-	HSK63A
PCD Face cutter	Tooth	Diameter		Shank type

PCD Face Cutter









KAPR 90°

- GAMP : 6°
- GAMF : 5°~9°

(inch)

	Designation	Stock	CICT	DC	RE	APMX	LH	OAL
PDFA	41250-HSK50A		4	1.25	0.02	0.3	2	5
	41575-HSK50A		4	1.575	0.02	0.3	2	5
	41250-HSK63A		4	1.25	0.02	0.3	2	5
	41575-HSK63A		4	1.575	0.02	0.3	2	5
	42000-HSK63A		4	2	0.02	0.3	2	5
	62500-HSK63A		6	2.5	0.02	0.5	-	4
	62500-HSK100A		6	2.5	0.02	0.5	-	4

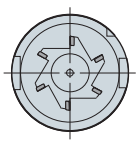
◆: US stock ○: Made to order

Recommended cutting conditions

Workpiece	vc (sfm)	fz (ipt)	ap (inch)
Al, Brass, Alloy	655~6550	0.001~0.004	0.002~0.157

Special PCD Order Sheet





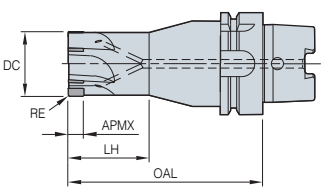


Fig. 1

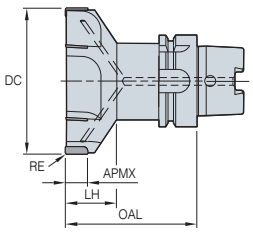


Fig. 2

Designation	Fig.	tooth	Dimension (inch)					
			DC	RE	APMX	LH	OAL	Shank spec.
PDFA								

Shoulder milling tool for high helix

Alpha Mill-X

- High helix cutting edge realizes high speed and high feed machining
  (15% higher speed than conventional tool's machining) and increases 20% higher productivity
- Highly precise cutting edge ensures high quality surface finish in milling

Code system

• Cutter

AMX	C	A	200	R	-	075	-	4	-	AD17

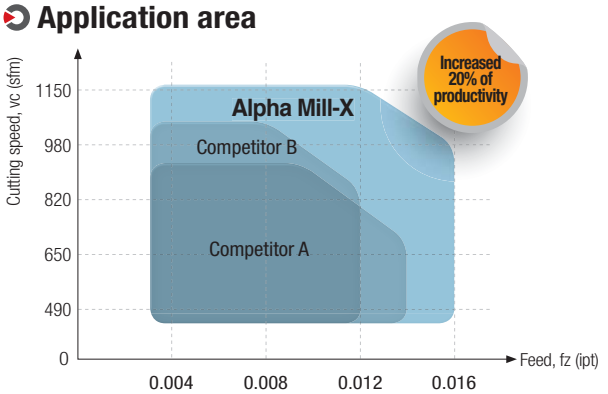
- **Alpha Mill-X**
- **Tool type** — C : Cutter
- **Arbor type** — A : Inch; M : Metric; NO code : Asia
- **Diameter** — 200 : Ø2.00 inch
- **Oil hole & Hand** — R : Oil hole, Right; NR : None, Right
- **Internal diameter** — 075 : 0.75 inch
- **No. of tooth** — 4 : 4 teeth
- **Available insert** — AD17 : ADKT17; AD12 : ADKT12; AD10 : ADKT10

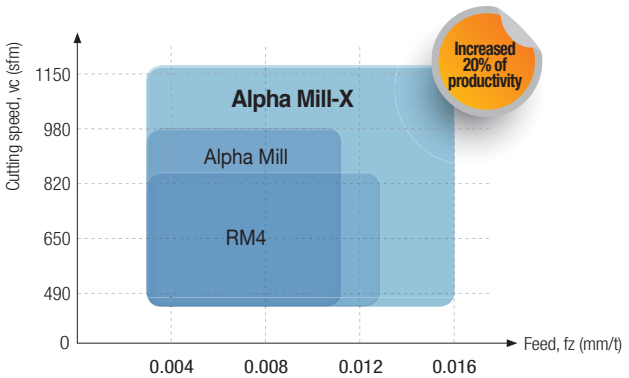
• Shank

AMX	S	A	125	R	-	3	C	125	-	800	-	AD17

- **Alpha Mill-X**
- **Tool type** — S : Shank
- **Arbor type** — A : Inch; M : Metric; NO code : Asia
- **Diameter** — 125 : Ø1.25 inch
- **Oil hole & Hand** — R : Oil hole, Right; NR : None, Right
- **No. of tooth** — 3 : 3 teeth
- **Shank type** — C : Cylinder; W : Weldon
- **Shank diameter** — 125 : Ø1.25 inch
- **Overall length** — 800 : 8.00 inch
- **Available insert** — AD17 : ADKT17; AD12 : ADKT12; AD10 : ADKT10

Application area





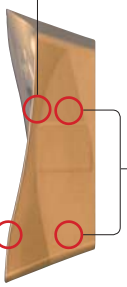
Features of insert

High rake angle chip breaker
- Applied high rake angle
- Improved chip control

Applied minor cutting edge with a wiper function
- Minor cutting edge design optimized for excellent surface finish



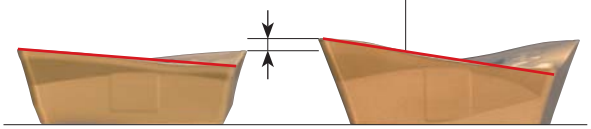
APMX
ADKT17: 0.650 inch
ADKT12: 0.453 inch
ADKT10: 0.374 inch



Proprietary relief surface shape
- High rigidity of insert

Flat clamping area
- Stable clamping in high speed and high feed machining

High rake cutting edge
- Better surface toughness
- Lower cutting load



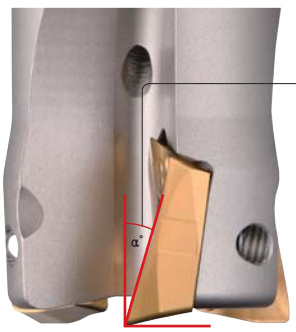
Existing Alpha Mill
(APMT1604PDSR-MM)

Alpha Mill-X
(ADKT170608PESR-MM)

- Applying cutting edge with high rake angle: decreased cutting load
- Thicker insert: high rigidity of insert

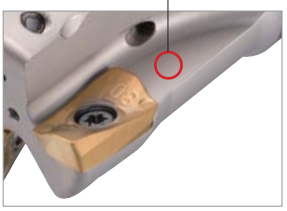
» Optimal for high speed and high feed machining

Features of cutter



High rake angle cutting edge
- Improved surface finish
- Decreased cutting load

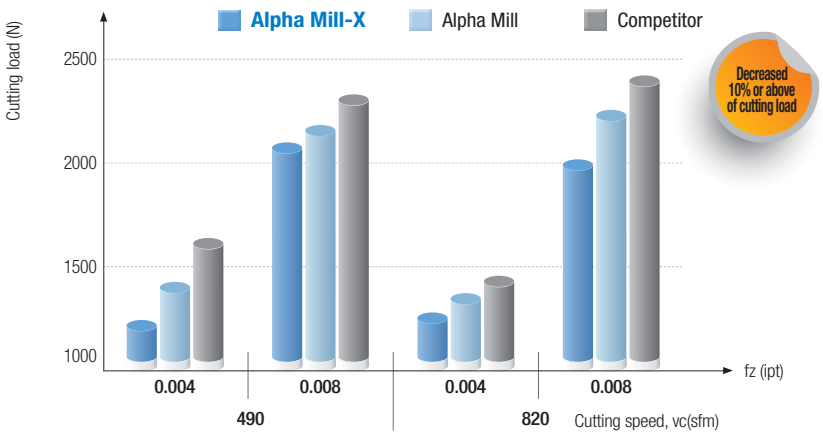




Wider chip pocket
- Maximized chip control
- Outstanding chip control in high speed and high feed machining

Perfect perpendicularity

Cutting load



Recommended cutting conditions

• In face machining and shouldering

Workpiece		Grade	Cutting speed vc (m/min)	Feed, fz (ipt)		
				ADKT17	ADKT12	ADKT10
P	Steel	PC5300	492 - 787	0.012 - 0.002	0.010 - 0.002	0.008 - 0.002
		PC5400	426 - 688			
		PC3700	426 - 688			
		NCM535	820 - 1148			
M	Stainless steel	PC5300	295 - 492	0.01 - 0.002	0.008 - 0.002	0.006 - 0.002
		PC5400	229 - 393			
		PC9540	164 - 492			
K	Cast iron	PC6510	393 - 820	0.014 - 0.003	0.012 - 0.003	0.010 - 0.003
		PC5300	393 - 656			
		NCM535	656 - 984			
S	HRSA	PC5300	131 - 229	0.008 - 0.002	0.006 - 0.002	0.004 - 0.002
		PC5400	98 - 164			

※ The above data refer to general cutting conditions and can be adjustable up to 1150 sfm and 0.016 ipt depending on user environment.

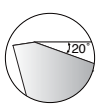
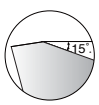
• In grooving, ramping and helical machining

Workpiece		Grade	Cutting speed vc (m/min)	Feed, fz (ipt)		
				ADKT17	ADKT12	ADKT10
P	Steel	PC5300	492 - 787	0.012 - 0.002	0.012 - 0.002	0.012 - 0.002
		PC5400	426 - 688			
		PC3700	426 - 688			
		NCM535	820 - 1148			
M	Stainless steel	PC5300	295 - 492	0.006 - 0.002	0.006 - 0.002	0.006 - 0.002
		PC5400	229 - 393			
		PC9540	164 - 492			
K	Cast iron	PC6510	393 - 820	0.008 - 0.003	0.008 - 0.003	0.008 - 0.003
		PC5300	393 - 656			
		NCM535	656 - 984			
S	HRSA	PC5300	131 - 229	0.006 - 0.002	0.006 - 0.002	0.004 - 0.002
		PC5400	98 - 164			

※ In deep grooving, set the ap under 0.197 inch and use coolant and air.

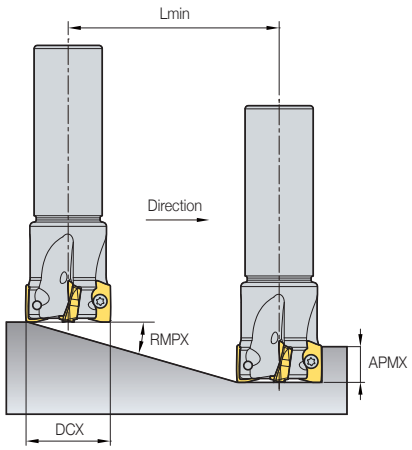
Recommended grades and chip breakers

(● : 1st Recommendation)

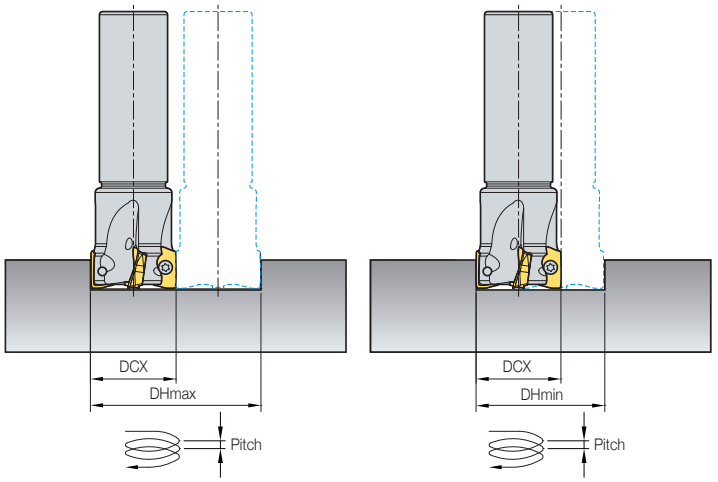
C/B	Cutting edge	P				M		K		N		S	
		Low carbon steel/ Mild steel		High carbon steel/ Alloy steel		Stainless steel		Cast iron		Non-ferrous metal		HRSA	
		C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
ML		-	● PC3700 ○ PC5300 ○ PC5400 ○ NCM535	-	● PC3700 ○ PC5300 ○ PC5400 ○ NCM535	●	● PC5300 ○ PC5400 ○ PC9540	-	● PC6100 ○ PC5300 ○ PC5400 ○ NCM535	-	-	●	● PC5300 ○ PC5400
MM		●	● PC3700 ○ PC5300 ○ PC5400 ○ NCM535	●	● PC3700 ○ PC5300 ○ PC5400 ○ NCM535	-	● PC5300 ○ PC5400 ○ PC9540	●	● PC6100 ○ PC5300 ○ PC5400 ○ NCM535	-	-	-	● PC5300 ○ PC5400

Ramping and helical cutting

Ramping



Helical cutting



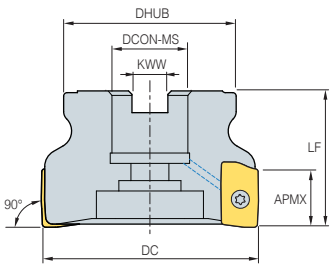
(inch)

Designation	DCX	APMX	Ramping		Blind hole helical cutting				Through hole helical cutting	
			RMPX	Lmin	DHmin	Max. pitch dmax	DHmax	Max. pitch dmax	DHmin	Max. pitch dmax
ADKT17	1.00	0.650	8.0	4.62	1.62	0.06	1.94	0.27	1.24	0.17
	1.25		3.7	10.05	2.12	0.08	2.44	0.16	1.74	0.11
	1.50		2.6	14.31	2.62	0.10	2.94	0.13	2.24	0.10
	2.00		1.9	19.58	3.62	0.14	3.94	0.13	3.24	0.11
	2.50		1.3	28.63	4.62	0.18	4.94	0.11	4.24	0.10
	3.00		1.1	33.83	5.62	0.22	5.94	0.11	5.24	0.10
	3.50		0.7	53.17	6.62	0.26	6.94	0.08	6.24	0.08
	4.00		0.5	74.44	7.62	0.30	7.94	0.07	7.24	0.06
ADKT12	0.75	0.472	7.0	3.85	1.24	0.05	1.44	0.18	0.98	0.12
	1.00		3.5	7.72	1.74	0.07	1.94	0.12	1.48	0.09
	1.25		2.5	10.82	2.24	0.09	2.44	0.11	1.98	0.09
	1.50		1.5	18.04	2.74	0.11	2.94	0.08	2.48	0.06
	2.00		1.2	22.55	3.74	0.15	3.94	0.08	3.48	0.07
	2.50		1.0	27.07	4.74	0.19	4.94	0.09	4.48	0.08
	3.00		0.7	38.67	5.74	0.23	5.94	0.07	5.48	0.07
ADKT10	0.63	0.374	4.5	4.75	1.09	0.04	1.22	0.10	0.94	0.07
	0.75		3.5	6.12	1.34	0.05	1.47	0.09	1.19	0.07
	1.00		2.2	9.74	1.84	0.07	1.97	0.08	1.69	0.06
	1.25		1.5	14.28	2.34	0.09	2.47	0.06	2.19	0.06
	1.50		1.2	17.86	2.84	0.11	2.97	0.06	2.69	0.06
	2.00		0.8	26.79	3.84	0.15	3.97	0.06	3.69	0.05
	2.50		0.6	35.71	4.84	0.19	4.97	0.05	4.69	0.05
	3.00		0.5	42.86	5.84	0.23	5.97	0.05	5.69	0.05

※ Please be sure to use cutting oil or air for ramping and helical machining
Lmin = ap/tan (RPMX)

AMXCA-AD10/12





KAPR 90°

- GAMP : 8°
- GAMF : -10°~-3°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMXCA	150R-050-5-AD10	○	5	1.500	1.378	0.500	0.252	1.500	0.37	0.397
	150R-050-6-AD10	○	6	1.500	1.378	0.500	0.252	1.500	0.37	0.397
	200R-075-6-AD10	○	6	2.000	1.772	0.750	0.315	1.750	0.37	0.507
	200R-075-7-AD10	○	7	2.000	1.772	0.750	0.315	1.750	0.37	0.441
	250R-100-7-AD10	○	7	2.500	2.205	1.000	0.374	1.750	0.37	0.970
	250R-100-8-AD10	○	8	2.500	2.205	1.000	0.374	1.750	0.37	1.080
	300R-100-8-AD10	○	8	3.000	2.205	1.000	0.374	2.000	0.37	1.940
	300R-100-9-AD10	○	9	3.000	2.205	1.000	0.374	2.000	0.37	1.984
AMXCA	150R-050-4-AD12	○	4	1.500	1.378	0.500	0.252	1.500	0.45	0.397
	150R-050-5-AD12	◆	5	1.500	1.378	0.500	0.252	1.500	0.45	0.353
	200R-075-5-AD12	◆	5	2.000	1.772	0.750	0.315	1.750	0.45	0.507
	200R-075-6-AD12	○	6	2.000	1.772	0.750	0.315	1.750	0.45	0.441
	250R-100-6-AD12	○	6	2.500	2.205	1.000	0.374	1.750	0.45	0.970
	250R-100-7-AD12	◆	7	2.500	2.205	1.000	0.374	1.750	0.45	1.080
	300R-100-7-AD12	◆	7	3.000	2.205	1.000	0.374	2.000	0.45	1.940
	300R-100-8-AD12	○	8	3.000	2.205	1.000	0.374	2.000	0.45	1.984

◆: US stock ○: Made to order

Available inserts

ADHT-MA



ADKT-ML



ADKT-MM



Type		Designation	Cermet	Coated											Uncoated			Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	H05	
ADHT		10T304PEFR-MA																	◆	
		120408PEFR-MA																	◆	
		170608PEFR-MA																	◆	
10 type	ADKT	10T304PEER-ML					●				◆	●		●	◆	●				B4
		10T304PESR-MM					●				◆	◆		●	◆	●				
		10T308PESR-MM													●	●				
		10T312PESR-MM														●				
12 type	ADKT	120408PESR-ML					●				◆	●		◆	◆	◆				
		120408PESR-MM					●				◆	◆		◆	◆	●				
		120412PESR-MM					○				◆	●		○	◆	◆				
		120416PESR-MM					○				◆	●		○	◆	●				

●: Korea stock ◆: US stock ○: Made to order

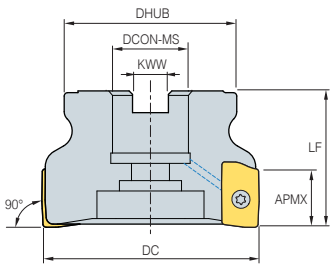
Parts

Specification	Screw	Wrench
Ø1.500~Ø3.000(10 type)	FTKA02555S	TW08S
Ø1.500~Ø3.000(12 type)	FTNA0306	TW08S

Available inserts B4 Available arbors and bolt E96

AMXCA-AD17







KAPR 90°

- GAMP : 8°
- GAMF : -10°~-3°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMXCA	150R-050-3-AD17	◆	3	1.500	1.378	0.500	0.252	1.500	0.649	0.419
	150R-050-4-AD17	◆	4	1.500	1.378	0.500	0.252	1.500	0.649	0.375
	200R-075-4-AD17	◆	4	2.000	1.772	0.750	0.315	1.750	0.649	0.507
	200R-075-5-AD17	◆	5	2.000	1.772	0.750	0.315	1.750	0.649	0.441
	250R-100-5-AD17	◆	5	2.500	2.205	1.000	0.374	1.750	0.649	0.970
	250R-100-6-AD17	◆	6	2.500	2.205	1.000	0.374	1.750	0.649	1.080
	300R-100-6-AD17	◆	6	3.000	2.205	1.000	0.374	2.000	0.649	1.940
	300R-100-7-AD17	◆	7	3.000	2.205	1.000	0.374	2.000	0.649	1.984
	400R-125-8-AD17	◆	8	4.000	3.937	1.250	0.500	2.000	0.649	3.879
	400R-125-10-AD17	◆	10	4.000	3.937	1.250	0.500	2.000	0.649	3.703
	500R-150-8-AD17	◆	8	5.000	4.921	1.500	0.626	2.500	0.649	6.370
	500R-150-10-AD17	○	10	5.000	4.921	1.500	0.626	2.500	0.649	6.237

◆: US stock ○: Made to order

Available inserts

ADHT-MA ADKT-ML ADKT-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	H05	
ADHT	10T304PEFR-MA																	◆	B4
	120408PEFR-MA																	◆	
	170608PEFR-MA																	◆	
ADKT	170608PESR-ML			○		◆				◆	●	○	◆	◆	◆				
	170604PESR-MM					○				◆			○	◆	○				
	170608PESR-MM			○		◆				◆	●		◆	◆	◆				
	170616PESR-MM									●				◆	◆				
	170620PESR-MM									●				◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.500~Ø5.000	FTKA0408	TW15S

Available inserts **B4** Available arbors and bolt **E96**

AMXSA-AD10/12



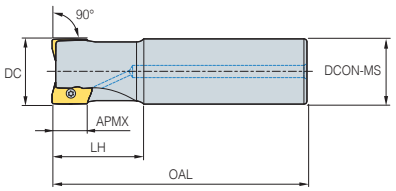


Fig. 1

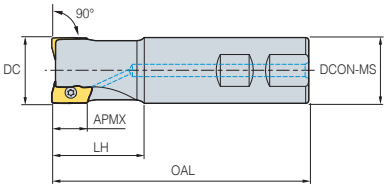


Fig. 2








KAPR 90°

- GAMP : 8°
- GAMF : -10°~-3°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
AMXSA	062R-2W062-400-AD10	○	2	0.625	0.625	0.984	4.00	0.37	0.220	2
	062R-2C062-800-AD10	○	2	0.625	0.625	0.984	8.00	0.37	0.397	1
	075R-3W075-400-AD10	○	3	0.750	0.750	1.378	4.00	0.37	0.485	2
	075R-3C075-800-AD10	○	3	0.750	0.750	1.378	8.00	0.37	0.992	1
	100R-4W100-500-AD10	○	4	1.000	1.000	1.575	5.00	0.37	0.793	2
	100R-4C100-800-AD10	○	4	1.000	1.000	1.575	8.00	0.37	1.124	1
	125R-4W125-500-AD10	○	4	1.250	1.250	1.771	5.00	0.37	1.366	2
	125R-4C125-800-AD10	○	4	1.250	1.250	1.771	8.00	0.37	2.028	1
	150R-5W125-500-AD10	○	5	1.500	1.250	1.968	5.00	0.37	2.072	2
	150R-5C125-800-AD10	○	5	1.500	1.250	1.968	8.00	0.37	2.314	1
AMXSA	075R-2W075-400-AD12	◆	2	0.750	0.750	1.378	4.00	0.45	0.551	
	075R-2C075-800-AD12	◆	2	0.750	0.750	1.378	8.00	0.45	1.080	1
	100R-3W100-500-AD12	◆	3	1.000	1.000	1.575	5.00	0.45	0.882	2
	100R-3C100-800-AD12	◆	3	1.000	1.000	1.575	8.00	0.45	1.300	1
	125R-4W125-500-AD12	◆	4	1.250	1.250	1.771	5.00	0.45	1.543	2
	125R-4C125-800-AD12	◆	4	1.250	1.250	1.771	8.00	0.45	2.204	1
	150R-4W125-500-AD12	◆	4	1.500	1.250	1.968	5.00	0.45	2.314	2
	150R-4C125-800-AD12	◆	4	1.500	1.250	1.968	8.00	0.45	2.645	1

◆: US stock ○: Made to order

Available inserts

ADHT-MA



ADKT-ML



ADKT-MM



Type		Designation	Cermet	Coated												Uncoated			Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	H05	
ADHT		10T304PEFR-MA																	◆	B4
		120408PEFR-MA																	◆	
		170608PEFR-MA																	◆	
10 type	ADKT	10T304PEER-ML					●				◆	●		●	◆	●				
		10T304PESR-MM					●				◆	◆		●	◆	●				
		10T308PESR-MM													●	●				
		10T312PESR-MM														●				
12 type	ADKT	120408PESR-ML					●				◆	●		◆	◆	◆				
		120408PESR-MM					●				◆	◆		◆	◆	●				
		120412PESR-MM					○				◆	●		○	◆	◆				
		120416PESR-MM					○				◆	●		○	◆	●				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.625~Ø1.500(10 type)	FTKA02555S	TW08S
Ø0.750~Ø1.500(12 type)	FTNA0306	TW08S

Available inserts B4

AMXSA-AD17



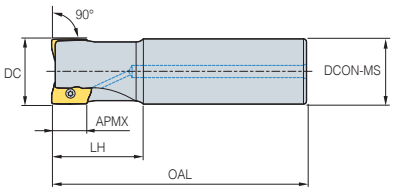


Fig. 1

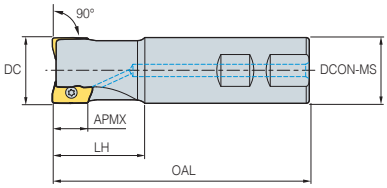


Fig. 2








KAPR 90°

- GAMP : 8°
- GAMF : -10°~-3°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
AMXSA	100R-2W100-500-AD17	◆	2	1.000	1.000	1.575	5.00	0.649	0.793	2
	100R-2C100-800-AD17	◆	2	1.000	1.000	1.575	8.00	0.649	1.499	1
	125R-3W125-500-AD17	◆	3	1.250	1.250	1.771	5.00	0.649	1.366	2
	125R-3C125-800-AD17	◆	3	1.250	1.250	1.771	8.00	0.649	2.314	1
	150R-3W125-500-AD17	◆	3	1.500	1.250	1.968	5.00	0.649	1.653	2
	150R-3C125-800-AD17	◆	3	1.500	1.250	1.968	8.00	0.649	2.579	1
	150R-4W125-500-AD17	◆	4	1.500	1.250	1.968	5.00	0.649	1.631	2
	150R-4C125-800-AD17	◆	4	1.500	1.250	1.968	8.00	0.649	2.645	1

◆: US stock ○: Made to order

Available inserts

ADHT-MA



ADKT-ML



ADKT-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	H05	
ADHT	10T304PEFR-MA																	◆	B4
	120408PEFR-MA																	◆	
	170608PEFR-MA																	◆	
ADKT	170608PESR-ML			○		◆				◆	●	○	◆	◆	◆				
	170604PESR-MM					○				◆			○	◆	○				
	170608PESR-MM			○		◆				◆	●		◆	◆	◆				
	170616PESR-MM									●				◆	◆				
	170620PESR-MM									●				◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.000~Ø1.500	FTKA0408	TW15S

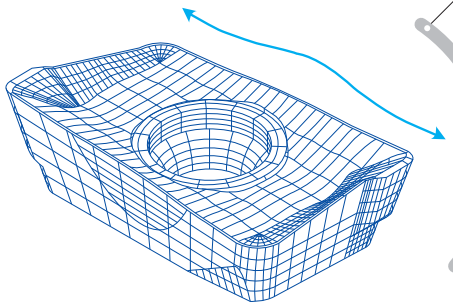
Available inserts **B4**

Various applications are available with multi-functional cutters

Alpha Mill

- Innovative curve cutting-edge and chip-breaker design ensures ideal 90-degree cutting, lower cutting resistance, and improved insert life.
- Various applications are available with multi-functional cutters. (Facing, Slotting, Square shoulder milling, etc.)
- Excellent performance ensured at large depth of cut operations due to strong cutting-edge and low cutting resistance.

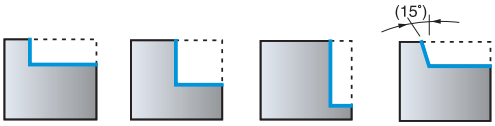
Features of insert



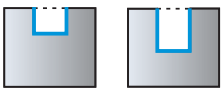
- Long tool life at high speed, high feed and deeper cutting by low cutting resistance and strong cutting-edge
- Distinguished features of Alpha-Curve reduce cutting resistance and improve cutting-edge strength and wear resistance
- Low cutting resistance is realized by KORLOY unique design-the alpha curve cutting-edge and optimal convex and concave design
- Highly efficient machining is available by the ideal application of the grade to material

Application example

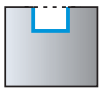
Shouldering



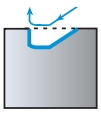
Slotting



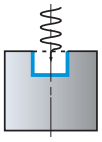
Drilling



Ramping



Helical cutting





Alpha Mill Nick

- New nick cutting edge reduces cutting load
- High productivity
- APMT standard holders are compatible with Alpha Mill nick that is reducing stock management cost.

Features

Lower cutting load due to the overlapping system



Nick types

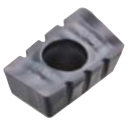
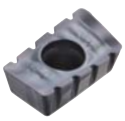


Normal types



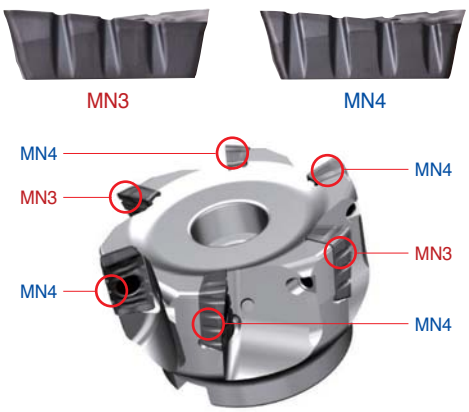
※ Nick types require both chip breaker types for application.

※ Can be used with the existing Alpha Mill holders. Use multi-edges for maximum results. (cutters with even-numbered teeth)

Type	Nick type		General type
Required No. of teeth	20		20
For AMCM3080M (4 Flute x 5 teeth)	 x 10 APMT16-**MN3**	 x 10 APMT16-**MN4**	 x 20 APMT16-**MM, MF, ML, MA**

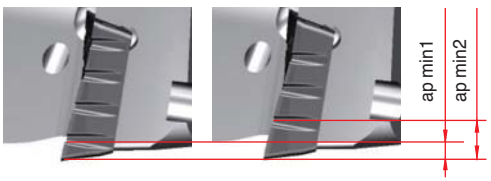
How to clamp

- Alternate the two types of chip breakers when clamping an insert.



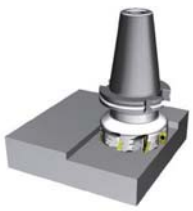
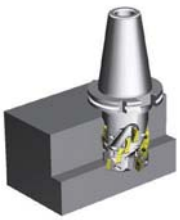
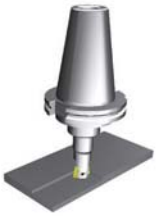
Min. depth of cut

- The depth of cut must be greater than ap min1 for chip breaking.

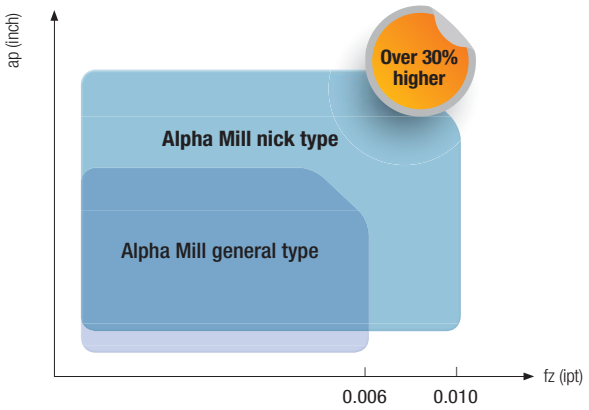


Type	ap min1	ap min2
APMT11(2000 type)	0.063 inch	0.161 inch
APMT16(3000 type)	0.087 inch	0.197 inch
APMT18(4000 type)	0.091 inch	0.212 inch

Application examples

Deep cutting	Long overhang	Unstable clamping
		

Application area



» 30% or higher cutting conditions available compared to normal types

Recommended cutting conditions

ISO	Grade	APMT 2000 type			APMT 3000 type			APMT 4000 type		
		vc (sfm)	fz (ipt)	ap (inch)	vc (sfm)	fz (ipt)	ap (inch)	vc (sfm)	fz (ipt)	ap (inch)
P	PC3700	590 ~ 984	0.002 ~ 0.006	0.433	525 ~ 886	0.002 ~ 0.007	0.630	525 ~ 886	0.002 ~ 0.007	0.670
P	PC5300	492 ~ 820	0.002 ~ 0.006		492~ 787	0.002 ~ 0.007		492 ~ 787	0.002 ~ 0.007	
M	PC5300	295 ~ 558	0.002 ~ 0.006		295 ~492	0.002 ~ 0.007		295 ~ 492	0.002 ~ 0.007	
K	PC5300	394 ~ 787	0.004 ~ 0.008		394 ~ 656	0.004 ~ 0.009		394 ~ 656	0.004 ~ 0.009	

※ Above cutting conditions can be applied up to cutting speed of 984 sfm and feed per tooth of 0.016 ipt.

Features of chip breakers

Chip breakers Insert		Cutting-edge	Use	Features
MA			Al	Optimal cutting-edge and buffed surface for aluminum workpieces ensure high performance in machining
ML			Hard-to-cut material	breaker with low cutting load is optimal for machining hard-to-cut materials
MF			Light cutting	Chip breaker with low cutting load and harder cutting-edge than ML's are optimal for light cutting
MM			General cutting	Optimal for milling in general ranges
MN			Roughing (Nick)	Design for easy chip cutting ensures high machinability in toughing

Product constitution

(inch)

Item description	Type	Nose R	MA	ML
APMT	1000 type	0.016	APMT0602PDFR-MA	-
		0.031	APMT060208PDFR-MA	-
	1500 type	0.016	APMT0903PDFR-MA	APMT0903PDER-ML
		0.031	APMT090308PDFR-MA	APMT090308PDER-ML
	2000 type	0.02	APMT11T3PDFR-MA	APMT11T3PDER-ML
		0.031	APMT11T308PDFR-MA	APMT11T308PDER-ML
	3000 type	0.016	APMT160404PDFR-MA	APMT160404PDER-ML
		0.031	APMT1604PDFR-MA	APMT1604PDER-ML
	4000 type	0.016	APMT180604PDFR-MA	APMT180604PDER-ML
		0.031	APMT1806PDFR-MA	APMT1806PDER-ML
		0.047	APMT180612PDFR-MA	APMT180612PDER-ML
		0.063	APMT180616PDFR-MA	APMT180616PDER-ML
		0.079	APMT180620PDFR-MA	APMT180620PDER-ML
		0.094	APMT180624PDFR-MA	APMT180624PDER-ML
		0.118	APMT180630R-MA	APMT180630R-ML

※ The inserts can switch to the APMT type holders.

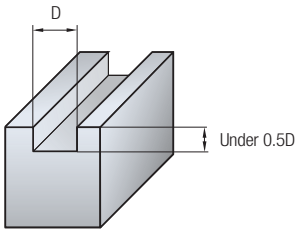
Recommended grades and chip breakers by workpiece

(● : 1st Recommendation)

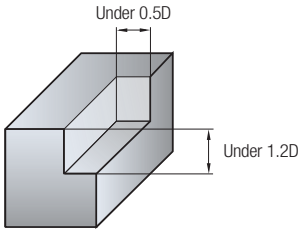
Chip breaker	Cutting edge	Recommended C/B and grade as per workpiece											
		P				M		K		N		S	
		Low carbon steel/Mild steel		High carbon steel/Mild steel		STS		Cast iron		Aluminum alloy		Ti/Inconel	
		C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
MA		-	-	-	-	-	-	-	-	●	● H01	-	-
ML		-	-	-	-	●	● PC5300 ○ PC5400 ○ PC9530	-	-	-	-	●	● PC5300 ○ PC5400
MF		●	● PC3700 ○ PC5300 ○ PC5400 ○ NCM325 ○ NCM335	-	○ PC3700 ○ NCM325 ○ NCM335	-	● PC5300 ○ PC5400 ○ PC9530	-	● PC6100 ○ PC5300 ○ PC5400	-	-	-	● PC5300 ○ PC5400
MM		-	● PC3700 ○ PC5300 ○ PC5400 ○ NCM325 ○ NCM335	●	● PC3700 ○ PC5300 ○ PC5400 ○ NCM325 ○ NCM335	-	● PC5300 ○ PC5400 ○ PC9530	●	● PC6100 ○ PC5300 ○ PC5400	-	-	-	● PC5300 ○ PC5400
MN		-	● PC3700 ○ PC5300 ○ PC5400	-	-	-	● PC5300 ○ PC5400 ○ PC9530	-	● PC6100 ○ PC5300 ○ PC5400	-	-	-	● PC5300 ○ PC5400

Recommended depth of cut

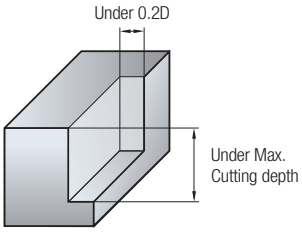
1. Slotting



2. Shouldering



3. Shouldering



Recommended cutting condition (for multi-edge type)

(inch)

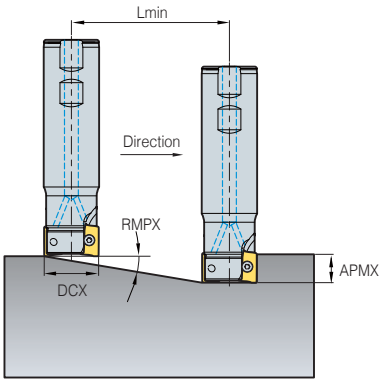
Workpiece	Grade	Fig.	Tool dia. Ø0.43, Ø0.625 vc (sfm)	Ø0.43, Ø0.625 fz (ipt)	Ø0.75, 1.0 vc (sfm)	Ø0.75, 1.0 fz (ipt)	Ø1.25, 1.5 vc (sfm)	Ø1.25, 1.5 fz (ipt)	Ø2.0, 2.5 vc (sfm)	Ø2.0, 2.5 fz (ipt)	Ø3.0, 4.0 vc (sfm)	Ø3.0, 4.0 fz (ipt)
Mild steel, Low carbon steel	NCM535 NCM325 PC5400 PC5300 PC3700	①	160~260	0.003~0.002	260~330	0.003~0.002	330~390	0.003~0.002	330~390	0.003~0.002	330~390	0.003~0.002
		②	210~295	0.004~0.003	330~390	0.004~0.003	390~460	0.004~0.003	390~460	0.004~0.003	390~460	0.004~0.003
		③	210~310	0.006~0.004	330~390	0.006~0.004	390~460	0.006~0.004	390~460	0.006~0.004	430~490	0.006~0.004
High carbon steel, Alloy steel	NCM535 NCM325 PC5300 PC3700	①	150~200	0.002	200~260	0.002	260~330	0.002	260~330	0.002	260~330	0.002
		②	160~260	0.003~0.002	260~330	0.003~0.002	330~390	0.004~0.003	330~390	0.004~0.003	330~390	0.004~0.003
		③	160~260	0.006~0.004	260~330	0.006~0.004	360~430	0.006~0.004	330~430	0.006~0.004	360~430	0.006~0.004
Alloy tool steel	PC5300 PC3700 PC2510 PC2505	①	130~180	0.002	160~230	0.002	230~300	0.002	230~300	0.002	230~300	0.002
		②	150~200	0.003~0.002	200~260	0.003~0.002	300~390	0.003~0.002	330~390	0.003~0.002	330~390	0.003~0.002
		③	160~250	0.007~0.005	300~360	0.007~0.005	330~430	0.006~0.004	330~390	0.006~0.004	360~430	0.006~0.004
Stainless steel	PC5300 PC9530	①	115~165	0.002	160~230	0.002	230~300	0.002	230~300	0.002	230~300	0.002
		②	150~200	0.003~0.002	200~260	0.003~0.002	300~390	0.003~0.002	330~390	0.003~0.002	330~390	0.003~0.002
		③	160~250	0.006~0.004	300~360	0.006~0.004	330~430	0.006~0.004	360~430	0.006~0.004	360~430	0.006~0.004
Cast iron	PC6510 PC5300	①	160~230	0.005~0.004	230~300	0.005~0.004	230~300	0.005~0.004	300~390	0.005~0.004	300~390	0.005~0.004
		②	160~260	0.005	260~330	0.005	300~390	0.005	330~460	0.005	330~460	0.005
		③	160~260	0.008~0.006	260~330	0.008~0.006	330~430	0.008~0.006	390~490	0.008~0.006	390~490	0.008~0.006
Aluminum alloy	H01	①	520~1970	0.008~0.004	660~2,620	0.008~0.004	980~2,950	0.008~0.004	1,310~3,280	0.008~0.004	1,310~3,280	0.008~0.004
		②	650~2,130	0.012~0.006	820~2,950	0.012~0.006	980~3,120	0.012~0.006	1,310~3,280	0.016~0.004	1,310~3,280	0.016~0.004
		③	650~2,130	0.012~0.006	820~2,950	0.012~0.006	980~3,120	0.012~0.006	1,310~3,280	0.016~0.004	1,310~3,280	0.016~0.004
Hardened steel	PC5300 PC2510 PC2505	①	115~160	0.001	160~230	0.001	200~300	0.001	200~300	0.001	200~300	0.001
		②	150~200	0.003~0.002	200~260	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002
		③	160~260	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002

Recommended cutting condition (for single-edge type)

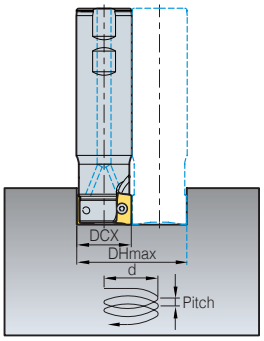
Workpiece	Grade	Fig.	Tool dia. Ø0.43, Ø0.625 vc (sfm)	Ø0.43, Ø0.625 fz (ipt)	Ø0.75, 1.0 vc (sfm)	Ø0.75, 1.0 fz (ipt)	Ø1.25, 1.5 vc (sfm)	Ø1.25, 1.5 fz (ipt)	Ø2.0, 2.5 vc (sfm)	Ø2.0, 2.5 fz (ipt)	Ø3.0, 4.0 vc (sfm)	Ø3.0, 4.0 fz (ipt)
Mild steel, low carbon steel	NCM535 NCM325 PC5400 PC5300 PC3700	①	150~200	0.003~0.002	200~260	0.003~0.002	260~390	0.003~0.002	390~660	0.003~0.002	490~660	0.003~0.002
		②	200~295	0.004~0.003	260~390	0.004~0.003	390~590	0.004~0.003	590~820	0.004~0.003	660~820	0.004~0.003
		③	200~295	0.006~0.004	260~390	0.006~0.004	390~590	0.006~0.004	590~820	0.006~0.004	660~820	0.006~0.004
High carbon steel, alloy steel	NCM535 NCM325 PC5300 PC3700	①	130~200	0.002	160~260	0.002	260~360	0.002	330~490	0.002	330~490	0.002
		②	160~260	0.003~0.002	260~330	0.003~0.002	360~490	0.004~0.002	490~660	0.004~0.002	490~660	0.004~0.002
		③	160~260	0.006~0.004	260~330	0.006~0.004	390~490	0.006~0.004	590~660	0.006~0.004	590~660	0.006~0.004
Alloy tool steel	PC5300 PC3700 PC2510 PC2505	①	115~160	0.002	160~230	0.002	260~330	0.002	330~430	0.002	330~430	0.002
		②	150~230	0.003~0.002	230~330	0.003~0.002	330~430	0.004~0.002	430~590	0.004~0.002	430~590	0.004~0.002
		③	150~230	0.006~0.004	230~330	0.006~0.004	330~490	0.006~0.004	430~590	0.006~0.004	430~590	0.006~0.004
Stainless steel	PC5300 PC9530	①	115~160	0.002	160~230	0.002	260~330	0.002	330~430	0.002	330~430	0.002
		②	150~230	0.003~0.002	230~330	0.003~0.002	330~430	0.004~0.002	430~590	0.004~0.002	430~590	0.004~0.002
		③	150~230	0.006~0.004	230~330	0.006~0.004	330~490	0.006~0.004	430~590	0.006~0.004	430~590	0.006~0.004
Cast iron	PC6510 PC5300	①	160~260	0.005~0.003	260~330	0.005~0.003	260~330	0.006	390~490	0.006	390~490	0.006
		②	210~295	0.006~0.005	330~390	0.006~0.005	330~430	0.007~0.006	490~660	0.007~0.006	490~660	0.007~0.006
		③	210~295	0.008~0.006	330~390	0.008~0.006	330~430	0.008~0.006	490~660	0.008~0.006	490~660	0.008~0.006
Aluminum alloy	H01	①	650~1970	0.008~0.006	820~2,620	0.008~0.006	980~2,950	0.008~0.006	1,310~3,280	0.008~0.004	1,310~3,280	0.008~0.004
		②	650~2130	0.010~0.008	820~2,950	0.010~0.008	1,150~3,120	0.010~0.008	1,310~3,280	0.012~0.008	1,310~3,280	0.012~0.008
		③	650~2130	0.012~0.010	820~2,950	0.012~0.010	1,150~3,120	0.012~0.010	1,310~3,280	0.016~0.012	1,310~3,280	0.016~0.012
Hardened steel	PC5300 PC2510 PC2505	①	115~160	0.003	160~230	0.001	200~300	0.001	200~300	0.001	200~300	0.001
		②	150~210	0.003~0.002	200~260	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002
		③	160~260	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002	260~330	0.003~0.002

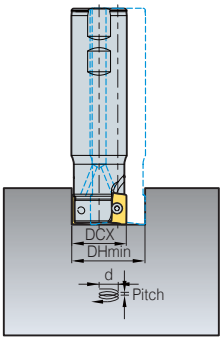
Ramping and helical cutting

Ramping



Helical cutting





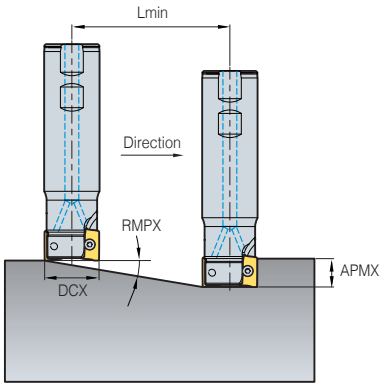
(inch)

Designation		DCX	ap	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
				RMPX	Lmin	DHmin	Max. pitch dmax	DHmax	Max. pitch dmax	DHmax	Max. pitch dmax
AMSA	1043HS	0.438	0.220	5.50	2.045	0.828	0.080	0.781	0.075	0.599	0.058
	1050HS	0.500		4.52	2.492	0.953	0.075	0.906	0.072	0.724	0.057
	1056HS	0.563		3.83	2.938	1.078	0.072	1.031	0.069	0.849	0.057
	1062HS	0.625		3.33	3.384	1.203	0.070	1.156	0.067	0.974	0.057
	1068HS	0.688		2.94	3.831	1.328	0.068	1.281	0.066	1.099	0.056
	1075HS	0.750		2.64	4.277	1.453	0.067	1.406	0.065	1.224	0.056
	1081HS	0.813		2.39	4.724	1.578	0.066	1.531	0.064	1.349	0.056
	1087HS	0.875		2.18	5.170	1.703	0.065	1.656	0.063	1.474	0.056
	1100HS	1.000		1.86	6.063	1.953	0.063	1.906	0.062	1.724	0.056
	1106HS	1.063		1.73	6.509	2.078	0.063	2.031	0.061	1.849	0.056
	1125HS	1.250		1.44	7.849	2.453	0.062	2.406	0.060	2.224	0.056
	1131HS	1.313		1.36	8.295	2.578	0.061	2.531	0.060	2.349	0.056
AMCA	1150HS	1.500	0.220	1.17	9.634	2.953	0.060	2.906	0.059	2.724	0.056
	1200HS	2.000		0.85	13.206	3.953	0.059	3.906	0.058	3.724	0.056
	1250HS	2.500		0.67	16.777	4.953	0.058	4.906	0.058	4.724	0.055
AMSA	15050HS	0.500	0.354	5.93	3.410	0.953	0.099	0.898	0.093	0.646	0.067
	15056HS	0.563		6.05	3.342	1.078	0.114	1.023	0.108	0.771	0.082
	15062HS	0.625		5.10	3.967	1.203	0.107	1.148	0.103	0.896	0.080
	15068HS	0.688		4.41	4.592	1.328	0.102	1.273	0.098	1.021	0.079
	15075HS	0.750		3.89	5.217	1.453	0.099	1.398	0.095	1.146	0.078
	15081HS	0.813		3.47	5.842	1.578	0.096	1.523	0.092	1.271	0.077
	15087HS	0.875		3.14	6.467	1.703	0.093	1.648	0.090	1.396	0.076
	15093HS	0.938		2.86	7.092	1.828	0.091	1.773	0.089	1.521	0.076
	15100HS	1.000		2.63	7.717	1.953	0.090	1.898	0.087	1.646	0.076
	15112HS	1.125		2.26	8.967	2.203	0.087	2.148	0.085	1.896	0.075
	15118HS	1.188		2.12	9.592	2.328	0.086	2.273	0.084	2.021	0.075
	15125HS	1.250		1.99	10.217	2.453	0.085	2.398	0.083	2.146	0.074
	15137HS	1.375		1.77	11.467	2.703	0.084	2.648	0.082	2.396	0.074
AMCA	15150HS	1.500	0.354	1.60	12.717	2.953	0.082	2.898	0.081	2.646	0.074
	15200HS	2.000		1.15	17.717	3.953	0.079	3.898	0.078	3.646	0.073
	15250HS	2.500		0.89	22.717	4.953	0.077	4.898	0.076	4.646	0.072
	15300HS	3.000		0.73	27.717	5.953	0.076	5.898	0.075	5.646	0.072
	15400HS	4.000		0.54	37.717	7.953	0.075	7.898	0.074	7.646	0.072

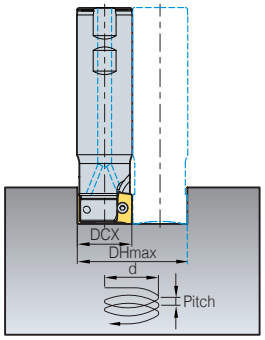
$$Lmin = \frac{ap}{\tan(RMPX)} \text{ (inch)}$$

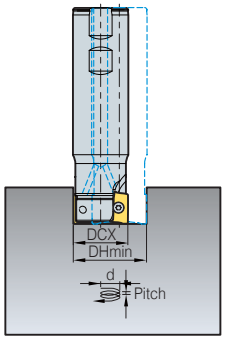
Ramping and helical cutting

Ramping



Helical cutting



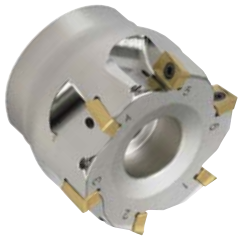


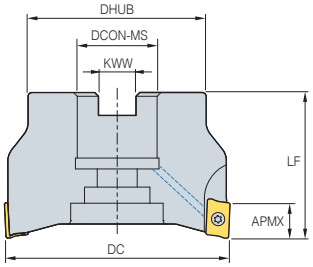
(inch)

Designation		DCX	ap	Ramping		Helical cutting for blind hole				Helical cutting for through hole	
				RMPX	Lmin	DHmin	Max. pitch dmax	DHmax	Max. pitch dmax	DHmax	Max. pitch dmax
AMSA	2050HS	0.500	0.433	11.69	1.903	0.921	0.191	0.858	0.178	0.646	0.134
	2056HS	0.563		7.55	2.969	1.046	0.139	0.983	0.130	0.771	0.102
	2063HS	0.625		10.30	2.165	1.171	0.213	1.093	0.199	0.896	0.163
	2069HS	0.688		8.23	2.723	1.296	0.187	1.218	0.176	1.021	0.148
	2075HS	0.750		5.60	4.016	1.421	0.139	1.343	0.132	1.146	0.112
	2088HS	0.875		5.15	4.366	1.671	0.151	1.593	0.144	1.396	0.126
	2100HS	1.000		3.92	5.748	1.921	0.132	1.843	0.126	1.646	0.113
	2125HS	1.250		2.70	8.346	2.421	0.114	2.343	0.110	2.146	0.101
	2150HS	1.500		1.98	11.378	2.921	0.101	2.843	0.098	2.646	0.092
	2200HS	2.000		1.48	15.197	3.921	0.102	3.843	0.100	3.646	0.094
	2250HS	2.500		1.11	20.236	4.921	0.096	4.843	0.094	4.646	0.090
AMCA	2150HS	1.500	0.433	0.36	62.047	2.921	0.019	2.843	0.018	2.646	0.017
	2200HS	2.000		0.36	62.047	3.921	0.025	3.843	0.024	3.646	0.023
	2250HS	2.500		0.27	82.835	4.921	0.023	4.843	0.023	4.646	0.022
	2300HS	3.000		0.21	109.606	5.921	0.021	5.843	0.021	5.646	0.020
	2400HS	4.000		0.16	141.102	7.921	0.022	7.843	0.022	7.646	0.021
AMSA	3100HS	1.000	0.63	4.72	4.764	1.921	0.159	1.843	0.152	1.449	0.120
	3125HS	1.250		3.00	7.520	2.421	0.127	2.343	0.123	1.949	0.102
	3150HS	1.500		2.29	9.843	2.921	0.117	2.843	0.114	2.449	0.098
	3200HS	2.000		1.64	13.780	3.921	0.112	3.843	0.110	3.449	0.099
	3250HS	2.500		1.22	18.504	4.921	0.105	4.843	0.103	4.449	0.095
AMCA	3150HS	1.500	0.63	1.99	11.319	2.921	0.102	2.843	0.099	2.449	0.085
	3200HS	2.000		1.67	13.504	3.921	0.114	3.843	0.112	3.449	0.101
	3250HS	2.500		1.22	18.504	4.921	0.105	4.843	0.103	4.449	0.095
	3300HS	3.000		0.90	25.039	5.921	0.093	5.843	0.092	5.449	0.086
	3400HS	4.000		0.69	32.677	7.921	0.095	7.843	0.094	7.449	0.090
AMSA	2100MH	1.000	0.433	1.50	30.070	1.921	0.050	1.843	0.048	-	-
	2125MH	1.250		1.50	45.104	2.421	0.063	2.343	0.061	-	-
AMSA	3150MH	1.500	0.63	1.50	60.139	2.921	0.076	2.843	0.074	-	-
AMSA	4125HS	1.250	0.709	3.42	10.737	2.453	0.147	2.398	0.143	2.146	0.128
	4150HS	1.500		2.65	13.871	2.953	0.137	2.898	0.134	2.646	0.122
	4200HS	2.000		1.82	20.141	3.953	0.126	3.898	0.124	3.646	0.116
	4250HS	2.500		1.39	26.410	4.953	0.120	4.898	0.119	4.646	0.113
AMCA	4200HS	2.000	0.709	1.82	20.141	3.953	0.126	3.898	0.124	3.646	0.116
	4250HS	2.500		1.39	26.410	4.953	0.120	4.898	0.119	4.646	0.113
	4300HS	3.000		1.12	32.679	5.953	0.117	5.898	0.116	5.646	0.111
	4400HS	4.000		0.81	45.217	7.953	0.113	7.898	0.112	7.646	0.109
	4500HS	5.000		0.64	57.756	9.953	0.111	9.898	0.110	9.646	0.107

$$Lmin = \frac{ap}{\tan(RMPX)} \text{ (inch)}$$

AMCA1000S





KAPR 90°

- GAMP : 9°~13°
- GAMF : -14°~5°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMCA	1150HS	◆	10	1.500	1.417	0.500	0.252	1.500	0.220	0.53
	1200HS	◆	12	2.000	1.772	0.750	0.321	1.750	0.220	0.79
	1250HS	◆	14	2.500	1.772	0.750	0.321	1.750	0.220	1.34

◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																◆	B5 B6
	060208PDFR-MA																○	
	060202PDSR-MM		●							◆		○		◆	◆			
	0602PDSR-MM		◆			○		●	●	◆	●	●	○	◆	◆			
	060208PDSR-MM		●							◆		○		◆	◆			
	060212R-MM		●							○		○		●	●			
	060216R-MM		○							○		○		●	●			

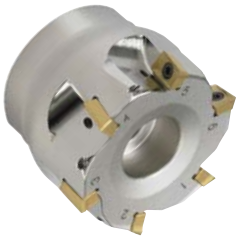
●: Korea stock ◆: US stock ○: Made to order

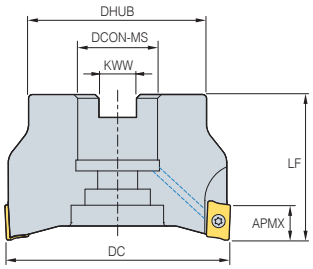
Parts

Specification	Screw	Wrench
Ø1.500~Ø2.500	FTKA01842	TW06S-A

Available inserts **B5, B6** Available arbors and bolt **E96**

AMCA1500S












KAPR 90°

- GAMP : 9°~13°
- GAMF : -14°~5°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMCA	15150HS	○	5	1.500	1.417	0.500	0.252	1.500	0.354	0.48
	15200HS	◆	6	2.000	1.772	0.750	0.321	1.750	0.354	0.75
	15250HS	◆	8	2.500	1.772	0.750	0.321	1.750	0.354	1.25
	15300HS	○	10	3.000	2.205	1.000	0.384	2.000	0.354	2.42
	15400HS	○	12	4.000	2.874	1.250	0.510	2.000	0.354	4.62

◆: US stock ○: Made to order

Available inserts





	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																◆	B5 B6
	090308PDFR-MA																○	
	0903PDER-ML												○	◆	◆			
	090308PDER-ML													●	◆			
	0903PDSR-MM		◆					●	●	◆	◆	○		◆	●			
	090308PDSR-MM		●							◆		○		◆	◆			
	090312R-MM		○							◆		○		●	●			
	090316R-MM		●			○				◆		○		●	●			
	090320R-MM		○							◆		○		●	●			

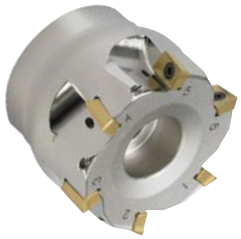
●: Korea stock ◆: US stock ○: Made to order

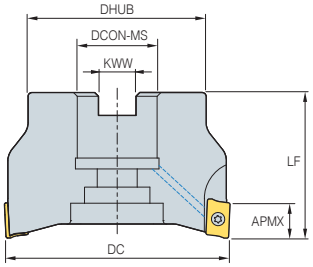
Parts

Specification	Screw	Wrench
Ø1.500~Ø4.000	FTKA02565S	TW08S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMCA2000S





KAPR 90°

- GAMP : 9°~13°
- GAMF : -14°~5°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMCA	2150HS	◆	5	1.500	1.417	0.500	0.250	1.500	0.433	0.44
	2200HS	◆	6	2.000	1.772	0.750	0.321	1.750	0.433	0.70
	2250HS	◆	8	2.500	1.772	1.000	0.321	1.750	0.433	1.32
	2300HS	◆	8	3.000	2.205	1.000	0.384	2.000	0.433	2.64
	2400HS	◆	10	4.000	2.874	1.250	0.510	2.000	0.433	4.62

◆: US stock ○: Made to order

Available inserts


APMT-MA


APMT-ML


APMT-MM


APMT-MF


APMT-MN

	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																◆	B5 B6
	11T308PDFR-MA																○	
	11T3PDER-ML													◆	◆			
	11T308PDER-ML												○	◆	◆			
	11T3PDSR-MM		●	●		●		●	●	◆	◆	◆	○	◆	◆			
	11T3PDSR-MF		●	◆	○					◆	●	○	○	◆	◆			
	11T308PDSR-MM		◆			○				◆		●	●	◆	◆			
	11T312PDSR-MM		◆			○				◆		●	○	◆	●			
	11T316R-MM		◆			○				◆		○	○	◆	◆			
	11T318R-MM		○							○				○				
	11T324R-MM		●							◆		○	○	◆	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

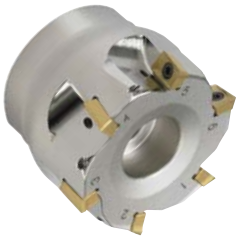
●: Korea stock ◆: US stock ○: Made to order

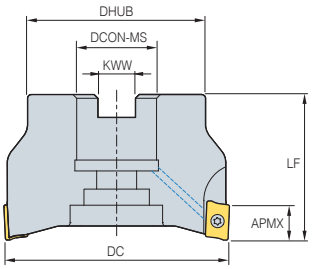
Parts

Specification	Screw	Wrench
Ø1.500~Ø4.000	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMCA3000S





KAPR 90°

- GAMP : 14°
- GAMF : -12°~8°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMCA	3150HS	◆	4	1.500	1.417	0.500	0.250	1.500	0.630	0.44
	3200HS	◆	5	2.000	1.772	0.750	0.313	1.750	0.630	0.86
	3250HS	◆	6	2.500	1.772	1.000	0.375	1.750	0.630	1.10
	3300HS	◆	7	3.000	2.205	1.000	0.375	2.000	0.630	2.64
	3400HS	◆	8	4.000	2.874	1.250	0.500	2.000	0.630	5.50

◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																◆	B5 B6
	160404PDFR-MA																○	
	1604PDER-ML									○			○	◆	◆			
	160404PDER-ML												○	◆	◆			
	1604PDSR-MM		●	●		●		●	●	◆	◆	◆	●	◆	◆			
	1604PDSR-MF		●	○	○					◆	●	○	○	◆	◆			
	160410PDSR-MM		◆			○		●		●				◆	●			
	160416PDSR-MM		◆			○				◆		◆	○	◆	◆			
	160424R-MM		◆							◆				◆	◆			
	160430R-MM		○							●			○	◆	●			
	160432R-MM		◆			○				◆		◆	○	◆	◆			
	1604PDSR-MN3					○				○				●	○			
	1604PDSR-MN4					○				○				●	○			

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

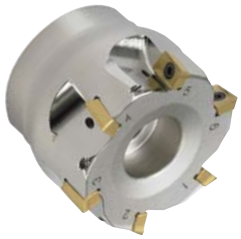
●: Korea stock ◆: US stock ○: Made to order

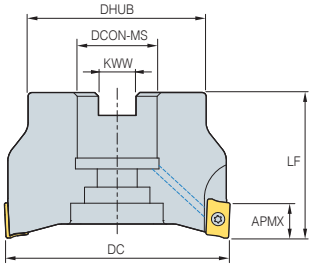
Parts

Specification	Screw	Wrench
Ø1.500~Ø4.000	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMCA3000S-K





KAPR 90°

- GAMP : 14°
- GAMF : -12°~8°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMCA	3150HS-K	◆	4	1.500	1.417	0.500	0.250	1.500	0.630	0.44
	3200HS-K	◆	5	2.000	1.772	0.750	0.313	1.750	0.630	0.66
	3250HS-K	○	6	2.500	1.772	1.000	0.375	1.750	0.630	1.10
	3300HS-K	◆	7	3.000	2.205	1.000	0.375	2.000	0.630	2.64
	3400HS-K	○	8	4.000	2.874	1.250	0.500	2.000	0.630	5.50

◆: US stock ○: Made to order

Available inserts

APKT | APKT-MF | APKT-MM | APKT-MA | APKT-MA2 | APKT-MA3



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	G10	H01	H05	
APKT	1604PDSR		●						●	●									B4 B5
	1604PDSR-MF		●	○					○				●	○					
	1604PDSR-MM		◆	●					●	●	◆		◆	◆					
	1604PDFR-MA														●		●	●	
	1604PDFR-MA2																◆		
	160416FR-MA2																●		
	160432FR-MA2																		
	1604PDFR-MA3															●	◆	●	
	160420FR-MA3																○		

●: Korea stock ◆: US stock ○: Made to order

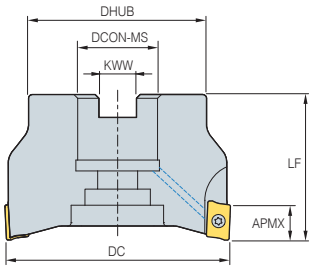
Parts

Specification	Screw	Wrench
Ø1.500~Ø4.000	FTKA0410	TW15S

Available inserts **B4, B5** Available arbors and bolt **E94 ~ E96**

AMCA4000S





KAPR 90°

- GAMP : 13°~15°
- GAMF : -12°~7°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMCA	4200HS	◆	5	2.000	1.772	0.750	0.321	1.750	0.669	0.62
	4250HS	◆	6	2.500	1.772	0.750	0.321	1.750	0.669	1.10
	4300HS	◆	7	3.000	2.205	1.000	0.384	2.000	0.669	2.20
	4400HS	○	8	4.000	2.874	1.250	0.510	2.000	0.669	3.74
	4500HS	○	9	5.000	3.386	1.500	0.636	2.500	0.669	7.26

◆: US stock ○: Made to order

Available inserts

APMT-MA APMT-ML APMT-MM APMT-MF APMT-MN



Designation		Cermet	Coated														Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																●	
	180604PDFR-MA																●	
	180612PDFR-MA																●	
	180616PDFR-MA																●	
	180620PDFR-MA																●	
	180624PDFR-MA																●	E5
	180630R-MA																●	E6
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●				
	180620PDER-ML													●	●			

Designation		Cermet	Coated														Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	●	●	●	●	●	●			
	1806PDSR-MF		●								●			●	●			
	180612PDSR-MM		●							●				●	●			
	180616PDSR-MM		●											●	●			E5
	180620PDSR-MM																	E6
	180624PDSR-MM		●											●	●			
	180630R-MM													●	●			
	180632R-MM		●											●	●			
	1806PDSR-MN3													●				
	1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

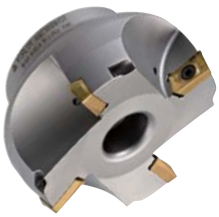
●: Korea stock ◆: US stock ○: Made to order

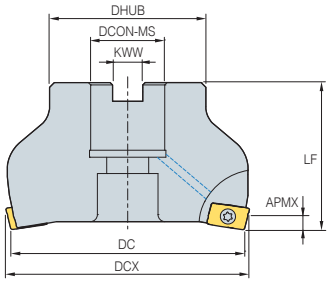
Parts

Specification	Screw	Wrench
Ø2.000~Ø5.000	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMCA1000SE/2000SE





KAPR 75°

- GAMP : 45°
- GAMF : 0°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMCA	1150HSE	○	4	1.500	1.417	0.500	0.252	1.500	0.098	0.57
	1200HSE	○	5	2.000	1.772	0.750	0.315	1.500	0.098	0.86
AMCA	2300HSE	○	5	3.000	2.205	1.000	0.374	2.000	0.157	2.65
	2400HSE	○	6	4.000	2.874	1.250	0.500	2.000	0.157	5.14

◆: US stock ○: Made to order

Available inserts

APMT-MM



APMT-MF



Type	Designation		Cermet	Coated												Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	060202PDSR-MM		●							●				●	●			E5 E6
		0602PDSR-MM		◆					●	●	●	●	●		●	●			
		060208PDSR-MM		●							●				●	●			
		060212R-MM		●											●	●			
2000 type	APMT	11T3PDSR-MM		●	◆	○	●		●	●	◆	●	●		◆	●			
		11T3PDSR-MF		●							●	●			●	●			
		11T308PDSR-MM		◆							●		●	●	●	●			
		11T312PDSR-MM		◆							●		●		●	●			
		11T316R-MM		◆							●				●	●			
		11T318R-MM		○															
		11T324R-MM		●							●				●	●			

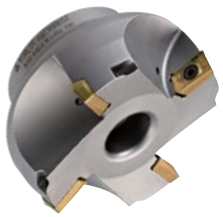
●: Korea stock ◆: US stock ○: Made to order

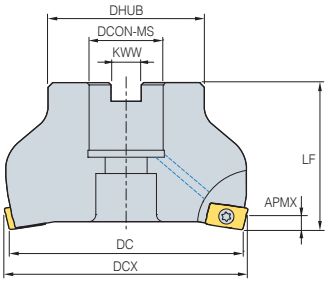
Parts

Specification	Screw	Wrench	Wrench
Ø1.500~Ø2.000(1000 type)	FTKA01842	-	TW06S-A
Ø3.000~Ø4.000(2000 type)	FTKA02565S	TW08S	-

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMCA3000SE





KAPR 75°

- GAMP : 45°
- GAMF : 0°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs
AMCA	3300HSE	○	4	3.000	2.205	1.000	0.374	2.000	0.236	2.87	0.62
	3400HSE	○	5	4.000	2.874	1.250	0.500	2.000	0.236	5.07	1.10

◆: US stock ○: Made to order

Available inserts

APMT-MM



APMT-MF



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDSR-MM		◆	●		●		●	●	●	●	●	●	●	●			B5 B6
	1604PDSR-MF		◆	○	○					◆	●	○	○	●	◆			
	160410PDSR-MM		◆							●				●	●			
	160416PDSR-MM		◆							●				●	●			
	160424R-MM		◆							●				●	●			
	160430R-MM		○							●				●	●			
	160432R-MM		◆							●				●	●			

●: Korea stock ◆: US stock ○: Made to order

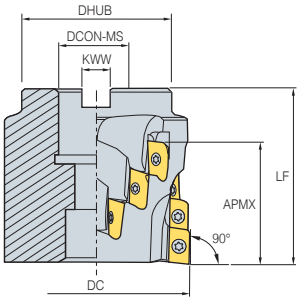
Parts

Specification	Screw	Wrench
Ø3.000~Ø4.000	FTKA0410	TW08S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMCA2000M









KAPR 90°

- GAMP : 9°
- GAMF : -9°~-5°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	ZEFF	APMX	lbs
AMCA	2200M	○	16	2.0	1.772	0.75	0.315	2.283	4	1.535	1.54
	2250M	○	16	2.5	2.205	1.00	0.374	2.283	4	1.535	1.76
	2300M	○	20	3.0	2.756	1.25	0.500	2.480	5	1.535	2.12
	2400M	○	24	4.0	3.386	1.50	0.626	2.480	6	1.535	2.65

◆: US stock ○: Made to order

Available inserts

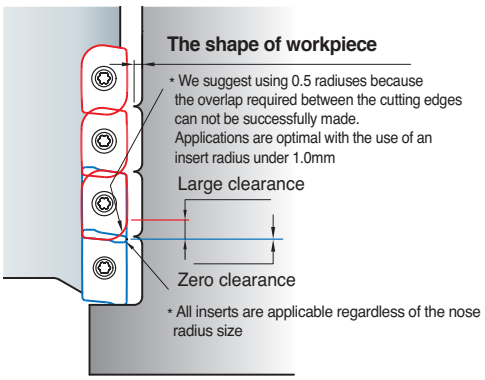
	APMT-MA	APMT-ML	APMT-MM	APMT-MF	APMT-MN
					

	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																◆	B5 B6
	11T308PDFR-MA																○	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●	◆	○					◆	●		◆	●	◆			
	11T308PDSR-MM		◆							●		●	●	●	●			
	11T312PDSR-MM		◆							●		●		●	●			
	11T316R-MM		◆							●				●	●			
	11T318R-MM		○															
	11T324R-MM		●							●				●	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

Caution when clamping the inserts



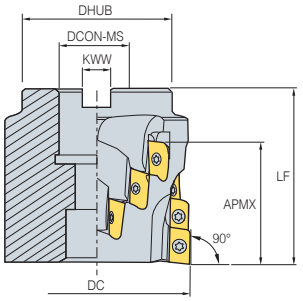
Parts

Specification	Screw	Wrench
Ø2.0~Ø4.0	FTKA02565S	TW08S

Available inserts B5, B6 Available arbors and bolt E94 ~ E96

AMCA3000M









KAPR 90°

- GAMP : 9°
- GAMF : -9°~-5°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	ZEFF	APMX	lbs
AMCA	3250M	○	16	2.5	2.205	1.00	0.374	3.346	4	2.244	2.43
	3300M	○	20	3.0	2.205	1.25	0.500	3.937	4	2.795	4.92
	3400M	○	30	4.0	3.386	1.50	0.626	3.937	6	2.795	7.92

◆: US stock ○: Made to order

Available inserts

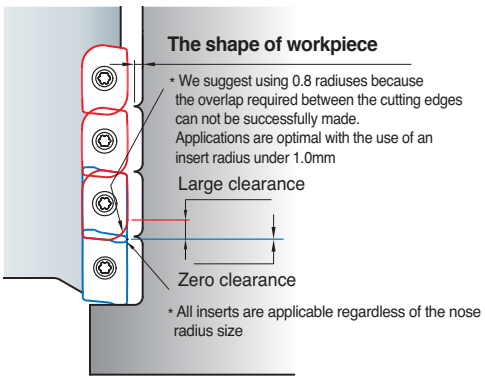
APMT-MA	APMT-ML	APMT-MM	APMT-MF	APMT-MN
				

	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																◆	B5 B6
	160404PDFR-MA																○	
	1604PDER-ML													●	●			
	160404PDER-ML													●	●			
	1604PDSR-MM		●	●	○	●		●	●	◆	●	●	●	◆	◆			
	1604PDSR-MF		●							●	●			●	●			
	160410PDSR-MM		◆							●				●	●			
	160416PDSR-MM		◆							●				●	●			
	160424R-MM		◆							●				●	●			
	160430R-MM		○							●				●	●			
	160432R-MM		◆							●				●	●			
	1604PDSR-MN3													●				
	1604PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

Caution when clamping the inserts



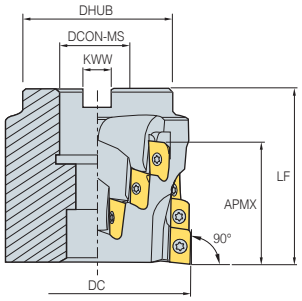
Parts

Specification	Screw	Wrench
Ø2.5~Ø4.0	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMCA4000M









KAPR 90°

- GAMP : 9°
- GAMF : -9°~-5°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	ZEFF	APMX	lbs
AMCA	4250M	○	16	2.5	2.205	1.00	0.374	3.346	4	2.406	2.43
	4300M	◆	20	3.0	2.756	1.25	0.500	3.937	4	2.996	4.92
	4400M	○	30	4.0	3.386	1.50	0.626	3.937	6	2.996	7.92
	4500M	○	18	5.0	3.386	1.50	0.626	2.677	6	1.815	8.82

◆: US stock ○: Made to order

Available inserts

APMT-MA



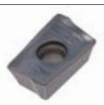
APMT-ML



APMT-MM



APMT-MF



APMT-MN



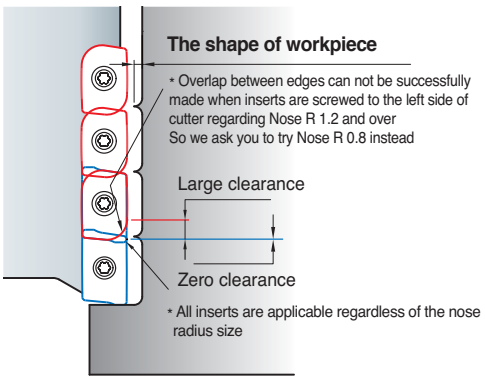
Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA														●			
	180604PDFR-MA														●			
	180612PDFR-MA														●			
	180616PDFR-MA														●			
	180620PDFR-MA														●			
	180624PDFR-MA														●			B5
	180630R-MA													●	◆			B6
	1806PDER-ML													●	◆			
	180604PDER-ML												○	●	◆			
	180612PDER-ML													◆	●			
	180616PDER-ML													●	◆			
	180620PDER-ML												○	●	●			

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML												○	◆	●			
	180630R-ML													●	◆			
	1806PDSR-MM		●					●	●	◆	●	◆	●	◆	◆			
	1806PDSR-MF		●								●			●	●			
	180612PDSR-MM		●							●	○		○	◆	●			
	180616PDSR-MM		●								○		○	◆	●			B5
	180620PDSR-MM									○			○	○	○			B6
	180624PDSR-MM		●							○		○	○	●	●			
	180630R-MM									○			○	◆	●			
	180632R-MM		●											◆	◆			
	1806PDSR-MN3			○						○				●	○			
	1806PDSR-MN4			○						○				●	○			

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

Caution when clamping the inserts



Parts

Specification	Screw	Wrench
Ø2.5~Ø5.0	FTKA0410	TW15S

Available inserts **B5, B6** Available arbors and bolt **E94 ~ E96**

AMSA1000S



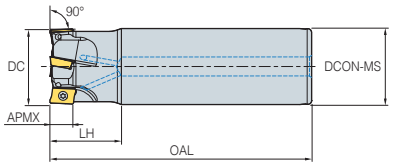


Fig. 1

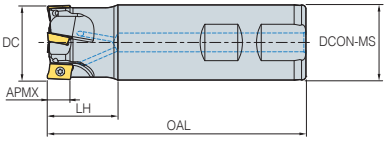


Fig. 2








KAPR 90°

- GAMP : 7.5°~13°
- GAMF : -17°~-6°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
AMSA	1043HS	○	2	0.738	0.375	0.787	3.150	0.22	0.09	2
	1050HS-2	◆	2	0.500	0.500	0.984	3.150	0.22	0.12	2
	1050HS-2L050	○	2	0.500	0.500	0.984	4.724	0.22	0.20	1
	1050HS-3	◆	3	0.500	0.500	0.984	3.150	0.22	0.12	2
	1056HS-2	○	2	0.563	0.625	0.984	3.543	0.22	0.24	2
	1056HS-2L062	○	2	0.563	0.625	0.984	5.512	0.22	0.40	1
	1056HS-3	○	3	0.563	0.625	0.984	3.543	0.22	0.24	2
	1062HS-3	○	3	0.625	0.625	0.984	3.543	0.22	0.26	2
	1062HS-3L062	○	3	0.625	0.625	0.984	6.299	0.22	0.49	1
	1062HS-4	◆	4	0.625	0.625	0.984	3.543	0.22	0.26	2
	1068HS	○	4	0.688	0.625	0.984	3.543	0.22	0.26	2
	1068HS-3L062	○	3	0.688	0.625	0.984	6.299	0.22	0.49	1
	1075HS-4	◆	4	0.750	0.750	1.181	4.331	0.22	0.51	2
	1075HS-4L075	○	4	0.750	0.750	1.181	7.874	0.22	0.95	1
	1075HS-5	◆	5	0.750	0.750	1.181	4.331	0.22	0.51	2
	1081HS	○	5	0.813	0.750	1.181	4.331	0.22	0.53	2
	1081HS-4L075	○	4	0.813	0.750	1.181	7.874	0.22	0.95	1
	1087HS	○	5	0.875	0.750	1.181	4.331	0.22	0.60	2
	1100HS	○	7	1.000	1.000	1.181	4.724	0.22	0.86	2
	1106HS	○	7	1.063	1.000	1.181	4.724	0.22	0.86	2
	125HS	○	8	1.250	1.250	1.378	4.724	0.22	1.43	2
	1131HS	○	8	1.313	1.250	1.378	4.724	0.22	1.43	2

◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																◆	B5 B6
	060208PDFR-MA																○	
	060202PDSR-MM		●							◆		○		◆	◆			
	0602PDSR-MM		◆	○				●	●	◆	●	●		◆	◆			
	060208PDSR-MM		●							◆		○		◆	◆			
	060212R-MM		●							○		○		●	●			
	060216R-MM		○							○		○		●	●			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.438~Ø1.313	FTKA01842	TW06S-A

Available inserts **B5, B6**

AMSA1500S



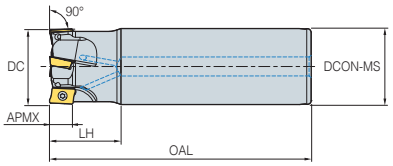


Fig. 1

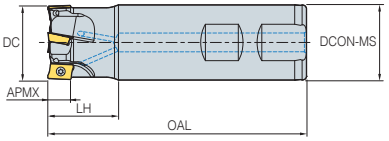


Fig. 2








KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : -28°~-14°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
AMSA	15050HS	○	1	0.500	0.625	0.984	3.15	0.354	0.21	2
	15050HS-1L062	○	1	0.500	0.625	1.181	6.299	0.354	0.46	1
	15056HS	○	1	0.563	0.625	0.984	6.15	0.354	0.22	2
	15056HS-1L062	○	1	0.563	0.625	1.181	6.299	0.354	0.46	1
	15062HS	○	2	0.625	0.625	1.181	3.543	0.354	0.24	2
	15062HS-2L062	○	2	0.625	0.625	1.181	6.299	0.354	0.46	1
	15068HS	○	2	0.688	0.625	1.181	3.543	0.354	0.27	2
	15068HS-2L062	○	2	0.688	0.625	1.181	6.299	0.354	0.46	1
	15075HS	◆	2	0.750	0.75	1.181	3.543	0.354	0.4	2
	15075HS-2L075	○	2	0.750	0.75	1.181	6.299	0.354	0.75	1
	15075HS-3	◆	3	0.750	0.75	1.181	3.543	0.354	0.4	2
	15081HS	○	2	0.813	0.75	1.181	3.543	0.354	0.44	2
	15081HS-2L075	○	2	0.813	0.75	1.181	6.299	0.354	0.75	1
	15081HS-3	○	3	0.813	0.75	1.181	3.543	0.354	0.44	2
	15087HS	◆	3	0.875	0.75	1.181	4.331	0.354	0.51	2
	15087HS-3L075	○	3	0.875	0.75	1.181	7.087	0.354	0.84	1
	15093HS	○	3	0.938	0.75	1.181	4.331	0.354	0.66	2
	15093HS-4	○	4	0.938	0.75	1.181	4.331	0.354	0.66	2
	15100HS-3S075	○	3	1.000	0.75	1.181	4.331	0.354	0.77	2
	15100HS	◆	3	1.000	1	1.181	4.331	0.354	0.77	2
	15100HS-3L100	◆	3	1.000	1	1.181	7.087	0.354	1.3	2
	15100HS-4S075	○	4	1.000	0.75	1.181	4.331	0.354	0.55	1
	15100HS-4S100	◆	4	1.000	1	1.181	4.331	0.354	0.55	2

◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-ML



APMT-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																◆	B5 B6
	090308PDFR-MA																○	
	0903PDER-ML												○	◆	◆			
	090308PDER-ML													●	◆			
	0903PDSR-MM		◆					●	●	◆	◆	○		◆	●			
	090308PDSR-MM		●							◆		○		◆	◆			
	090312R-MM		○							◆		○		●	●			
	090316R-MM		●			○				◆		○		●	●			
	090320R-MM		○							◆		○		●	●			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.500~Ø0.563	FTKA02555S	TW08S
Ø0.625~Ø1.000	FTKA02565S	TW08S

Available inserts **B5, B6**

AMSA1500S



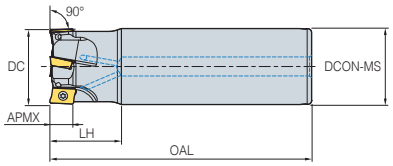


Fig. 1

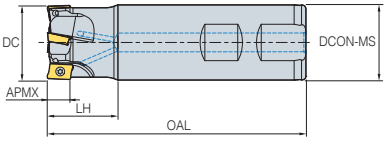


Fig. 2








KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : -28°~-14°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
AMSA	15100HS-3L100	◆	3	1	1	1.181	7.087	0.354	1.3	1
	15100HS-4S075	○	4	1	0.75	1.181	4.331	0.354	0.55	2
	15100HS-4S100	◆	4	1	1	1.181	4.331	0.354	0.55	2
	15112HS	○	4	1.125	1	1.181	4.331	0.354	0.79	2
	15112HS-4L100	○	4	1.125	1	1.181	7.087	0.354	1.35	1
	15112HS-5	○	5	1.125	1	1.181	4.331	0.354	0.79	2
	15118HS	○	4	1.188	1	1.181	4.331	0.354	0.84	2
	15118HS-4L100	○	4	1.188	1	1.181	7.087	0.354	1.37	1
	15118HS-5	○	5	1.188	1	1.181	4.331	0.354	0.84	2
	15125HS	◆	4	1.25	1.25	1.181	4.331	0.354	1.32	2
	15125HS-4L125	○	4	1.25	1.25	1.181	7.087	0.354	2.21	1
	15125HS-5	○	5	1.25	1.25	1.181	4.331	0.354	1.32	2
	15137HS	○	5	1.375	1.25	1.181	4.331	0.354	1.54	2
	15137HS-6	○	6	1.375	1.25	1.181	4.331	0.354	1.54	2
	15150HS-S125	◆	5	1.5	12.5	1.378	5.118	0.354	1.76	2
	15150HS-5L125	○	5	1.5	1.25	1.378	7.874	0.354	2.65	1
	15150HS-6S125	○	6	1.5	1.25	1.378	5.118	0.354	1.76	2
	15150HS-S150	○	5	1.5	1.5	1.378	5.118	0.354	2.49	2
	15150HS-6S150	○	6	1.5	1.5	1.378	5.118	0.354	2.49	2

◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-ML



APMT-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																◆	B5 B6
	090308PDFR-MA																○	
	0903PDER-ML												○	◆	◆			
	090308PDER-ML													●	◆			
	0903PDSR-MM		◆					●	●	◆	◆	○		◆	●			
	090308PDSR-MM		●							◆		○		◆	◆			
	090312R-MM		○							◆		○		●	●			
	090316R-MM		●			○				◆		○		●	●			
	090320R-MM		○							◆		○		●	●			

Parts

●: Korea stock ◆: US stock ○: Made to order

Specification	Screw	Wrench
Ø1.000~Ø1.500	FTKA02565S	TW08S

Available inserts **B5, B6**

AMSA2000S



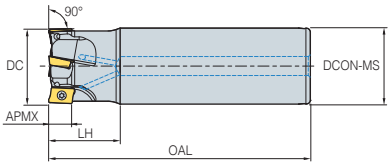


Fig. 1

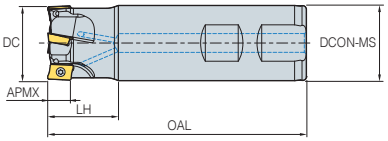


Fig. 2








KAPR 90°

- GAMP : 3°~14°
- GAMF : -25°~-18°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
AMSA	2050HS	◆	1	0.500	0.625	0.984	3.346	0.433	0.22	2
	2050HS-1L062	○	1	0.500	0.625	1.181	6.299	0.433	0.46	1
	2056HS	○	1	0.563	0.625	0.984	3.543	0.433	0.26	2
	2056HS-1L062	○	1	0.563	0.625	1.181	6.299	0.433	0.46	1
	2062HS	◆	2	0.625	0.625	0.984	3.543	0.433	0.26	2
	2062HS-2L062	○	2	0.625	0.625	1.181	7.087	0.433	0.46	1
	2068HS	○	2	0.688	0.625	0.984	3.543	0.433	0.26	2
	2068HS-2L062	○	2	0.688	0.625	1.181	7.087	0.433	0.46	1
	2075HS	◆	2	0.750	0.750	1.181	3.937	0.433	0.46	2
	2075HS-2L075	◆	2	0.750	0.750	1.181	8.268	0.433	0.75	1
	2087HS	○	3	0.875	0.750	1.378	4.528	0.433	0.55	2
	2087HS-3L075	○	3	0.875	1.000	1.378	7.087	0.433	0.84	1
	2100HS	◆	3	1.000	1.000	1.378	4.528	0.433	0.88	2
	2100HS-3L100	○	3	1.000	1.250	1.575	7.087	0.433	1.30	1
	2125HS	◆	4	1.250	1.250	1.575	4.921	0.433	1.54	2
	2125HS-4L125	○	4	1.250	1.250	1.969	7.087	0.433	2.21	1
	2150HS	◆	5	1.500	1.250	1.654	5.118	0.433	1.85	2
	2150HS-5L125	○	5	1.500	1.250	1.969	7.874	0.433	2.50	1
	2150HS-S150	○	5	1.500	1.500	1.654	5.118	0.433	2.54	2
	2200HS	○	6	2.000	1.250	1.772	5.315	0.433	2.34	2
	2200HS-S150	○	6	2.000	1.500	1.772	5.315	0.433	3.04	2
	2250HS	○	8	2.500	1.250	1.772	5.315	0.433	2.89	2
	2250HS-S150	○	8	2.500	1.500	1.772	5.315	0.433	3.57	2

◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																◆	B5 B6
	11T308PDFR-MA																	
	11T3PDER-ML														● ●			
	11T308PDER-ML														● ●			
	11T3PDSR-MM		● ●			●		● ●	●	●	●			●	●			
	11T3PDSR-MF		● ◆	○						◆	●		◆	●	◆			
	11T308PDSR-MM		◆							●		●	●	●	●			

	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T312PDSR-MM		◆		○				◆		●		◆	●				B5 B6
	11T316R-MM		◆		○				◆		○	○	◆	◆				
	11T318R-MM		○						○				○					
	11T324R-MM		●						◆		○	○	◆	●				
	11T3PDSR-MN2												●					
	11T3PDSR-MN3												●					

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.500~Ø0.563	FTKA02555S	TW08S
Ø0.625~Ø2.500	FTKA02565S	TW08S

Available inserts **B5, B6**

AMSA3000S



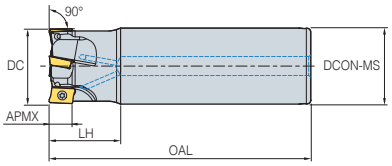


Fig. 1

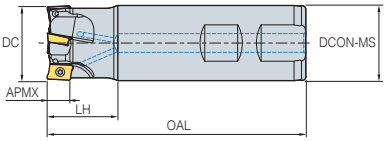


Fig. 2








KAPR 90°

- GAMP : 3°~14°
- GAMF : -18°~-10°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
AMSA	3100HS	◆	2	1.000	1.000	1.378	4.528	0.630	0.88	2
	3100HS-2M100	◆	2	1.000	1.000	1.378	7.087	0.630	1.43	1
	3100HS-2L100	◆	2	1.000	1.000	2.362	5.661	0.630	1.65	1
	3125HS	◆	3	1.250	1.250	1.575	4.921	0.630	1.52	2
	3125HS-2M125	○	2	1.250	1.250	1.575	7.874	0.630	2.49	1
	3125HS-2L125	○	2	1.250	1.250	2.559	10.236	0.630	3.35	1
	3125HS-3M125	◆	3	1.250	1.250	1.575	7.874	0.630	2.47	1
	3125HS-3L125	○	3	1.250	1.250	2.59	10.236	0.630	3.26	1
	3150HS	◆	4	1.500	1.250	1.654	5.118	0.630	1.76	2
	3150HS-3M125	○	3	1.500	1.250	1.654	7.874	0.630	2.73	1
	3150HS-3L125	○	3	1.500	1.250	1.654	10.236	0.630	3.55	1
	3150HS-4M125	○	4	1.500	1.250	1.654	7.874	0.630	2.67	1
	3150HS-4L125	○	4	1.500	1.250	1.654	10.236	0.630	3.48	1
	3150HS-S150	○	4	1.500	1.500	1.654	5.118	0.630	2.43	2
	3200HS	◆	5	2.000	1.250	1.772	5.315	0.630	2.21	2
	3200HS-S150	○	5	2.000	1.500	1.772	5.315	0.630	2.87	2
	3250HS	○	6	2.500	1.250	1.772	5.315	0.630	2.76	2
	3250HS-S150	○	6	2.500	1.500	1.772	5.315	0.630	3.31	2

◆: US stock ○: Made to order

Available inserts

APMT-MA | APMT-ML | APMT-MM | APMT-MF | APMT-MN







	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDFR-MA																●	B5 B6
	160404PDFR-MA																	
	1604PDER-ML									○			○	◆	◆			
	160404PDER-ML												○	◆	◆			
	1604PDSR-MM		●	●		●		●	●	◆	◆	◆	●	●	●			
	1604PDSR-MF		●	○		○				◆	●	○	○	◆	●			
	160410PDSR-MM		◆			○				●				◆	●			
	160416PDSR-MM		◆							●	◆	◆		◆	◆			
	160424R-MM		◆							◆				●	●			
	160430R-MM		○							◆				●	●			
	160432R-MM		◆							◆				●	●			
	1604PDSR-MN3													●				
	1604PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

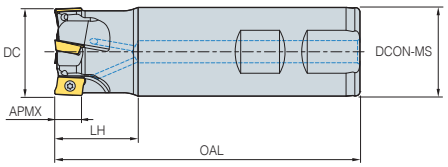
Parts

Specification	Screw	Wrench
Ø1.000	FTKA0408	TW15S
Ø1.250~Ø2.500	FTKA0410	TW15S

Available inserts **B5, B6**

AMSA3000S-K












KAPR 90°

- GAMP : 14°
- GAMF : -18°~-10°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
AMSA	3100HS-K	◆	2	1.000	1.000	3.378	4.528	0.630	0.88
	3125HS-K	◆	3	1.250	1.250	1.575	4.921	0.630	1.52
	3150HS-K	○	4	1.500	1.250	1.540	5.118	0.630	1.76
	3150HS-K-150	○	4	1.500	1.500	1.654	5.118	0.630	2.43
	3200HS-K	○	5	2.000	1.250	1.772	5.315	0.630	2.21
	3200HS-K-150	○	5	2.000	1.500	1.772	5.315	0.630	2.87
	3250HS-K	○	6	2.500	1.250	1.772	5.315	0.630	2.76
	3250HS-K-150	○	6	2.500	1.500	1.772	5.315	0.630	3.31

◆: US stock ○: Made to order

Available inserts

APKT



APKT-MF



APKT-MM



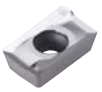
APKT-MA



APKT-MA2



APKT-MA3



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	G10	H01	H05	
APKT	1604PDSR		●	○					●	●	○								B4 B5
	1604PDSR-MF		●	○							○		●						
	1604PDSR-MM		◆	●					●	●	◆		◆	◆					
	1604PDFR-MA														●		●	●	
	1604PDFR-MA2																●		
	160416FR-MA2																●		
	160432FR-MA2																		
	1604PDFR-MA3															●	●	●	

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.000	FTKA0408	TW15S
Ø1.250~Ø2.500	FTKA0410	TW15S

Available inserts **B4, B5**

AMSA4000S



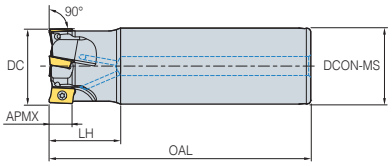


Fig. 1

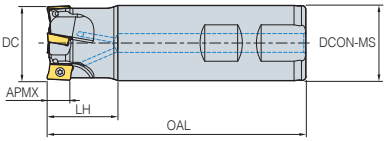


Fig. 2








KAPR 90°

- GAMP : 7°~13°
- GAMF : -20°~-6°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
AMSA	4100HS	◆	2	1.000	1.000	1.575	4.331	0.669	0.77	2
	4100HS-2M100	◆	2	1.000	1.000	1.575	7.087	0.669	1.28	1
	4100HS-2L100	◆	2	1.000	1.000	1.575	9.055	0.669	1.59	1
	4106HS	◆	2	1.063	1.000	1.575	4.331	0.669	0.82	2
	4106HS-2M100	○	2	1.063	1.000	1.575	7.087	0.669	1.32	1
	4106HS-2L100	○	2	1.063	1.000	1.575	9.055	0.669	1.63	1
	4125HS	◆	3	1.250	1.250	1.575	4.921	0.669	1.43	2
	4125HS-2M125	○	2	1.250	1.250	1.969	7.874	0.669	2.58	1
	4125HS-2L125	○	2	1.250	1.250	1.969	10.236	0.669	3.35	1
	4125HS-3M125	○	3	1.250	1.250	1.969	7.874	0.669	2.43	1
	4125HS-3L125	○	3	1.250	1.250	1.969	10.36	0.669	3.26	1
	4131HS	◆	3	1.313	1.250	1.575	4.921	0.669	1.50	2
	4131HS-2M125	○	2	1.313	1.250	1.969	7.874	0.669	2.47	1
	4131HS-2L125	○	2	1.313	1.250	1.969	10.236	0.669	3.31	1
	4131HS-3M125	○	3	1.313	1.250	1.969	7.874	0.669	2.47	1
	4131HS-3L125	○	3	1.313	1.250	1.969	10.236	0.669	3.31	1

• It is recommended to use made to order holders in case of nose radius over R0.126 ◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA														●			
	180604PDFR-MA														●			
	180612PDFR-MA														●			
	180616PDFR-MA														●			
	180620PDFR-MA														●			
	180624PDFR-MA														●			B5
	180630R-MA														●			B6
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●				
	180620PDER-ML													●	●			

	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	●	●	◆	●	◆	◆			
	1806PDSR-MF		●								●			◆	●			
	180612PDSR-MM		●							◆				◆	●			
	180616PDSR-MM		●							○			○	◆	●			B5
	180620PDSR-MM									○			○	○	○			B6
	180624PDSR-MM		●									○	○	●	●			
	180630R-MM									○			○	●	●			
	180632R-MM		●							○			○	◆	◆			
	1806PDSR-MN3													●				
	1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.000~Ø1.063	FTKA0408	TW15S
Ø1.250~Ø2.500	FTKA0410	TW15S

Available inserts **B5, B6**

AMSA4000S



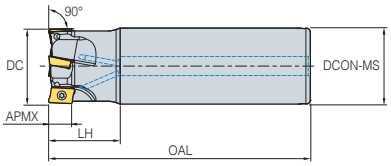


Fig. 1

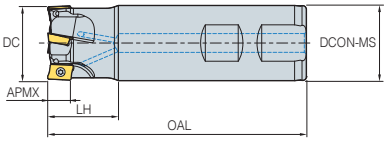


Fig. 2








KAPR 90°

- GAMP : 7°~13°
- GAMF : -20°~-6°

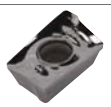
(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
AMSA	4150HS-3M125	○	3	1.500	1.250	1.969	7.874	0.669	2.65	1
	4150HS-3L125	○	3	1.500	1.250	1.969	10.236	0.669	3.53	1
	4150HS-4M125	○	4	1.500	1.250	1.969	7.874	0.669	2.65	1
	4150HS-4L125	○	4	1.500	1.250	1.969	10.236	0.669	3.53	1
	4150HS-S125	◆	4	1.500	1.250	1.575	5.118	0.669	1.68	2
	4150HS-S150	○	4	1.500	1.500	1.575	5.118	0.669	2.43	2
	4200HS-S125	◆	5	2.000	1.250	1.575	5.315	0.669	2.09	2
	4200HS-S150	○	5	2.000	1.500	1.575	5.315	0.669	2.87	2
	4250HS-S125	◆	6	2.500	1.250	1.575	5.315	0.669	2.76	2
	4250HS-S150	○	6	2.500	1.500	1.575	5.315	0.669	3.53	2

• It is recommended to use made to order holders in case of nose radius over R0.126 ◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-ML



APMT-MM



APMT-MF



APMT-MN



Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA														●			
	180604PDFR-MA														●			
	180612PDFR-MA														●			
	180616PDFR-MA														●			
	180620PDFR-MA														●			
	180624PDFR-MA														●			B5
	180630R-MA														●			B6
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●				
	180620PDER-ML													●	●			

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	180624PDER-ML													●	●			
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	●	●	●	●	●	●			
	1806PDSR-MF		●								●			●	●			
	180612PDSR-MM		●							●				●	●			
	180616PDSR-MM		●											●	●			B5
	180620PDSR-MM																	B6
	180624PDSR-MM		●											●	●			
	180630R-MM													●	●			
	180632R-MM		●											●	●			
	1806PDSR-MN3													●				
	1806PDSR-MN4													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

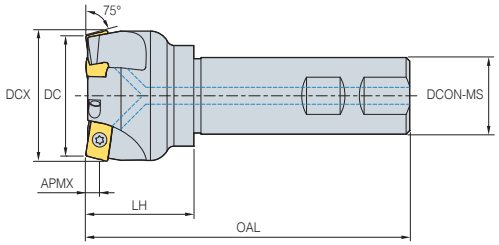
Parts

Specification	Screw	Wrench
Ø1.500~Ø2.500	FTKA0410	TW15S

Available inserts **B5, B6**

AMSA1000SE/2000SE





KAPR 75°

- GAMP : -4.5°~-1°
- GAMF : -3°~0°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
AMSA	1100HSE	○	3	1.000	1.000	1.181	4.528	0.098	0.90
AMSA	2100HSE	○	2	1.000	1.000	1.181	4.528	0.157	0.88
	2125HSE	○	3	1.250	1.250	1.575	4.921	0.157	1.59
	2150HSE	◆	3	1.500	1.250	1.575	5.118	0.157	1.90
	2150HSE-S150	○	3	1.500	1.500	1.575	5.118	0.157	2.65
	2200HSE	○	4	2.000	1.250	1.575	5.315	0.157	2.16
	2200HSE-S150	○	4	2.000	1.500	1.575	5.315	0.157	2.87
	2250HSE	○	5	2.500	1.250	1.575	5.315	0.157	2.73
	2250HSE-S150	○	5	2.500	1.500	1.575	5.315	0.157	3.46

◆: US stock ○: Made to order

Available inserts

APMT-MF



APMT-MM



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	060202PDSR-MM		●							●				●	●			B5 B6
		0602PDSR-MM		◆					●	●	●	●	●		●	●			
		060208PDSR-MM		●							●				●	●			
		060212R-MM		●											●	●			
		060216R-MM													●	●			
2000 type	APMT	11T3PDSR-MM		●	◆	○	●		●	●	◆	●	●		◆	●			
		11T3PDSR-MF		●							●	●			●	●			
		11T308PDSR-MM		◆							●		●	●	●	●			
		11T312PDSR-MM		◆							●		●		●	●			
		11T316R-MM		◆							●				●	●			
		11T318R-MM		○															
		11T324R-MM		●							●				●	●			

●: Korea stock ◆: US stock ○: Made to order

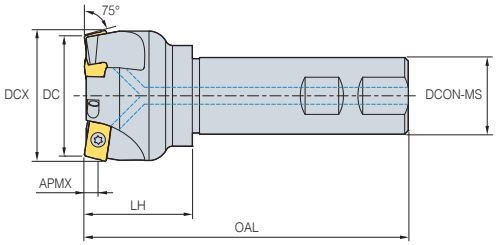
Parts

Specification	Screw	Wrench	Wrench
Ø1.000(1000 type)	FTKA01842	-	TW06S-A
Ø1.000~Ø2.500(2000 type)	FTKA02565S	TW08S	-

Available inserts **B5, B6**

AMSA3000SE





KAPR 75°

- GAMP : -4.5°~-1°
- GAMF : -3°~0°

(inch)

	Designation	Stock	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	lbs
AMSA	3200HSE	○	3	2	2.118	1.25	1.772	5.315	0.236	2.21
	3200HSE-S150	○	3	2	2.118	1.5	1.772	5.315	0.236	2.87
	3250HSE	○	4	2.5	2.630	1.25	1.772	5.315	0.236	2.87
	3250HSE-S150	○	4	2.5	2.630	1.5	1.772	5.315	0.236	3.53

◆: US stock ○: Made to order

Available inserts

APMT-MF



APMT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1604PDSR-MM		◆	●		●		●	●	●	●	●	●	●	●			B5 B6
	1604PDSR-MF		◆	○	○					◆	●	○	○	●	◆			
	160410PDSR-MM		◆							●				●	●			
	160416PDSR-MM		◆							●				●	●			
	160424R-MM		◆							●				●	●			
	160430R-MM		○							●				●	●			
	160432R-MM		◆							●				●	●			

●: Korea stock ◆: US stock ○: Made to order

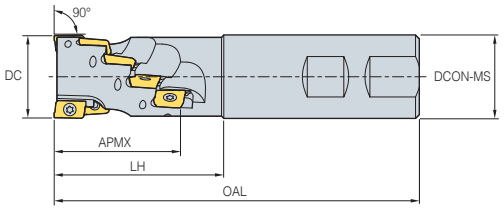
Parts

Specification	Screw	Wrench
Ø2.000~Ø2.500	FTKA0410	TW15S

Available inserts **B5, B6**

AMSA1000M/1500M









KAPR 90°

- GAMP : 7°~9°
- GAMF : -13°~-10°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	lbs
AMSA	1062M	○	6	0.625	0.625	1.181	3.150	2	0.610	0.66
	1075M	○	12	0.750	0.750	1.260	3.346	3	0.807	0.66
	1100M	○	20	1.000	1.000	1.535	3.740	4	1.004	0.66
AMSA	15075M	○	3	0.750	0.750	1.654	4.134	1	1.043	0.66
	15100M	○	8	1.000	1.000	1.969	4.331	2	1.378	0.66
	15125M	○	10	1.250	1.250	2.362	4.724	2	1.732	0.66

◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-ML



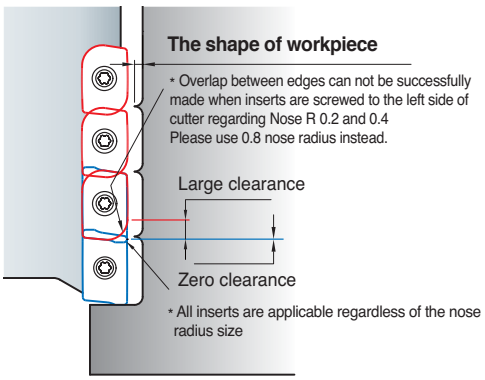
APMT-MM



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	0602PDFR-MA																◆	
		060208PDFR-MA																○	
		060202PDSR-MM		●							◆		○		◆	◆			
		0602PDSR-MM		◆	○				●	●	◆	●	●		◆	◆			
		060208PDSR-MM		●							◆		○		◆	◆			
		060212R-MM		●							○		○		●	●			
		060216R-MM		○							○		○		●	●			
1500 type	APMT	0903PDFR-MA																●	B5
		090308PDFR-MA																○	B6
		0903PDER-ML													●	●			
		090308PDER-ML													●	●			
		0903PDSR-MM		◆					●	●	●	●			●	●			
		090308PDSR-MM		●							●				●	●			
		090312R-MM		○							●				●	●			
		090316R-MM		●							●				●	●			
		090320R-MM		○							●				●	●			

●: Korea stock ◆: US stock ○: Made to order

Caution when clamping the inserts



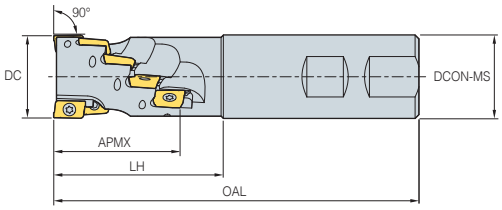
Parts

Specification	Screw	Wrench	Wrench
Ø0.625~Ø1.000(1000 type)	FTKA01842	-	TW06S-A
Ø0.750~Ø1.250(1500 type)	FTKA02565S	TW08S	-

Available inserts **B5, B6**

AMSA2000M







KAPR 90°

- GAMP : 7°~9°
- GAMF : -13°~-10°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	lbs
AMSA	2075M	○	3	0.750	0.750	1.772	4.724	1	1.157	0.71
AMSA	2100M	○	8	1.000	1.000	2.165	5.118	2	1.531	0.88
	2125M	○	10	1.250	1.250	2.559	5.512	2	1.909	1.43
	2150M	○	14	1.500	1.654	2.953	5.906	2	2.283	1.65

◆: US stock ○: Made to order

Available inserts

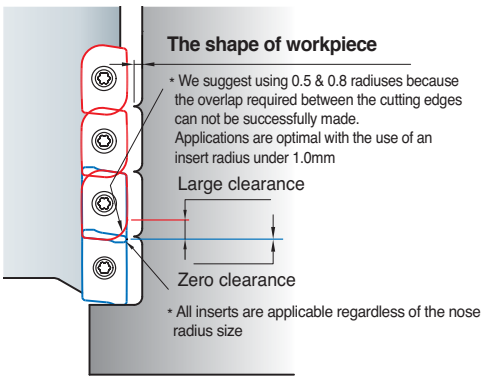


Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																◆	B5 B6
	11T308PDFR-MA																○	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●	◆	○					◆	●		◆	●	◆			
	11T308PDSR-MM		◆							●		●	●	●	●			
	11T312PDSR-MM		◆		○					◆		●		◆	●			
	11T316R-MM		◆		○					◆		○	○	◆	◆			
	11T318R-MM		○							○				○				
	11T324R-MM		●							◆		○	○	◆	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

Caution when clamping the inserts



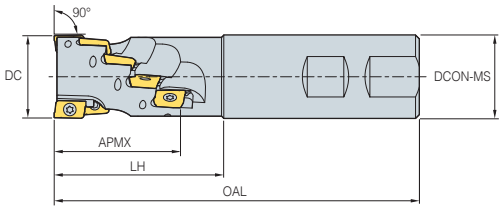
Parts

Specification	Screw	Wrench
Ø0.750~Ø1.500	FTKA02565S	TW08S

Available inserts **B5, B6**

AMSA4000M







KAPR 90°

- GAMP : 7°~9°
- GAMF : -13°~-10°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	lbs
AMSA	4125M	○	4	1.250	1.250	2.362	5.118	2	1.244	1.43
	4150M	○	6	1.500	1.500	2.756	5.512	2	1.811	2.45
AMSA	4200M-S150	○	6	2.000	1.500	2.165	4.921	2	1.811	2.69
	4200M	○	8	2.000	1.500	2.756	5.512	2	2.402	3.02

Available inserts

◆: US stock ○: Made to order

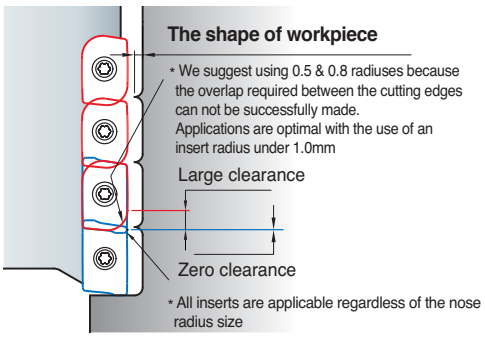


	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	1806PDFR-MA																●	
	180604PDFR-MA																●	
	180612PDFR-MA																●	
	180616PDFR-MA																●	
	180620PDFR-MA																●	
	180624PDFR-MA																●	
	180630R-MA																●	
	1806PDER-ML													●	●			
	180604PDER-ML													●	●			
	180612PDER-ML													●	●			
	180616PDER-ML													●				
	180620PDER-ML													●	●			B5
	180624PDER-ML													●	●			B6
	180630R-ML													●	●			
	1806PDSR-MM		●					●	●	◆	●	◆	●	◆	◆			
	1806PDSR-MF		●								●			◆	●			
	180612PDSR-MM		●							◆				◆	●			
	180616PDSR-MM		●							○			○	◆	●			
	180620PDSR-MM									○			○	○	○			
	180624PDSR-MM		●									○	○	●	●			
	180630R-MM									○			○	●	●			
	180632R-MM		●							○			○	◆	◆			
	1806PDSR-MN3													●				
	1806PDSR-MN4													●	○			

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers.
※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

Caution when clamping the inserts



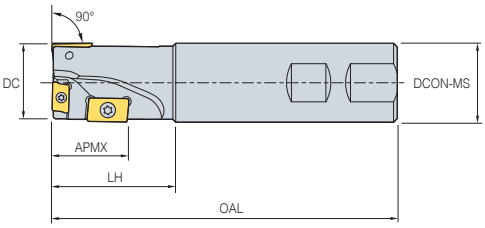
Parts

Specification	Screw	Wrench
Ø1.250~Ø2.000	FTKA0410	TW15S

Available inserts B5, B6

AMSA1000MH/1500MH







KAPR 90°

- GAMP : 9°~12°
- GAMF : -12°~-10°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	lbs
AMSA	1056MH	○	3	0.5625	0.500	1.181	4.724	2	0.433	0.35
	1062MH	○	3	0.6250	0.625	1.181	5.512	2	0.433	0.44
	1068MH	○	3	0.6875	0.625	1.181	5.512	2	0.433	0.46
AMSA	15075MH	◆	3	0.7500	0.750	1.378	5.512	2	0.669	0.68

◆: US stock ○: Made to order

Available inserts

APMT-MA APMT-ML APMT-MM



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
1000 type	APMT	0602PDFR-MA																◆	B5 B6
		060208PDFR-MA																○	
		060202PDSR-MM		●							◆		○		◆	◆			
		0602PDSR-MM		◆	○				●	●	◆	●	●		◆	◆			
		060208PDSR-MM		●							◆		○		◆	◆			
1500 type	APMT	0903PDFR-MA																◆	
		090308PDFR-MA																○	
		0903PDER-ML												○	◆	◆			
		090308PDER-ML													●	◆			
		0903PDSR-MM		◆					●	●	◆	◆	○		◆	●			
		090308PDSR-MM		●							◆		○		◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Parts



Specification	Screw	Wrench	Wrench
Ø0.5625~Ø0.6875(1000 type)	FTKA01842	-	TW06S-A
Ø0.7500(1500 type)	FTKA02565S	TW08S	-

Available inserts **B5, B6**

	Drilling	Shouldering	Slotting
vc(sfm)	260~650	260~650	260~650
fz(ipt)	0.002~0.001	0.010~0.002	0.008~0.002

- Please keep the drill depth under 0.25D when you're drilling
- Please keep the step depth from 0.008 to 0.012 inch

AMSA2000MH/3000MH



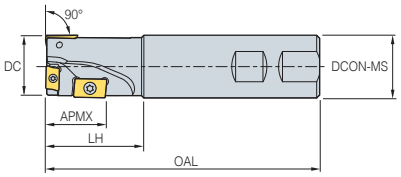


Fig. 1

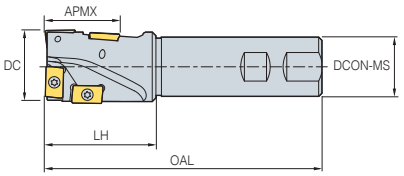


Fig. 2



KAPR 90°

- GAMP : 9°~12°
- GAMF : -12°~-10°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	lbs	Fig.
AMSA	2100MH	○	3	1.000	1.000	1.575	5.118	2	0.787	0.99	1
	2125MH	◆	3	1.250	1.250	1.969	5.512	2	1.181	1.65	1
AMSA	3150MH	○	4	1.500	1.250	2.362	5.906	2	1.575	1.98	2

◆: US stock ○: Made to order

Available inserts



Type	Designation		Cermet	Coated											Uncoated	Page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	H01	
2000 type	APMT	11T3PDFR-MA															◆	B5 B6
		11T308PDFR-MA															○	
		11T3PDER-ML													●	●		
		11T308PDER-ML													●	●		
		11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●		
		11T3PDSR-MF		●	◆	○					◆	●		◆	●	◆		
		11T308PDSR-MM		◆							●		●	●	●	●		
		11T312PDSR-MM		◆		○					◆		●		◆	●		
		11T316R-MM		◆		○					◆		○	○	◆	◆		
		11T318R-MM		○							○							
		11T324R-MM		●							●				●	●		
3000 type	APMT	1604PDSR-MM		●	●				●	●	●	●	●		●	●		
		1604PDSR-MF		●							●	●			●	●		
3000-K type	APKT	1604PDSR-MM			●	●					●	●	●		●			
		1604PDSR-MF			●										●			

●: Korea stock ◆: US stock ○: Made to order

Parts



Specification	Screw	Wrench	Wrench
Ø1.000(2000 type)	FTKA02565S	TW08S	-
Ø1.250(2000 type)	FTKA02565S+FTKA0410	TW08S+TW15S	-
Ø1.500(3000 type)	FTKA0410	TW15S	-

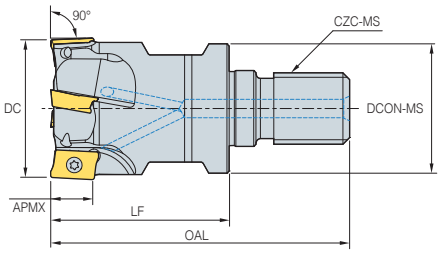
Available inserts **B5, B6**

	Drilling	Shouldering	Slotting
vc(sfm)	260~650	260~650	260~650
fz(ipt)	0.002~0.001	0.010~0.002	0.008~0.002

- Please keep the drill depth under 0.25D when you're drilling
- Please keep the step depth from 0.008 to 0.012 inch

AMMA1000







KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : -28°~-6°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	CZC-MS	APMX	lbs
AMMA	1050HR-M06	○	3	0.500	0.433	0.984	1.575	M06	0.22	0.04
	1062HR-M08	○	4	0.625	0.571	0.984	1.654	M08	0.22	0.07
	1075HR-M10	○	5	0.750	0.689	1.181	2.008	M10	0.22	0.15
	1100HR-M12	○	7	1.000	0.906	1.378	2.323	M12	0.22	0.26
	1125HR-M16	○	8	1.250	1.142	1.575	2.638	M16	0.22	0.51

◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0602PDFR-MA																◆	B5 B6
	060208PDFR-MA																○	
	060202PDSR-MM		●							◆		○		◆	◆			
	0602PDSR-MM		◆	○				●	●	◆	●	●		◆	◆			
	060208PDSR-MM		●							◆		○		◆	◆			
	060212R-MM		●							○		○		●	●			
	060216R-MM		○							○		○		●	●			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
AMM	1050HR-M06	MATA - M06
	1062HR-M08	MATA - M08
	1075HR-M10	MATA - M10
	1100HR-M12	MATA - M12
	1125HR-M16	MATA - M16

Designation: AMMA1125HR-M16
Modular head threading measure size (M16)

=

Adaptor spec.: MATA-M16-354-S125S-C
Adaptor threading measure (M16)

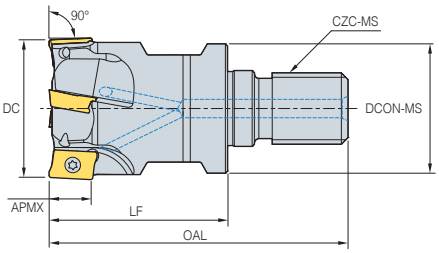
Parts

Specification	Screw	Wrench
Ø12~Ø32	FTKA01842	TW06S-A

Available inserts **B5, B6** Available adaptors **B400**

AMMA1500





KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : -28°~-6°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	CZC-MS	APMX	lbs
AMMA	15050HR-M06	○	1	0.5	0.433	0.984	1.575	M06	0.35	0.14
	15062HR-M08	◆	2	0.625	0.571	0.984	1.654	M08	0.35	0.17
	15075HR-M10	◆	2	0.5	0.689	1.181	2.008	M10	0.35	0.13
	15100HR-M12	◆	3	1	0.906	1.378	2.323	M12	0.35	0.26
	15125HR-M16	◆	4	1.25	1.142	1.575	2.638	M16	0.35	0.48

◆: US stock ○: Made to order

Available inserts

APMT-MA



APMT-ML



APMT-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	0903PDFR-MA																◆	B5 B6
	090308PDFR-MA																○	
	0903PDER-ML												○	◆	◆			
	090308PDER-ML													●	◆			
	0903PDSR-MM		◆					●	●	◆	◆	○		◆	●			
	090308PDSR-MM		●							◆		○		◆	◆			
	090312R-MM		○							◆		○		●	●			
	090316R-MM		●			○				◆		○		●	●			
	090320R-MM		○							◆		○		●	●			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
AMM	15050HR-M06	MATA - M06
	15062HR-M08	MATA - M08
	15075HR-M10	MATA - M10
	15100HR-M12	MATA - M12
	15125HR-M16	MATA - M16
	15032HR-M16	MATA - M16

Designation: AMMA15125HR-M16
Modular head threading measure size (M16)

=

Adaptor spec.: MATA-M16-354-S125S-C
Adaptor threading measure (M16)

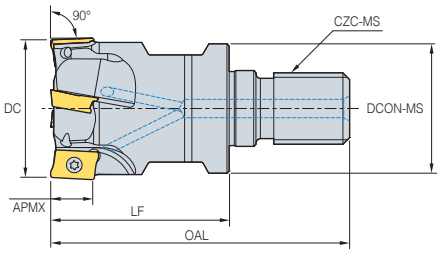
Parts

Specification	Screw	Wrench
Ø0.5000~Ø0.563	FTKA02555S	TW08S
Ø0.625~Ø1.250	FTKA02565S	TW08S

Available inserts **B5, B6** Available adaptors **B400**

AMMA2000





KAPR 90°

- GAMP : 7.5°~12.5°
- GAMF : -28°~-6°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	CZC-MS	APMX	lbs
AMMA	2062HR-M08	◆	2	0.625	0.571	0.984	1.654	M08	0.43	0.09
	2075HR-M10	◆	2	0.75	0.689	1.181	2.008	M10	0.43	0.15
	2100HR-M12	○	3	1	0.906	1.378	2.323	M12	0.43	0.24
	2125HR-M16	◆	4	1.25	1.142	1.575	2.638	M16	0.43	0.51
	2150HR-M16	○	5	1.5	1.142	1.575	2.638	M16	0.43	0.55

◆: US stock ○: Made to order

Available inserts

APMT-MA | APMT-ML | APMT-MM | APMT-MF | APMT-MN



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	G10	H01	
APMT	11T3PDFR-MA																◆	B5 B6
	11T308PDFR-MA																○	
	11T3PDER-ML													●	●			
	11T308PDER-ML													●	●			
	11T3PDSR-MM		●	●		●		●	●	●	●	●		●	●			
	11T3PDSR-MF		●	◆	○					◆	●		◆	●	◆			
	11T308PDSR-MM		◆							●		●	●	●	●			
	11T312PDSR-MM		◆			○				◆		●		◆	●			
	11T316R-MM		◆							◆		○	○	◆	◆			
	11T318R-MM		○							○				○				
	11T324R-MM		●							◆		○	○	◆	●			
	11T3PDSR-MN2													●				
	11T3PDSR-MN3													●				

※ Please purchase 2 types of APMT-MN (nick type) inserts with different chip breakers. ※ Please use the cutters with even teeth.

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
AMM	2062HR-M08	MATA-M08
	2075HR-M10	MATA-M10
	2100HR-M12	MATA-M12
	2125HR-M16	MATA-M16
	2150HR-M16	

Designation: AMMA2125HR-M16
Modular head threading measure size (M16)

=

Adaptor spec.: MATA-M16-354-S125S-C
Adaptor threading measure (M16)

Parts

Specification	Screw	Wrench
Ø16~Ø40	FTKA02565S	TW08S

Available inserts B5, B6 Available adaptors B400

Excellent performance in high speed machining, tapping center, low power machine with its Aluminum body

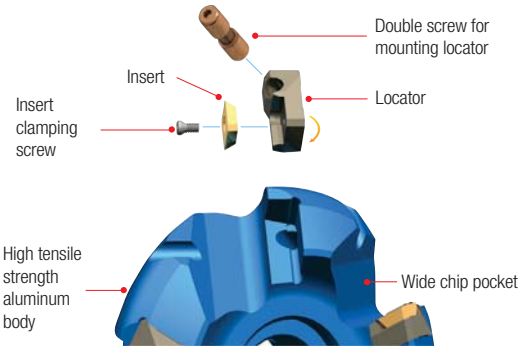
Future Mill

- Light-weight aluminum body (50% of steel body) can be used for high speed cutting, tapping center, and on low power machines
- Easy handling
- It can be used for Aluminum alloys, and light cutting of Steel and Cast Iron
- Rigid body employs high tensile aluminum
- Locators are applied as the insert seats which ensures excellent durability
- A variety of chip breakers are available for the wide range of the workpiece application
- The high rake angle provides low cutting loads and good surface roughness

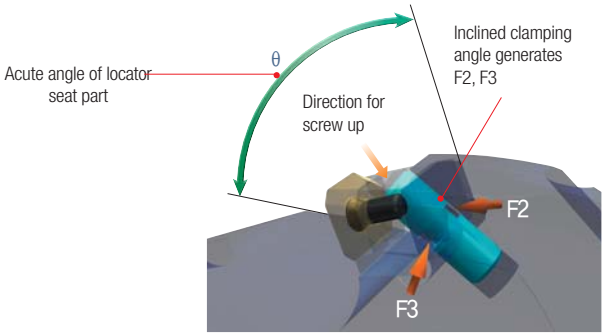
Features of cutter

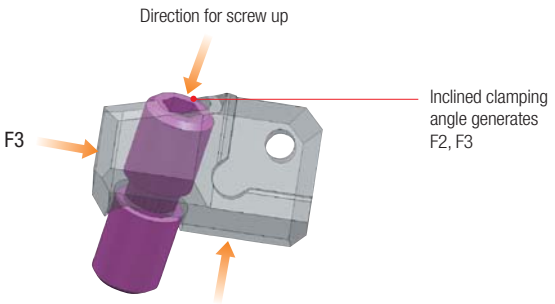
- Strong clamping between aluminum body and locator with double screw provides high efficiency machining
- Acute angle of locator seat provides strong clamping even in high speed machining
- Wide chip pocket area provides good chip evacuation and less chip jamming
- High tensile strength aluminum body features to realize excellent performance

Assembly structure of cutter



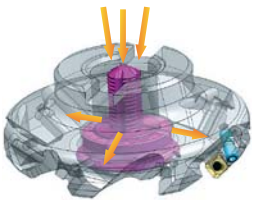
Assembly structure of locator



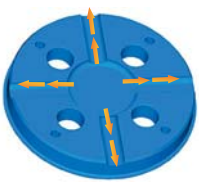


Through coolant system

- Exclusively designed coolant bolt and cover provide excellent coolant action and chip evacuation for improved tool life
- Exact coolant direction to cutting area
- Coolant bolt covers Ø2.5~Ø6.0 and Coolant cover is applied for Ø8.0 range. Both are sold separately, and Through coolant arbor has to be used together.

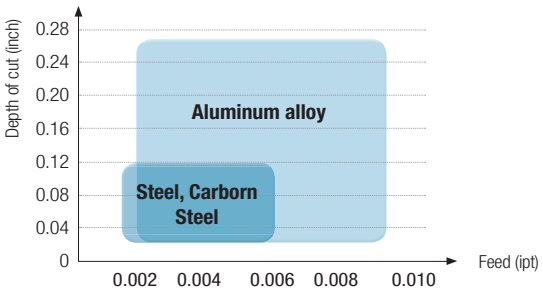


[Bolt: Ø2.5~Ø6.0]

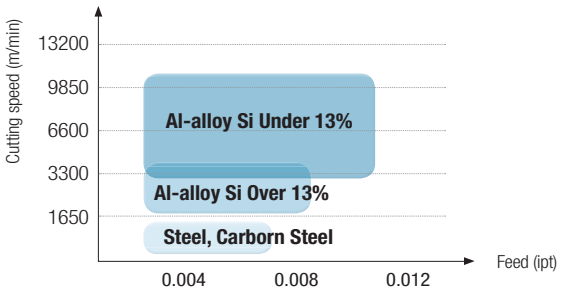


[Cover: Over Ø8.0]

Application range



Cutting speed



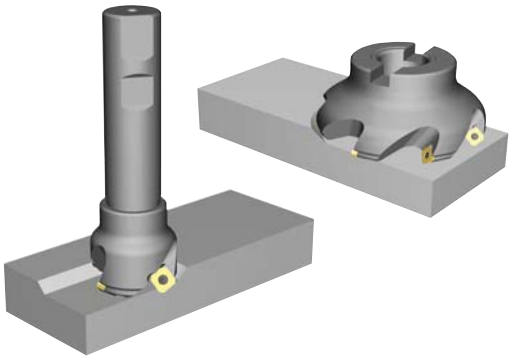
Max. available revolution

Cutter diameter	Max. revolution (rpm)
Ø2.5	20,000
Ø3.0	16,000
Ø4.0	13,000
Ø5.0	10,000
Ø6.0	8,000
Ø8.0	6,500
Ø10.0	5,000
Ø12.0	4,000

Future Mill (FMA)

Features

- General milling cutter for high productivity
- Adjustable pitch of cutter and various chip breaker offer wide application range.
- Light cutter body allows high speed cutting and can be used in low horse power machine
- Smooth cutting with low cutting load is accomplished with high-rake angle



Features of chip breaker

Chip breaker Insert		Cutting-edge	Use	Features
None C/B			Light cutting	Superior surface roughness at finishing due to ground type cermet insert
MF			Light cutting	Superior cutting quality for light and dif ficult-to-cut material machining through the low cutting load of chip breaker
MM			General cutting	Suitable for various cutting due to special shape design for general cutting
MR			Roughing	Tough cutting-edge provides stable cutting performance in severe interruption
MA			For aluminum	Superior cutting quality for aluminum due to sharp cutting-edge and buffed surface · S□ET-MA: Sharp cutting-edge due to high accurate grinding · S□XT-MA: Suitable cutting-edge for roughing

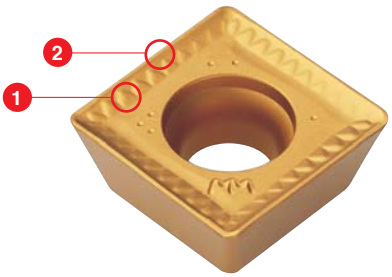
Recommended cutting conditions

ISO	Grade	vc (sfm)	MF	MM	MR	MA
			fz (ipt)	fz (ipt)	fz (ipt)	fz (ipt)
P	NC5330	690~1150	0.008~0.002	0.012~0.004	0.012~0.004	-
	NCM325	620~1020	0.008~0.002	0.012~0.004	0.012~0.004	-
	PC3700	525~885	0.008~0.002	0.012~0.004	0.012~0.004	-
M	PC9530	295~490	0.006~0.002	0.012~0.004	-	-
	NCM335	230~390	0.006~0.002	0.012~0.004	-	-
K	PC5300	360~590	0.008~0.002	0.012~0.004	-	-
N	H01	850~1440	-	-	-	0.014~0.004

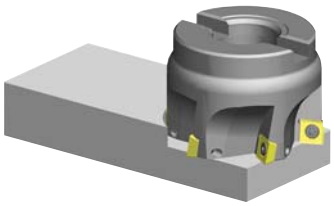
Future Mill (FMP)

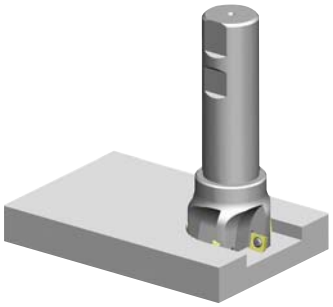
Features

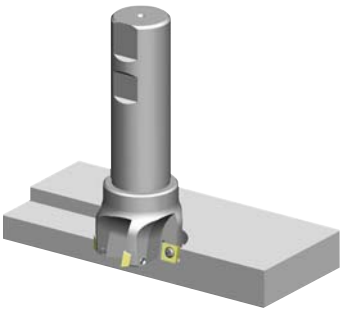
- The strong cutting-edge ensures excellent tool life in high feed and high speed, deep depth of cut, with low cutting loads
- Optimal grades for most workpieces make high efficiency cutting possible
- Unique chip breaker makes good chip evacuation and lower cutting loads (❶)
- Innovative curve cutting-edge lowers cutting load and provides a stronger cutting-edge (❷)



Machining examples







Features of chip breaker

- Innovative special cutting-edge and chip breaker design ensures ideal 90˚cutting and low cutting load
- Various applications are available with multi functional cutters (Facing, Slotting, Shouldering)
- Improved tool life due to special coated grades
- Superior cutting quality at deep cutting depth through the low cutting load and strong cutting-edge

Recommended C/B and grade as per workpiece

(● : 1st Recommendation)

Chip breaker Insert		Cutting edge	Use	Recommended C/B and grade as per workpiece									
				Low carbon steel/Mild steel		High carbon steel/Mild steel		Stainless steel		Cast iron		Aluminum alloy	
				C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
MF			Low cutting load type	●	○ NCM325 ○ NC5330 ● NCM335		● NCM325 ○ NC5330 ○ NCM335	●	○ NCM325 ○ NC5330 ● NCM335	●	● PC6100 ○ PC215K	-	-
MM			Reinforced cutting edge type		○ NCM325 ○ NC5330 ● NCM335		● NCM325 ○ NC5330 ○ NCM335		○ NCM325 ○ NC5330 ● NCM335		● PC6100 ○ PC215K	-	-
MA			Sharp cutting edge type	-	-	-	-	-	-	-	-	●	○ H01 ○ G10

Recommended cutting conditions

ISO	Cutting Speed vc (sfm)							
	CVD Coated		PVD Coated					Carbide
	NCM325	NCM335	PC3700	PC6100	PC5300	PC9530	PC5400	H01
P	620~1020	590~950	525~886	-	492~787	-	427~689	-
M	360~590	330~530	-	-	295~492	295~492	230~394	-
K	-	-	-	459~755	394~656	-	328~525	-
N	-	-	-	-	-	-	-	853~1444

FMACA3000



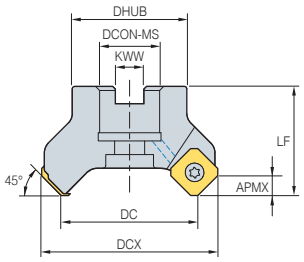


Fig. 1

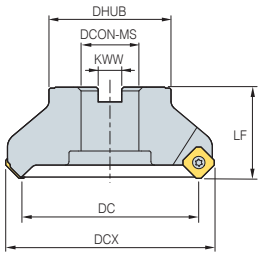


Fig. 2

KAPR 45°

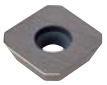
- GAMP : 21°
- GAMF : -17°~-12°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
FMACA	3200HR	◆	4	2.0	2.299	1.772	0.75	0.313	1.75	1.157	0.9	1
	3200HR-H	○	6	2.0	2.299	1.772	0.75	0.313	1.75	1.157	0.9	1
	3250HR	◆	5	2.5	2.812	2.205	1.00	0.375	1.75	1.157	1.1	1
	3250HR-H	○	8	2.5	2.812	2.205	1.00	0.375	1.75	1.157	1.3	1
	3300HR	◆	6	3.0	3.483	2.205	1.00	0.375	2.00	1.157	2.4	1
	3300HR-H	○	10	3.0	3.483	2.205	1.00	0.375	2.00	1.157	2.6	1
	3400HR	◆	7	4.0	4.276	2.874	1.25	0.500	2.00	1.157	3.9	1
	3400HR-H	○	12	4.0	4.276	2.874	1.25	0.500	2.00	1.157	3.7	1
	3500HR	○	8	5.0	5.259	3.386	1.50	0.625	2.50	1.157	7.7	2
	3500HR-H	○	14	5.0	5.259	3.386	1.50	0.625	2.50	1.157	7.7	2

◆: US stock ○: Made to order

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW
						

	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
SEET	0903AGFN-MA																	◆	●	B21 B22
	0903AGSN-MF			○	○					○	◆	◆		●	●					
	0903AGSN-MM			●	○						●			●	●					
SEXT	0903AGSN-MF		○	○	○						●			◆	●					
	0903AGSN-MM		○	○						◆	●	○		◆	●					
	0903AGSN-MR									○		○								
SEEW	0903AGTN																			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.0~Ø5.0	FTKA0307	TW09S

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E96**

FMACA4000



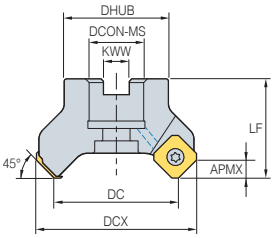


Fig. 1

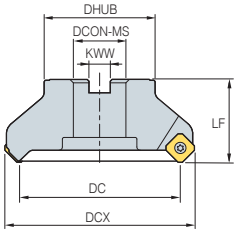


Fig. 2

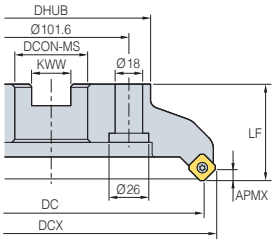


Fig. 3

KAPR 45°

- GAMP : 21°
- GAMF : -17°~-12°

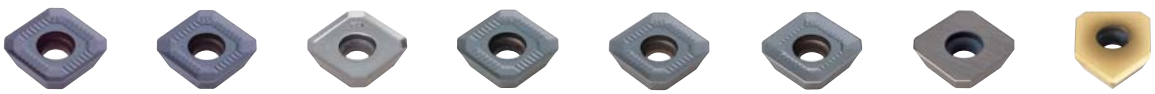
(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
FMACA	4200HR	◆	3	2.0	2.482	1.772	0.75	0.313	1.75	0.256	0.9	1
	4250HR	◆	4	2.5	2.994	2.205	1.00	0.375	1.75	0.256	1.3	1
	4250HR-M	○	5	2.5	2.994	2.205	1.00	0.375	1.75	0.256	1.3	1
	4250HR-H	○	6	2.5	2.994	2.250	1.00	0.375	1.75	0.256	1.3	1
	4300HR	◆	5	3.0	3.665	2.205	1.00	0.375	2	0.256	2.4	1
	4300HR-M	◆	6	3.0	3.665	2.205	1.00	0.375	2	0.256	2.4	1
	4300HR-H	○	8	3.0	3.665	2.205	1.00	0.375	2	0.256	2.4	1
	4400HR	○	5	4.0	4.449	2.874	1.25	0.500	2	0.256	3.5	1
	4400HR-M	◆	7	4.0	4.449	2.874	1.25	0.500	2	0.256	3.5	1
	4400HR-H	○	10	4.0	4.449	2.874	1.25	0.500	2	0.256	3.5	1
	4500HR	○	6	5.0	5.452	3.386	1.50	0.650	2.5	0.256	6.8	1
	4500HR-M	◆	8	5.0	5.452	3.386	1.50	0.625	2.5	0.256	6.8	1
	4500HR-H	○	12	5.0	5.452	3.386	1.50	0.625	2.5	0.256	6.8	1
	4600R	○	7	6.0	6.817	4.882	2.00	0.750	2.5	0.256	10.6	2
	4600R-M	◆	10	6.0	6.817	4.882	2.00	0.750	2.5	0.256	10.6	2
	4600R-H	○	16	6.0	6.817	4.882	2.00	0.750	2.5	0.256	10.6	2
	4800R	○	8	8.0	8.391	5.118	2.50	1.000	2.5	0.256	13.4	3
	4800R-M	○	12	8.0	8.391	5.118	2.50	1.000	2.5	0.256	13.4	3
	4800R-H	○	18	8.0	8.391	5.118	2.50	1.000	2.5	0.256	13.4	3

◆: US stock ○: Made to order

Available inserts

SEET-MF | SEET-MM | SEET-MA | SEXT-MF | SEXT-MM | SEXT-MR | SEEW | SEEW-W



Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	H01	H05	
SEET	14M4AGFN-MA													●	●	●	●	B21 B22
	14M4AGSN-MF				●				◆	◆		●	●					
	14M4AGSN-MM				●			●	●	●		●	●					
SEXT	14M4AGSN-MF								●			●	●					
	14M4AGSN-MM			●				●	●	●		●	●					

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	H01	H05	
SEXT	14M4AGSN-MR											●		●				B21 B22
SEEW	14M4AGTN																	
	14M4AGFN-W																	
	14M4AGSN-W														●			
	14M4AGTN-W										●							

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim Screw	Insert wrench	Shim wrench
Ø2.0~Ø8.0	FTGA03512	SS42SAF	SHXN0509F	TW15S	HW35L

Available inserts B21, B22 Available arbors and bolt E94 ~ E96

FMACA3000-A

Aluminum body



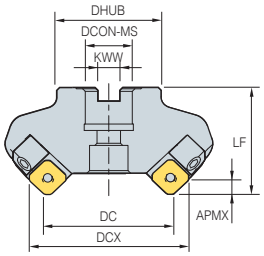


Fig. 1

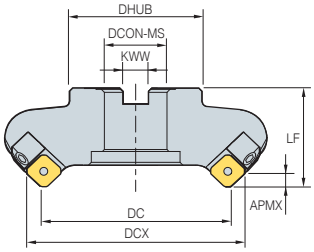


Fig. 2



KAPR 45°

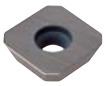
- GAMP : 21°
- GAMF : -16°~-12°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
FMACA	3250R-A	○	3	2.50	2.831	2.205	1.00	0.38	1.75	0.157	1.0	1
	3300R-A	○	4	3.00	3.333	2.205	1.00	0.38	2.00	0.157	1.5	1
	3400R-A	◆	5	4.00	4.339	2.874	1.25	0.50	2.00	0.157	1.9	2
	3500R-A	○	6	5.00	5.338	3.386	1.50	0.63	2.50	0.157	3.4	2

◆: US stock ○: Made to order

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW
						

	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
SEET	32AGFN-MA																	●	●	B21 B22
	32AGSN-MF										●	●		●	●					
	32AGSN-MM			●							●			●	●					
SEXT	32AGSN-MF										●			●	●					
	32AGSN-MM									●	●			●	●					
	32AGSN-MR																			
SEEW	32AGTN																			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw
Ø2.50~Ø5.00	FTKA0307	TW09S	HW30L	LFMA3R-A	DHA0620

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E96**

FMACA4000-A

Aluminum body



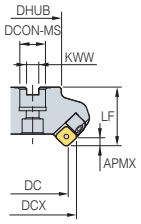


Fig. 1

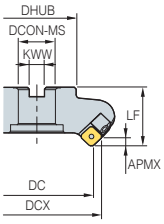


Fig. 2

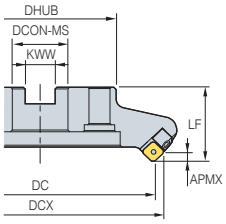


Fig. 3

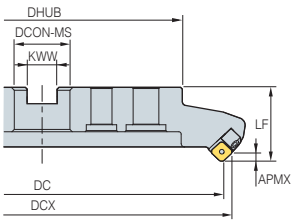


Fig. 4



KAPR 45°

- GAMP : 21°
- GAMF : -16°~-12°

(inch)

Designation		Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
FMACA	4250R-A	◆	3	2.50	3.006	2.205	1.00	0.75	2.0	0.256	1.2	1
	4300R-A	◆	4	3.00	3.606	2.205	1.00	0.38	2.0	0.256	1.6	1
	4400R-A	◆	5	4.00	4.504	2.874	1.25	0.50	2.0	0.256	2.2	2
	4500R-A	◆	6	5.00	5.522	3.386	1.50	0.63	2.5	0.256	3.3	2
	4600R-A	◆	7	6.00	6.511	4.882	2.00	0.75	2.5	0.256	4.6	2
	4800R-A	○	8	8.00	8.514	5.118	2.50	1.00	2.5	0.256	6.4	3
	41000R-A	○	10	10.00	10.513	7.087	2.50	1.00	2.5	0.256	9.00	3
	41200R-A	○	12	12.00	12.522	9.449	2.50	1.00	2.5	0.256	14.5	4

• Through coolant is applied to the cutter range within Ø2.0~Ø5.0 ◆: US stock ○: Made to order

Available inserts

SEET-MF SEET-MM SEET-MA SEXT-MF SEXT-MM SEXT-MR SEEW SEEW-W



Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	H01	H05	
SEET	14M4AGFN-MA													●	●	◆	●	B21 B22
	14M4AGSN-MF				●				◆	◆		●	●					
	14M4AGSN-MM			○	●			●	●	●		●	●					
SEXT	14M4AGSN-MF								●			◆	◆					
	14M4AGSN-MM		○	◆	○	○		◆	◆	◆		◆	◆					

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	H01	H05	
SEXT	14M4AGSN-MR		○	○								◆		◆				B21 B22
SEEW	14M4AGTN	●																
	14M4AGFN-W									○								
	14M4AGSN-W			○										●				
	14M4AGTN-W									○	●	○						

●: Korea stock ◆: US stock ○: Made to order

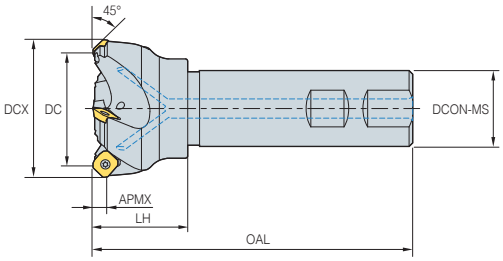
Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw
Ø2.50~Ø12.00	FTGA03510	TW15S	HW40L	LFMA4R-A	DHA0830

Available inserts **B21, B22** Available arbors and bolt **E94 ~ E96**

FMASA3000





KAPR 45°

- GAMP : 23°
- GAMF : -17°~-13°

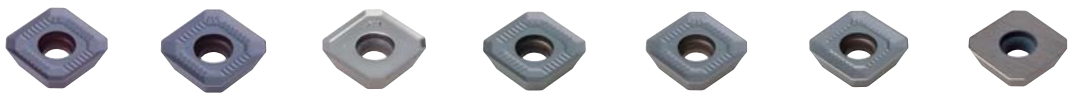
(inch)

	Designation	Stock	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	lbs
FMASA	3100HR	○	2	1.00	1.314	1.00	1.378	4.528	0.157	0.9
	3125HR	◆	3	1.25	1.592	1.00	1.575	4.921	0.157	1.1
	3125HR-S125	○	3	1.25	1.592	1.25	1.575	4.921	0.157	1.8
	3150HR	○	3	1.50	1.907	1.25	1.575	5.118	0.157	2
	3200HR	○	4	2.00	2.299	1.25	1.575	5.315	0.157	2.2
	3200HR-S150	○	4	2.00	2.299	1.50	1.575	5.512	0.157	2.9
	3250HR	◆	5	2.50	2.812	1.25	1.772	5.315	0.157	3.5
	3250HR-S150	○	5	2.50	2.812	1.50	1.772	5.512	0.157	3.7

◆: US stock ○: Made to order

Available inserts

SEET-MF | SEET-MM | SEET-MA | SEXT-MF | SEXT-MM | SEXT-MR | SEEW



	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
SEET	0903AGFN-MA																	◆	●	B21 B22
	0903AGSN-MF			○	○					○	◆	◆		●	●					
	0903AGSN-MM			●	○						●			●	●					
SEXT	0903AGSN-MF		○	○	○						●			◆	●					
	0903AGSN-MM		○	○						◆	●	○		◆	●					
	0903AGSN-MR									○		○								
SEEW	0903AGTN																			

●: Korea stock ◆: US stock ○: Made to order

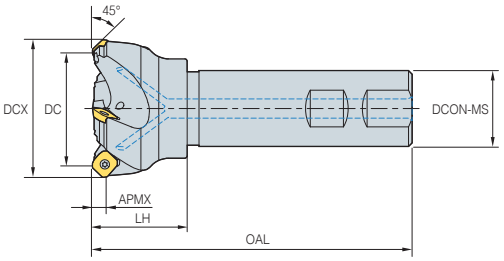
Parts

Specification	Screw	Wrench
Ø1.00~Ø2.50	FTKA0307	TW09S

Available inserts **B21, B22**

FMAS4000





KAPR 45°

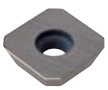
- GAMP : 23°
- GAMF : -17°~-13°

(inch)

	Designation	Stock	CICT	DC	DCX	DCON-MS	LH	OAL	APMX	lbs
FMASA	4200HR	○	3	2.00	2.481	1.25	1.772	5.315	0.256	3.3
	4200HR-S150	○	3	2.00	2.481	1.50	1.772	5.315	0.256	4.6
	4250HR	◆	4	2.50	2.994	1.25	1.772	5.315	0.256	4.4
	4250HR-S150	○	4	2.50	2.994	1.50	1.772	5.315	0.256	5.7

◆: US stock ○: Made to order

Available inserts

SEET-MF	SEET-MM	SEET-MA	SEXT-MF	SEXT-MM	SEXT-MR	SEEW	SEEW-W
							

	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	H01	H05	
SEET	14M4AGFN-MA														●	●		●	●	B21 B22
	14M4AGSN-MF				●					◆	◆		●	●						
	14M4AGSN-MM				●				●	●	●		●	●						
SEXT	14M4AGSN-MF									●			●	●						
	14M4AGSN-MM			●					●	●	●		●	●						
	14M4AGSN-MR										●		●							
SEEW	14M4AGTN	●																		
	14M4AGFN-W																			
	14M4AGSN-W												●							
	14M4AGTN-W									●										

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Shim	Shim Screw	Insert wrench	Shim wrench
Ø2.0~Ø2.5	FTGA03512	SS42SAF	SHXN0509F	TW15S	HW35L

Available inserts **B21, B22**

FMPCA3000



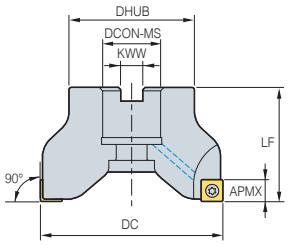


Fig. 1

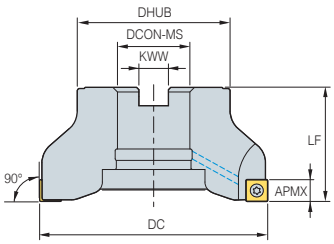


Fig. 2

KAPR 90°

- GAMP : 10°
- GAMF : -9°~-8°

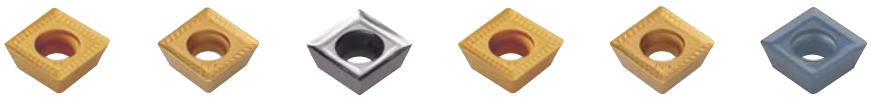
(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
FMPCA	3200HS	○	5	2.0	1.772	0.75	0.787	0.63	0.275	0.7
	3250HS	○	6	2.5	2.205	1.00	0.787	0.827	0.275	1.1
	3300HS	○	7	3.0	2.205	1.00	0.866	0.827	0.275	2.2
	3400HS	○	8	4.0	2.874	1.25	0.866	1.024	0.275	3.3

◆: US stock ○: Made to order

Available inserts

SDET-MF | SDET-MM | SDET-MA | SDXT-MF | SDXT-MM | SDXT-MA



Designation		Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	ST30A	G10	H01	H05	
SDET	09M402R-MA														●			●	●	
	09M405R-MF																			
	09M405R-MM																			
SDXT	09M405R-MF			●					●	●	●		●	●						B19 B20
	09M405L-MF																			
	09M405R-MM			●	●				●	●	●		◆	●						
	09M405L-MM									●										
	09M405R-MA																	●	●	

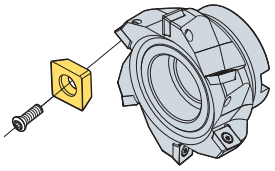
●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.0~Ø4.0	FTGA03508	TW15S

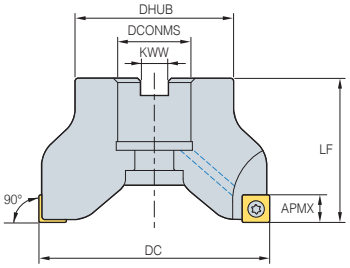
Available inserts **B19, B20** Available arbors and bolt **E94 ~ E96**

Assembling



FMPCA4000





KAPR 90°

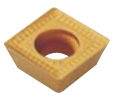
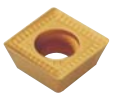
- GAMP : 10°
- GAMF : -9°~-8°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
FMPCA	4250HS	○	5	2.5	2.205	1.00	0.787	0.827	0.433	0.9
	4300HS	◆	6	3.0	2.205	1.00	0.787	0.827	0.433	2.0
	4400HS	◆	7	4.0	2.874	1.25	0.827	1.024	0.433	3.3
	4500HS	◆	8	5.0	3.386	1.50	1.063	1.220	0.433	6.8

◆: US stock ○: Made to order

Available inserts

SDET-MF	SDET-MM	SDET-MA	SDXT-MF	SDXT-MM	SDXT-MA
					

	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1010	ST30A	G10	H01	H05	
SDET	130504R-MA														●			◆	●	B19 B20
	130508R-MF																			
	130508R-MM																			
SDXT	130508R-MF			●						●	●		●	●						
	130508R-MM			◆	●				◆	●	●		●	●						
	130508R-MA																	◆	●	

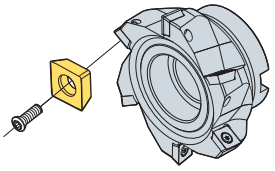
●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.5~Ø5.0	FTNC04511	TW20S

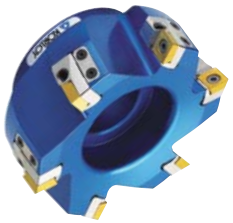
Available inserts **B19, B20** Available arbors and bolt **E94 ~ E96**

Assembling



FMPCA3000-A

Aluminum body



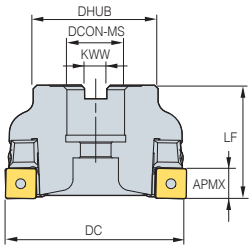


Fig. 1

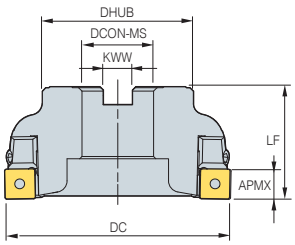


Fig. 2




KAPR 90°

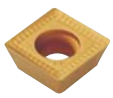
- GAMP : 10°
- GAMF : -9°~-7.3°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
FMPCA	3250S-A	○	3	2.5	-	1.00	0.375	1.75	0.157	0.5	1
	3300S-A	○	4	3.0	-	1.00	0.375	2.00	0.157	1.0	1
	3400S-A	○	5	4.0	-	1.25	0.500	2.00	0.157	1.5	2

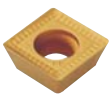
◆: US stock ○: Made to order

Available inserts













	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	ST30A	G10	H01	H05	
SDET	09M402R-MA														●			●	●	B19 B20
	09M405R-MF																			
	09M405R-MM																			
SDXT	09M405R-MF			●					●	●	●		●	●						
	09M405L-MF																			
	09M405R-MM			●	●				●	●	●		◆	●						
	09M405L-MM									●										
	09M405R-MA																	●	●	

●: Korea stock ◆: US stock ○: Made to order

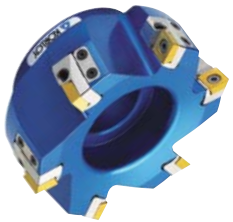
Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw	Chip cover	Chip cover Screw
Ø2.50	FTGA03508	TW15S	HW30L	LFMP3R-A	DHA0624	CFMP3R14R1-A	PXMA0306
Ø3.00~Ø4.00	FTGA03508	TW15S	HW30L	LFMP3R-A	DHA0624	CFMP3R-A	PXMA0306

Available inserts **B19, B20** Available arbors and bolt **E94 ~ E96**

FMPCA4000-A

Aluminum body



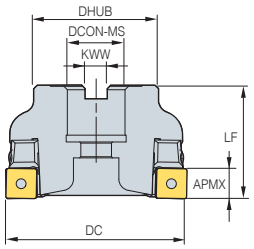


Fig. 1

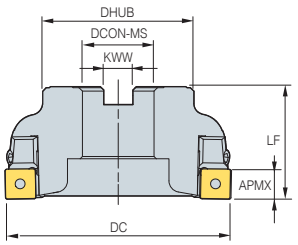
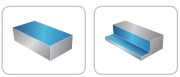


Fig. 2



KAPR 90°

- GAMP : 10°
- GAMF : -9°~-7.3°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
FMPCA	4250S-A	○	3	2.50	1.772	1.00	0.750	1.75	0.256	0.5	1
	4300S-A	○	4	3.00	2.244	1.00	0.375	2.00	0.256	1.0	1
	4400S-A	○	5	4.00	2.638	1.25	0.500	2.00	0.256	1.5	2
	4500S-A	○	6	5.00	3.386	1.50	0.625	2.50	0.256	2.9	2
	4600S-A	○	8	6.00	4.213	2.00	0.750	2.50	0.256	4.4	2
	4800S-A	○	10	8.00	5.118	2.50	1.000	2.50	0.256	7.3	3
	41000S-A	○	12	10.00	7.087	2.50	1.000	2.50	0.256	11.6	3
	41200S-A	○	14	12.00	9.449	2.50	1.000	2.50	0.256	18.4	4

◆: US stock ○: Made to order

Available inserts



	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1010	ST30A	G10	H01	H05	
SDET	130504R-MA														●			◆	●	
	130508R-MF																			
	130508R-MM																			B19
SDXT	130508R-MF			●						●	●		●	●						B20
	130508R-MM			◆	●				◆	●	●		●	●						
	130508R-MA																	◆	●	

●: Korea stock ◆: US stock ○: Made to order

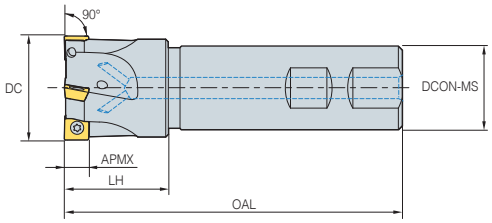
Parts

Specification	Screw	Insert wrench	Locator wrench	Locator	Locator screw	Chip cover	Chip cover Screw
Ø2.50~Ø3.00	FTNC04509	TW20S	HW40L	LFMP4R1-A	DHA0825	CFMP3R14R1-A	PXMA0306
Ø4.00~Ø12.00	FTNC04509	TW20S	HW40L	LFMP4R-A	DHA0830	CFMP4R-A	PXMA0306

Available inserts **B19, B20** Available arbors and bolt **E94 ~ E96**

FMPSA3000





KAPR 90°

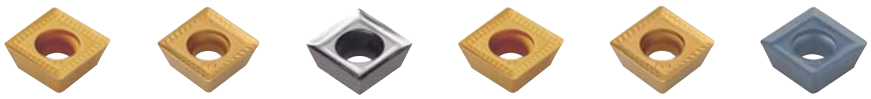
- GAMP : 10°
- GAMF : -9°~-8°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
FMPSA	3100HS	○	2	1.000	1.000	1.378	4.528	0.275	0.9
	3125HS	◆	3	1.250	1.000	1.575	4.921	0.275	1.1
	3125HS-S125		3	1.250	1.250	1.575	5.118	0.275	1.3
	3150HS	◆	4	1.500	1.250	1.575	5.118	0.275	1.8
	3200HS	○	5	2.000	1.250	1.575	5.315	0.275	2.2
	3200HS-S150	○	5	2.000	1.500	1.575	5.512	0.275	2.9
	3250HS	○	6	2.500	1.250	1.772	5.709	0.275	2.6
	3250HS-S150	○	6	2.500	1.500	1.772	5.709	0.275	3.5

◆: US stock ○: Made to order

Available inserts



	Designation	Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	ST30A	G10	H01	H05	
SDET	09M402R-MA														●			●	●	
	09M405R-MF																			
	09M405R-MM																			
SDXT	09M405R-MF			●					●	●	●		●	●						B19 B20
	09M405L-MF																			
	09M405R-MM			●	●				●	●	●		◆	●						
	09M405L-MM									●										
	09M405R-MA																	●	●	

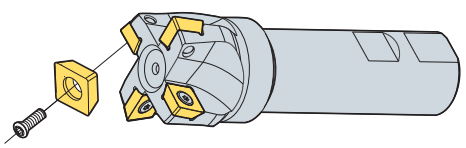
●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.00~Ø2.50	FTGA03508	TW15S

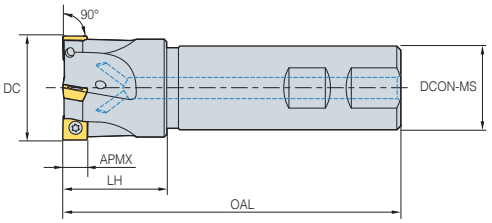
Available inserts B19, B20

Assembling



FMPSA4000





KAPR 90°

- GAMP : 10°
- GAMF : -9°~-8°

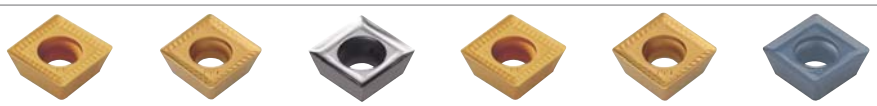
(inch)

Designation		Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
FMPSA	4150HS	○	3	1.5	1.25	1.575	5.180	0.433	2.2
	4200HS	○	4	2.0	1.25	1.772	5.315	0.433	3.3
	4200HS-S150	○	4	2.0	1.50	1.772	5.709	0.433	3.7
	4250HS	○	5	2.5	1.25	1.772	5.315	0.433	4.6
	4250HS-S150	○	5	2.5	1.50	1.772	5.709	0.433	5.3

◆: US stock ○: Made to order

Available inserts

SDET-MF SDET-MM SDET-MA SDXT-MF SDXT-MM SDXT-MA



Designation		Cermet	Coated											Uncoated				Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1010	ST30A	G10	H01	H05	
SDET	130504R-MA														●			◆	●	B19 B20
	130508R-MF																			
	130508R-MM																			
SDXT	130508R-MF			●						●	●		●	●						
	130508R-MM			◆	●				◆	●	●		●	●						
	130508R-MA																	◆	●	

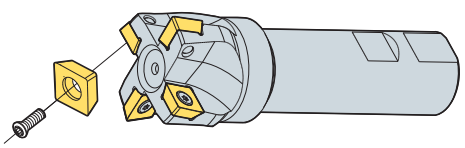
●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.5~Ø2.5	FTNC04511	TW20S

Available inserts B19, B20

Assembling



Future Mill (FMR)

Features

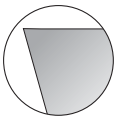
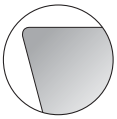
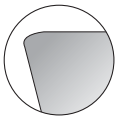
- Wide coverage for medium to roughing, general steel to high hardness mold materials
- 2 step shape of insert provides strong clamping and can minimize components to replace the shim
- 4~8 cutting-edge available per insert (Inscribed circle 05, 06, 07, 08, 10, 12, 16, 20)
- Uneven flute spacing prevents vibration on high speed applications and provides more stable machining
- Precise design of the insert seat prevents insert from chattering and provides better surface roughness
- Special design of the insert bottom prevents movement and chatter of insert
- Easy to change cutting-edge due to the rotation prevention design of the insert

Use



Copying | Helical | Slotting & Side cutting | Ramping

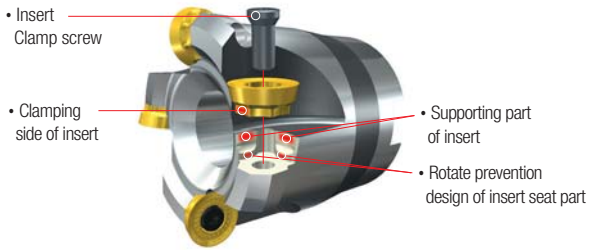
FMR Insert cutting-edge shape

Designation	RDHW□□□□M0F	RDHW□□□□M0E	RDHW□□□□M0S
Cutting edge shape (G calss)			

Features of chip breaker

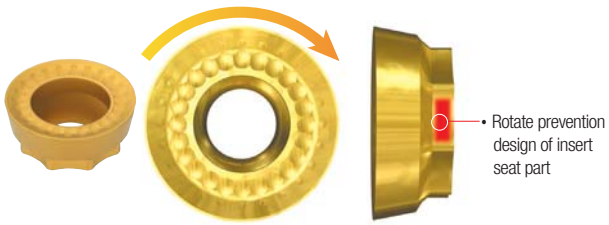
Chip breaker insert		Cutting-edge	Use	Features
MF			Light cutting	Low cutting resistance chip breaker design guarantees long tool life good performance at finishing and difficult-to-cut material machining
MM			General	Suitable for general milling at wide application range
MA			Aluminum	Sharp cutting-edge and buffed top face for aluminum machining prevent welding and control chip flow

Clamping system



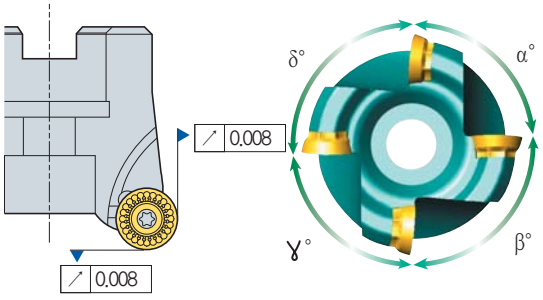
FMR□ 3000 type
FMR□ 4000 type

FMR□ 5000 type
FMR□ 6000 type



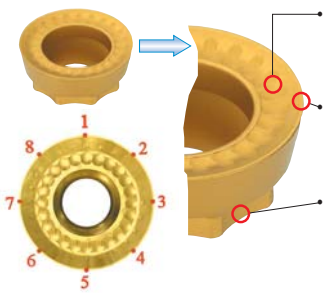
RDKT10T3M0-□□
RDKT1204M0-□□

RDKT1605M0-MM
RDKT2006M0-MM



Good surface finish due to the precise design of insert seat part of cutter

Uneven flute spacing prevents vibration at high speed application and provides stable machining



4-8 cutting-edge available per insert

Special chip breaker for low cutting load
Minimized heat generation due to smooth chip flow

Smooth cutting-edge preparation
Inclined land angle
Low cutting load and better surface roughness

Facial contact through curved face
Prevent rotation at high speed cutting
Stable and tight clamping of insert
Good positioning of insert repeatedly

Future Mill (FMR)

Chip removal rate (inch³/min)

Workpiece		Grades	Ø0.31	Ø0.37	Ø0.50	Ø0.62	Ø0.63	Ø0.75	Ø0.87	Ø1.00	Ø1.10	Ø1.25	Ø1.30	Ø1.50	Ø2.00	Ø2.48	Ø2.50	Ø4.00	Ø5.00	Ø6.00
P	General structure steel (under 200HB)	PC3700 PC5300	4.97	9.94	9.94	14.92	31.83	31.83	47.74	47.74	47.74	71.61	38.19	95.49	119.36	143.23	167.11	190.98	133.69	509.29
			vc=820, fz=0.010, ap=0.020, ae=0.5D				vc (sfm)=984, fz (ipt)=0.016 ap (inch)=0.040, ae=0.5D		vc(sfm)=820, fz(ipt)=0.016, ap(inch)=0.060, ae=0.5D											vc (sfm)=656, fz (ipt)=0.020 ap (inch)=0.157, ae=0.5D
	General carbon steel (under 30 HRC)		3.97	7.95	7.95	11.93	25.46	25.46	38.19	38.19	38.19	57.29	38.19	76.39	95.49	114.59	133.69	152.78	133.69	458.36
			vc=656, fz=0.010, ap=0.020, ae=0.5D				vc (sfm)=820, fz (ipt)=0.016 ap (inch)=0.040, ae=0.5D		vc (sfm)=656, fz (ipt)=0.016, ap (inch)=0.060, ae=0.5D											vc (sfm)=590, fz (ipt)=0.020 ap (inch)=0.157, ae=0.5D
	High carbon steel, Alloy steel (30~40 HRC)		2.86	5.72	5.72	8.59	22.91	22.91	34.37	34.37	34.37	51.56	34.37	68.75	85.94	103.13	120.32	137.5	120.32	407.43
			vc=590, fz=0.008, ap=0.020, ae=0.5D				vc (sfm)=656, fz (ipt)=0.016 ap (inch)=0.040, ae=0.5D		vc (sfm)=590, fz (ipt)=0.016, ap (inch)=0.060, ae=0.5D											vc (sfm)=525, fz (ipt)=0.020 ap (inch)=0.157, ae=0.5D
	High carbon steel, Alloy steel (40~50 HRC)		1.24	2.48	2.48	3.72	11.45	11.45	14.32	17.18	14.32	21.48	14.32	28.64	35.8	42.97	50.13	57.29	50.13	249.55
			Vc=426, fz=0.006, ap=0.016, ae=0.5D				vc (sfm)=558, fz (ipt)=0.012 ap (inch)=0.035, ae=0.5D		vc (sfm)=492, fz (ipt)=0.012, ap (inch)=0.040, ae=0.5D											vc (sfm)=459, fz (ipt)=0.016 ap (inch)=0.138, ae=0.5D
	Alloy steel (over 50 HRC)		0.95	1.9	1.9	2.86	7.63	7.63	9.54	11.45	9.54	14.32	9.54	19.09	23.87	28.64	33.42	38.19	33.42	152.78
			vc=328, fz=0.006, ap=0.016, ae=0.5D				vc (sfm)=426, fz (ipt)=0.012 ap (inch)=0.035, ae=0.5D		vc (sfm)=328, fz (ipt)=0.012, ap (inch)=0.040, ae=0.5D											vc (sfm)=328, fz (ipt)=0.016 ap (inch)=0.012, ae=0.5D
M	Stainless steel	PC5300	2.06	4.13	4.13	6.2	16.55	16.55	12.41	24.82	12.41	18.62	12.41	24.82	31.03	37.24	43.44	49.65	43.44	331.04
			vc=426, fz=0.010, ap=0.020, ae=0.5D				vc (sfm)=656, fz (ipt)=0.008 ap (inch)=0.040, ae=0.5D		vc (sfm)=426, fz (ipt)=0.008, ap (inch)=0.060, ae=0.5D											vc (sfm)=426, fz (ipt)=0.020 ap (inch)=0.016, ae=0.5D
K	Cast iron	PC5300	2.86	5.72	5.72	8.59	14.32	14.32	21.48	21.48	21.48	32.22	21.48	42.97	53.71	64.45	75.2	85.94	75.2	366.69
			vc=590, fz=0.010, ap=0.020, ae=0.5D				vc (sfm)=590, fz (ipt)=0.008 ap (inch)=0.040, ae=0.5D		vc (sfm)=590, fz (ipt)=0.008, ap (inch)=0.060, ae=0.5D											vc (sfm)=590, fz (ipt)=0.016 ap (inch)=0.016, ae=0.5D

Required machine power ($P_{KW} = 0.75 \times P_{HP}$)

• **RDKT10□□**

(inch)

Workpiece		Grades	7/8	1	1	1 1/4	1 5/8	2	2 1/2	3 1/4	4	Cutting condition			
												vc	fz	ap	ae
P	General structure steel (under 200HB)	PC3700 PC5300	2.2	2.2	2.2	3.3	4.4	5.5	6.6	7.7	8.8	830	0.016	0.06	0.5D
P	General carbon steel (under 30 HRC)		2.1	2.1	2.1	3.1	4.1	5.2	6.2	7.3	8.3	660	0.016	0.06	0.5D
P	High carbon steel, Alloy steel (30~40 HRC)		2.2	2.2	2.2	3.3	4.5	5.6	6.7	7.9	9	600	0.016	0.06	0.5D
P	High carbon steel, Alloy steel (40~50 HRC)		1.1	1.1	1.1	1.6	2.1	2.6	3.2	3.7	4.2	500	0.012	0.04	0.5D
P	Alloy steel (over 50 HRC)		0.7	0.7	0.7	1.1	1.4	1.7	2.1	2.4	2.8	330	0.012	0.04	0.5D
M	Stainless steel	PC5300	0.6	0.6	0.6	0.8	1.2	1.5	1.7	2	2.3	430	0.008	0.06	0.5D
K	Cast iron	PC5300	0.6	0.6	0.6	0.9	1.2	1.5	1.8	2.1	2.4	600	0.008	0.06	0.5D

※ The figures in the above chart means Php value.

• **RDKT12□□**

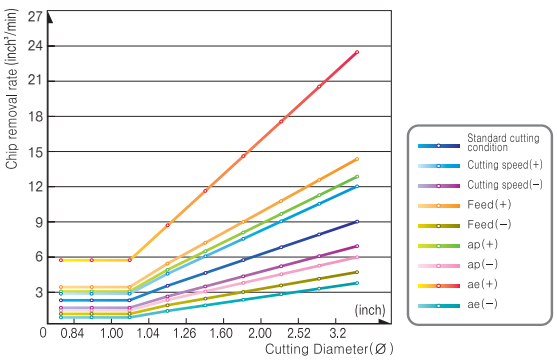
(inch)

Workpiece		Grades	1 1/4	15/16	1 5/8	2	2 1/2	3 1/4	4	5	Cutting condition			
											vc	fz	ap	ae
P	General structure steel (under 200HB)	PC3700 PC5300	1.7	1.7	2.6	3.5	3.5	4.4	5.3	6.1	660	0.016	0.06	0.5D
P	General carbon steel (under 30 HRC)		2	2	3.1	4.1	2.6	5.2	6.2	7.2	600	0.016	0.06	0.5D
P	High carbon steel, Alloy steel (30~40 HRC)		2.2	2.2	3.3	4.4	2.8	5.6	6.7	7.8	530	0.016	0.06	0.5D
P	High carbon steel, Alloy steel (40~50 HRC)		1	1	1.5	1.6	2.1	2.6	3.1	3.6	460	0.012	0.04	0.5D
P	Alloy steel (over 50 HRC)		0.7	0.7	1	1.4	0.8	1.7	2.1	2.4	330	0.012	0.04	0.5D
M	Stainless steel	PC5300	0.5	0.5	0.8	1.1	0.7	1.4	1.7	2	430	0.008	0.06	0.5D
K	Cast iron	PC5300	0.6	0.6	0.9	1.2	0.7	1.5	1.8	2.1	600	0.008	0.06	0.5D

※ The figures in the above chart means Php value.

Chip removal rate by cutting conditions

• **Used insert: : RDKT10□□**



• **Variation of cutting conditions**

Standard	ISO
	vc = 656 fz = 0.016 ap = 0.06 ae = 0.5D
Speed (+)	830
Speed (-)	500
Feed (+)	0.024
Feed (-)	0.008
ap (+)	0.080
ap (-)	0.040
ae (+)	D
ae (-)	0.008D

Chip removal rate by cutting conditions

• Side milling, slotting, ramping, copying

Workpiece		Hardness	Grades	Cutting speed (sfm)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)
P	Cabon steel	200HB ≤	PC5300	919	0.039	0.016	0.047	0.016	0.059	0.016	0.067	0.016	0.079	0.02	0.094	0.024	0.118	0.028	0.157	0.031
			PC5400	804																
		30HRC ≤	PC5300	820	0.028	0.016	0.047	0.016	0.059	0.016	0.067	0.016	0.079	0.02	0.094	0.024	0.118	0.028	0.157	0.031
			PC5400	689																
	Alloy steel	30~40HRC	PC5300	640	0.028	0.008	0.035	0.008	0.047	0.008	0.059	0.008	0.067	0.012	0.079	0.016	0.106	0.02	0.146	0.024
			PC5400	558																
	High alloy steel (alloy constituent > 5%)	40~50HRC	PC5300	492	0.028	0.008	0.035	0.008	0.047	0.008	0.059	0.008	0.067	0.012	0.079	0.016	0.106	0.02	0.146	0.024
			PC5400	427																
		Tensile strength 350MPa ≤	PC5300	394	0.028	0.008	0.035	0.008	0.047	0.008	0.059	0.008	0.067	0.012	0.079	0.016	0.106	0.02	0.146	0.024
			PC5400	344																
M	Stainless steel	270HB≤	PC5300	427	0.028	0.008	0.035	0.008	0.047	0.008	0.059	0.008	0.067	0.012	0.079	0.016	0.106	0.02	0.146	0.024
			PC5400	361																
K	Cast iron, Ductile cast iron	Low tensile	PC5300	476	0.028	0.016	0.047	0.016	0.059	0.016	0.067	0.016	0.079	0.02	0.094	0.024	0.118	0.028	0.157	0.031
			PC5400	361																

• Plunging

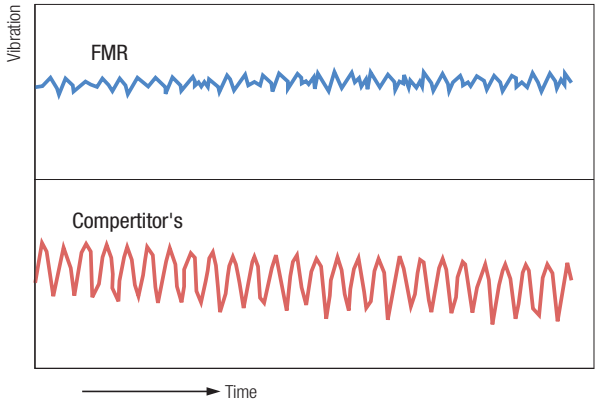
Workpiece		Hardness	Grades	Cutting speed (sfm)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)
P	Cabon steel	200HB ≤	PC5300	919	0.098	0.008	0.118	0.008	0.138	0.008	0.157	0.008	0.197	0.012	0.236	0.016	0.315	0.02	0.394	0.024
			PC5400	804																
		30HRC ≤	PC5300	820	0.098	0.008	0.118	0.008	0.138	0.008	0.157	0.008	0.197	0.012	0.236	0.016	0.315	0.02	0.394	0.024
			PC5400	689																
	Alloy steel	30~40HRC	PC5300	640	0.098	0.004	0.118	0.004	0.138	0.004	0.157	0.004	0.197	0.008	0.236	0.012	0.315	0.016	0.394	0.02
			PC5400	558																
	High alloy steel (alloy constituent > 5%)	40~50HRC	PC5300	492	0.098	0.004	0.118	0.004	0.138	0.004	0.157	0.004	0.197	0.008	0.236	0.012	0.315	0.016	0.394	0.02
			PC5400	427																
		Tensile strength 350MPa ≤	PC5300	394	0.098	0.004	0.118	0.004	0.138	0.004	0.157	0.004	0.197	0.008	0.236	0.012	0.315	0.016	0.394	0.02
			PC5400	344																
M	Stainless steel	270HB≤	PC5300	427	0.098	0.004	0.118	0.004	0.138	0.004	0.157	0.004	0.197	0.008	0.236	0.012	0.315	0.016	0.394	0.02
			PC5400	361																
K	Cast iron, Ductile cast iron	Low tensile	PC5300	476	0.098	0.008	0.118	0.008	0.138	0.008	0.157	0.008	0.197	0.012	0.236	0.016	0.315	0.02	0.394	0.024
			PC5400	361																

• Helical cutting

Workpiece		Hardness	Grades	Cutting speed (sfm)	FMR1000		FMR1500		FMR2000		FMR2500		FMR3000		FMR4000		FMR5000		FMR6000	
					ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)
P	Cabon steel	200HB ≤	PC5300	919	0.039	0.008	0.039	0.008	0.039	0.008	0.039	0.008	0.079	0.012	0.079	0.016	0.157	0.02	0.157	0.024
			PC5400	804																
		30HRC ≤	PC5300	820	0.028	0.008	0.028	0.008	0.028	0.008	0.028	0.008	0.079	0.012	0.079	0.016	0.146	0.02	0.146	0.024
			PC5400	689																
	Alloy steel	30~40HRC	PC5300	640	0.028	0.004	0.028	0.004	0.028	0.004	0.028	0.004	0.067	0.008	0.067	0.012	0.146	0.016	0.146	0.02
			PC5400	558																
	High alloy steel (alloy constituent > 5%)	40~50HRC	PC5300	492	0.028	0.004	0.028	0.004	0.028	0.004	0.028	0.004	0.067	0.008	0.067	0.012	0.146	0.016	0.146	0.02
			PC5400	427																
		Tensile strength 350MPa ≤	PC5300	394	0.028	0.004	0.028	0.004	0.028	0.004	0.028	0.004	0.067	0.008	0.067	0.012	0.146	0.016	0.146	0.02
			PC5400	344																
M	Stainless steel	270HB≤	PC5300	427	0.028	0.004	0.028	0.004	0.028	0.004	0.028	0.004	0.067	0.008	0.067	0.012	0.157	0.016	0.157	0.02
			PC5400	361																
K	Cast iron, Ductile cast iron	Low tensile	PC5300	476	0.039	0.008	0.039	0.008	0.039	0.008	0.039	0.008	0.079	0.012	0.079	0.016	0.394	0.02	0.394	0.024
			PC5400	361																

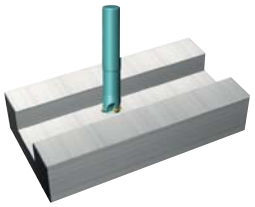
Future Mill (FMR)

FMR Vibration test



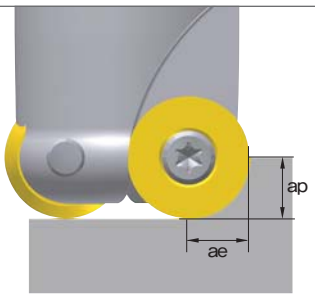
BOLT : Q36 ~ Q160

Workpiece	STD11
Cutting condition	**vc** = 650 sfm **fz** = 0.015 ipt **ap** = 0.08 inch **ae** = 0.16 inch
Tools	**Insert :** RDKT10T3M0-MM (PC3500) **Holder :** FMRS3032RD-S



Cutting condition formulas for milling

Cutting speed	RPM
$vc = \frac{\pi \times DCX \times n}{12}$ (sfm)	$n = \frac{vc \times 12}{\pi \times DCX}$ (min^{-1})
Feed (per tooth)	**Feed (per minute)**
$fz = \frac{vf}{Z \times n}$ (ipt)	$vf = fz \times n \times z$ (ipm)
Chip removal rate	**Required machine power**
$Q = ap \times ae \times vf$ ($inch^3/min$)	$Pkw = \frac{Q \times kc}{60 \times 102 \times \eta}$ (kW) $Php = \frac{Pc}{0.75}$ (hp)



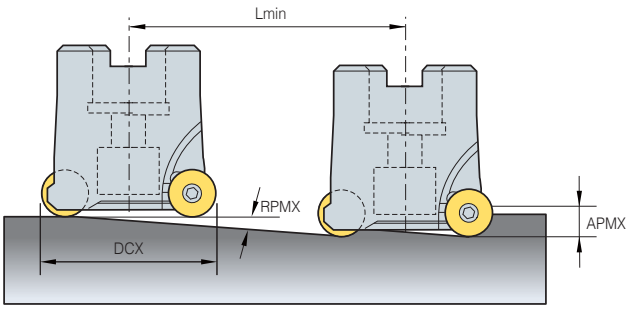
vc = Cutting speed (sfm)	**Pkw** = Required machine power (kW)
n = Revolution per a minute (min^{-1})	**Php** = Horsepower requirement (hp)
DCX = Cutting diameter(inch)	**Q** = Chip removal amount ($inch^3$/min)
De = Efficient cutting diameter (inch)	**ap** = Depth of cut (inch)
vf = Feed per a minute (ipm)	**ae** = Width of cut (inch)
fz = Feed per tooth (ipm)	**kc** = Specific cutting resistance (MPa)
z = Number of tooth	η = Mechanical efficiency (%)
Pc = Power requirement (kW)	

Feed as per cutting depth

Designation	Chip breaker	Depth of cut (inch)								
		0.008~0.020	0.020~0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315
RDHW0501M0	-	0.010	0.006	-	-	-	-	-	-	-
RDHW06T1M0	-	0.012	0.008	0.004	-	-	-	-	-	-
RDHW0702M0	-	0.014	0.010	0.004	0.003	-	-	-	-	-
RDHW0803M0	-	0.016	0.012	0.006	0.0004	-	-	-	-	-
RDKT10T3M0 -	MF/MM	-	0.016	0.014	0.012	0.008	-	-	-	-
RDKT1204M0 -	MF/MM	-	0.020	0.018	0.012	0.010	0.009	-	-	-
RDHW1605M0	-	-	0.024	0.020	0.018	0.014	0.012	0.008	0.004	-
RDHW2006M0	-	-	-	0.024	0.020	0.016	0.012	0.010	0.006	0.004
RDKT1605M0 -	MM	-	0.024	0.020	0.018	0.014	0.012	0.008	0.004	-
RDKT2006M0 -	MM	-	-	0.024	0.020	0.016	0.012	0.010	0.006	0.004

Future Mill (FMR)

Ramping technical data



$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (inch)}$$

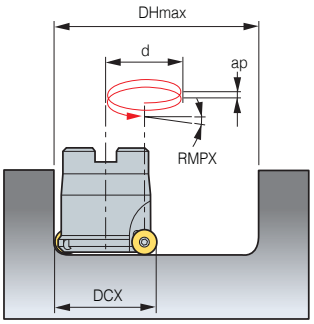
- **Lmin** = Min. inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

(inch)

Type	DCX	RPMX	Cutting length Lmin by ramping angle									
			ap=0.039	ap=0.079	ap=0.098	ap=0.118	ap=0.138	ap=0.157	ap=0.197	ap=0.236	ap=0.315	ap=0.394
FMR1000	0.312	18.14	0.12	0.24	0.30	-	-	-	-	-	-	-
	0.375	11.7	0.19	0.38	0.48	-	-	-	-	-	-	-
	0.500	8.43	0.26	0.53	0.66	-	-	-	-	-	-	-
	0.625	5.93	0.38	0.76	0.95	-	-	-	-	-	-	-
FMR1500	0.375	20.67	0.81	0.21	0.26	0.31	-	-	-	-	-	-
	0.500	10.05	0.40	0.44	0.56	0.67	-	-	-	-	-	-
	0.625	6.12	0.24	0.73	0.92	1.1	-	-	-	-	-	-
	0.750	4.36	0.17	1.03	1.29	1.55	-	-	-	-	-	-
FMR2000	0.625	9.42	0.24	0.47	0.59	0.71	0.83	-	-	-	-	-
	0.750	5.85	0.38	0.77	0.96	1.15	1.34	-	-	-	-	-
FMR2500	0.625	13.7	0.16	0.32	0.40	0.48	0.57	0.65	-	-	-	-
	0.750	9.29	0.24	0.48	0.60	0.72	0.84	0.96	-	-	-	-
	1.000	6.56	0.34	0.68	0.86	1.03	1.20	1.37	-	-	-	-
FMR3000	1.500	9.09	0.25	0.49	0.62	0.74	0.86	0.98	1.23	-	-	-
	2.000	6.52	0.34	0.69	0.86	1.03	1.21	1.38	1.72	-	-	-
	2.500	4.76	0.47	0.95	1.18	1.42	1.65	1.89	2.36	-	-	-
	3.000	3.52	0.64	1.28	1.60	1.92	2.24	2.56	3.20	-	-	-
	4.000	2.69	0.84	1.68	2.09	2.51	2.93	3.35	4.19	-	-	-
FMR4000	2.000	7.13	0.31	0.63	0.79	0.94	1.10	1.26	1.57	1.89	-	-
	2.500	5.08	0.44	0.89	1.11	1.33	1.55	1.77	2.21	2.66	-	-
	3.000	3.69	0.61	1.22	1.53	1.83	2.14	2.44	3.05	3.66	-	-
	4.000	2.79	0.81	1.62	2.02	2.42	2.83	3.23	4.04	4.85	-	-
	5.000	2.14	1.05	2.11	2.63	3.16	3.69	4.21	5.27	6.32	-	-
FMR5000	2.000	5.22	0.43	0.86	1.08	1.29	1.51	1.72	2.15	2.59	3.45	-
	2.500	3.79	0.59	1.19	1.49	1.78	2.08	2.38	2.97	3.57	4.75	-
	3.000	2.97	0.76	1.52	1.90	2.28	2.66	3.04	3.79	4.55	6.07	-
	4.000	2.09	1.08	2.16	2.70	3.24	3.78	4.32	5.39	6.47	8.63	-
	5.000	1.63	1.38	2.77	3.46	4.15	4.84	5.53	6.92	8.30	11.07	-
FMR6000	2.500	3.69	0.61	1.22	1.53	1.83	2.14	2.44	3.05	3.66	4.88	2.44
	3.000	2.72	0.83	1.66	2.07	2.49	2.9	3.31	4.14	4.97	6.63	3.31
	4.000	2.12	1.06	2.13	2.66	3.19	3.72	4.25	5.32	6.38	8.51	4.25
	5.000	1.57	1.44	2.87	3.59	4.31	5.03	5.75	7.18	8.62	11.49	5.74

Future Mill (FMR)

Helical cutting technical data - DHmin



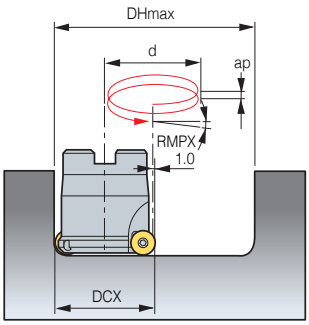
- **DCX =** Tool dia. (inch), ØDHmin, Max = Min, Max diameter (inch)
- **d =** Tool path (inch)
- **DHmin(Min diameter)** = DCX × 2 - Insert size, **DHmax(Max diameter)** = DCX × 2 - 2
- **d(Tool path)** = DHmin, max-DCX

(inch)

Type	Insert (IC)	DCX	DHmin	d	Ramping angle									
					ap=0.039	ap=0.079	ap=0.098	ap=0.118	ap=0.138	ap=0.157	ap=0.197	ap=0.236	ap=0.315	ap=0.394
FMR1000	0.312	0.31	0.43	0.12	6.11	12.35	15.57	-	-	-	-	-	-	-
	0.375	0.39	0.59	0.20	3.65	7.34	7.34	-	-	-	-	-	-	-
	0.500	0.47	0.75	0.28	2.61	5.23	5.23	-	-	-	-	-	-	-
	0.625	0.59	0.98	0.39	1.83	3.65	3.65	-	-	-	-	-	-	-
FMR1500	0.375	0.39	0.55	0.16	4.57	9.20	9.20	13.95	-	-	-	-	-	-
	0.500	0.47	0.71	0.24	3.04	6.11	6.11	9.20	-	-	-	-	-	-
	0.625	0.63	1.02	0.39	1.83	3.65	3.65	5.49	-	-	-	-	-	-
	0.750	0.79	1.34	0.55	1.30	2.61	2.61	3.92	-	-	-	-	-	-
FMR2000	0.625	0.59	0.91	0.31	2.28	4.57	4.57	6.88	8.04	-	-	-	-	-
	0.750	0.79	1.3	0.51	1.40	2.81	2.81	4.22	4.92	-	-	-	-	-
FMR2500	0.625	0.63	0.94	0.31	2.28	4.57	4.57	6.88	8.04	9.20	-	-	-	-
	0.750	0.79	1.26	0.47	1.52	3.04	3.04	4.57	5.34	6.11	-	-	-	-
	1.000	0.98	1.65	0.67	1.07	2.15	2.15	3.22	3.76	4.30	-	-	-	-
FMR3000	1.500	1.57	2.76	1.18	0.61	1.22	1.22	1.83	2.13	2.43	3.04	-	-	-
	2.000	1.97	3.54	1.57	0.46	0.91	0.91	1.37	1.60	1.83	2.28	-	-	-
	2.500	2.48	4.57	2.09	0.34	0.69	0.69	1.03	1.21	1.38	1.72	-	-	-
	3.000	3.15	5.91	2.76	0.26	0.52	0.52	0.78	0.91	1.04	1.30	-	-	-
	4.000	3.94	7.48	3.54	0.20	0.41	0.41	0.61	0.71	0.81	1.01	-	-	-
FMR4000	2.000	1.97	3.46	1.5	0.48	0.96	0.96	1.44	1.68	1.92	2.4	2.88	-	-
	2.500	2.48	4.49	2.01	0.36	0.72	0.72	1.07	1.25	1.43	1.79	2.15	-	-
	3.000	3.15	5.83	2.68	0.27	0.54	0.54	0.81	0.94	1.07	1.34	1.61	-	-
	4.000	3.94	7.40	3.46	0.21	0.41	0.41	0.62	0.73	0.83	1.04	1.24	-	-
	5.000	4.92	9.37	4.45	0.16	0.32	0.32	0.48	0.57	0.65	0.81	0.97	-	-
FMR5000	2.000	1.97	3.31	1.34	0.54	1.07	1.07	1.61	1.88	2.15	2.69	3.22	4.30	-
	2.500	2.48	4.33	1.85	0.39	0.78	0.78	1.16	1.36	1.55	1.94	2.33	3.11	-
	3.000	3.15	5.67	2.52	0.29	0.57	0.57	0.86	1.00	1.14	1.43	1.71	2.28	-
	4.000	3.94	7.24	3.31	0.22	0.43	0.43	0.65	0.76	0.87	1.09	1.30	1.74	-
	5.000	4.92	9.21	4.29	0.17	0.33	0.33	0.50	0.59	0.67	0.84	1.00	1.34	-
FMR6000	2.500	3.15	5.51	2.36	0.30	0.61	0.61	0.91	1.06	1.22	1.52	1.83	2.43	3.04
	3.000	3.94	7.09	3.15	0.23	0.46	0.46	0.68	0.8	0.91	1.14	1.37	1.83	2.28
	4.000	4.92	9.06	4.13	0.17	0.35	0.35	0.52	0.61	0.70	0.87	1.04	1.39	1.74
	5.000	6.30	11.81	5.51	0.13	0.26	0.26	0.39	0.46	0.52	0.65	0.78	1.04	1.30

Future Mill (FMR)

Helical cutting technical data - DHmin



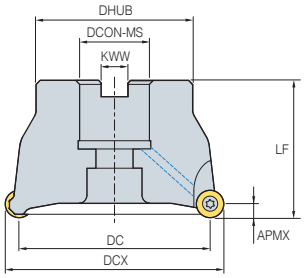
- **DCX =** Tool dia. (inch), ØDHmin, Max = Min, Max diameter (inch)
- **d =** Tool path (inch)
- **DHmin(Min diameter)** = DCX × 2 - Insert size, **DHmax(Max diameter)** = DCX × 2 - 2
- **d(Tool path)** = DHmin, max-DCX

(inch)

Type	Insert (IC)	DCX	DHmin	d	Ramping angle									
					ap=0.039	ap=0.079	ap=0.098	ap=0.118	ap=0.138	ap=0.157	ap=0.197	ap=0.236	ap=0.315	ap=0.394
FMR1000	0.312	0.31	0.55	0.24	3.04	6.11	7.65	-	-	-	-	-	-	-
	0.375	0.39	0.71	0.31	2.28	4.57	5.72	-	-	-	-	-	-	-
	0.500	0.47	0.87	0.39	1.83	3.65	4.57	-	-	-	-	-	-	-
	0.625	0.59	1.10	0.51	1.40	2.81	3.51	-	-	-	-	-	-	-
FMR1500	0.375	0.39	0.71	0.31	2.28	4.57	5.72	6.88	-	-	-	-	-	-
	0.500	0.47	0.87	0.39	1.83	3.65	4.57	5.49	-	-	-	-	-	-
	0.625	0.63	1.18	0.55	1.30	2.61	3.26	3.92	-	-	-	-	-	-
	0.750	0.79	1.50	0.71	1.01	2.03	2.54	3.04	-	-	-	-	-	-
FMR2000	0.625	0.59	1.10	0.51	1.40	2.81	3.51	4.22	4.92	-	-	-	-	-
	0.750	0.79	1.50	0.71	1.01	2.03	2.54	3.04	3.55	-	-	-	-	-
FMR2500	0.625	0.63	1.18	0.55	1.30	2.61	3.26	3.92	4.57	5.23	-	-	-	-
	0.750	0.79	1.50	0.71	1.01	2.03	2.54	3.04	3.55	4.06	-	-	-	-
	1.000	0.98	1.89	0.91	0.79	1.59	1.98	2.38	2.78	3.18	-	-	-	-
FMR3000	1.500	1.57	3.07	1.50	0.48	0.96	1.20	1.44	1.68	1.92	2.40	-	-	-
	2.000	1.97	3.86	1.89	0.38	0.76	0.95	1.14	1.33	1.52	1.90	-	-	-
	2.500	2.48	4.88	2.40	0.30	0.60	0.75	0.90	1.05	1.20	1.50	-	-	-
	3.000	3.15	6.22	3.07	0.23	0.47	0.58	0.70	0.82	0.94	1.17	-	-	-
	4.000	3.94	7.80	3.86	0.19	0.37	0.47	0.56	0.65	0.74	0.93	-	-	-
FMR4000	2.000	1.97	3.86	1.89	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	-	-
	2.500	2.48	4.88	2.40	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	-	-
	3.000	3.15	6.22	3.07	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	-	-
	4.000	3.94	7.80	3.86	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	-	-
	5.000	4.92	9.76	4.84	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	-	-
FMR5000	2.000	1.97	3.86	1.89	0.38	0.76	0.95	1.14	1.33	1.52	1.90	2.28	3.04	-
	2.500	2.48	4.88	2.40	0.30	0.60	0.75	0.90	1.05	1.20	1.50	1.80	2.39	-
	3.000	3.15	6.22	3.07	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	-
	4.000	3.94	7.80	3.86	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	-
	5.000	4.92	9.76	4.84	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	-
FMR6000	2.500	3.15	6.22	3.07	0.23	0.47	0.58	0.70	0.82	0.94	1.17	1.40	1.87	2.34
	3.000	3.94	7.80	3.86	0.19	0.37	0.47	0.56	0.65	0.74	0.93	1.12	1.49	1.86
	4.000	4.92	9.76	4.84	0.15	0.30	0.37	0.45	0.52	0.59	0.74	0.89	1.19	1.48
	5.000	6.30	12.52	6.22	0.12	0.23	0.29	0.35	0.40	0.46	0.58	0.69	0.92	1.16

FMRCA3000







• GAMP : 5°
• GAMF : -5°

(inch)

Designation		Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
FMRCA	3150HRD	○	3	1.5	1.11	1.417	0.50	0.250	1.50	0.433	0.4
	3150HRD-H	○	4	1.5	1.11	1.417	0.50	0.250	1.50	0.433	0.4
	3200HRD	○	4	2.0	1.61	1.772	0.75	0.313	1.75	0.630	0.7
	3200HRD-H	◆	5	2.0	1.61	1.772	0.75	0.313	1.75	0.630	0.7
	3250HRD	○	5	.2.5	2.11	1.772	0.75	0.313	1.75	0.630	1.4
	3250HRD-H	○	6	2.5	2.11	1.772	0.75	0.313	1.75	0.630	1.4
	3300HRD	○	6	3.0	2.61	2.25	1.00	0.375	2.00	0.827	2.4
	3300HRD-H	◆	7	3.0	2.61	2.205	1.00	0.375	2.00	0.827	2.4
	3400HRD	○	7	4.0	3.61	2.874	1.25	0.500	2.00	1.024	4.6
	3400HRD-H	○	8	4.0	3.61	2.874	1.25	0.500	2.00	1.024	4.6

Note) Inner diameter is based on Metric standard for both FMRC/FMRCM if its cutting diameter range within Ø1.5~Ø2.5

◆: US stock ○: Made to order

Available inserts



Designation		Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC 2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA															◆	B16 B17
RDKT	10T3M0-MF			○					○		●		◆	○			
	10T3M0-MM			●					●	●	●		◆	○			

●: Korea stock ◆: US stock ○: Made to order

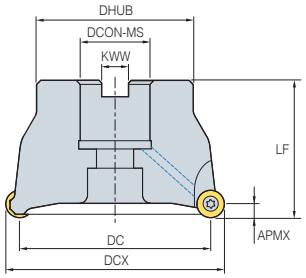
Parts

Specification	Screw	Wrench
Ø1.5~Ø4.0	FTGA03508	TW15S

Available inserts **B16, B17** Available arbors and bolt **E94 ~ E96**

FMRCA4000







• GAMP : 5°
• GAMF : -5°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
FMRCA	4200HRD	◆	4	2.0	1.53	1.772	0.75	0.313	1.75	0.236	0.9
	4250HRD	○	4	2.5	2.03	1.772	0.75	0.313	1.75	0.236	1.3
	4250HRD-M	○	5	2.5	2.03	1.772	0.75	0.313	1.75	0.236	1.3
	4300HRD	◆	5	3.0	2.53	2.205	1.00	0.375	2.00	0.236	2.2
	4300HRD-M	◆	6	3.0	2.53	2.250	1.00	0.375	2.00	0.236	2.2
	4400HRD	○	6	4.0	3.53	2.874	1.25	0.500	2.00	0.236	4.2
	4400HRD-M	○	7	4.0	3.53	2.874	1.25	0.500	2.00	0.236	4.2
	4500HRD	○	7	5.0	4.53	3.386	1.50	0.626	2.50	0.236	6.6
	4500HRD-M	○	8	5.0	4.53	3.386	1.50	0.626	2.50	0.236	6.6

Note) Inner diameter is based on Metric standard for both FMRC/FMRCM if its cutting diameter range within Ø1.5~Ø2.5

◆: US stock ○: Made to order

Available inserts

RDKT-MF RDKT-MM RDCT-MA



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	1204M0-MA															◆	B16 B17
RDKT	1204M0-MF								●		●		◆	○			
	1204M0-MM			●					◆	●	◆		◆	○			

●: Korea stock ◆: US stock ○: Made to order

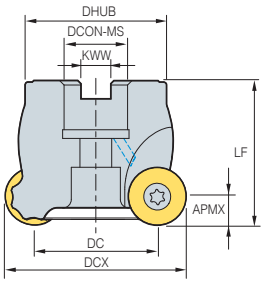
Parts

Specification	Screw	Wrench
Ø2.0~Ø5.0	FTKA0410	TW15S

Available inserts **B16, B17** Available arbors and bolt **E94 ~ E96**

FMRCA5000







• GAMP : 5°
• GAMF : -5°

(inch)

Designation		Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
FMRCA	5200HRD	○	3	2.0	1.37	1.772	0.75	0.313	2.00	0.314	0.9
	5250HRD	○	4	2.5	1.87	1.772	0.75	0.313	2.00	0.314	1.3
	5250HRD-H	○	5	2.5	1.87	1.772	0.75	0.313	2.00	0.314	1.3
	5300HRD	○	5	3.0	2.37	2.205	1.00	0.375	2.00	0.314	2.0
	5300HRD-H	○	6	3.0	2.37	2.205	1.00	0.375	2.00	0.314	2.0
	5400HRD	○	6	4.0	3.37	2.874	1.25	0.500	2.00	0.314	4.2
	5400HRD-H	○	7	4.0	3.37	2.874	1.25	0.500	2.00	0.314	4.2
	5500HRD	○	7	5.0	4.37	3.386	1.50	0.626	2.50	0.314	6.6
	5500HRD-H	○	8	5.0	4.37	3.386	1.50	0.626	2.50	0.314	6.6

Note) Inner diameter is based on Metric standard for both FMRC/FMRCM if its cutting diameter range within Ø2.0~Ø2.5

◆: US stock ○: Made to order

Available inserts



Designation		Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	1605M0E										○		○	○			B16 B17
	1605M0F										○		○				
	1605M0S										○						
RDKT	1605M0-MM			○	○				●		○		○	○			
	1605M0-MF																
	1605M0-ML																

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.0~Ø5.0	FTGA0513-P	TW20-100

Available inserts **B16, B17** Available arbors and bolt **E94 ~ E96**

FMRCA6000



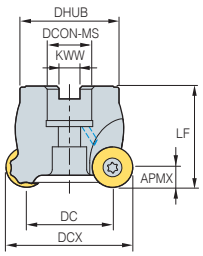


Fig. 1

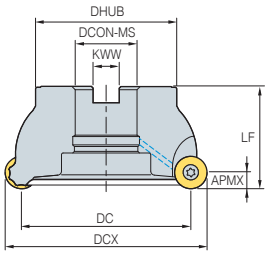


Fig. 2

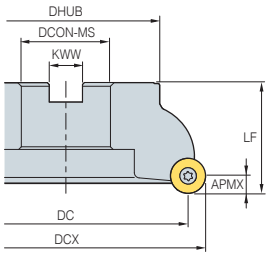


Fig. 3



- GAMP : 5°
- GAMF : -5°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
FMRCA	6250HRD	○	3	2.5	1.72	1.772	0.75	0.313	2.0	0.393	1.1	1
	6250HRD-M	○	4	2.5	1.72	1.772	0.75	0.313	2.0	0.393	1.1	1
	6300HRD	○	4	3.0	2.22	2.205	1.00	0.375	2.0	0.393	1.8	1
	6300HRD-M	○	5	3.0	2.22	2.205	1.00	0.375	2.0	0.393	1.8	1
	6400HRD	○	5	4.0	3.22	2.874	1.25	0.500	2.0	0.393	3.5	1
	6400HRD-M	○	6	4.0	3.22	2.874	1.25	0.500	2.0	0.393	3.5	1
	6500HRD	○	6	5.0	4.22	3.386	1.50	0.626	2.5	0.393	6.0	2
	6500HRD-M	○	7	5.0	4.22	3.386	1.50	0.626	2.5	0.393	6.0	2
	6600HRD	○	7	6.0	5.22	3.937	1.50	0.626	2.5	0.393	9.7	3
	6600HRD-M	○	8	6.0	5.22	3.937	1.50	0.626	2.5	0.393	9.7	3

◆: US stock ○: Made to order

Available inserts

RDHW-E,F,S



RDKT-MM



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	2006M0E										○		○				B16 B17
	2006M0F										○		○				
	2006M0S										○		○				
RDKT	2006M0-MM			○					●			○	○	○			

●: Korea stock ◆: US stock ○: Made to order

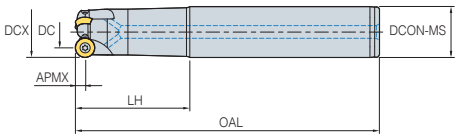
Parts

Specification	Screw	Wrench
Ø2.5~Ø6.0	FTGA0515-P	TW20-100

Available inserts **B16, B17** Available arbors and bolt **E94 ~ E96**

FMRSA1000/1500







• GAMP : 5°
• GAMF : -5°~-1°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
FMRSA	10031HRD-M	○	1	0.312	0.118	0.375	1.181	3.150	0.098	0.4
	10031HRD-L	○	1	0.312	0.118	0.375	1.969	3.937	0.098	0.4
	10037HRD-M	○	1	0.375	0.177	0.500	1.732	3.937	0.098	0.4
	10037HRD-L	○	1	0.375	0.177	0.500	2.520	4.724	0.098	0.4
	10050HRD-M	○	2	0.500	0.303	0.500	1.732	3.937	0.098	0.7
	10050HRD-L	○	2	0.500	0.303	0.625	3.150	6.299	0.098	0.7
	10062HRD-M	○	3	0.625	0.425	0.625	3.150	6.299	0.098	0.7
	10062HRD-L	○	3	0.625	0.425	0.625	3.937	7.874	0.098	0.9
FMRSA	15037HRD-M	○	1	0.375	0.138	0.500	1.732	3.937	0.098	0.4
	15037HRD-L	○	1	0.375	0.138	0.500	2.520	4.724	0.098	0.4
	15050HRD-M	○	2	0.500	0.264	0.500	2.126	4.331	0.098	0.7
	15050HRD-L	○	2	0.500	0.264	0.625	3.150	6.299	0.098	0.7
	15062HRD-M	○	3	0.625	0.386	0.625	2.362	5.118	0.098	0.7
	15062HRD-L	○	3	0.625	0.386	0.750	3.543	7.087	0.098	0.9
	15075HRD-M	○	3	0.750	0.512	0.750	3.150	5.906	0.098	0.9
	15075HRD-L	○	3	0.750	0.512	0.750	3.543	7.874	0.098	1.1

◆: US stock ○: Made to order

Available inserts

RDHW-E,F,S



RDKW



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
1000 type	RDHW	0501M0E										●						B16 B17
		0501M0F										○						
		0501M0S																
	RDKW	0501M0E								●		○						
1500 type	RDHW	06T1M0E										●						
		06T1M0F										○						
		06T1M0S										○		○				
	RDKW	06T1M0E								●		○		○				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.312~Ø0.625(1000 type)	FTNA0203	TW06P
Ø0.375~Ø0.750(1500 type)	FTNA02205	TW06P

Available inserts **B16, B17**

FMRSA2000/2500



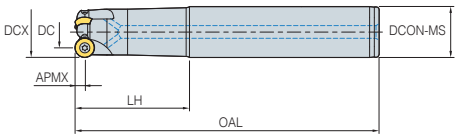


Fig. 1

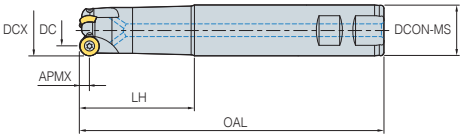


Fig. 2



• GAMP : 5°
• GAMF : -5°~-1°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
FMRSA	20062HRD-S	○	2	0.625	0.346	0.625	2.165	4.528	0.138	0.7	2
	20062HRD-M	○	2	0.625	0.346	0.750	3.150	5.906	0.138	0.9	1
	20062HRD-L	○	2	0.625	0.346	0.750	3.543	7.874	0.138	1.1	1
	20075HRD-S	○	3	0.750	0.472	0.750	2.559	4.921	0.138	1.1	2
	20075HRD-M	○	3	0.750	0.472	0.750	3.150	5.906	0.138	1.1	1
	20075HRD-L	○	3	0.750	0.472	1.000	3.543	7.874	0.138	1.1	1
FMRSA	25062HRD-S	○	2	0.625	0.307	0.625	2.559	4.921	0.157	1.1	2
	25062HRD-M	○	2	0.625	0.307	0.625	3.150	5.906	0.157	1.1	1
	25062HRD-L	○	2	0.625	0.307	0.750	3.543	7.874	0.157	1.1	1
	25075HRD-S	○	2	0.750	0.433	0.750	2.559	4.921	0.157	0.9	2
	25075HRD-M	○	2	0.750	0.433	0.750	3.150	5.906	0.157	1.1	1
	25075HRD-L	○	2	0.750	0.433	1.000	3.543	7.874	0.157	1.3	1
	25100HRD-S	○	3	1.000	0.685	1.000	2.165	4.921	0.157	1.1	2
	25100HRD-M	○	3	1.000	0.685	1.000	3.543	7.874	0.157	1.3	1
	25100HRD-L	○	3	1.000	0.685	1.250	4.331	9.843	0.157	1.5	1

◆: US stock ○: Made to order

Available inserts

RDHW-E,F,S



RDKW



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
2000 type	RDHW	0702M0E										●		○				B16 B17
		0702M0F										○		○				
		0702M0S										○		○				
	RDKW	0702M0E								●		○						
2500 type	RDHW	0803M0E										●						
		0803M0F										○						
		0803M0S										○						
	RDKW	0803M0E								●		○		○	○			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.625~Ø0.750(2000 type)	FTNA02555	TW07S
Ø0.625~Ø1.000(2500 type)	FTNA0305 FTNA0306(Ø0.750 over)	TW09S

Available inserts **B16, B17**

FMRSA3000



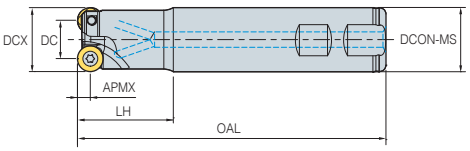


Fig. 1

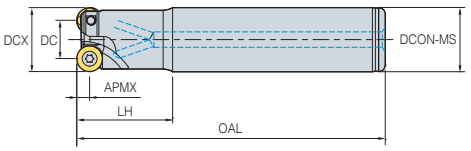


Fig. 2



• GAMP : 5°
• GAMF : -8°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
FMRSA	3075HRD-M	○	1	0.750	0.358	0.75	1.575	5.906	0.197	0.9	1
	3087HRD-M	○	2	0.875	0.480	0.75	1.575	5.906	0.197	0.9	1
	3087HRD-M2	○	1	0.875	0.480	0.75	1.575	5.906	0.197	1.3	1
	3087HRD-L	○	2	0.875	0.480	0.75	1.969	7.874	0.197	1.3	1
	3087HRD-L2	○	2	0.875	0.480	0.75	1.969	7.874	0.197	1.1	1
	3100HRD-S	○	2	1.000	0.606	1.00	1.378	4.528	0.197	1.5	1
	3100HRD-M	◆	2	1.000	0.606	1.00	2.756	7.874	0.197	1.5	1
	3100HRD-L	○	2	1.000	0.606	1.00	3.937	9.843	0.197	1.5	1
	3125HRD-S	○	2	1.250	0.858	1.25	1.575	4.921	0.197	1.5	1
	3125HRD-M	◆	3	1.250	0.858	1.25	2.756	7.874	0.197	2.2	2
	3125HRD-L	○	3	1.250	0.858	1.25	5.906	11.811	0.197	2.9	1
	3150HRD-S	○	3	1.500	1.106	1.25	1.575	4.921	0.197	3.5	1
	3150HRD-M	○	4	1.500	1.106	1.25	2.756	7.874	0.197	2.9	2
	3150HRD-L	○	4	1.500	1.106	1.25	5.906	11.811	0.197	3.3	1
	3040HRD-L		4	1.500	1.106	1.25	1.575	4.921	0.197	4.0	1

◆: US stock ○: Made to order

Available inserts

RDKT-MF



RDKT-MM



RDCT-MA



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA															◆	B16 B17
RDKT	10T3M0-MF										●		◆				
	10T3M0-MM			●	○				◆	●	◆		◆				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.750	FTGA03507	TW15S
Ø0.875~Ø1.500	FTGA03508	TW15S

Available inserts **B16, B17**

FMRSA4000



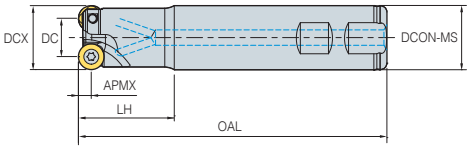


Fig. 1

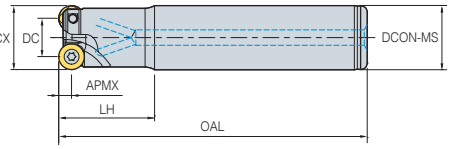


Fig. 2



• GAMP : 5°
• GAMF : -8°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
FMRSA	4125HRD-S	○	2	1.250	0.708	1.250	1.575	4.921	0.197	1.8	2
	4125HRD-M	◆	2	1.250	0.708	1.250	2.756	7.874	0.236	2.4	1
	4125HRD-L	○	2	1.250	0.708	1.250	5.906	11.811	0.236	3.5	1
	4150HRD-S	○	3	1.500	1.028	1.250	1.575	4.921	0.236	2.0	2
	4150HRD-M	◆	3	1.500	1.028	1.250	2.756	7.874	0.236	2.4	1
	4150HRD-L	○	3	1.500	1.028	1.250	5.906	11.811	0.236	3.7	1
	4150HRD-S150	○	3	1.500	1.028	1.500	1.575	4.921	0.236	2.2	2
	4150HRD-M150	○	3	1.500	1.028	1.500	2.756	7.874	0.236	3.5	1
	4150HRD-L150	○	3	1.500	1.028	1.500	5.906	11.811	0.236	4.0	1
	4200HRD-S	○	4	2.000	1.528	1.500	1.969	5.906	0.236	2.9	2
	4200HRD-M	○	4	2.000	1.528	1.500	1.969	9.843	0.236	4.4	1
	4200HRD-L	○	4	2.000	1.528	1.500	1.969	11.811	0.236	5.3	1

◆: US stock ○: Made to order

Available inserts

RDKT-MF



RDKT-MM



RDCT-MA



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	1204M0-MA															◆	B16 B17
RDKT	1204M0-MF								●		●		◆				
	1204M0-MM			●	○				◆	●	◆		◆				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.250~Ø2.000	FTKA0410	TW15S

Available inserts **B16, B17**

FMRSA5000



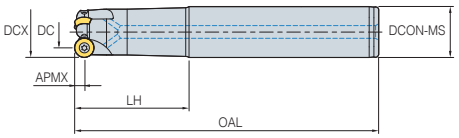


Fig. 1

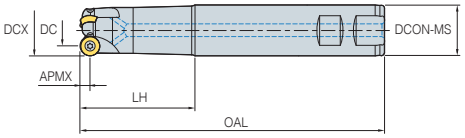


Fig. 2



• GAMP : 5°
• GAMF : -8°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
FMRSA	5150HRD-S	○	2	1.500	0.870	1.250	1.575	4.921	0.315	3.1	2
	5150HRD-M	○	2	1.500	0.870	1.250	1.969	7.874	0.315	4.0	1
	5150HRD-L	○	2	1.500	0.870	1.250	1.969	11.811	0.315	4.4	1
	5150HRD-S150	○	2	1.500	0.870	1.500	1.575	4.921	0.315	3.5	2
	5150HRD-M150	○	2	1.500	0.870	1.500	2.756	7.874	0.315	4.0	1
	5150HRD-L150	○	2	1.500	0.870	1.500	5.906	11.811	0.315	5.3	1

◆: US stock ○: Made to order

Available inserts



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	1605M0E										○			○			B16 B17
	1605M0F										○			○			
	1605M0S										○			○			
RDKT	1605M0-MF								●								
	1605M0-MM			○	○				●		○		○	○			
	1605M0-ML												○	○			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.500~Ø2.500	FTGA0513-P	TW20-100

Available inserts **B16, B17**

FMRSA6000



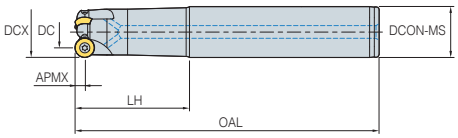


Fig. 1

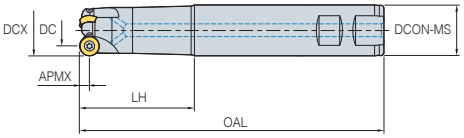


Fig. 2



- GAMP : 5°
- GAMF : -8°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
FMRSA	6200HRD-S	○	3	2.000	1.213	1.500	1.969	5.906	0.394	2.9	2
	6200HRD-M	○	3	2.000	1.213	1.500	1.969	9.843	0.394	3.1	1
	6200HRD-L	○	3	2.000	1.213	1.500	1.969	11.811	0.394	4.9	1
	6250HRD-S	○	4	2.500	1.713	1.500	1.969	5.906	0.394	0.3	2
	6250HRD-M	○	4	2.500	1.713	1.500	1.969	9.843	0.394	6.0	1
	6250HRD-L	○	4	2.500	1.713	1.500	1.969	11.811	0.394	6.6	1

◆: US stock ○: Made to order

Available inserts

RDHW-E,F,S



RDKT-MM



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDHW	2006M0E										○						B16 B17
	2006M0F										○						
	2006M0S										○						
RDKT	2006M0-MM			○					●		○	○	○	○			

●: Korea stock ◆: US stock ○: Made to order

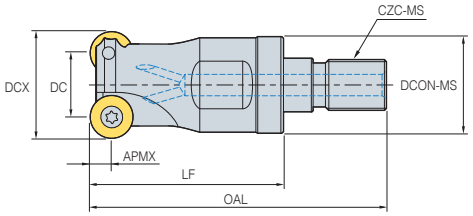
Parts

Specification	Screw	Wrench
Ø2.000~Ø2.500	FTGA0515-P	TW20-100

Available inserts **B16, B17**

FMRMA1000/1500







• GAMP : 0°~5°
• GAMF : -5°~-1°

(inch)

Designation		Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
FMRMA	10031HRD-M06	○	1	0.312	0.118	0.256	0.984	1.575	M06	0.098	0.04
	10037HRD-M06	○	2	0.375	0.177	0.256	0.984	1.575	M06	0.098	0.04
	10050HRD-M06	○	2	0.500	0.303	0.256	0.984	1.575	M06	0.098	0.09
	10062HRD-M08	○	3	0.625	0.425	0.335	1.181	1.850	M08	0.098	0.09
FMRMA	15037HRD-M06	○	1	0.375	0.138	0.256	0.984	1.575	M06	0.118	0.07
	15050HRD-M06	○	2	0.500	0.264	0.256	0.984	1.575	M06	0.118	0.04
	15062HRD-M08	○	3	0.625	0.390	0.335	1.181	1.850	M08	0.118	0.04
	15075HRD-M10	○	3	0.750	0.512	0.413	1.378	2.205	M10	0.118	0.15

◆: US stock ○: Made to order

Available inserts

RDHW-E,F,S



RDKW



Type	Designation		Cermet	Coated										Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
1000 type	RDHW	0501M0E										●						B16 B17
		0501M0F										○						
		0501M0S																
	RDKW	0501M0E								●				○	○			
1500 type	RDHW	06T1M0E										●						
		06T1M0F										○						
		06T1M0S										○						
	RDKW	06T1M0E								●								

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
FMRMA	10031HRD-M06	MATA-M06
	10037HRD-M06	
	10050HRD-M06	
	10062HRD-M08	MATA-M08
	15037HRD-M06	MATA-M06
	15050HRD-M06	
	15062HRD-M08	MATA-M08
	15075HRD-M10	MATA-M10

Designation: FMRMA10031HRD-M06
Modular head threading measure size (M06)

=

Adaptor spec.: MATA-M06-078-S037S
Adaptor threading measure (M06)

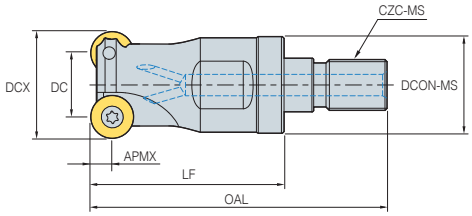
Parts

Specification	Screw	Wrench
Ø0.312~Ø0.625(1000 type)	FTNA0203	TW06P
Ø0.375~Ø0.750(1500 type)	FTNA02205	TW06P

Available inserts **B16, B17** Available adaptors **B400**

FMRMA2000/2500







• GAMP : 0°~5°
• GAMF : -5°~-1°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
FMRMA	20062HRD-M08	○	2	0.625	0.350	0.335	1.181	1.850	M08	0.138	0.09
	20075HRD-M10	○	3	0.790	0.472	0.413	1.378	2.205	M10	0.138	0.15
FMRMA	25062HRD-M08	○	2	0.625	0.311	0.335	1.181	1.850	M08	0.157	0.09
	25075HRD-M10	○	2	0.750	0.433	0.413	1.378	2.205	M10	0.157	0.15
	25100HRD-M12	○	3	1.000	0.685	0.492	1.772	2.717	M12	0.157	0.29

◆: US stock ○: Made to order

Available inserts

RDHW-E,F,S



RDKW



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
2000 type	RDHW	0702M0E										●		○				B16 B17
		0702M0F										○						
		0702M0S										○						
	RDKW	0702M0E								●		○		○	○			
2500 type	RDHW	0803M0E										●		○				
		0803M0F												○				
		0803M0S										○		○				
	RDKW	0803M0E								●				○	○			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
FMRM	20062HRD-M08	MATA - M08
	20075HRD-M08	MATA - M10
	25062HRD-M10	MATA - M08
	25075HRD-M10	MATA - M10
	25100HRD-M12	MATA - M12

Designation: FMRMA20062HRD-M08
Modular Head Threading Measure size (M08)

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Adaptor spec.: MATA-M08-078-S062S
Adaptor Threading Measure (M08)

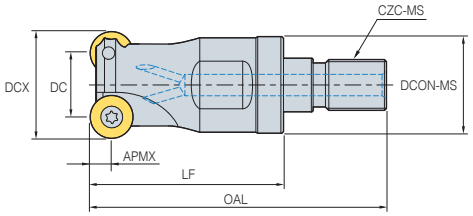
Parts

Specification	Screw	Wrench
Ø0.625~Ø0.790(2000 type)	FTNA02555	TW07S
Ø0.625~Ø1.000(2500 type)	FTNA0305	TW09S

Available inserts **B16, B17** Available adaptors **B400**

FMRMA3000







• GAMP : 5°
• GAMF :-8°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
FMRMA	3087HRD-M10	○	2	0.875	0.480	0.413	1.378	2.205	M10	0.197	0.2
	3100HRD-M12	○	2	1.000	0.606	0.492	1.772	2.717	M12	0.197	0.3
	3125HRD-M16	○	3	1.250	0.858	0.650	1.969	3.031	M16	0.197	0.4
	3150HRD-M16	○	4	1.500	1.106	0.650	1.969	3.031	M16	0.197	0.5

◆: US stock ○: Made to order

Available inserts

RDHW-E,F,S | RDCT-MA | RDKT-MF | RDKT-ML | RDKT-MM



	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RDCT	10T3M0-MA															◆	B16 B17
RDKT	10T3M0-MF										●		◆				
	10T3M0-MM			●					◆	●	◆		◆				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
FMRM	3087HRD-M10	MATA-M10
	3100HRD-M12	MATA-M12
	3125HRD-M16	MATA-M16
	3150HRD-M16	

Designation: FMRMA3087HRD-M10
Modular Head Threading Measure size (M10)

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Adaptor spec.: MATA-M10-118-S075S
Adaptor Threading Measure (M10)

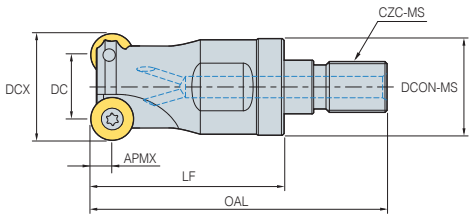
Parts

Specification	Screw	Wrench
Ø0.875	FTGA03507	TW15S
Ø1.000~Ø1.500	FTGA03508	TW15S

Available inserts B16, B17 Available adaptors B400

FMRMA4000/5000







• GAMP : 5°
• GAMF : -8°~-5°

(inch)

Designation		Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
FMRMA	4100HRD-M12	○	2	1.000	0.528	0.492	0.886	2.717	M12	0.236	0.3
	4125HRD-M16	○	2	1.250	0.780	0.669	1.142	3.031	M16	0.236	0.5
	4150HRD-M16	○	3	1.500	1.028	0.669	1.142	3.031	M16	0.236	0.5
FMRMA	5150HRD-M16	○	2	1.500	0.870	0.669	1.142	3.031	M16	0.315	0.6

◆: US stock ○: Made to order

Available inserts

RDHW-E RDCT-MA RDKT-MF RDKT-ML RDKT-MM



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
4000 type	RDCT	1204M0-MA															◆	B16 B17
	RDKT	1204M0-MF								●		●		◆				
		1204M0-MM			●	○				◆	●	◆		◆				
5000 type	RDHW	1605M0-E										○			○			
	RDKT	1605M0-MF								○								
		1605M0-ML												○	○			
		1605M0-MM			○	○				●		○		○	○			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
FMRM	4100HRD-M12	MATA-M12
	4125HRD-M16	MATA-M16
	4150HRD-M16	
	5150HRD-M16	MATA-M16

Designation: FMRMA4100HRD-M12
Modular Head Threading Measure size (M12)

=

Adaptor spec.: MATA-M12-118-S100S
Adaptor Threading Measure (M12)

Parts

Specification	Screw	Wrench
Ø25~Ø42(4000 type)	FTKA0410	TW15S
Ø40(5000 type)	FTGA0513-P	TW20-100

Available inserts B16, B17 Available adaptors B400

Future Mill series for mold making

FMR P-Positive

- Enhanced rigidty and Damped vibration
- Stable clamping system enables stable machining and productivity
- Varied product line-up ensures wide application range
- Optimal shape and grade with high hardness for hard-to-cut material machining

Features

- P-Positive relief angle (11˚) ensures high rigidity and high machinability in die steel and high-resistant alloy machining
- Flat clearance face of insert prevents interference and revolution while machining
- **Chip breaker** → Concave shape ensures wide chip pocket and lowers cutting temperature
- **Through-coolant system** - Superb chip evacuation - Low cutting heat ensures long tool life
- **Clearance face for preventing rotation** - Prevents rotation in machining
  - Prevents interference in high-feed machining
  - Divides corners
  - Ensures stable clamping
- Optimal grades and chip breakers for various workpieces

Features of chip breaker

Chip breaker insert		Cutting-edge	Use	Features
MA			Aluminum machining	Optimal cutting-edge for aluminum machining and buffed surface ensure high machinability
ML			Titanium & Inconel machining	Excellent results in titanium machining thanks to a high hardness cutting-edge and the chip breaker reducing the cutting load
MF			Light machining	Chip breaker for low cutting resistance enables fine finishing.
MM			General machining	Optimal for general machining
None C/B			Super hard material machining	Optimal for high hardness die steel and heat resistant alloy

Recommended cutting conditions

∗Recommended chip breaker: ● First ○ Second

Workpiece			Hardness	Grade	Cutting conditions				Chip breaker					
					vc (sfm)	fz (ipt)	ap (inch)	ae (inch)	MA	ML	MF	MM	None C/B 1	None C/B 2
P	Low carbon steel		HB80~180	PC5400	328~820	0.028~0.005	0.012~0.236	0.7D~0.1D	-	-	●	○	-	-
	High carbon steel		HB180~280	PC5400	328~722	0.028~0.005	0.012~0.236	0.7D~0.1D	-	-	●	○	-	-
	Low alloy steel		Under HRC27	PC3700	590~951	0.024~0.008	0.012~0.236	0.7D~0.1D	-	-	-	●	○	-
				PC5400/PC5300	328~656	0.024~0.008	0.012~0.236	0.7D~0.1D	-	-	-	●	○	-
	Low pre-hardened steel		HRC20~50	PC3700	426~820	0.020~0.012	~0.020	0.7D~0.1D	-	-	-	-	●	○
				PC2510/PC5300	164~492	0.020~0.012	~0.020	0.7D~0.1D	-	-	-	-	●	○
	High alloy steel		Under HRC27	PC3700	426~820	0.020~0.012	~0.020	0.7D~0.1D	-	-	-	●	○	-
				PC5300	164~492	0.020~0.012	~0.020	0.7D~0.1D	-	-	-	●	○	-
	High pre-hardened steel		HRC20~48	PC2510/PC5300	164~492	0.020~0.012	~0.020	0.7D~0.1D	-	-	-	-	●	○
M	Stainless steel		Under HB270	PC5300/PC5400	328~492	0.024~0.008	0.012~0.236	0.7D~0.1D	-	-	○	●	-	-
K	Gray cast iron, Ductile cast iron		Under 350MPa	PC5300	394~689	0.024~0.008	0.012~0.236	0.7D~0.1D	-	-	○	●	-	-
N	Aluminum		-	H01	984~2,625	0.024~0.012	0.012~0.236	0.7D~0.1D	●	-	-	-	-	-
S	Heat resistant alloy	Fe	HRC20~30	PC5300/PC5400	115~197	0.020~0.012	~0.020	0.7D~0.1D	-	●	○	-	-	-
		Ni or Co	HRC40~45	PC5300/PC5400	98~164	0.020~0.012	~0.020	0.7D~0.1D	-	●	○	-	-	-
	Titanium		HRC35~45	PC5300/PC5400	131~230	0.020~0.012	~0.059	0.7D~0.1D	-	●	○	-	-	-
H	High hardened materials		Over HRC50	PC2505/PC2510	98~164	0.020~0.012	~0.020	0.7D~0.1D	-	-	-	-	●	○

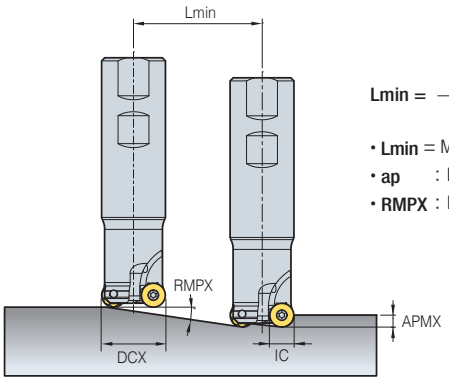
Feed per tooth according to ap (fz, ipt)

(inch)

Type	Insert size (IC)	Feed per tooth according to ap							
		ap = 0.039	ap = 0.079	ap = 0.118	ap = 0.157	ap = 0.197	ap = 0.236	ap = 0.315	ap = 0.394
RPMT08	0.315	0.012	0.009	0.007	0.006	-	-	-	-
RPMT10	0.394	0.016	0.011	0.01	0.008	0.005	-	-	-
RPMT12	0.472	0.024	0.018	0.014	0.012	0.01	0.008	-	-
RPMT16	0.630	0.026	0.018	0.016	0.013	0.012	0.011	0.009	-
RPMT20	0.787	0.028	0.02	0.017	0.014	0.013	0.011	0.01	0.009

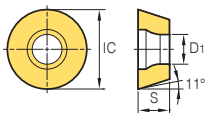
FMR P-Positive

Ramping technical data



$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (inch)}$$

- **Lmin** = Maximum angle table for ramping machining
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle



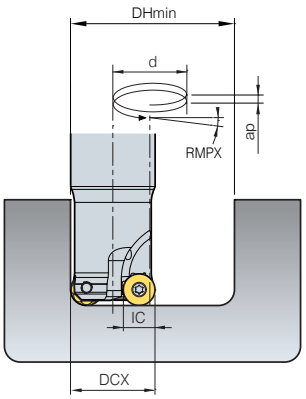
(inch)

Type	Insert size (IC)	DCX	RMPX	Cutting length L by ap									
				ap=0.039	ap=0.079	ap=0.098	ap=0.118	ap=0.138	ap=0.157	ap=0.197	ap=0.236	ap=0.315	ap=0.394
	0.315	0.688	4.44	0.507	1.013	1.266	1.52	1.773	2.026	-	-	-	-
	0.315	0.75	17.3	0.126	0.253	0.316	0.379	0.442	0.506	-	-	-	-
FMR2500	0.315	0.813	14.4	0.153	0.307	0.383	0.46	0.537	0.613	-	-	-	-
	0.315	1	9.54	0.234	0.468	0.585	0.703	0.82	0.937	-	-	-	-
	0.315	1.063	8.57	0.261	0.522	0.653	0.783	0.914	1.044	-	-	-	-
	0.394	1	13.3	0.167	0.333	0.416	0.5	0.583	0.666	0.833	-	-	-
	0.394	1.063	11.67	0.191	0.381	0.477	0.572	0.667	0.762	0.953	-	-	-
	0.394	1.25	8.52	0.263	0.525	0.657	0.788	0.92	1.051	1.314	-	-	-
FMR3000	0.394	1.313	7.82	0.287	0.574	0.717	0.86	1.004	1.147	1.434	-	-	-
	0.394	1.5	6.26	0.359	0.718	0.897	1.077	1.256	1.435	1.794	-	-	-
	0.394	2	4.09	0.551	1.102	1.378	1.654	1.929	2.205	2.756	-	-	-
	0.394	2.5	3.03	0.743	1.487	1.859	2.23	2.602	2.974	3.717	-	-	-
	0.472	1	4.34	0.519	1.038	1.297	1.557	1.816	2.076	2.594	3.113	-	-
	0.472	1.063	3.76	0.599	1.198	1.498	1.797	2.097	2.396	2.995	3.594	-	-
	0.472	1.25	14.94	0.148	0.295	0.369	0.443	0.517	0.59	0.738	0.886	-	-
	0.472	1.313	13.49	0.164	0.328	0.41	0.492	0.574	0.656	0.821	0.985	-	-
FMR4000	0.472	1.5	10.44	0.214	0.427	0.534	0.641	0.748	0.855	1.069	1.282	-	-
	0.472	2	6.49	0.346	0.692	0.865	1.038	1.211	1.384	1.73	2.076	-	-
	0.472	2.5	4.71	0.478	0.957	1.196	1.435	1.674	1.913	2.391	2.87	-	-
	0.472	3	3.69	0.611	1.221	1.526	1.832	2.137	2.442	3.053	3.663	-	-
	0.472	4	2.58	0.875	1.75	2.188	2.625	3.063	3.5	4.375	5.251	-	-
	0.63	1.5	20.01	0.108	0.216	0.27	0.324	0.378	0.432	0.541	0.649	0.865	-
	0.63	2	10.99	0.203	0.406	0.507	0.608	0.71	0.811	1.014	1.217	1.623	-
	0.63	2.5	7.54	0.298	0.595	0.744	0.893	1.041	1.19	1.488	1.785	2.38	-
FMR5000	0.63	3	5.73	0.392	0.784	0.981	1.177	1.373	1.569	1.961	2.353	3.138	-
	0.63	4	3.87	0.582	1.163	1.454	1.745	2.036	2.326	2.908	3.49	4.653	-
	0.63	5	2.92	0.771	1.542	1.927	2.313	2.698	3.084	3.855	4.626	6.168	-
	0.63	6	2.35	0.96	1.921	2.401	2.881	3.361	3.842	4.802	5.762	7.683	-
	0.787	2	17.22	0.127	0.254	0.318	0.381	0.445	0.508	0.635	0.762	1.016	1.271
	0.787	2.5	10.99	0.203	0.406	0.507	0.608	0.71	0.811	1.014	1.217	1.623	2.028
	0.787	3	8.04	0.279	0.557	0.696	0.836	0.975	1.114	1.393	1.671	2.229	2.786
FMR6000	0.787	4	5.23	0.43	0.86	1.075	1.29	1.505	1.72	2.15	2.581	3.441	4.301
	0.787	5	3.87	0.582	1.163	1.454	1.745	2.036	2.326	2.908	3.49	4.653	5.816
	0.787	6	3.07	0.733	1.466	1.833	2.199	2.566	2.932	3.666	4.399	5.865	7.331
	0.787	8	2.18	1.036	2.072	2.59	3.108	3.627	4.145	5.181	6.217	8.289	10.361
	0.787	10	1.68	1.339	2.678	3.348	4.018	4.687	5.357	6.696	8.035	10.713	13.392

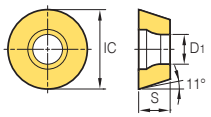
※ Insert size (IC): Please refer page B17, B18 applicable insert drawing.

FMR P-Positive

Minimum hole diameter table for helical machining (ØDHmin)



- **DCX =** Tool dia. (inch), DHmin, max = DCX (inch)
- **IC =** Tool path (inch)
- **DHmin(Minimum hole diameter)** = DCX × 2 - Insert size,
- **DHmax(Maximum hole diameter)** = DCX × 2 - 2
- **d(Tool path)** = DHmin, max-DCX



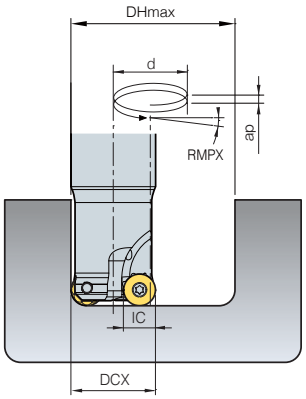
(inch)

Type	Insert size (IC)	DCX	RMPX	ØDH min	d	Ramping angle									
						ap=0.039	ap=0.079	ap=0.098	ap=0.118	ap=0.138	ap=0.157	ap=0.197	ap=0.236	ap=0.315	ap=0.394
FMR2500	0.315	0.688	4.44	1.06	0.37	0.076	0.152	-	-	-	-	-	-	-	-
	0.315	0.75	17.3	1.19	0.44	0.065	0.13	0.163	0.196	0.228	0.261	-	-	-	-
	0.315	0.813	14.4	1.31	0.5	0.057	0.114	0.142	0.171	0.199	0.228	-	-	-	-
	0.315	1	9.54	1.69	0.69	0.041	0.083	0.103	0.124	0.145	0.165	-	-	-	-
	0.315	1.063	8.57	1.81	0.75	0.038	0.076	0.095	0.114	0.133	0.152	-	-	-	-
FMR3000	0.394	1	13.3	1.61	0.61	0.047	0.093	0.117	0.14	0.164	0.187	-	-	-	-
	0.394	1.063	11.67	1.73	0.67	0.042	0.085	0.106	0.127	0.148	0.169	-	-	-	-
	0.394	1.25	8.52	2.11	0.86	0.033	0.066	0.083	0.099	0.116	0.132	-	-	-	-
	0.394	1.313	7.82	2.23	0.92	0.031	0.062	0.077	0.092	0.108	0.123	-	-	-	-
	0.394	1.5	6.26	2.61	1.11	0.026	0.051	0.064	0.077	0.09	0.102	-	-	-	-
	0.394	2	4.09	3.61	1.61	0.018	0.035	0.044	0.053	0.062	0.07	-	-	-	-
	0.394	2.5	3.03	4.61	2.11	0.013	0.027	0.034	0.04	0.047	0.054	-	-	-	-
FMR4000	0.472	1	4.34	1.53	0.53	0.054	0.107	0.134	-	-	-	-	-	-	-
	0.472	1.063	3.76	1.65	0.59	0.048	0.096	0.12	-	-	-	-	-	-	-
	0.472	1.25	14.94	2.03	0.78	0.036	0.073	0.091	0.109	0.127	0.146	0.182	0.219	-	-
	0.472	1.313	13.49	2.15	0.84	0.034	0.067	0.084	0.101	0.118	0.135	0.169	0.203	-	-
	0.472	1.5	10.44	2.53	1.03	0.028	0.055	0.069	0.083	0.096	0.11	0.138	0.165	-	-
	0.472	2	6.49	3.53	1.53	0.019	0.037	0.046	0.056	0.065	0.074	0.093	0.111	-	-
	0.472	2.5	4.71	4.53	2.03	0.014	0.028	0.035	0.042	0.049	0.056	0.07	0.084	-	-
	0.472	3	3.69	5.53	2.53	0.011	0.022	0.028	0.034	0.039	0.045	0.056	0.067	-	-
	0.472	4	2.58	7.53	3.53	0.008	0.016	0.02	0.024	0.028	0.032	0.04	0.048	-	-
FMR5000	0.63	1.5	20.01	2.37	0.87	0.033	0.065	0.081	0.098	0.114	0.13	0.163	0.196	0.261	-
	0.63	2	10.99	3.37	1.37	0.021	0.041	0.052	0.062	0.072	0.083	0.103	0.124	0.165	-
	0.63	2.5	7.54	4.37	1.87	0.015	0.03	0.038	0.045	0.053	0.061	0.076	0.091	0.121	-
	0.63	3	5.73	5.37	2.37	0.012	0.024	0.03	0.036	0.042	0.048	0.06	0.072	0.096	-
	0.63	4	3.87	7.37	3.37	0.008	0.017	0.021	0.025	0.029	0.034	0.042	0.05	0.067	-
	0.63	5	2.92	9.37	4.37	0.006	0.013	0.016	0.019	0.023	0.026	0.032	0.039	0.052	-
	0.63	6	2.35	11.37	5.37	0.005	0.011	0.013	0.016	0.018	0.021	0.026	0.032	0.042	-
FMR6000	0.787	2	17.22	3.21	1.21	0.023	0.047	0.058	0.07	0.082	0.093	0.117	0.14	0.187	0.234
	0.787	2.5	10.99	4.21	1.71	0.017	0.033	0.041	0.05	0.058	0.066	0.083	0.099	0.132	0.165
	0.787	3	8.04	5.21	2.21	0.013	0.026	0.032	0.038	0.045	0.051	0.064	0.077	0.102	0.128
	0.787	4	5.23	7.21	3.21	0.009	0.018	0.022	0.026	0.031	0.035	0.044	0.053	0.07	0.088
	0.787	5	3.87	9.21	4.21	0.007	0.013	0.017	0.02	0.023	0.027	0.034	0.04	0.054	0.067
	0.787	6	3.07	11.21	5.21	0.005	0.011	0.014	0.016	0.019	0.022	0.027	0.033	0.043	0.054
	0.787	8	2.18	15.21	7.21	0.004	0.008	0.01	0.012	0.014	0.016	0.02	0.024	0.031	0.039
	0.787	10	1.68	19.21	9.21	0.003	0.006	0.008	0.009	0.011	0.012	0.015	0.018	0.025	0.031

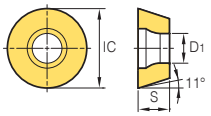
※ Insert size (IC): Please refer page B17, B18 applicable insert drawing.

FMR P-Positive

Minimum hole diameter table for helical machining (ØDHmin)



- **DCX =** Tool dia. (inch), DHmin, max = DCX (inch)
- **IC =** Tool path (inch)
- **DHmin(Minimum hole diameter)** = DCX × 2 - Insert size,
- **DHmax(Maximum hole diameter)** = DCX × 2 - 2
- **d(Tool path, inch)** = DHmin, max-DCX



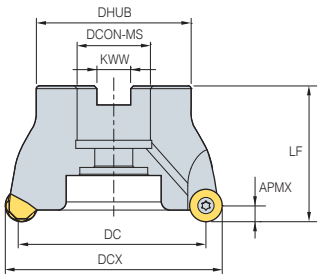
(inch)

Type	Insert size (IC)	DCX	RMPX	ØDH min	d	Ramping angle									
						ap=0.039	ap=0.079	ap=0.098	ap=0.118	ap=0.138	ap=0.157	ap=0.197	ap=0.236	ap=0.315	ap=0.394
FMR2500	0.315	0.688	4.44	1.3	0.61	0.046	0.093	0.116	0.14	-	-	-	-	-	-
	0.315	0.75	17.3	1.42	0.67	0.042	0.084	0.105	0.127	0.148	0.169	-	-	-	-
	0.315	0.813	14.4	1.55	0.73	0.039	0.077	0.096	0.116	0.135	0.154	-	-	-	-
	0.315	1	9.54	1.92	0.92	0.031	0.061	0.077	0.092	0.108	0.123	-	-	-	-
	0.315	1.063	8.57	2.05	0.98	0.029	0.058	0.072	0.086	0.101	0.115	-	-	-	-
FMR3000	0.394	1	13.3	1.92	0.92	0.031	0.061	0.077	0.092	0.108	0.123	-	-	-	-
	0.394	1.063	11.67	2.05	0.98	0.029	0.058	0.072	0.086	0.101	0.115	-	-	-	-
	0.394	1.25	8.52	2.42	1.17	0.024	0.048	0.06	0.072	0.085	0.097	-	-	-	-
	0.394	1.313	7.82	2.55	1.23	0.023	0.046	0.057	0.069	0.08	0.092	-	-	-	-
	0.394	1.5	6.26	2.92	1.42	0.02	0.04	0.05	0.06	0.07	0.08	-	-	-	-
	0.394	2	4.09	3.92	1.92	0.015	0.029	0.037	0.044	0.052	0.059	-	-	-	-
	0.394	2.5	3.03	4.92	2.42	0.012	0.023	0.029	0.035	0.041	0.047	-	-	-	-
FMR4000	0.472	1	4.34	1.92	0.92	0.031	0.061	0.077	0.092	0.108	0.123	-	-	-	-
	0.472	1.063	3.76	2.05	0.98	0.029	0.058	0.072	0.086	0.101	0.115	-	-	-	-
	0.472	1.25	14.94	2.42	1.17	0.024	0.048	0.06	0.072	0.085	0.097	0.121	0.145	-	-
	0.472	1.313	13.49	2.55	1.23	0.023	0.046	0.057	0.069	0.08	0.092	0.115	0.138	-	-
	0.472	1.5	10.44	2.92	1.42	0.02	0.04	0.05	0.06	0.07	0.08	0.1	0.12	-	-
	0.472	2	6.49	3.92	1.92	0.015	0.029	0.037	0.044	0.052	0.059	0.074	0.088	-	-
	0.472	2.5	4.71	4.92	2.42	0.012	0.023	0.029	0.035	0.041	0.047	0.058	0.07	-	-
	0.472	3	3.69	5.92	2.92	0.01	0.019	0.024	0.029	0.034	0.039	0.048	0.058	-	-
	0.472	4	2.58	7.92	3.92	0.007	0.014	0.018	0.022	0.025	0.029	0.036	0.043	-	-
FMR5000	0.63	1.5	20.01	2.92	1.42	0.02	0.04	0.05	0.06	0.07	0.08	0.1	0.12	0.159	-
	0.63	2	10.99	3.92	1.92	0.015	0.029	0.037	0.044	0.052	0.059	0.074	0.088	0.118	-
	0.63	2.5	7.54	4.92	2.42	0.012	0.023	0.029	0.035	0.041	0.047	0.058	0.07	0.094	-
	0.63	3	5.73	5.92	2.92	0.01	0.019	0.024	0.029	0.034	0.039	0.048	0.058	0.077	-
	0.63	4	3.87	7.92	3.92	0.007	0.014	0.018	0.022	0.025	0.029	0.036	0.043	0.058	-
	0.63	5	2.92	9.92	4.92	0.006	0.011	0.014	0.017	0.02	0.023	0.029	0.034	0.046	-
	0.63	6	2.35	11.92	5.92	0.005	0.01	0.012	0.014	0.017	0.019	0.024	0.029	0.038	-
FMR6000	0.787	2	17.22	3.92	1.92	0.015	0.029	0.037	0.044	0.052	0.059	0.074	0.088	0.118	0.147
	0.787	2.5	10.99	4.92	2.42	0.012	0.023	0.029	0.035	0.041	0.047	0.058	0.07	0.094	0.117
	0.787	3	8.04	5.92	2.92	0.01	0.019	0.024	0.029	0.034	0.039	0.048	0.058	0.077	0.097
	0.787	4	5.23	7.92	3.92	0.007	0.014	0.018	0.022	0.025	0.029	0.036	0.043	0.058	0.072
	0.787	5	3.87	9.92	4.92	0.006	0.011	0.014	0.017	0.02	0.023	0.029	0.034	0.046	0.057
	0.787	6	3.07	11.92	5.92	0.005	0.01	0.012	0.014	0.017	0.019	0.024	0.029	0.038	0.048
	0.787	8	2.18	15.92	7.92	0.004	0.007	0.009	0.011	0.012	0.014	0.018	0.021	0.029	0.036
	0.787	10	1.68	19.92	9.92	0.003	0.006	0.007	0.009	0.01	0.011	0.014	0.017	0.023	0.029

※ Insert size (IC): Please refer page B17, B18 applicable insert drawing.

FMRCA3000







• GAMP : 5°
• GAMF : -4°~ 0°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
FMRCA	3150HRP-5	○	5	1.500	1.106	1.417	0.500	0.252	1.500	0.20	0.49
	3200HRP-6	◆	6	2.000	1.606	1.772	0.750	0.315	1.750	0.20	0.77
	3250HRP-6	○	6	2.500	2.106	2.205	1.000	0.374	1.750	0.20	1.21
	3250HRP-7	◆	7	2.500	2.106	2.205	1.000	0.374	1.750	0.20	1.23

◆: US stock ○: Made to order

Available inserts



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	10T3M0-MA															◆	B17 B18
RPET	10T3M0E-ML												●	●			
RPMT	10T3M0E-MF								○			○	◆	●			
	10T3M0S-MM						●	●	◆			○	◆	●			
RPMW	10T3M0E1						●	●	○				◆	●			

●: Korea stock ◆: US stock ○: Made to order

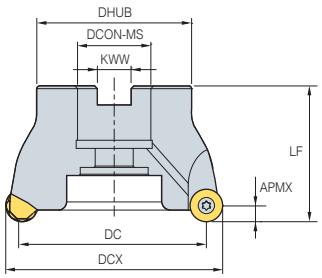
Parts

Specification	Screw	Wrench
Ø1.500~Ø2.500	FTGA03508	TW15S

Available inserts **B17, B18** Available arbors and bolt **E96**

FMRCA4000







• GAMP : 5°
• GAMF : -2°~ 0°

(inch)

Designation		Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
FMRCA	4200HRP-4	◆	4	2.000	1.528	1.772	0.750	0.315	1.750	0.24	0.57
	4200HRP-5	◆	5	2.000	1.582	1.772	0.750	0.315	1.750	0.24	0.62
	4250HRP-5	○	5	2.500	2.028	2.205	1.000	0.374	1.750	0.24	0.97
	4250HRP-6	◆	6	2.500	2.028	2.205	1.000	0.374	1.750	0.24	1.06
	4300HRP-6	◆	6	3.000	2.528	2.205	1.000	0.374	2.000	0.24	2.03
	4300HRP-7	◆	7	3.000	2.528	2.205	1.000	0.374	2.000	0.24	1.98
	4400HRP-7	○	7	4.000	3.528	2.874	1.250	0.500	2.000	0.24	3.22

◆: US stock ○: Made to order

Available inserts



Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1204M0-MA															◆	
RPET	1204M0E-ML												◆	◆			
RPMT	1204M0E-MF											●	◆	●			B17
	1204M0S-MM						●	●	◆			●	◆	◆			B18
RPMW	1204M0S1						●	●	◆			○	◆	○			
	1204M0S2											○	◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.000~Ø4.000	FTKA0410	TW15S

Available inserts **B17, B18** Available arbors and bolt **E94 ~ E96**

FMRCA5000



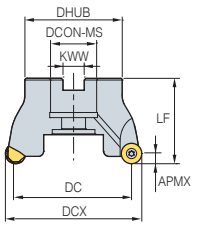


Fig. 1

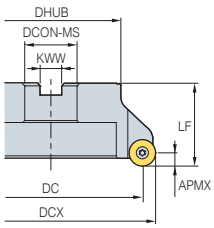


Fig. 2

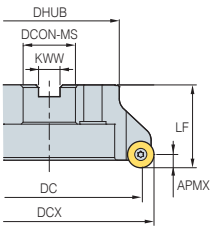


Fig. 3



• GAMP : 5°
• GAMF : -1°~ 0°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
FMRCA	5250HRP-4	○	4	2.500	1.870	2.205	1.000	0.374	1.750	0.31	0.95	1
	5250HRP-5	○	5	2.500	1.870	2.205	1.000	0.374	1.750	0.31	0.97	1
	5300HRP-5	◆	5	3.000	2.370	2.205	1.000	0.374	2.000	0.31	1.70	1
	5300HRP-6	◆	6	3.000	2.370	2.205	1.000	0.374	2.000	0.31	1.81	1
	5400HRP-6	◆	6	4.000	3.300	2.874	1.250	0.500	2.000	0.31	3.13	1
	5500HRP-7	○	7	5.000	4.370	3.386	1.500	0.626	2.500	0.31	6.13	1
	5500HRP-8	◆	8	5.000	4.370	3.386	1.500	0.626	2.500	0.31	6.15	1
	5600RP-8	◆	8	6.000	5.370	4.882	2.000	0.752	2.500	0.31	8.84	2(3)

◆: US stock ○: Made to order

Available inserts

	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

	Designation	Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1606M0-MA															◆	B17 B18
RPET	1606M0E-ML												●	◆			
RPMT	1606M0E-MF												◆	●			
	1606M0S-MM						●	●	◆				◆	◆			
RPMW	1606M0S1						●	●	◆				◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.500~Ø6.000	FTGA0512-P	TW20-100

Available inserts **B17, B18** Available arbors and bolt **E94 ~ E96**

FMRCA6000



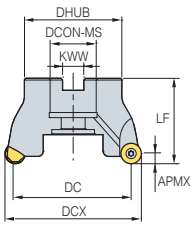


Fig. 1

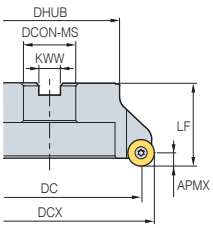


Fig. 2

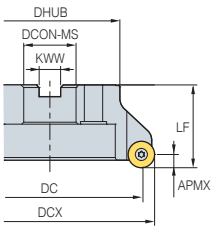


Fig. 3

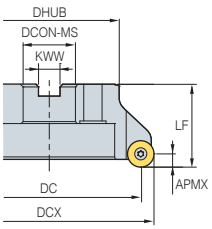


Fig. 4



• GAMP : 5°
• GAMF : 0°

(inch)

	Designation	Stock	CICT	DC	DCX	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
FMRCA	6250HRP-4	○	4	2.500	1.713	2.205	1.000	0.374	0.750	0.39	0.82	1
	6300HRP-5	◆	5	3.000	2.213	2.205	1.000	0.374	2.000	0.39	1.92	1
	6400HRP-5	○	5	4.000	3.213	2.874	1.250	0.500	2.000	0.39	2.89	1
	6400HRP-6	◆	6	4.000	3.213	2.874	1.250	0.500	2.000	0.39	3.09	1
	6500HRP-5	○	5	5.000	4.213	3.386	1.500	0.626	2.500	0.39	6.11	1
	6500HRP-7	○	7	5.000	4.213	3.386	1.500	0.626	2.500	0.39	6.37	1
	6600RP-6	○	6	6.000	5.213	4.882	2.000	0.752	2.500	0.39	7.89	2(3)
	6600RP-8	◆	8	6.000	5.213	4.882	2.000	0.752	2.500	0.39	7.78	2(3)
	6800RP-8	○	8	8.000	7.213	5.118	2.500	1.000	2.500	0.39	11.36	4
	61000RP-9	○	9	10.000	9.213	7.087	2.500	1.000	2.500	0.39	21.43	4

◆: US stock ○: Made to order

Available inserts


RPCT-MA


RPET-ML


RPMT-MF


RPMT-MM


RPMW

Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	2007M0-MA															◆	B17 B18
RPET	2007M0E-ML												◆	◆			
RPMT	2007M0E-MF												●	◆			
	2007M0S-MM						●	●	◆			○	◆	◆			
RPMW	2007M0S1						●	●	○			○	◆	◆			

●: Korea stock ◆: US stock ○: Made to order

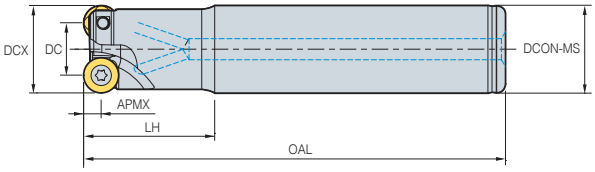
Parts

Specification	Screw	Wrench
Ø2.500~Ø10.000	FTKA0615-P	TW25-100

Available inserts **B17, B18** Available arbors and bolt **E94 ~ E96**

FMRSA2500







• GAMP : -4°
• GAMF : -4°~-1°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
FMRSA	25068HRP-2S062	○	2	0.688	0.373	0.625	1.378	3.543	0.16	0.24
	25068HRP-2M062	○	2	0.688	0.373	0.625	1.378	5.906	0.16	0.44
	25068HRP-2L062	○	2	0.688	0.373	0.625	1.378	7.874	0.16	0.60
	25075HRP-3S075	◆	3	0.750	0.435	0.750	1.378	5.118	0.16	0.60
	25075HRP-3M075	◆	3	0.750	0.435	0.750	3.937	7.087	0.16	0.79
	25075HRP-3L075	◆	3	0.750	0.435	0.750	5.118	9.843	0.16	1.10
	25081HRP-3S075	○	3	0.813	0.498	0.750	1.378	5.118	0.16	0.62
	25081HRP-3M075	○	3	0.813	0.498	0.750	1.378	7.087	0.16	0.88
	25081HRP-3L075	○	3	0.813	0.498	0.750	1.378	9.843	0.16	1.21
	25100HRP-4S100	◆	4	1.000	0.685	1.000	1.378	5.906	0.16	1.06
	25100HRP-4M100	◆	4	1.000	0.685	1.000	2.362	7.087	0.16	1.32
	25100HRP-4L100	◆	4	1.000	0.685	1.000	5.118	9.543	0.16	1.79
	25106HRP-4S100	○	4	1.063	0.748	1.000	1.378	5.906	0.16	1.06
	25106HRP-4L100	○	4	1.063	0.748	1.000	5.118	9.843	0.16	1.87

◆: US stock ○: Made to order

Available inserts

RPET-ML RPMT-MF RPMT-MM RPMW



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPET	0803M0E-ML											○	●	●			B18
RPMT	0803M0E-MF								○			○	◆	●			
	0803M0S-MM						●	●				○	●	●			
RPMW	0803M0E1								○			○	◆	●			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.688	FTNA0305	TW09S
Ø0.750~Ø1.063	FTNA0306	TW09S

Available inserts **B18**

FMRSA3000



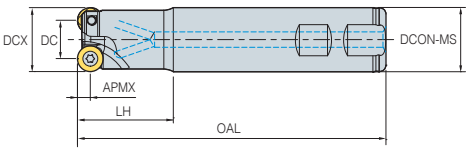


Fig. 1

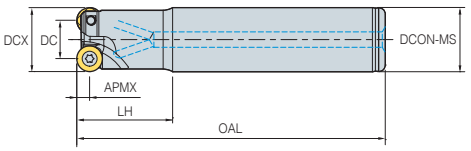


Fig. 2



• GAMP : -4°
• GAMF : -1°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
FMRSA	3100HRP-2M075	◆	2	1.000	0.606	0.750	1.575	6.693	0.20	0.88	2
	3100HRP-2S100	◆	2	1.000	0.606	1.000	1.575	4.724	0.20	0.86	1
	3100HRP-2M100	◆	2	1.000	0.606	1.000	2.362	4.299	0.20	1.15	2
	3100HRP-2L100	◆	2	1.000	0.606	1.000	5.118	9.843	0.20	1.76	2
	3106HRP-2L100	○	2	1.063	0.669	1.000	1.181	7.874	0.20	1.52	2
	3125HRP-3S125	◆	3	1.250	0.856	1.250	1.575	4.921	0.20	1.50	1
	3125HRP-3L125	◆	3	1.250	0.856	1.250	2.362	7.874	0.20	2.38	2
	3125HRP-4S125	◆	4	1.250	0.856	1.250	1.575	4.921	0.20	1.46	1
	3125HRP-4L100	◆	4	1.250	0.856	1.250	2.362	7.874	0.20	1.63	2
	3131HRP-4S125	○	4	1.313	0.919	1.250	1.575	4.921	0.20	1.48	1
	3131HRP-4M125	○	4	1.313	0.919	1.250	2.362	7.087	0.20	2.21	2
	3131HRP-4L125	○	4	1.313	0.919	1.250	7.087	11.811	0.20	3.62	2

◆: US stock ○: Made to order

Available inserts

	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	10T3M0-MA															◆	B17 B18
RPET	10T3M0E-ML												●	●			
RPMT	10T3M0E-MF								○			○	◆	●			
	10T3M0S-MM						●	●	◆			○	◆	●			
RPMW	10T3M0E1						●	●	○			○	◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.000~Ø1.063	FTGA03507	TW15S
Ø1.250~Ø1.313	FTGA03508	TW15S

Available inserts **B17, B18**

FMRSA4000



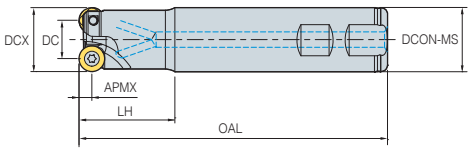


Fig. 1

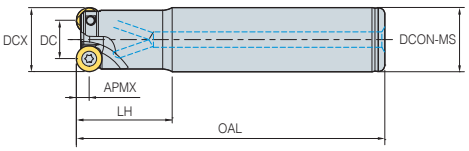


Fig. 2



• GAMP : -4°
• GAMF : -2°~ 0°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
FMRSA	4100HRP-2S100	◆	2	1.000	0.528	1.000	2.362	6.299	0.24	1.01	1
	4106HRP-2L100	○	2	1.063	0.590	1.000	2.362	7.874	0.24	1.06	2
	4125HRP-2L100	◆	2	1.250	0.778	1.000	1.575	7.48	0.24	1.50	2
	4125HRP-2S125	◆	2	1.250	0.778	1.250	1.969	4.921	0.24	1.41	1
	4125HRP-2L125	◆	2	1.250	0.778	1.250	1.969	9.843	0.24	3.09	2
	4125HRP-3S125	◆	3	1.250	0.778	1.250	1.969	4.921	0.24	1.41	1
	4125HRP-3M125	◆	3	1.250	0.778	1.250	2.362	6.299	0.24	1.87	2
	4131HRP-3M125	○	3	1.313	0.840	1.250	2.362	7.874	0.24	2.23	2
	4131HRP-3L125	○	3	1.313	0.840	1.250	2.362	11.811	0.24	3.68	2
	4150HRP-3S125	◆	3	1.500	1.028	1.250	1.378	4.134	0.24	1.32	1
	4150HRP-3M125	◆	3	1.500	1.028	1.250	1.969	6.299	0.24	2.12	2
	4150HRP-4S125	◆	4	1.500	1.028	1.250	1.378	4.134	0.24	1.32	1
	4150HRP-4M125	◆	4	1.500	1.028	1.250	1.378	5.906	0.24	1.92	2
	4150HRP-4L125	○	4	1.500	1.028	1.250	1.378	9.843	0.24	3.22	2
	4200HRP-4M125	◆	4	2.000	1.528	1.250	1.969	5.906	0.24	2.43	2
	4200HRP-4M150	◆	4	2.000	1.528	1.500	1.969	5.906	0.24	3.18	2

◆: US stock ○: Made to order

Available inserts

RPCT-MA



RPET-ML



RPMT-MF



RPMT-MM



RPMW



Designation		Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1204M0-MA															◆	
RPET	1204M0E-ML												◆	◆			
RPMT	1204M0E-MF											●	◆	●			B17
	1204M0S-MM				○		●	●	◆			●	◆	◆			B18
RPMW	1204M0S1						●	●	◆			○	◆	○			
	1204M0S2											○	◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.000~Ø1.063	FTKA0408	TW15S
Ø1.250~Ø2.000	FTKA0410	TW15S

Available inserts **B17, B18**

FMRSA5000/6000



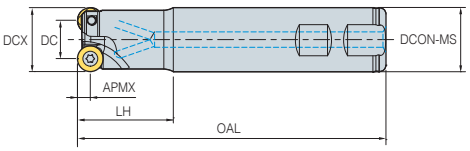


Fig. 1

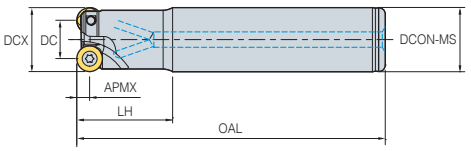


Fig. 2



• GAMP : -4°
• GAMF : 0°

(inch)

Designation		Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
FMRSA	5150HRP-2M125	◆	2	1.500	0.870	1.250	1.969	6.299	0.31	2.03	2
	5150HRP-2L125	◆	2	1.500	0.870	1.250	1.969	9.843	0.31	3.20	2
	5200HRP-3M150	◆	3	2.000	1.370	1.500	1.969	6.299	0.31	3.26	2
	5200HRP-3L150	◆	3	2.000	1.370	1.500	1.969	11.811	0.31	6.31	2
FMRSA	6200HRP-3S125	◆	3	2.000	1.213	1.250	1.969	6.299	0.39	2.34	1
	6200HRP-3M125	○	3	2.000	1.213	1.250	1.969	7.874	0.39	2.87	2
	6200HRP-3L125		3	2.000	1.213	1.500	1.969	11.811	0.39	4.19	2
	6200HRP-3S150	○	3	2.000	1.213	1.500	1.969	4.921	0.39	3.20	1
	6200HRP-3M150	○	3	2.000	1.213	1.500	1.969	7.874	0.39	4.08	2

◆: US stock ○: Made to order

Available inserts

RPCT-MA | RPET-ML | RPMT-MF | RPMT-MM | RPMW



Type	Designation		Cermet	Coated											Uncoated		Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
5000 type	RPCT	1606M0-MA															◆	B17 B18
	RPET	1606M0E-ML											○	●	◆			
	RPMT	1606M0E-MF								○			○	◆	◆			
		1606M0S-MM						●	●	◆			○	◆	◆			
	RPMW	1606M0S1				○		●	●	○			○	◆	◆			
6000 type	RPCT	2007M0-MA															●	
	RPET	2007M0E-ML											○	◆	◆			
	RPMT	2007M0E-MF								○			○	●	◆			
		2007M0S-MM						●	●	◆			○	◆	◆			
	RPMW	2007M0S1						●	●	○			○	◆	◆			

●: Korea stock ◆: US stock ○: Made to order

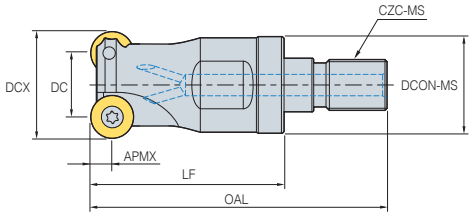
Parts

Specification	Screw	Wrench
Ø1.500~Ø2.000(5000 type)	FTGA0511-P	TW20-100
Ø2.000(6000 type)	FTKA0615-P	TW25-100

Available inserts **B17, B18**

FMRMA2500







• GAMP : -4°
• GAMF : -4°~ 0°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
FMRMA	25068HRP-M08	○	2	0.688	0.373	0.571	0.984	1.654	M08	0.16	0.07
	25075HRP-M10	○	3	0.750	0.435	0.709	1.181	2.008	M10	0.16	0.13
	25100HRP-M12	○	4	1.000	0.685	0.906	1.378	2.323	M12	0.16	0.24
	25125HRP-M16	○	4	1.250	0.935	1.142	1.575	2.638	M16	0.16	0.49
	25150HRP-M16	○	5	1.500	1.185	1.142	1.575	2.638	M16	0.16	0.57

◆: US stock ○: Made to order

Available inserts

RPCT-MA RPET-ML RPMT-MF RPMT-MM RPMW



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPET	0803M0E-ML											○	●	●			B17 B18
RPMT	0803M0E-MF								○			○	◆	●			
	0803M0S-MM						●	●	○			○	◆	●			
RPMW	0803M0E1								○			○	◆	●			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
FMRMA	25068HRP-M08	MATA-M08
	25075HRP-M10	MATA-M10
	25100HRP-M12	MATA-M12
	25125HRP-M16	MATA-M16
	25150HRP-M16	

Designation: FMRMA25068HRP-M08
Modular Head Threading Measure size (M08)

II

Adaptor spec.: MATA-M08-078-S062S
Adaptor Threading Measure (M08)

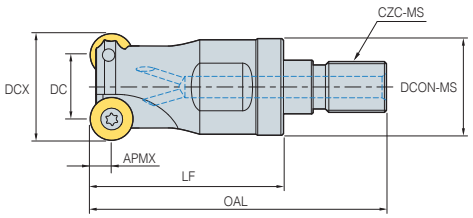
Parts

Specification	Screw	Wrench
Ø0.688	FTNA0305	TW09S
Ø0.750~Ø1.500	FTNA0306	TW09S

Available inserts **B17, B18** Available adaptors **B400**

FMRMA3000







• GAMP : -4°
• GAMF : -1°~ 0°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
FMRMA	3100HRP-M12	○	2	1.000	0.606	0.906	1.378	2.323	M12	0.20	0.22
	3125HRP-M16	○	3	1.250	0.856	1.142	1.575	2.638	M16	0.20	0.44
	3150HRP-M16	○	3	1.500	1.106	1.142	1.575	2.638	M16	0.20	0.55

◆: US stock ○: Made to order

Available inserts

	RPCT-MA	RPET-ML	RPMT-MF	RPMT-MM	RPMW
					

	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	10T3M0-MA															●	B17 B18
RPET	10T3M0E-ML											○	●	●			
RPMT	10T3M0E-MF								○			○	◆	●			
	10T3M0S-MM						●	●	◆			○	◆	●			
RPMW	10T3M0E1						●	●	○			○	◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
FMRM	3100HRP-M12	MATA-M12
	3125HRP-M16	MATA-M16
	3150HRP-M16	

Designation: FMRMA3125HRP-M16
Modular Head Threading Measure size (M16)

II

Adaptor spec.: MATA-M16-137-S125S
Adaptor Threading Measure (M16)

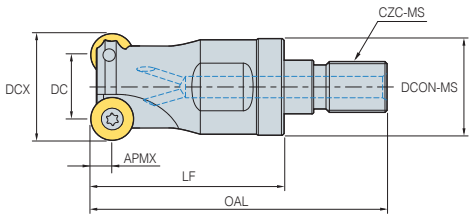
Parts

Specification	Screw	Wrench
Ø1.000	FTGA03507	TW15S
Ø1.250~Ø1.500	FTGA03508	TW15S

Available inserts **B17, B18** Available adaptors **B400**

FMRMA4000







• GAMP : -4°
• GAMP : -4°~ 0°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
FMRMA	4100HRP-M12	○	2	1.000	0.528	0.906	1.378	2.323	M12	0.24	0.22
	4125HRP-M16	○	3	1.250	0.778	1.142	1.575	2.638	M16	0.24	0.46
	4150HRP-M16	○	4	1.500	1.028	1.142	1.575	2.638	M16	0.24	0.53

◆: US stock ○: Made to order

Available inserts

RPCT-MA RPET-ML RPMT-MF RPMT-MM RPMW



Designation		Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1204M0-MA															◆	B17 B18
RPET	1204M0E-ML												◆	◆			
RPMT	1204M0E-MF											●	◆	●			
	1204M0S-MM				○		●	●	◆			●	◆	◆			
RPMW	1204M0S1						●	●	◆				◆				
	1204M0S2												◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
FMRM	4100HRP-M12	MATA-M12
	4125HRP-M16	MATA-M16
	4150HRP-M16	

Designation: FMRMA4100HRP-M12
Modular Head Threading Measure size (M12)

=

Adaptor spec.: MATA-M12-118-S100S
Adaptor Threading Measure (M12)

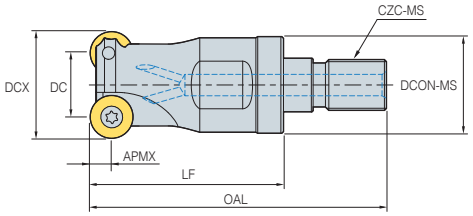
Parts

Specification	Screw	Wrench
Ø1.000	FTKA0408	TW15S
Ø1.250~Ø1.500	FTKA0410	TW15S

Available inserts **B17, B18** Available adaptors **B400**

FMRMA5000







• GAMP : -4°
• GAMF : 0°

(inch)

Designation		Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
FMRMA	5150HRP-M16	○	2	1.500	0.870	1.142	1.575	2.638	M16	0.31	0.46

◆: US stock ○: Made to order

Available inserts



Designation		Cermet	Coated										Uncoated		Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
RPCT	1606M0-MA															●	B17 B18
RPET	1606M0E-ML											○	●	◆			
RPMT	1606M0E-MF								○			○	◆	◆			
	1606M0S-MM						●	●	◆			○	◆	◆			
RPMW	1606M0S1				○		●	●	○			○	◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
FMRM	5150HRP-M16	MATA-M16

Designation: FMRMA5150HRP-M16
Modular Head Threading Measure size (M16)

=

Adaptor spec.: MATA-M16-137-S125S
Adaptor Threading Measure (M16)

Parts

Specification	Screw	Wrench	Wrench
Ø1.500	FTGA0511-P	-	TW20-100

Available inserts **B17, B18** Available adaptors **B400**

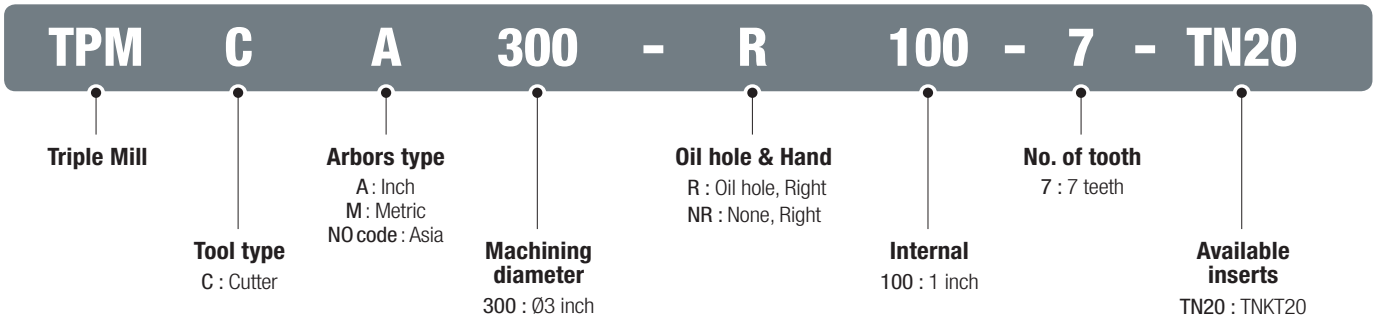
High depth of cut milling tool with 3 corners for perpendicularity

Triple Mill

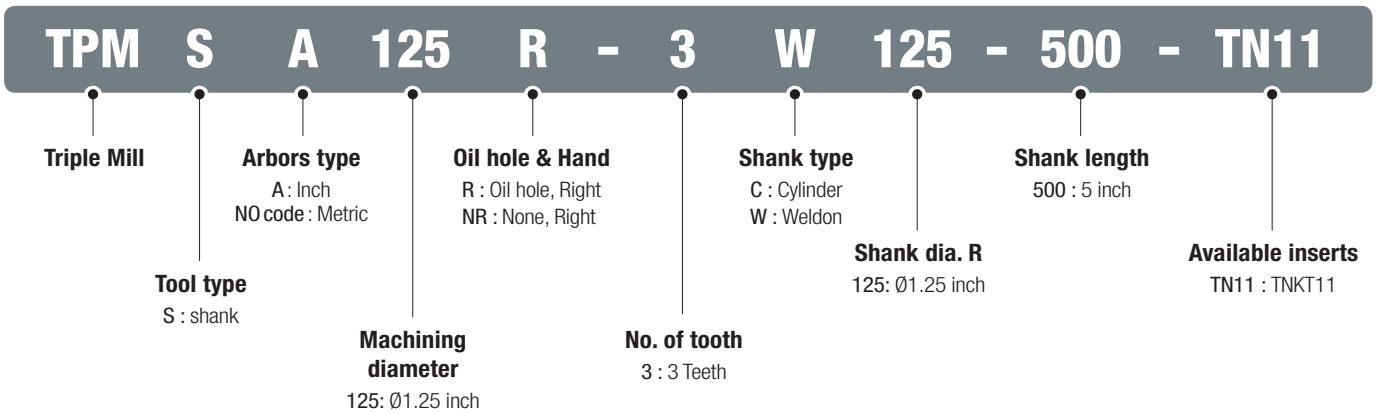
- Economical milling tool with 3 corners with positive cutting edge for high depth of cut machining
- Stable machinability in high feed machining due to enhanced chip evacuation and thicker insert
- High precision machining from less cutting load due to high helix and sharp cutting edge

Code system

• Cutter

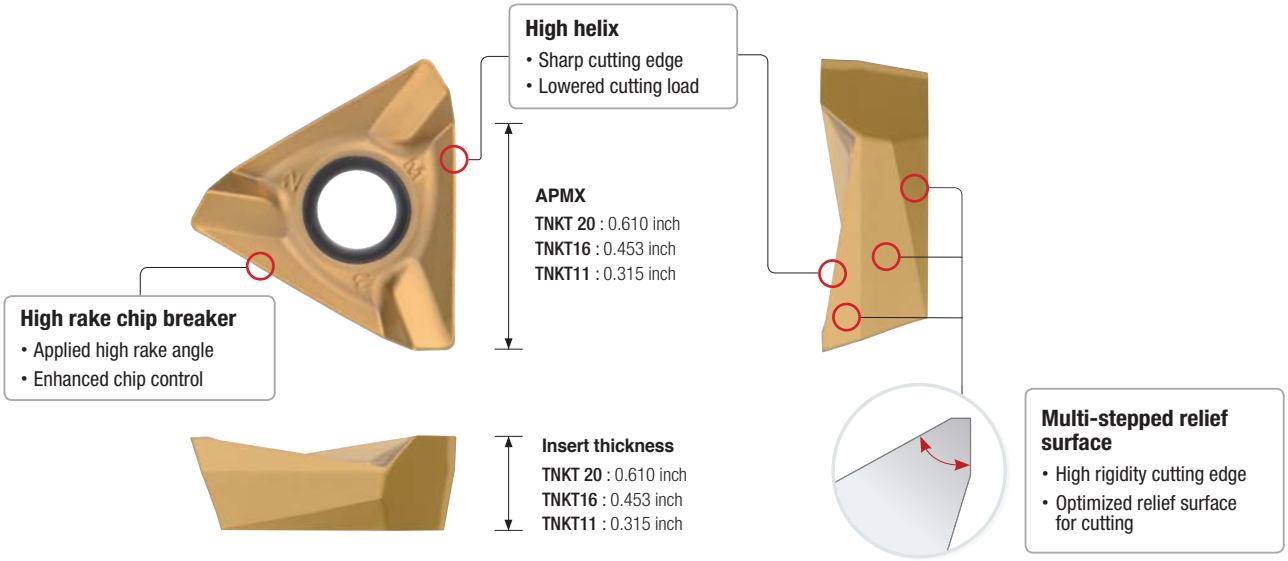


• Shank

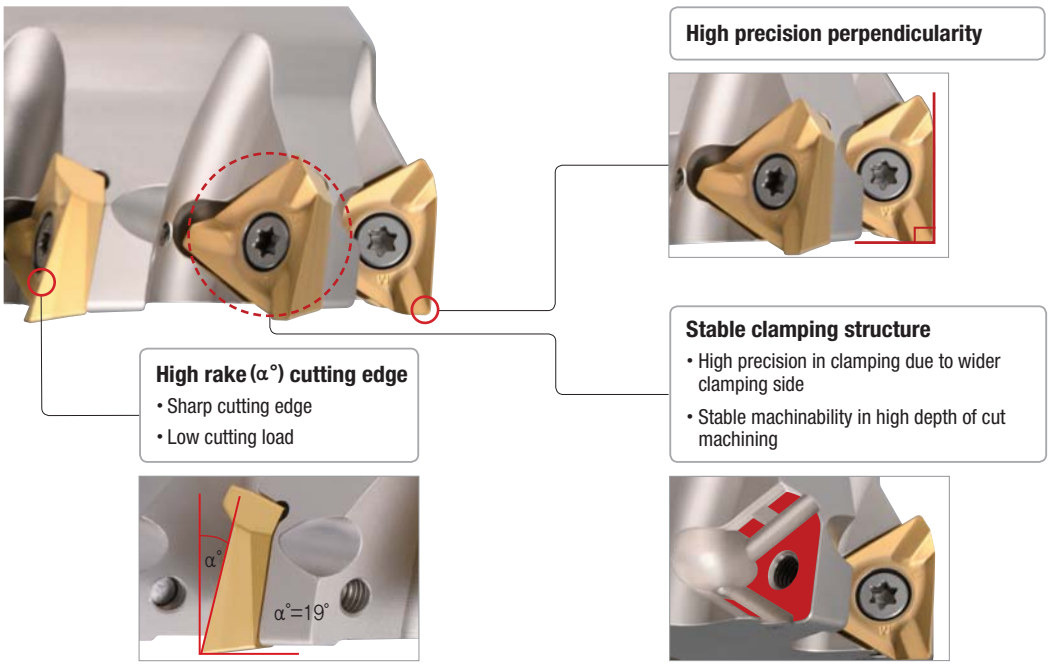


Features of insert

- Economical insert with 3 corners due to high depth of cut cutting edge
- Lowered cutting load and enhanced chip evacuation by sharp chip breaker and high helix cutting edge
- Stable machinability even in high cutting conditions from high rigidity design

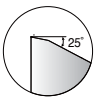
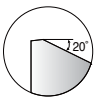


Features of cutter



Recommended grade and chip breaker

(● : 1st Recommendation)

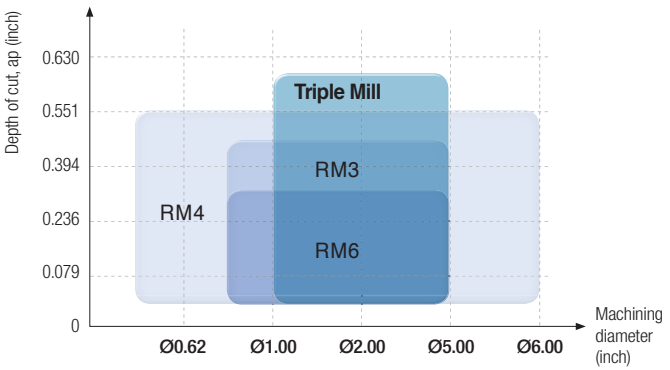
C/B	Cutting edge	P				M		K		S	
		Low carbon steel/ Mild steel		High carbon steel/ Alloy steel		Stainless steel		Cast iron		HRSA	
		C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
ML		-	● PC3700 ○ PC5300 ○ PC5400	-	● PC3700 ○ PC5300 ○ PC5400	●	● PC5300 ○ PC5400 ○ PC9540	-	● PC6100 ○ PC5300 ○ PC5400	-	○ PC5300 ○ PC5400
MM		●	● PC3700 ○ PC5300 ○ PC5400	●	● PC3700 ○ PC5300 ○ PC5400	-	● PC5300 ○ PC5400 ○ PC9540	●	● PC6100 ○ PC5300 ○ PC5400	-	○ PC5300 ○ PC5400

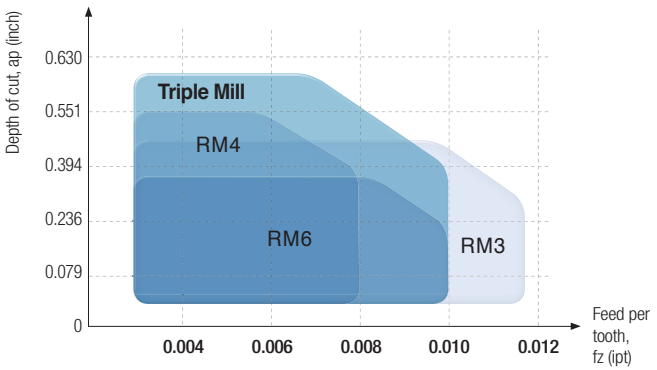
Recommended cutting conditions

Workpiece		Grade	Cutting speed vc(sfm)	TNKT11		TNKT16		TNKT20	
				fz (ipt)	APMX (inch)	fz (ipt)	APMX (inch)	fz (ipt)	APMX (inch)
P	Steel	PC3700	524 ~ 885	0.010 ~ 0.004	0.315	0.010 ~ 0.004	0.453	0.010 ~ 0.004	0.610
		PC5300	459 ~ 787	0.010 ~ 0.004	0.315	0.010 ~ 0.004	0.453	0.010 ~ 0.004	0.610
M	Stainless steel	PC5300	295 ~ 492	0.008 ~ 0.002	0.315	0.008 ~ 0.002	0.453	0.008 ~ 0.002	0.610
		PC5400	229 ~ 393	0.008 ~ 0.002	0.315	0.008 ~ 0.002	0.453	0.008 ~ 0.002	0.610
		PC9540	229 ~ 393	0.008 ~ 0.002	0.315	0.008 ~ 0.002	0.453	0.008 ~ 0.002	0.610
K	Cast iron	PC6100	492 ~ 820	0.010 ~ 0.004	0.315	0.010 ~ 0.004	0.453	0.010 ~ 0.004	0.610
S	HRSA	PC5300	65 ~ 164	0.006 ~ 0.002	0.315	0.006 ~ 0.002	0.453	0.006 ~ 0.002	0.610

※ The above data refer to general cutting conditions and can be adjustable to the speed of 1148 sfm and the feed per tooth of 0.012 ipt depending on user environment.

Application range





TPMCA-TN16



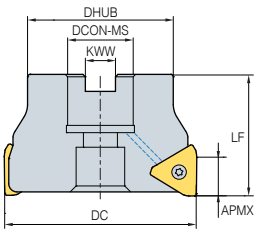


Fig. 1

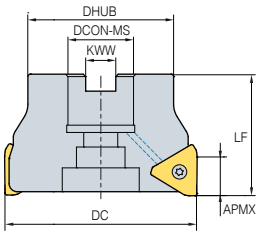


Fig. 2

KAPR 90°

- GAMP : 10°
- GAMF : -11°~-13.5°

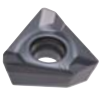
(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
TPMCA	200R-075-4-TN16	◆	4	2.0	1.772	0.75	0.315	1.75	0.453	0.573	1
	200R-075-5-TN16	○	5	2.0	1.772	0.75	0.315	1.75	0.453	0.573	1
	250R-100-4-TN16	○	4	2.5	2.205	1.00	0.374	1.75	0.453	1.102	1
	250R-100-6-TN16	○	6	2.5	2.205	1.00	0.374	1.75	0.453	1.058	1
	300R-100-6-TN16	○	6	3.0	2.205	1.00	0.374	2.00	0.453	2.183	1
	300R-100-8-TN16	◆	8	3.0	2.205	1.00	0.374	2.00	0.453	2.183	1
	400R-125-8-TN16	○	8	4.0	2.874	1.25	0.500	2.00	0.453	4.079	2
	400R-125-10-TN16	○	10	4.0	2.874	1.25	0.500	2.00	0.453	4.034	2
	500R-150-12-TN16	○	12	5.0	3.397	1.50	0.626	2.00	0.453	6.878	2
	500R-150-14-TN16	○	14	5.0	3.397	1.50	0.626	2.00	0.453	6.834	2

◆: US stock ○: Made to order

Available inserts

TNKT-ML



TNKT-MM



	Designation	Cermet	Coated												Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC2015	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	
TNKT	160608PEER-ML									●			○	●		B29
	160608PESR-MM									●	●		○	●		

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.0~Ø5.0	FTKA0410	TW15S

Available inserts **B29** Available arbors and bolt **E96**

TPMCA-TN20



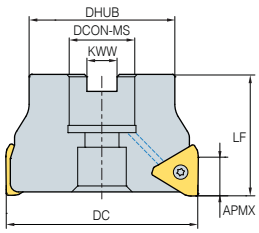


Fig. 1

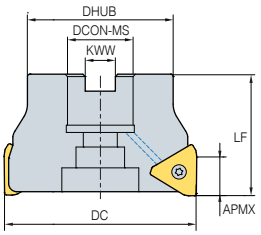


Fig. 2





KAPR 90°

- GAMP : 10°
- GAMF : -10.5°~-14°

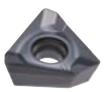
(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
TPMCA	250R-100-5-TN20	○	5	2.5	2.205	1.00	0.374	1.75	0.61	1.257	1
	250R-100-6-TN20	○	6	2.5	2.205	1.00	0.374	1.75	0.61	1.279	1
	300R-100-5-TN20	○	5	3.0	2.205	1.00	0.374	2.00	0.61	2.028	1
	300R-100-7-TN20	○	7	3.0	2.205	1.00	0.374	2.00	0.61	1.896	1
	400R-125-7-TN20	○	7	4.0	2.874	1.25	0.500	2.00	0.61	3.946	2
	400R-125-9-TN20	○	9	4.0	2.874	1.25	0.500	2.00	0.61	3.704	2
	500R-150-8-TN20	○	8	5.0	3.397	1.50	0.626	2.00	0.61	6.790	2
	500R-150-11-TN20	○	11	5.0	3.397	1.50	0.626	2.00	0.61	6.592	2

◆: US stock ○: Made to order

Available inserts

TNKT-ML



TNKT-MM



	Designation	Cermet	Coated											Page
		CN30	NC3330	NCM325	NCM535	NCM545	PC2505	PC2010	PC2015	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	
TNKT	200708PEER-ML									●			●	●		B29
	200708PESR-MM									●	●		○	●		

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.5~Ø5.0	FTGA0511-P	TW20-100

Available inserts **B29** Available arbors and bolt **E96**

TPMSA-TN11



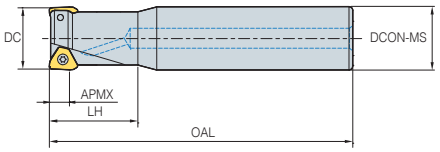


Fig. 1

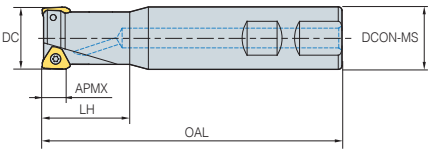


Fig. 2

KAPR 90°

- GAMP : 8°~10°
- GAMF : -14°~-15°

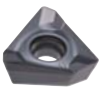
(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
TPMSA	100R-2W100-500-TN11	○	2	1.00	1.00	1.4	5	0.315	0.816	1
	100R-2C100-800-TN11	○	2	1.00	1.00	1.4	8	0.315	1.433	2
	100R-3W100-500-TN11	○	3	1.00	1.00	1.4	5	0.315	0.794	1
	100R-3C100-800-TN11	○	3	1.00	1.00	1.4	8	0.315	1.411	2
	125R-2W125-500-TN11	○	2	1.25	1.25	1.5	5	0.315	1.565	1
	125R-2C125-800-TN11	○	2	1.25	1.25	1.5	8	0.315	2.469	2
	125R-3W125-500-TN11	○	3	1.25	1.25	1.5	5	0.315	1.543	1
	125R-3C125-800-TN11	○	3	1.25	1.25	1.5	8	0.315	2.513	2
	125R-4W125-500-TN11	○	4	1.25	1.25	1.5	5	0.315	1.543	1
	125R-4C125-800-TN11	○	4	1.25	1.25	1.5	8	0.315	2.447	2
	150R-4W150-500-TN11	○	4	1.50	1.50	1.5	5	0.315	2.469	1
	150R-5W150-500-TN11	○	5	1.50	1.50	1.5	5	0.315	2.447	1

◆: US stock ○: Made to order

Available inserts

TNKT-ML



TNKT-MM



	Designation	Cermet	Coated											Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC2015	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	
TNKT	110508PEER-ML									●			●	●		B29
	110508PESR-MM									●	●		○	●		

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.00~Ø1.50	FTKA0307	TW09S

Available inserts **B29**

TPMSA-TN16



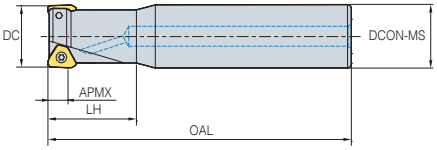


Fig. 1

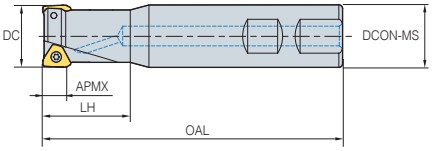


Fig. 2

KAPR 90°

• GAMP : 10°
• GAMF : -13.5°

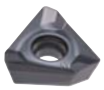
(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs	Fig.
TPMSA	125R-2W125-500-TN16	○	2	1.25	1.25	1.5	5	0.453	1.499	1
	125R-2C125-800-TN16	○	2	1.25	1.25	1.5	8	0.453	2.425	2
	150R-3W150-500-TN16	○	3	1.50	1.50	1.5	5	0.453	2.403	1
	150R-3C150-800-TN16	○	3	1.50	1.50	1.5	8	0.453	3.858	2
	150R-4W150-500-TN16	○	4	1.50	1.50	1.5	5	0.453	2.381	1

◆: US stock ○: Made to order

Available inserts

TNKT-ML



TNKT-MM



	Designation	Cermet	Coated											Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2010	PC2015	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	
TNKT	160608PEER-ML									●			○	●		B29
	160608PESR-MM									●	●		○	●		

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.25~Ø1.50	FTKA0410	TW15S

Available inserts **B29**

HQM

High feed sQuare Milling

- Stable and high efficient cutting due to the design with high rigidity of 4 planar corners
- High speed and high feed cutting from the optimal rake angle and high helix cutting edge

Code system

• **Cutter**

HQM C A 200 R - 150 - 6 - SQ14

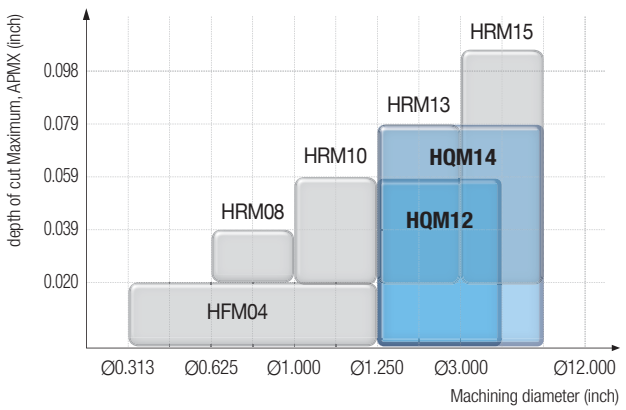
- **HQM** — **High feed sQuare Milling**
- **C** — **Tool type**: C : Cutter
- **A** — **Arbor type**: A : Inch; M : Metric; NO code : Asia
- **200** — **Machining diameter**: 200: Ø2.0 inch
- **R** — **Oil hole & Hand**: R : Oil hole, Right; NR : None, Right
- **150** — **Internal diameter**: 150 : Ø1.5 inch
- **6** — **No. of tooth**: 6: 6 teeth
- **SQ14** — **Available inserts**: SQ12 : SQMT12; SQ14 : SQMT14

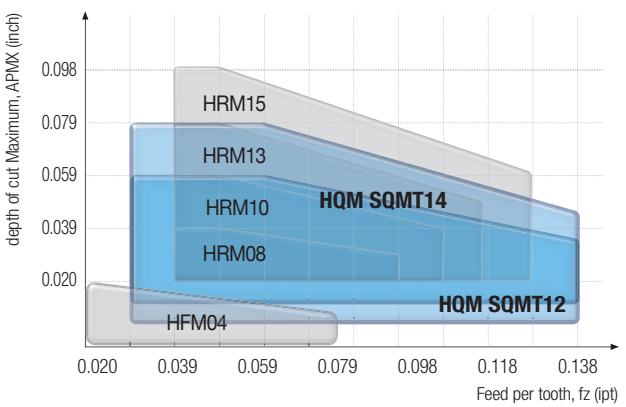
• **Shank**

HQM S A 150 R - 3 C 150 - 600 - LN06

- **HQM** — **High feed sQuare Milling**
- **S** — **Tool type**: S : Shank
- **A** — **Arbor type**: A : Inch; NO code : Metric
- **150** — **Machining diameter**: 150 : Ø1.5 inch
- **R** — **Oil hole & Hand**: R : Oil hole, Right; NR : None, Right
- **3** — **No. of tooth**: 3 : 3 teeth
- **C** — **Shank type**: C : Cylinder; W : Weldon
- **150** — **Shank diameter**: 150: Ø1.5 inch
- **600** — **Overall length**: 600: 6 inch
- **LN06** — **Available inserts**: SQ12 : SQMT12; SQ14 : SQMT14

Application range



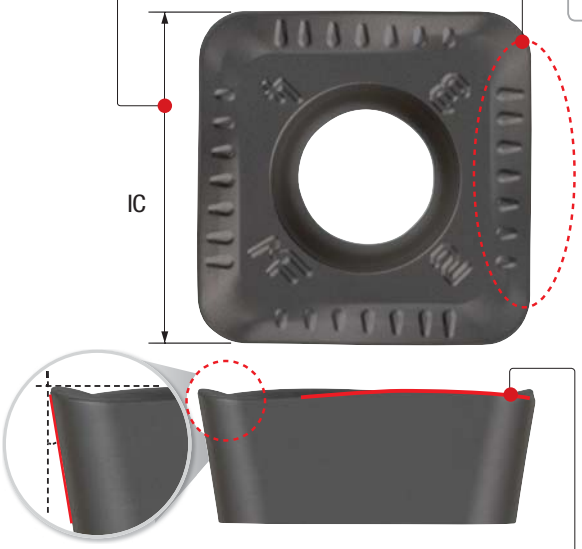


Features

High rigidity insert
- Inscribed circle 0.472/0.551 inch
- Increased rigidity

Structure of C/B for dispersing heat
- Several dimples
- Preventing heat crack/ increasing tool life

Positive axial direction rake angle
- Good chip curling





Streamlined structure of insert
- Good chip control

Shape for relief of corner
- Suitable for multi-functional cutting by securing enough relief

Insert shape for higher rigidity
- Applied streamlined helix
- Increase chipping resistance/preventing unexpected fracture

Application and features of chip breakers

Chip breaker		Cutting edge	Application	Feature
ML			For HRSA and Titanium	Guarantees high quality of performance from applying suitable for low cutting resistance chip breaker for HRSA cutting and high hardness cutting edge
MF			For finishing	Optimal for finishing due to low cutting load and low resistance chip breaker
MM			For general cutting	Suitable for general cutting range from design structure for general high feed cutting
None			For high hardness cutting	Good for high hardness die steel due to shape of strong cutting edge

Recommended grade and cutting edge

Designation	Recommended insert and grade for different workpieces (●: 1st recommendation)									
	P		M		K		S		H	
	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
SQMT120516R SQMT140620R	● MM ○ MF ○ ML	● PC3700 ○ PC5300	● ML ○ MF	● PC9540 ○ PC5300	● MF ○ MM	● PC6100 ○ PC5300	● ML ○ MF	● UNC840 ○ UPC845 ○ PC5300	○ MM	○ PC2510 ○ PC2505
SQMW120516 SQMW140520	○ None	○ PC5300	-	-	-	-	-	-	● None	● PC2510 ○ PC2505

Recommended cutting conditions _ SQ12

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		MM, MF
ISO	Workpiece material	AISI	ISO			PC3700	MM	MF	PC5300	MM	MF	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		APMX (inch)
P	Non-ferrous alloy steel Mn < 1.65	1025	C25	1500	125	754	0.071	0.079	689	0.071	0.079	≥ 0.059
						1000	**0.055**	**0.059**	**919**	**0.055**	**0.059**	
						1247	0.035	0.039	1148	0.035	0.039	
		1045	C45	1700	190	689	0.055	0.059	623	0.055	0.059	
						919	**0.035**	**0.039**	**837**	**0.035**	**0.039**	
						1148	0.020	0.024	1050	0.020	0.024	
	Low alloy steel ≤ 5%	4140	42CrMo4	1700	175	525	0.063	0.071	492	0.063	0.071	
						705	**0.055**	**0.059**	**640**	**0.055**	**0.059**	
						886	0.035	0.039	787	0.035	0.039	
	High alloy steel > 5%	D2 H13	X40CrMoV5-1	1950	200	394	0.035	0.039	361	0.035	0.039	
						525	**0.028**	**0.031**	**492**	**0.028**	**0.031**	
						656	0.016	0.016	623	0.016	0.016	

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML, MF
ISO	Workpiece material	AISI	ISO			PC9540	ML	MF	PC5300	ML	MF	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		APMX (inch)
M	Ferritic/ martensitic	405 430	X6CrAl13 X6Cr17	1800	200	328	0.055	0.063	427	0.055	0.063	≥ 0.059
						443	0.035	0.039	558	0.035	0.039	
						558	0.016	0.020	689	0.016	0.020	
		416 434	X12CrS13 X6CrMo17-1	2850	330	328	0.055	0.063	427	0.055	0.063	
						443	0.035	0.039	558	0.035	0.039	
						558	0.016	0.020	689	0.016	0.020	
		403 410	X12Cr13	2350	330	328	0.055	0.063	427	0.055	0.063	
						443	0.035	0.039	558	0.035	0.039	
						558	0.016	0.020	689	0.016	0.020	
	Austenitic	304 316	X5CrNI18-9 X2CrNI18-9 X5CrNiMo17-12-2 XCrNiMo17-12-3	2000	180	262	0.055	0.063	344	0.055	0.063	
						361	0.035	0.039	459	0.035	0.039	
						459	0.016	0.020	574	0.016	0.020	
	Austenitic/ ferritic	S31803 S32750	-	2450	260	213	0.055	0.063	262	0.055	0.063	
						279	0.035	0.039	361	0.035	0.039	
						344	0.018	0.020	459	0.018	0.020	

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		MM, MF
ISO	Workpiece material	AISI	ISO			PC6100	MF	MM	PC5300	MF	MM	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		APMX (inch)
K	Gray cast iron	No 30 B	200	900	180	591	0.071	0.079	459	0.071	0.079	≥ 0.059
						787	**0.035**	**0.039**	**623**	**0.035**	**0.039**	
						984	0.018	0.020	787	0.018	0.020	
	Nodular graphite cast iron	80-55-06	500-7	870	155	394	0.071	0.079	328	0.071	0.079	
						525	**0.035**	**0.039**	**427**	**0.035**	**0.039**	
						656	0.018	0.020	525	0.018	0.020	

Recommended cutting conditions _ SQ12

Workpiece				Specific cutting force (N/mm^2)	Brinell hardness (HB)	Grade	C/B		ML, MF
ISO	Workpiece material	AISI	ISO			UNC840	ML	MF	
						vc (sfm)	fz (ipt)		APMX (inch)
S	Nickel based	15156-3	15156-3	2650	250	98	0.039	0.047	≥ 0.059
						131	**0.028**	**0.031**	
						164	0.012	0.012	
		9723	9723	3000	320	98	0.039	0.047	
						131	**0.028**	**0.031**	
						164	0.012	0.012	
	Cobalt based alloy	Stellite	Stellite	3000~3100	300~320	49	0.039	0.047	
						66	**0.028**	**0.031**	
						82	0.012	0.012	
	Titanium alloy	Ti-6Al-4V	5832-11	1400	320	131	0.039	0.047	
						164	**0.028**	**0.031**	
						197	0.012	0.012	

Workpiece				Specific cutting force (N/mm^2)	Rockwell hardness (HRC)	Grade	C/B	Grade	C/B	MM
ISO	Workpiece material	AISI	ISO			PC2510	None	PC2510	MM	
						vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)	APMX (inch)
H	High hardened steel (heat treatment)	H13 (HRC50)	X40CrMoV5-1	2750	50	262	0.004	262	0.004	≥ 0.059
						328	**0.002**	**328**	**0.002**	
						427	0.002	427	0.002	

Recommended cutting conditions _ SQ14

Workpiece				Specific cutting force (N/mm^2)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		MM, MF
ISO	Workpiece material	AISI	ISO			PC3700	MM	MF	PC5300	MM	MF	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		APMX (inch)
P	Non-ferrous alloy steel Mn < 1.65	1025	C25	1500	125	754	0.071	0.079	689	0.071	0.079	≥ 0.079
						1000	**0.055**	**0.059**	**919**	**0.055**	**0.059**	
						1247	0.035	0.039	1148	0.035	0.039	
		1045	C45	1700	190	689	0.055	0.059	623	0.055	0.059	
						919	**0.035**	**0.039**	**837**	**0.035**	**0.039**	
						1148	0.020	0.024	1050	0.020	0.024	
	Low alloy steel ≤ 5%	4140	42CrMo4	1700	175	525	0.063	0.071	492	0.063	0.071	
						705	**0.055**	**0.059**	**640**	**0.055**	**0.059**	
						886	0.035	0.039	787	0.035	0.039	
	High alloy steel > 5%	D2 H13	X40CrMoV5-1	1950	200	394	0.035	0.039	361	0.035	0.039	
						525	**0.028**	**0.031**	**492**	**0.028**	**0.031**	
						656	0.016	0.016	623	0.016	0.016	

Recommended cutting conditions _ SQ14

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		ML, MF
ISO	Workpiece material	AISI	ISO			PC9540	ML	MF	PC5300	ML	MF	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		APMX (inch)
M	Ferritic/ martensitic	405 430	X6CrAl13 X6Cr17	1800	200	328	0.055	0.063	427	0.055	0.063	≥ 0.079
						443	**0.035**	**0.039**	**558**	**0.035**	**0.039**	
						558	0.016	0.020	689	0.016	0.020	
		416 434	X12CrS13 X6CrMo17-1	2850	330	328	0.055	0.063	427	0.055	0.063	
						443	**0.035**	**0.039**	**558**	**0.035**	**0.039**	
						558	0.016	0.020	689	0.016	0.020	
		403 410	X12Cr13	2350	330	328	0.055	0.063	427	0.055	0.063	
						443	**0.035**	**0.039**	**558**	**0.035**	**0.039**	
						558	0.016	0.020	689	0.016	0.020	
	Austenitic	304 316	X5CrNI18-9 X2CrNI18-9 X5CrNiMo17-12-2 XCrNiMo17-12-3	2000	180	262	0.055	0.063	344	0.055	0.063	
						361	**0.035**	**0.039**	**459**	**0.035**	**0.039**	
						459	0.016	0.020	574	0.016	0.020	
	Austenitic/ ferritic	S31803 S32750	-	2450	260	213	0.055	0.063	262	0.055	0.063	
						279	**0.035**	**0.039**	**361**	**0.035**	**0.039**	
						344	0.018	0.020	459	0.018	0.020	

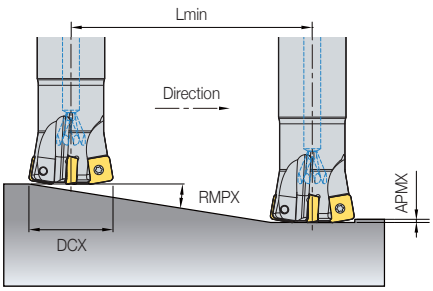
Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		Grade	C/B		MM, MF
ISO	Workpiece material	AISI	ISO			PC6100	MF	MM	PC5300	MF	MM	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		APMX (inch)
K	Gray cast iron	No 30 B	200	900	180	591	0.071	0.079	459	0.071	0.079	≥ 0.079
						787	**0.035**	**0.039**	**623**	**0.035**	**0.039**	
						984	0.018	0.020	787	0.018	0.020	
	Nodular graphite cast iron	80-55-06	500-7	870	155	394	0.071	0.079	328	0.071	0.079	
						525	**0.035**	**0.039**	**427**	**0.035**	**0.039**	
						656	0.018	0.020	525	0.018	0.020	

Workpiece				Specific cutting force (N/mm²)	Brinell hardness (HB)	Grade	C/B		ML, MF
ISO	Workpiece material	AISI	ISO			UNC840	ML	MF	
						vc (sfm)	fz (ipt)		APMX (inch)
S	Nickel based	15156-3	15156-3	2650	250	98	0.039	0.047	≥ 0.079
						131	**0.028**	**0.031**	
						164	0.012	0.012	
		9723	9723	3000	320	98	0.039	0.047	
						131	**0.028**	**0.031**	
						164	0.012	0.012	
	Cobalt based alloy	Stellite	Stellite	3000~3100	300~320	49	0.039	0.047	
						66	**0.028**	**0.031**	
						82	0.012	0.012	
	Titanium alloy	Ti-6Al-4V	5832-11	1400	320	131	0.039	0.047	
						164	**0.028**	**0.031**	
						197	0.012	0.012	

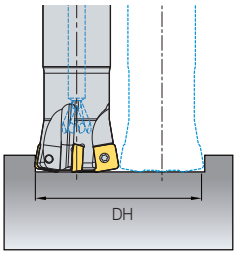
Workpiece				Specific cutting force (N/mm²)	Rockwell hardness (HRC)	Grade	C/B		Grade	C/B		MM
ISO	Workpiece material	AISI	ISO			PC2510	MM	None	PC2510	MM	None	
						vc (sfm)	fz (ipt)		vc (sfm)	fz (ipt)		APMX (inch)
H	High hardened steel (heat treatment)	H13 (HRC50)	X40CrMoV5-1	2750	50	262	0.004		262	0.004		≥ 0.079
						328	**0.002**		**328**	**0.002**		
						427	0.002		427	0.002		

Ramping and helical cutting

Ramping



Helical cutting



(inch)

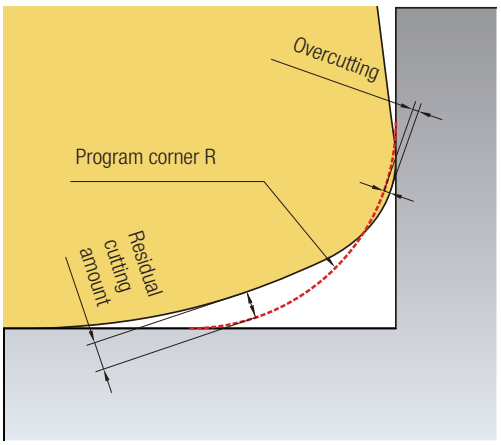
Designation	DCX	IC	APMX	Ramping		Helical cutting			
				RMPX	Lmin	Min diameter (DHmin)	Max pitch	Max diameter (DHmax)	Max pitch
SQ12	1.25	0.472	0.059	1.90	1.780	1.850	0.059	2.5	0.059
	1.50	0.472	0.059	1.90	1.780	2.244	0.059	3.0	0.059
	2.00	0.472	0.059	1.10	3.076	3.228	0.059	4.0	0.059
	2.50	0.472	0.059	0.70	4.833	4.213	0.059	5.0	0.059
	3.00	0.472	0.059	0.50	6.767	5.236	0.059	6.0	0.059
	4.00	0.472	0.059	0.40	8.459	7.205	0.059	8.0	0.059
SQ14	1.25	0.551	0.079	2.70	1.670	1.890	0.079	2.5	0.079
	1.50	0.551	0.079	3.00	1.502	2.126	0.079	3.0	0.079
	2.00	0.551	0.079	1.50	3.007	3.110	0.079	4.0	0.079
	2.50	0.551	0.079	1.10	4.101	4.094	0.079	5.0	0.079
	3.00	0.551	0.079	0.80	5.639	5.079	0.079	6.0	0.079
	4.00	0.551	0.079	0.50	9.023	7.087	0.079	8.0	0.079

- When ramping and helical milling, table feed, vf (ipm) should be lower than 70% of the recommended cutting conditions.
- When helical milling, Max. pitch, DHmax should be lower than max. depth of cut, APMX.
- When ramping, the depth of cut should be lower than max. depth of cut, APMX.

- **Lmin** = APMX / tan(RMPX) (inch)
- **Lmin:** Min. length of ramping
- **APMX:** depth of cut Maximum
- **RMPX:** Max. rake angle in ramping

Precautions in corner R cutting

Insert	Program corner R	Nose R RE	APMX	Over cut	Uncut
SQMT120516R-MM	0.059	0.063	0.059	0.000	0.059
	0.079			0.000	0.056
	0.118			0.000	0.050
	0.138			0.002	0.046
	0.157			0.007	0.043
	0.177			0.013	0.040
	0.197			0.020	0.037
SQMT140520R-MM	0.059	0.063	0.063	0.000	0.068
	0.118			0.000	0.057
	0.138			0.000	0.054
	0.157			0.001	0.051
	0.177			0.006	0.048
	0.197			0.011	0.044
	0.217			0.018	0.041
	0.236			0.025	0.037

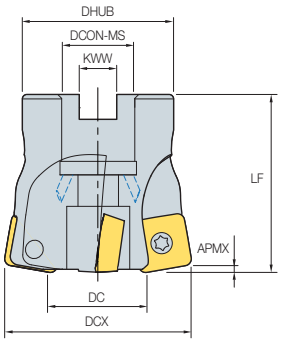


------ Program corner R

- When writing CNC programs, entering the appropriate corner radius (R value) for each insert can lead to overcutting and residual cutting amounts in the corner machining areas, as described.
- To prevent overcutting, it is essential to create CNC programs that take the aforementioned overcutting amounts into account.

HQMCA-SQ12





KAPR 10°

- GAMP : 3°
- GAMF : -4°

(inch)

Designation		Stock	CICT	DCX	DCON-MS	DHUB	LF	KWW	APMX
HQMCA	200R-075-5-SQ12	○	5	2.0	0.75	1.850	2	0.315	0.059
	200R-075-6-SQ12	○	6	2.0	0.75	1.850	2	0.315	0.059
	250R-100-7-SQ12	○	7	2.5	1.00	2.252	2	0.374	0.059
	300R-100-6-SQ12	○	6	3.0	1.00	2.252	2	0.374	0.059
	300R-100-8-SQ12	○	8	3.0	1.00	2.252	2	0.374	0.059
	300R-125-8-SQ12	○	8	3.0	1.25	2.750	2	0.500	0.059
	400R-150-7-SQ12	○	7	4.0	1.50	3.228	2	0.626	0.059
	400R-150-10-SQ12	○	10	4.0	1.50	3.228	2	0.626	0.059

◆: US stock ○: Made to order

Available inserts

	SQMT-ML	SQMT-MF	SQMT-MM	SQMW
				

Designation		Coated							Page
		PC2510	PC3700	PC6100	PC9540	PC5300	UNC840	UPC845	
SQMT	120516R-ML		○	○		●	●	●	B28
	120516R-MF		●	●	●	●	●	●	
	120516R-MM		●	●		●			
SQMW	120516	●				●			

●: Korea stock ◆: US stock ○: Made to order

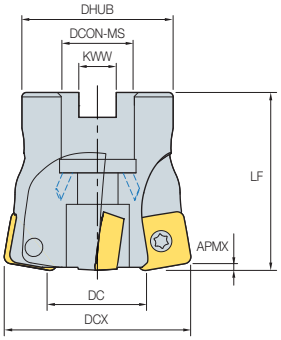
Parts

Specification	Screw	Wrench
Ø2.0 ~ Ø4.0	FTKA0408	TW15S

Available inserts **B28**

HQMCA-SQ14












KAPR 10°

- GAMP : 2°
- GAMF : -3.5°

(inch)

	Designation	Stock	CICT	DCX	DCON-MS	DHUB	LF	KWW	APMX
HQMCA	200R-075-4-SQ14	○	4	2.0	0.75	1.850	2	0.315	0.079
	200R-075-5-SQ14	○	5	2.0	0.75	1.850	2	0.315	0.079
	250R-100-6-SQ14	○	6	2.5	1.00	2.252	2	0.374	0.079
	300R-100-5-SQ14	○	5	3.0	1.00	2.252	2	0.374	0.079
	300R-100-7-SQ14	○	7	3.0	1.00	2.252	2	0.374	0.079
	300R-125-7-SQ14	○	7	3.0	1.25	2.750	2	0.500	0.079
	400R-150-6-SQ14	○	6	4.0	1.50	3.228	2	0.626	0.079
	400R-150-8-SQ14	○	8	4.0	1.50	3.228	2	0.626	0.079

◆: US stock ○: Made to order

Available inserts

SQMT-ML SQMT-MF SQMT-MM SQMW






	Designation	Coated							Page
		PC2510	PC3700	PC6100	PC9540	PC5300	UNC840	UPC845	
SQMT	140520R-ML		○	○		●	●	●	B28
	140520R-MF		●	●	●	●	●	●	
	140520R-MM		●	●		●			
SQMW	140520	●				●			

●: Korea stock ◆: US stock ○: Made to order

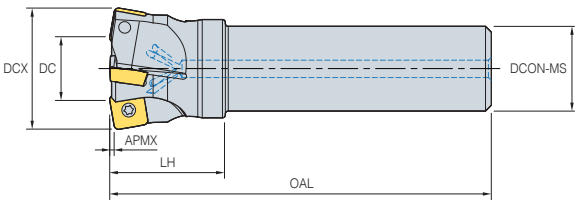
Parts

Specification	Screw	Wrench
Ø2.0 ~ Ø4.0	FTGA0510-P	TW20-100

Available inserts **B28**

HQMSA-SQ12







KAPR 10°

- GAMP : 2°
- GAMF : -28°~ -6°

(inch)

	Designation	Stock	CICT	DCX	DCON-MS	OAL	LH	APMX
HQMSA	125R-3C125-600-SQ12	○	3	1.25	1.25	6	1.75	0.059
	150R-3C150-600-SQ12	○	3	1.50	1.50	6	1.75	0.059
	150R-4C150-600-SQ12	○	4	1.50	1.50	6	1.75	0.059

◆: US stock ○: Made to order

Available inserts



	Designation	Coated							Page
		PC2510	PC3700	PC6100	PC9540	PC5300	UNC840	UPC845	
SQMT	120516R-ML		○	○		●	●	●	B28
	120516R-MF		●	●	●	●	●	●	
	120516R-MM		●	●		●			
SQMW	120516	●				●			

●: Korea stock ◆: US stock ○: Made to order

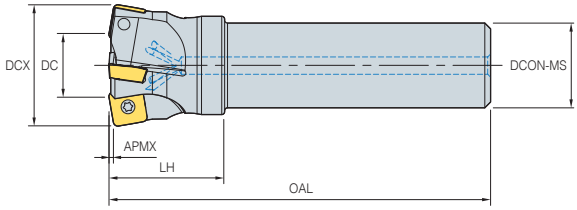
Parts

Specification	Screw	Wrench
Ø1.25 ~ Ø1.50	FTKA0408	TW15S

Available inserts **B28**

HQMSA-SQ14





KAPR 10°

- GAMP : 2°
- GAMF : -20°~ -7°

(inch)

	Designation	Stock	CICT	DCX	DCON-MS	OAL	LH	APMX
HQMSA	125R-2C125-600-SQ14	○	2	1.25	1.25	6	1.75	0.079
	150R-2C150-600-SQ14	○	2	1.50	1.50	6	1.75	0.079
	150R-3C150-600-SQ14	○	3	1.50	1.50	6	1.75	0.079

◆: US stock ○: Made to order

Available inserts



	Designation	Coated							Page
		PC2510	PC3700	PC6100	PC9540	PC5300	UNC840	UPC845	
SQMT	140520R-ML		○	○		●	●	●	B28
	140520R-MF		●	●	●	●	●	●	
	140520R-MM		●	●		●			
SQMW	140520	●				●			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.25 ~ Ø1.50	FTKA0408	TW15S

Available inserts **B28**

High Feed Milling Tool with 4 Corners for Small Diameter

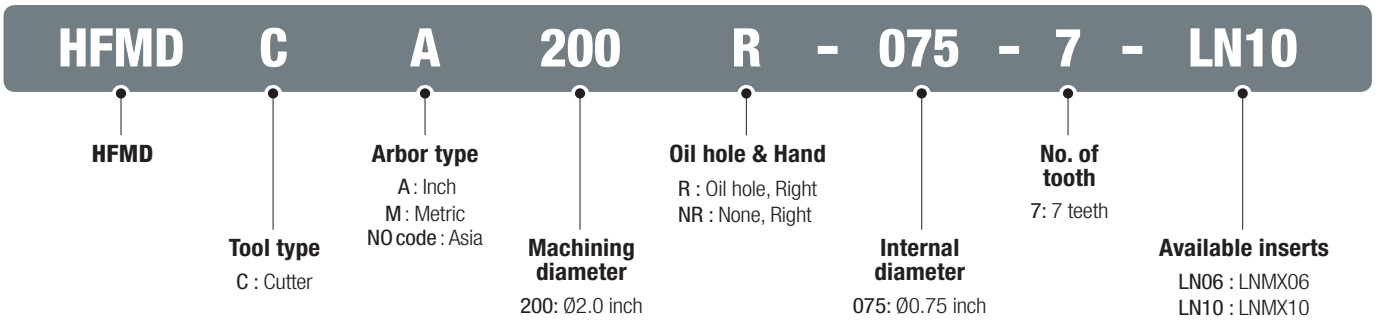
HFMD

High Feed Mill Double

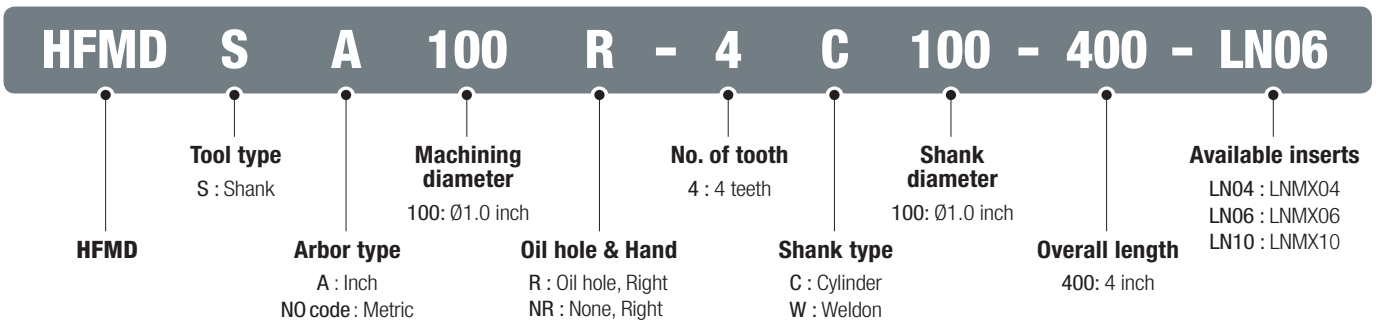
- Economical 4-corner double sided insert
- Increased productivity due to thinner and elongated shape of the insert which makes fine pitch available
- Insert designed for low cutting resistance with high rake angle and helix angle which reduces cutting load
- Inhibiting chipping and breakage due to concave clamping system and stronger screw

Code system

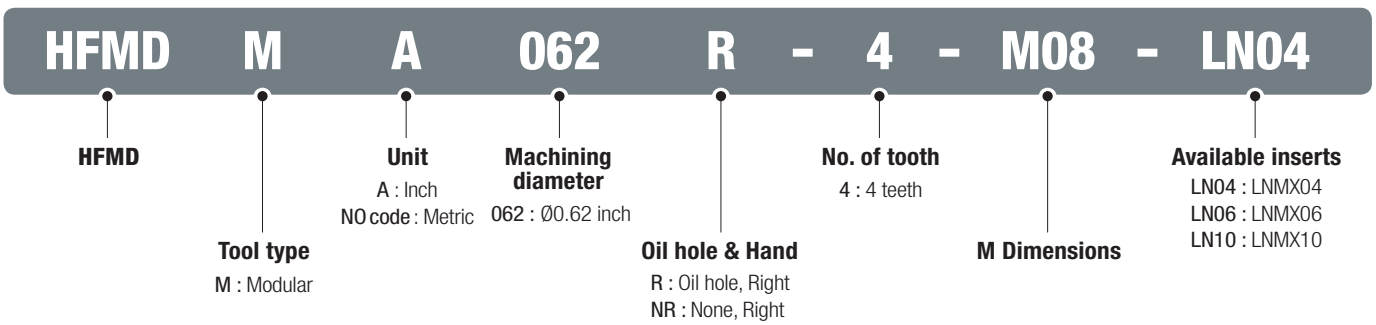
• Cutter



• Shank



• Modular



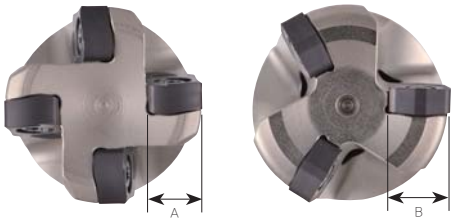
Features

Economical 4-corner insert
- Can use 4 corners with 1 insert by utilizing front/back face; High feed due to finer pitch





Highly efficient insert due to fine pitch
- Able to use fine pitch at the same machining diameter with typical types of milling cutters due to smaller inscribed circle (A < B)

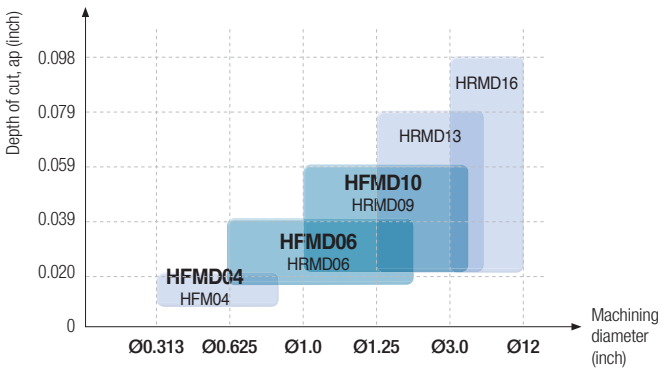


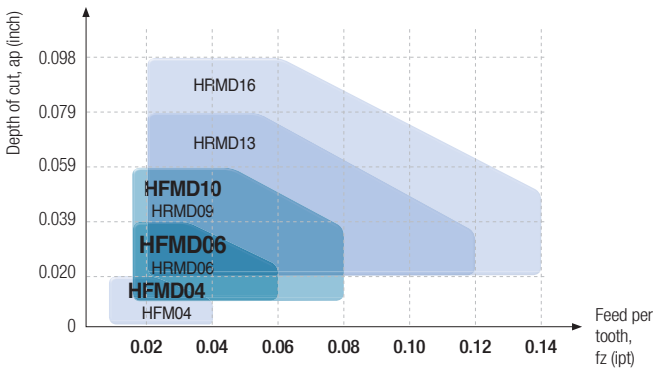
HFMD HRMD

Features of chip breaker

Insert		Cutting-edge	Use	Features
ML			For heat resistant alloy and titanium	Ensures superior machining quality by applying a low cutting resistance chip breaker and high-strength cutting edge design suitable for machining heat resistant alloy
MF			For light cutting	Suitable for light cutting with a low cutting resistance chip breaker design
MM			For multi-purpose	Available for most cutting area with its exclusive design suitable for general high feed machining

Application area



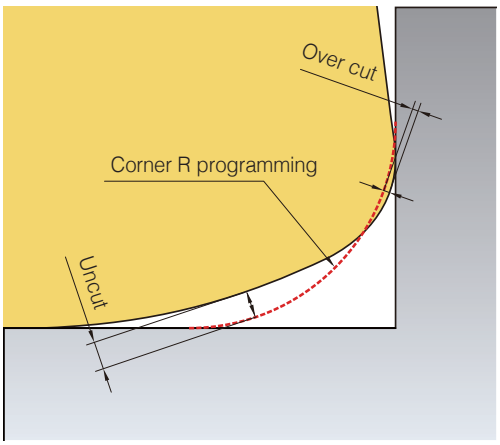


Recommended cutting conditions

∗Recommended chip breaker: ● 1st ○ 2nd

Workpiece				Grade	vc (sfm)	LNMX04		LNMX06		LNMX10		ae	Available chip breaker		
ISO	Workpiece materials	AISI	HB (HRC)			fz (ipt)	ap (inch)	fz (ipt)	ap (inch)	fz (ipt)	ap (inch)		ML	MF	MM
P	Mild steel	1020	120~180	PC5400 (PC5300)	328.1 ~ 787.4	0.047~ 0.012	0.008~ 0.02	0.047~ 0.012	0.008~ 0.039	0.055 ~ 0.012	0.012~ 0.059	0.7D ~ 0.1D	○	●	
	Carbon steel	1045	200	PC5400 (PC5300)	328 .1~ 787.4	0.047~ 0.012	0.008 ~ 0.02	0.047~ 0.012	0.008 ~ 0.039	0.055 ~ 0.012	0.012~ 0.059	0.7D ~ 0.1D	○	●	
	Alloy steel	4140	270 (28)	PC3700 (PC5300)	328.1~ 721.8	0.047~ 0.012	0.008 ~ 0.02	0.047~ 0.012	0.008 ~ 0.039	0.055 ~ 0.012	0.012~ 0.059	0.7D ~ 0.1D		●	○
	Pre-hardened steel	P20 (Improved)	300 (32)	PC3700 (PC5300)	328.1~ 656.2	0.039 ~ 0.012	0.008~ 0.016	0.039 ~ 0.012	0.008~ 0.031	0.047~ 0.012	0.012~ 0.047	0.7D ~ 0.1D		○	●
		P21 (Improved)	370 (40)	PC3700 (PC5300)	328.1~ 656.2	0.039 ~ 0.012	0.008 ~ 0.016	0.039 ~ 0.012	0.008 ~ 0.031	0.047~ 0.012	0.012~ 0.047	0.7D ~ 0.1D		○	●
		P21 (Improved)	370 (40)	PC3700 (PC5300)	328.1~ 656.2	0.039 ~ 0.012	0.008~ 0.016	0.039 ~ 0.012	0.008~ 0.031	0.047~ 0.012	0.012~ 0.047	0.7D ~ 0.1D		○	●
		P21 (Improved)	400 (43)	PC5300 (PC3700)	328.1~ 656.2	0.039 ~ 0.012	0.008 ~ 0.016	0.039 ~ 0.012	0.008 ~ 0.031	0.047~ 0.012	0.012~ 0.047	0.7D ~ 0.1D		○	●
		420	510 (52)	PC3700 (PC2510)	262.5 ~ 524.9	0.028 ~ 0.012	0.008 ~ 0.016	0.028 ~ 0.012	0.008 ~ 0.031	0.035~ 0.012	0.012~ 0.047	0.7D ~ 0.1D		○	●
	Alloy tool steel	D2 H13	- (40~50)	PC2510 (PC5300)	262.5 ~ 426.5	0.028 ~ 0.012	0.008 ~ 0.012	0.026 ~ 0.012	0.008 ~ 0.024	0.031~ 0.012	0.012~ 0.035	0.7D ~ 0.1D		○	●
M	Stainless steel	316	Under 270	PC9540 (PC5400)	295.3 ~ 590.6	0.031 ~ 0.012	0.008 ~ 0.02	0.031 ~ 0.012	0.008 ~ 0.031	0.039 ~ 0.012	0.012~ 0.047	0.7D ~ 0.1D	●	○	
K	Grey cast iron, Ductile cast iron	65 - 45 -12	Tensile Strength Over 450Mpa	PC5300 (PC5400)	426.5 ~ 721.8	0.035 ~ 0.012	0.008 ~ 0.02	0.035 ~ 0.012	0.008 ~ 0.039	0.047~ 0.012	0.012~ 0.059	0.7D ~ 0.1D		●	○
S	HRSA Fe series	N09901	- (25~35)	PC9540 (PC5300)	98.4 ~ 328.1	0.028 ~ 0.012	0.008 ~ 0.012	0.024 ~ 0.012	0.008 ~ 0.024	0.028 ~ 0.012	0.012~ 0.035	0.7D ~ 0.4D	●	○	
	HRSA Ni or Co series	N07718	- (35~45)	PC9540 (PC5300)	98.4 ~ 147.6	0.028 ~ 0.012	0.008 ~ 0.012	0.028 ~ 0.012	0.008 ~ 0.024	0.031~ 0.012	0.012~ 0.035	0.7D ~ 0.4D	○	●	
	Titanium	R56400	- (40~45)	PC9540 (PC5300)	98.4 ~ 164.0	0.031 ~ 0.012	0.008 ~ 0.012	0.039 ~ 0.012	0.008 ~ 0.024	0.047~ 0.012	0.012~ 0.035	0.7D ~ 0.1D	●	○	

Corner R programming



------ Corner R programming

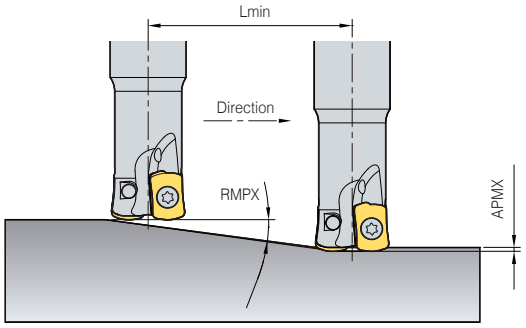
(inch)

Insert	Corner R programming	Cutting conditions		Over Cut	Uncut
		Nose R	Max. ap		
LNMX040205R-ML LNMX040205R-MM	R0.031	0.020	0.020	0.000	0.011
	R0.035 (Standard)			0.000	0.009
	R0.039			0.000	0.009
LNMX060310R-ML LNMX060310R-MF LNMX060310R-MM	R0.059	0.039	0.039	0.000	0.016
	R0.063 (Standard)			0.000	0.015
	R0.079			0.002	0.011
LNMX100412R-ML LNMX100412R-MF LNMX100412R-MM	R0.079	0.047	0.059	0.000	0.033
	R0.098 (Standard)			0.000	0.025
	R0.118			0.002	0.020

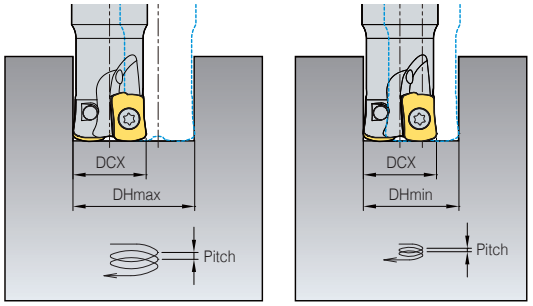
- During usage of CNC program, over cut & uncut would be occurred on the corner processing site if entering the correct program corner R value for each insert
- To prevent overcut, you will need to complete a CNC program considering the above overcut

Ramping and helical cutting

Ramping



Helical cutting



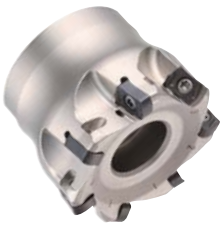
Designation	DCX	APMX	Ramping		Blind hole helical cutting				Thru hole helical cutting	
			RMPX	Lmin	DHmax	Max pitch	DHmin	Max pitch	DHmin	Max pitch
LNMX04	0.375	0.016	0.6	1.464	0.593	0.012	0.474	0.012	0.474	0.012
	0.438	0.020	0.8	1.439	0.718	0.012	0.599	0.012	0.599	0.012
	0.500		1.0	1.091	0.843	0.016	0.724	0.016	0.724	0.016
	0.625		1.0	1.078	1.093	0.016	0.974	0.016	0.974	0.016
	0.688		1.0	1.101	1.218	0.020	1.099	0.020	1.099	0.020
	0.750		1.0	1.139	1.343	0.020	1.224	0.020	1.224	0.020
	1.000		0.9	1.284	1.843	0.020	1.724	0.020	1.724	0.020
	1.250		0.7	1.730	2.343	0.020	2.224	0.020	2.224	0.020
LNMX06	0.625	0.028	3.0	0.523	1.181	0.028	0.877	0.028	0.818	0.028
	0.750	0.039	1.5	1.463	1.496	0.039	1.165	0.039	1.106	0.039
	1.000		1.4	1.583	1.890	0.039	1.559	0.039	1.500	0.039
	1.250		1.0	2.158	2.441	0.039	2.110	0.039	2.051	0.039
	1.500		0.8	2.814	3.071	0.039	2.740	0.039	2.681	0.039
	2.000		0.6	3.634	3.858	0.039	3.527	0.039	3.468	0.039
	2.500		0.5	4.700	4.882	0.039	4.551	0.039	4.492	0.039
LNMX10	1.000	1.500	2.8	1.212	1.685	0.059	1.409	0.059	1.311	0.059
	1.250		2.0	1.681	2.185	0.059	1.909	0.059	1.811	0.059
	1.500		1.6	2.150	2.685	0.059	2.409	0.059	2.311	0.059
	2.000		1.1	3.087	3.685	0.059	3.409	0.059	3.311	0.059
	2.500		0.8	4.025	4.685	0.059	4.409	0.059	4.311	0.059
	3.000		0.7	4.962	5.685	0.059	5.409	0.059	5.311	0.059
	4.000		0.5	6.837	7.685	0.059	7.409	0.059	7.311	0.059

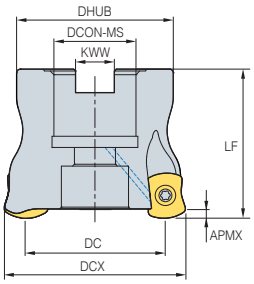
- When ramping and helical milling, table feed, vf (ipm) should be lower than 70% of the recommended cutting conditions.
- When helical milling, Max. pitch, DHmax should be lower than max. depth of cut, ap.
- When ramping, the depth of cut should be lower than max. depth of cut, ap.

$$\text{Lmin} = \frac{\text{APMX}}{\tan(\text{RMPX})} \text{ (inch)}$$

- **Lmin** = length of ramping
- **ap** : Depth of cut
- **RMPX** : Max. rake angle in ramping

HFMDCA-LN06







• GAMP : -9°
• GAMF : -12°~-10°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
HFMDCA	125R-050-5-LN06	◆	5	1.25	0.827	1.181	0.50	0.252	1.50	0.039	0.265
	150R-050-6-LN06	◆	6	1.50	1.220	1.417	0.50	0.252	1.50	0.039	0.463
	200R-075-7-LN06	◆	7	2.00	1.756	1.772	0.75	0.315	1.75	0.039	0.706
	200R-075-8-LN06	◆	8	2.00	1.756	1.772	0.75	0.315	1.75	0.039	0.706
	250R-075-8-LN06	◆	8	2.50	2.189	1.772	0.75	0.315	1.75	0.039	1.125
	250R-075-9-LN06	◆	9	2.50	2.189	1.772	0.75	0.315	1.75	0.039	1.125
	250R-100-8-LN06	◆	8	2.50	2.189	2.205	1.00	0.374	1.75	0.039	0.169
	250R-100-9-LN06	◆	9	2.50	2.189	2.205	1.00	0.374	1.75	0.039	0.169

◆: US stock ○: Made to order

Available inserts



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	060310R-ML											○		◆	◆			B12
	060310R-MF								●	◆		○		◆	◆			
	060310R-MM					○			●	◆		○		◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.25~Ø2.50	FTNA0306	TW09S

Available inserts **B12** Available arbors and bolt **E96**

HFMDCA-LN10



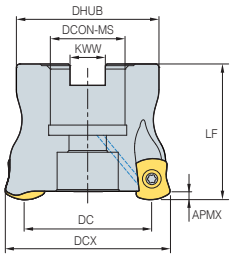


Fig. 1

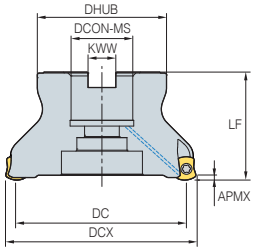


Fig. 2



• GAMP : -9°
• GAMF : -16°~-13°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs	Fig.
HFMDCA	150R-050-4-LN10	○	4	1.50	1.142	1.417	0.50	0.252	1.500	0.059	0.41888	1
	150R-050-5-LN10	◆	5	1.50	1.142	1.417	0.50	0.252	1.500	0.059	0.37479	1
	200R-075-6-LN10	○	6	2.00	1.614	1.772	0.75	0.315	1.750	0.059	0.5732	1
	200R-075-7-LN10	◆	7	2.00	1.614	1.772	0.75	0.315	1.750	0.059	0.5732	1
	250R-075-7-LN10	○	7	2.50	2.047	1.772	0.75	0.315	1.750	0.059	1.03617	1
	250R-075-8-LN10	◆	8	2.50	2.047	1.772	0.75	0.315	1.750	0.059	1.03617	1
	250R-100-7-LN10	○	7	2.50	2.047	2.205	1.00	0.374	1.750	0.059	1.21254	1
	250R-100-8-LN10	○	8	2.50	2.047	2.205	1.00	0.374	1.750	0.059	1.21254	1
	300R-100-9-LN10	○	9	3.00	3.150	2.205	1.00	0.374	2.000	0.059	1.56528	2
	300R-100-10-LN10	◆	10	3.00	3.150	2.205	1.00	0.374	2.000	0.059	1.63142	2
	400R-125-10-LN10	○	10	4.00	3.937	2.874	1.25	0.500	2.000	0.059	3.39512	2
	400R-125-11-LN10	○	11	4.00	3.937	2.874	1.25	0.500	2.000	0.059	3.39512	2
	400R-125-12-LN10	◆	12	4.00	3.937	2.874	1.25	0.500	2.000	0.059	3.39512	2

◆: US stock ○: Made to order

Available inserts

LNMX-ML



LNMX-MF



LNMX-MM



Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	100412R-ML												●	◆	●			B12
	100412R-MF								●	◆			●	◆	●			
	100412R-MM								●	◆			○	◆	●			

●: Korea stock ◆: US stock ○: Made to order

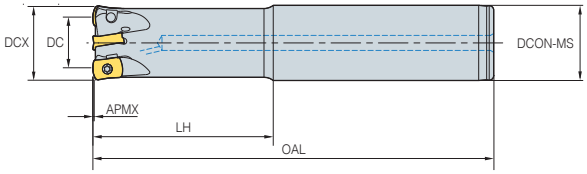
Parts

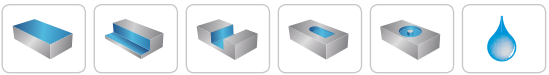
Specification	Screw	Wrench
Ø1.500~Ø4.000	FTNA0408	TW15S

Available inserts **B12** Available arbors and bolt **E94 ~ E96**

HFMDSA-LN04







• GAMP : -8°~-7°
• GAMF : -19°~-15°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HFMDSA	037R-1C031-300-LN04	○	1	0.375	0.145	0.313	0.787	3.0	0.02	0.07
	037R-1C037-300-LN04		1	0.375	0.145	0.375	1.181	3.0	0.02	0.11
	037R-1C037-400-LN04	○	1	0.375	0.145	0.375	0.787	4.0	0.02	0.11
	037R-1C037-600-LN04		1	0.375	0.145	0.375	1.575	6.0	0.02	0.15
	043R-2C037-400-LN04	○	2	0.438	0.263	0.375	0.787	4.0	0.02	0.11
	043R-2C037-600-LN04		2	0.438	0.263	0.375	0.787	6.0	0.02	0.18
	050R-3C050-400-LN04	○	3	0.500	0.302	0.500	1.969	4.0	0.02	0.15
	050R-3C050-600-LN04		3	0.500	0.302	0.500	1.575	6.0	0.02	0.24

◆: US stock ○: Made to order

Available inserts

LNMX-ML



LNMX-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	040205R-ML													◆	◆			B12
	040205R-MM								●	◆				◆	●			

●: Korea stock ◆: US stock ○: Made to order

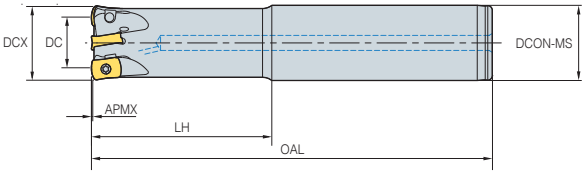
Parts

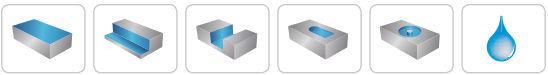
Specification	Screw	Wrench
Ø0.375~Ø0.500	FTKA01844-A	TW06S-A

Available inserts **B12**

HFMDSA-LN04







• GAMP : -8°
• GAMF : -14°~-13°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HFMDSA	062R-4C062-400-LN04	○	4	0.625	0.460	0.625	1.969	4	0.02	0.29
	062R-4C062-476-LN04		4	0.625	0.460	0.625	2.756	5	0.02	0.44
	062R-4C062-600-LN04	○	4	0.625	0.460	0.625	3.150	6	0.02	0.44
	062R-4C062-800-LN04		4	0.625	0.460	0.625	4.724	8	0.02	0.57
	068R-4C062-400-LN04	○	4	0.688	0.499	0.625	0.787	4	0.02	0.31
	068R-4C062-600-LN04	○	4	0.688	0.499	0.625	0.787	6	0.02	0.44
	068R-4C062-800-LN04	○	4	0.688	0.499	0.625	0.787	8	0.02	0.64
	075R-5C075-400-LN04	○	5	0.750	0.617	0.750	0.787	4	0.02	0.49
	075R-5C075-600-LN04	○	5	0.750	0.617	0.750	1.575	6	0.02	0.66
	075R-5C075-800-LN04	○	5	0.750	0.617	0.750	3.150	8	0.02	0.88

◆: US stock ○: Made to order

Available inserts

LNMX-ML



LNMX-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	040205R-ML													◆	◆			B12
	040205R-MM								●	◆				◆	●			

●: Korea stock ◆: US stock ○: Made to order

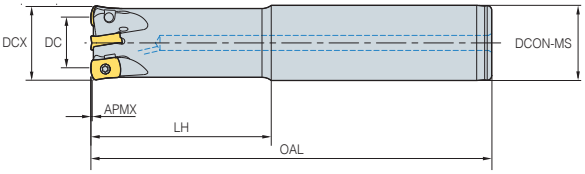
Parts

Specification	Screw	Wrench
Ø0.625~Ø0.750	FTKA01844-A	TW06S-A

Available inserts **B12**

HFMDSA-LN06







• GAMP : -9°
• GAMF : -14°~-13°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HFMDSA	062R-2C062-400-LN06	◆	2	0.625	0.354	0.625	1.181	4.0	0.028	0.29
	062R-2C062-600-LN06	◆	2	0.625	0.354	0.625	1.969	6.0	0.028	0.42
	075R-3C075-400-LN06	◆	3	0.750	0.496	0.750	1.575	4.0	0.039	0.44
	075R-3C075-500-LN06	◆	3	0.750	0.496	0.750	1.969	5.0	0.039	0.57
	075R-3C075-600-LN06	◆	3	0.750	0.496	0.750	3.150	6.0	0.039	0.68
	075R-3C075-800-LN06	◆	3	0.750	0.496	0.750	4.724	8.0	0.039	0.88
	100R-4C100-400-LN06	◆	4	1.000	0.693	1.000	1.575	4.0	0.039	0.73
	100R-4C100-600-LN06	◆	4	1.000	0.693	1.000	2.362	6.0	0.039	1.01
	100R-4C100-800-LN06	◆	4	1.000	0.693	1.000	3.937	8.0	0.039	1.25
	100R-4C100-1000-LN06		4	1.000	0.693	1.000	5.906	10.0	0.039	1.48

◆: US stock ○: Made to order

Available inserts

LNMX-ML



LNMX-MF



LNMX-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	060310R-ML											○		◆	◆			B12
	060310R-MF								●	◆		○		◆	◆			
	060310R-MM					○			●	◆		○		◆	◆			

●: Korea stock ◆: US stock ○: Made to order

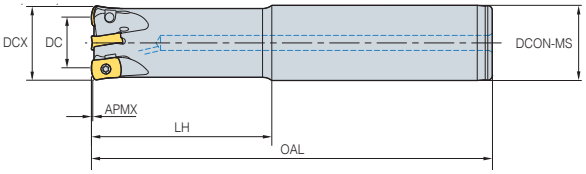
Parts

Specification	Screw	Wrench
Ø0.625~Ø1.000	FTNA0306	TW09S

Available inserts **B12**

HFMDSA-LN06







• GAMP : -9°
• GAMF : -12°~-10°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HFMDSA	125R-5C125-600-LN06	◆	5	1.250	1.260	1.250	2.756	6	0.039	1.81
	125R-5C125-800-LN06	◆	5	1.250	1.260	1.250	4.724	8	0.039	2.38
	125R-5C125-1000-LN06	◆	5	1.250	1.260	1.250	5.906	10	0.039	2.65
	150R-6C125-600-LN06	◆	6	1.500	1.283	1.250	1.575	6	0.039	2.14
	150R-6C125-800-LN06	◆	6	1.500	1.283	1.250	1.575	8	0.039	2.82
	150R-6C125-1000-LN06	◆	6	1.500	1.283	1.250	1.575	10	0.039	3.04

◆: US stock ○: Made to order

Available inserts

LNMX-ML



LNMX-MF



LNMX-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	060310R-ML											○		◆	◆			B12
	060310R-MF								●	◆		○		◆	◆			
	060310R-MM					○			●	◆		○		◆	◆			

●: Korea stock ◆: US stock ○: Made to order

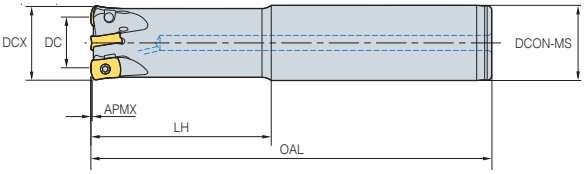
Parts

Specification	Screw	Wrench
Ø1.250~Ø1.500	FTNA0306	TW09S

Available inserts **B12**

HFMDSA-LN10







• GAMP : -9°
• GAMF : -16°~-13°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HFMDSA	100R-2C100-600-LN10	○	2	1.000	0.551	1.000	3.0	6.0	0.059	1.01
	100R-2C100-800-LN10	○	2	1.000	0.551	1.000	4.0	8.0	0.059	1.32
	100R-3C100-600-LN10	○	3	1.000	0.551	1.000	3.0	6.0	0.059	0.99
	100R-3C100-800-LN10	○	3	1.000	0.551	1.000	4.0	8.0	0.059	1.32
	125R-4C125-600-LN10	○	4	1.250	0.827	1.250	3.0	6.0	0.059	1.65
	125R-4C125-800-LN10	○	4	1.250	0.827	1.250	4.0	8.0	0.059	2.21
	125R-4C125-1000-LN10	○	4	1.250	0.827	1.250	6.0	10.0	0.059	2.65
	150R-4C125-600-LN10	○	4	1.500	1.220	1.250	1.5	6.0	0.059	1.96
	150R-4C125-800-LN10	○	4	1.500	1.220	1.250	1.5	8.0	0.059	2.65
	150R-4C125-1000-LN10	○	4	1.500	1.220	1.250	1.5	10.0	0.059	3.26
	150R-5C125-600-LN10	○	5	1.500	1.220	1.250	1.5	6.0	0.059	1.96
	150R-5C125-800-LN10	○	5	1.500	1.220	1.250	1.5	8.0	0.059	2.62
	150R-5C125-1000-LN10	○	5	1.500	1.220	1.250	1.5	10.0	0.059	3.26

◆: US stock ○: Made to order

Available inserts

LNMX-ML



LNMX-MF



LNMX-MM



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	100412R-ML												●	◆	●			B12
	100412R-MF								●	◆			●	◆	●			
	100412R-MM								●	◆			○	◆	●			

●: Korea stock ◆: US stock ○: Made to order

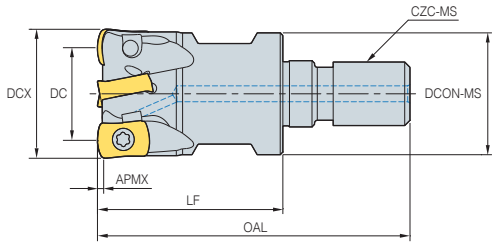
Parts

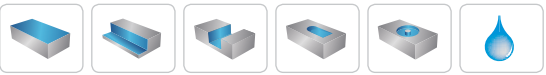
Specification	Screw	Wrench
Ø1.000~Ø1.500	FTNA0408	TW15S

Available inserts **B12**

HFMDMA-LN04







• GAMP : -8°
• GAMF : -16°~-10°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
HFMDMA	037R-1-M06-LN04	○	1	0.375	0.224	0.374	0.866	1.457	M06	0.02	0.02
	043R-2-M06-LN04	○	2	0.438	0.263	0.433	0.866	1.457	M06	0.02	0.02
	050R-3-M06-LN04	○	3	0.500	0.342	0.433	0.866	1.457	M06	0.02	0.02
	062R-4-M08-LN04	○	4	0.625	0.460	0.571	0.866	1.535	M08	0.02	0.07
	068R-4-M08-LN04	○	4	0.688	0.499	0.571	0.866	1.535	M08	0.02	0.07
	075R-5-M10-LN04	○	5	0.750	0.617	0.709	1.181	2.008	M10	0.02	0.13
	100R-7-M12-LN04	○	7	1.000	0.814	0.906	1.181	2.323	M12	0.02	0.22
	125R-8-M16-LN04	○	8	1.250	1.090	1.142	1.378	2.441	M16	0.02	0.44

◆: US stock ○: Made to order

Available inserts

LNMX-ML



LNMX-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	040205R-ML													◆	◆			B12
	040205R-MM								●	◆				◆	●			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
HFMDMA	010R-2-M06-LN04	MATA-M06
	011R-2-M06-LN04	
	012R-3-M06-LN04	
	013R-3-M06-LN04	
	016R-4-M08-LN04	MATA-M08
	017R-4-M08-LN04	

Designation		Available adaptors
HFMDMA	020R-5-M10-LN04	MATA-M10
	025R-7-M12-LN04	MATA-M12
	032R-8-M16-LN04	MATA-M16
	033R-8-M16-LN04	
	035R-8-M16-LN04	

Designation : HFMDMA016R-4-M08-LN04
Modular head threading measure size (M08)

II

Adaptor spec.: MAT-M08-157-S062T
Adaptor threading measure (M08)

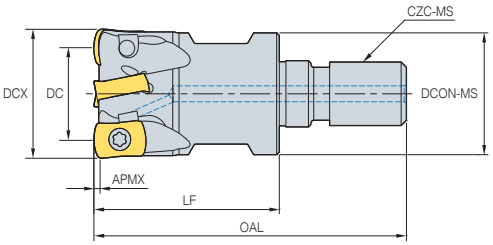
Parts

Specification	Screw	Wrench
Ø0.375~Ø1.250	FTKA01844-A	TW06S-A

Available inserts **B12** Available adaptors **B400**

HFMDMA-LN06







• GAMP : -9°
• GAMF : -15°~-10°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
HFMDMA	062R-2-M08-LN06	◆	2	0.625	0.457	0.571	0.98	1.65	M08	0.028	0.07
	075R-3-M10-LN06	◆	3	0.750	0.496	0.709	1.18	2.01	M10	0.039	0.13
	100R-4-M12-LN06	◆	4	1.000	0.732	0.906	1.38	2.32	M12	0.039	0.22
	125R-5-M16-LN06	◆	5	1.250	1.008	1.142	1.57	2.64	M16	0.039	0.44
	150R-6-M16-LN06	◆	6	1.500	1.362	1.142	1.57	2.64	M16	0.039	0.53

◆: US stock ○: Made to order

Available inserts



	Designation	Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	060310R-ML											○		◆	◆			B12
	060310R-MF								●	◆		○		◆	◆			
	060310R-MM					○			●	◆		○		◆	◆			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
HFMDMA	062R- □ -M08-LN06	MATA - M06
	075R- □ -M10-LN06	MATA - M10
	100R- □ -M12-LN06	MATA - M12
	125R- □ -M16-LN06	MATA - M16
	150R- □ -M16-LN06	

Designation : HFMDMA125R-□-M16-LN06
Modular head threading measure size (M16)

II

Adaptor spec.: MATA-M16-354-S125S-C
Adaptor threading measure (M16)

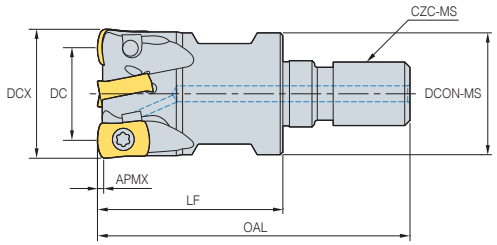
Parts

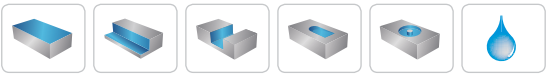
Specification	Screw	Wrench
Ø0.625 ~ Ø1.500	FTNA0306	TW09S

Available inserts B12 Available adaptors B400

HFMDMA-LN10







• GAMP : -9°
• GAMF : -16°~-13°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
HFMDMA	100R-2-M12-LN10	○	2	1.000	0.551	0.906	1.378	2.323	M12	0.059	0.20
	100R-3-M12-LN10	○	3	1.000	0.551	0.906	1.378	2.323	M12	0.059	0.20
	125R-3-M16-LN10	○	3	1.250	0.827	1.142	1.575	2.638	M16	0.059	0.42
	125R-4-M16-LN10	○	4	1.250	0.827	1.142	1.575	2.638	M16	0.059	0.42
	150R-4-M16-LN10	○	3	1.500	0.945	1.142	1.575	2.638	M16	0.059	0.49
	150R-5-M16-LN10	○	4	1.500	0.945	1.142	1.575	2.638	M16	0.059	0.49

◆: US stock ○: Made to order

Available inserts

LNMX-ML LNMX-MF LNMX-MM



	Designation	Cermet	Coated											Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNMX	100412R-ML												●	◆	●			B12
	100412R-MF								●	◆			●	◆	●			
	100412R-MM								●	◆			○	◆	●			

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
HFMDMA	100R- □ -M12-LN10	MATA-M12
	125R- □ -M16-LN10	MATA-M16
	150R- □ -M16-LN10	

Designation: HFMDMA125R-□-M16-LN10
Modular head threading measure size (M16)

=

Adaptor spec.: MATA-M16-354-S125S-C
Adaptor threading measure (M16)

Parts

Specification	Screw	Wrench
Ø1.000~Ø1.500	FTNA0408	TW15S

Available inserts **B12** Available adaptors **B400**

Stable machining, high efficiency milling tools for small diameter machining

HFM

High Feed Mill

- Increase productivity through improved insert shape and size, high feed per tooth, and many cutting-edges, for small diameter machining
- Stable tool life through the combination of the reinforced toughness on corner and suitable grades of high hardness in the area of high speed and high hardness

Code system

• Shank

HFM	S	A	1	043	H	R	-	2	S	037
High Feed Mill	**Holder type** S : Shank	**Arbor type** A : Inch NO code : Metric	**Inscribed circle of insert** 1 : 04 type insert	**Tool diameter** 043 : 0.438 inch	**Coolant type** H : Oil hole No code : None	**Hand** R : Right L : Left		**No. of tooth** 2 : 2 teeth	**Shank length** S : Standard type M : Middle type L : Long type	**Shank diameter** 037 : 0.375 inch

• Modular

HFM	M	A	1	043	H	R	-	M06
High Feed Mill	**Modular type** M : Modular	**Unit** A : Inch NO code : Metric	**Inscribed circle of insert** 1 : 04 type insert	**Tool diameter** 043 : 0.438 inch	**Coolant type** H : Oil hole No code : None	**Hand** R : Right L : Left		**M Dimensions**

• Modular adapter

MAT	A	-	M06	-	118	-	S039	S	-	C	-	315
Modular Adaptor	**Unit** A : Inch NO code : Metric		**M Dimensions** M06		**Neck length** 118: 1.181 inch		**Shank diameter** S039: Ø0.394 inch	**Neck type** T : Taper S : Straight		**Adaptor material** Unmarked : Steel C : Carbide		**Adaptor length** 315 : 3.150 inch

Features

- Apply helix cutting-edge on insert, low cutting load and reinforce toughness on corner
- Increased rigidity with double relief angle (11, 13), prevent interference with high feed
- To apply the negative axial rake angle when set up the holder, increased chipping resistance
- Tool life is increased with suitable C/B and grade for every material

• Holder setup
- To set up the negative axial rake angle, increased chipping resistance

• No. of tooth
- Increased tool life with increased flutes
- HRM(D) Ø0.75 (2 flutes) ➔ HFM Ø0.75 (5 flutes)

• Major cutting-edge
- Improved sharpness of principle edge
- Improved toughness of corner edge

• Relief angle
- 11, 13 double relief angle increase rigidity and prevent interference



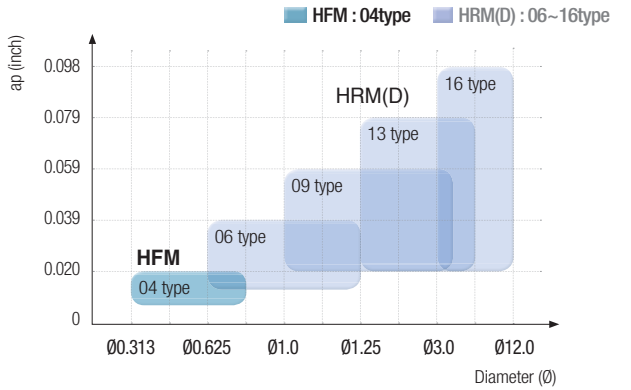


Features of chip breaker

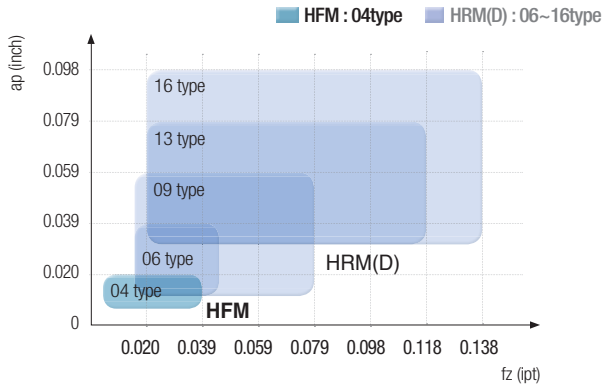
Insert		Cutting-edge	Use	Features
MF			Light cutting Titanium & Inconel machining	Low cutting resistance C/B, suitable for light cutting
None			Super hard material machining	High toughness shape, suitable for hard die steel cutting

Application area

Application area (ap & Diameter)



Application area (ap & fz)





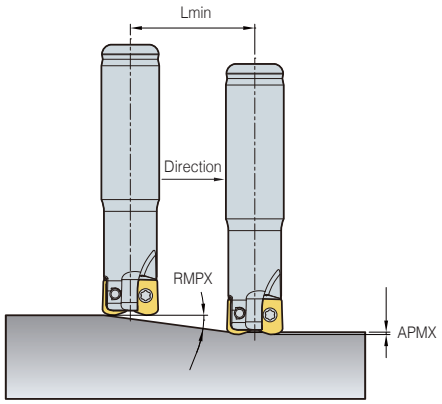
Recommended cutting conditions

∗Recommended chip breaker: ● 1st ○ 2nd

Workpiece					HB (HRC)	Grade	Cutting conditions				Chip breaker	
ISO	Workpiece materials	USA (AISI)	GER (DIN)	KOR (KS)			vc (sfm)	fz (ipt)	ap (inch)	ae	MF	None C/B
P	Mild steel	1020	C22	SM20C	120~180	PC5400 (PC5300)	328.1 ~721.8	0.039~0.020	0.020	0.7D~0.1D	●	-
	Carbon steel	1045	C45	SM45C	200	PC5400 (PC5300)	328.1 ~656.2	0.039~0.020	0.020	0.7D~0.1D	●	-
	Alloy steel	4140	41CrMo4	SCM440	270 (28)	PC5300	328.1 ~656.2	0.039~0.020	0.020	0.7D~0.1D	●	-
	Pre-hardened steel	P20 (Improved)	1.2738 (Improved)	KP4M	300 (32)	PC5300 (PC2510)	328.1 ~590.6	0.035~0.020	0.016	0.7D~0.1D	●	○
		P21 (Improved)	-	NIMAX	370 (40)	PC5300 (PC2510)	328.1 ~590.6	0.035~0.020	0.016	0.7D~0.1D	●	○
		P21 (Improved)	-	CENA1	370 (40)	PC5300 (PC2510)	328.1 ~590.6	0.035~0.020	0.016	0.7D~0.1D	●	○
		P21 (Improved)	-	NAK80	400 (43)	PC5300	328.1 ~524.9	0.028~0.020	0.016	0.7D~0.1D	○	-
							328.1 ~590.6	0.035~0.020	0.016	0.7D~0.1D	-	●
		420	X30Cr13	STAVAX	510 (52)	PC2510 (PC5300)	262.5 ~492.1	0.024~0.012	0.016	0.7D~0.1D	●	-
	Alloy tool steel	D2 H13	X155CrVMo12-1 X40CrMoV5-1	STD11 STD61	- (40~50)	PC2510 (PC2505)	262.5 ~426.5	0.022~0.012	0.012	0.7D~0.1D	-	●
		D2	X155CrVMo12-1	STD11 (Cold forging)	630 (60)	PC2505	98.4 ~246.1	0.020~0.012	0.008	0.7D~0.1D	-	●
M	Stainless steel	316	X5CrNiMo17-12-2	STS316	Under 270	PC5400 (PC5300)	229.7 ~492.1	0.028~0.020	0.020	0.7D~0.1D	●	-
K	Gray cast iron, Ductile cast iron	65-45-12	GGG40.3	GCD450	Tensile Strength Over 450Mpa	PC5300	426.5 ~721.8	0.031~0.024	0.016	0.7D~0.1D	●	-
S	HRSA Fe series	N09901	- (WS 2.4662)	Incoloy901	- (25~35)	PC5300 (PC5400)	98.4 ~328.1	0.020~0.012	0.012	0.4D~0.7D	●	○
	HRSA Ni or Co series	N07718	NiCr19FeNbMo (WS 2.4668)	Inconel718	- (35~45)	PC5300 (PC5400)	65.6 ~164.0	0.024~0.012	0.012	0.4D~0.7D	●	○
	Titanium	R56400	TiAl6V4	Ti-6Al-4V	- (40~45)	PC5300	98.4 ~164.0	0.039~0.016	0.012	0.7D~0.1D	●	-

Ramping and helical cutting

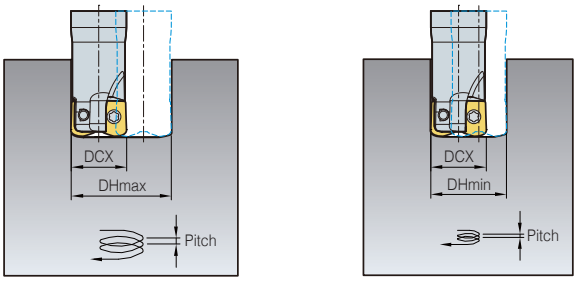
Ramping



$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (inch)}$$

- **Lmin** = Min. inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

Helical cutting



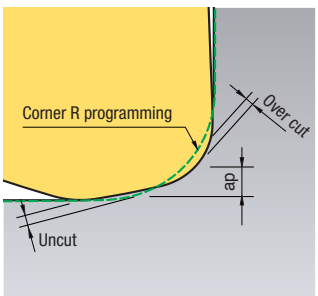
- **DCX** = Tool dia. (inch)
- **d(Tool Path, inch)** = DHmin, max-DCX
- **DHmin(Min diameter, inch)** = DCX × 2 - 5.4
- **DHmax(Max diameter, inch)** = DCX × 2 - 2

(inch)

Designation	DCX	APMX	Ramping		Helical cutting		
			RMPX	Lmin	DHmax	DHmin	Max pitch dmax
HFMSA1037	0.375	0.016 ~0.021	3.5	0.256	0.709	0.591	0.016
HFMSA1043	0.438	0.016 ~0.021	3.1	0.295	0.787	0.669	0.016
HFMSA1050	0.500	0.016 ~0.021	2.7	0.335	0.866	0.748	0.016
HFMSA1056	0.563	0.016 ~0.021	2.2	0.374	0.945	0.827	0.016
HFMSA1062	0.625	0.016 ~0.021	1.8	0.413	1.024	0.906	0.016
HFMSA1068	0.688	0.016 ~0.021	1.7	0.453	1.102	0.984	0.016
HFMSA1075	0.750	0.016 ~0.021	1.4	0.492	1.181	1.063	0.016
HFMSA1081	0.813	0.016 ~0.021	1.3	0.531	1.260	1.142	0.016
HFMMA1100	1.000	0.016 ~0.021	1.1	0.571	1.339	1.220	0.016
HFMMA1106	1.063	0.016 ~0.021	1.0	0.610	1.417	1.299	0.016
HFMMA1118	1.188	0.016 ~0.021	0.9	0.650	1.496	1.378	0.016
HFMMA1125	1.250	0.016 ~0.021	0.8	0.689	1.575	1.457	0.016
HFMMA1131	1.313	0.016 ~0.021	0.8	0.846	1.890	1.772	0.016

- Adjust feed to under 70% of recommended cutting conditionS when ramping & helical cutting
- In helical ramping, max. cutting depth per 1 helical revolution of cutter should not exceed max. cutting depth as per insert size
- In ramping, max. cutting depth per 1 ramping process of cutter should not exceed max. depth of cut as per used insert size

Corner R programming

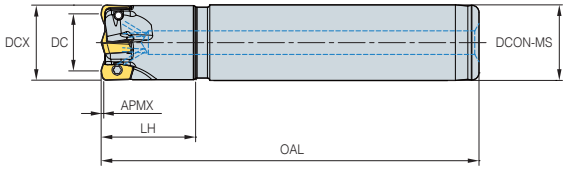


Insert	Corner R programming	Cutting conditions		Over Cut	Uncut
		Nose R	Max. ap		
LPMT040210R-MF **LPMW040210R** **LPEW040210R**	R0.039	0.039	0.016	0.000	0.007
	R0.059			0.004	0.003
	R0.079			0.012	0.000
LPMT040220R-MF **LPMW040220R** **LPEW040220R**	R0.039	0.079	0.020	0.000	0.016
	R0.059			0.000	0.008
	R0.079			0.000	0.000

- When using CNC program, overcut & uncut occurs on the corner processing site if entering the correct program corner R value for each insert
- To prevent overcut, you will need to complete a CNC program considering the above overcut

HFMSA1000












KAPR 13°

- GAMP : -4°
- GAMF : -14°~-7°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HFMSA	1031HR-1S037	○	1	0.313	0.173	0.375	0.787	3.150	0.016~0.020	0.07
	1031HR-1M037	◆	1	0.313	0.173	0.375	0.984	3.937	0.016~0.020	0.07
	1031HR-1L037	◆	1	0.313	0.173	0.375	1.378	4.724	0.016~0.020	0.07
	1037HR-2S031	◆	2	0.375	0.244	0.312	0.787	3.150	0.016~0.020	0.07
	1037HR-2M031	◆	2	0.375	0.244	0.312	0.984	3.937	0.016~0.020	0.09
	1037HR-2L031	◆	2	0.375	0.244	0.312	1.378	4.724	0.016~0.020	0.09
	1037HR-2S037	○	2	0.375	0.244	0.375	0.787	3.150	0.016~0.020	0.09
	1037HR-2M037	○	2	0.375	0.244	0.375	0.984	4.134	0.016~0.020	0.11
	1037HR-2L031	○	2	0.375	0.244	0.375	1.378	4.724	0.016~0.020	0.13
	1043HR-2S037	◆	2	0.438	0.283	0.375	0.787	3.150	0.016~0.020	0.09
	1043HR-2M037	◆	2	0.438	0.283	0.375	0.984	4.134	0.016~0.020	0.13
	1043HR-2L037	◆	2	0.438	0.283	0.375	1.378	4.724	0.016~0.020	0.15
	1050HR-3S037	◆	3	0.500	0.362	0.375	0.787	3.150	0.016~0.020	0.11
	1050HR-3M037	◆	3	0.500	0.362	0.375	0.984	4.134	0.016~0.020	0.13
	1050HR-3L037	◆	3	0.500	0.362	0.375	1.378	4.724	0.016~0.020	0.15
	1050HR-3S050	◆	3	0.500	0.362	0.500	0.787	3.150	0.016~0.020	0.13
	1050HR-3M050	◆	3	0.500	0.362	0.500	0.984	4.134	0.016~0.020	0.18
	1050HR-3L050	◆	3	0.500	0.362	0.500	1.378	4.724	0.016~0.020	0.20

◆: US stock ○: Made to order

Available inserts

LPMT-MF



LPMW



LPEW



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LPMT	040210R-MF								●	◆		○		◆	◆				
	040220R-MF								●	◆			○	◆	◆				
LPMW	040210R							●	●					◆	○				B12
	040220R							●	●					◆	◆				B13
LPEW	040210R							●	●					●	○				
	040220R							●	●					◆	◆				

●: Korea stock ◆: US stock ○: Made to order

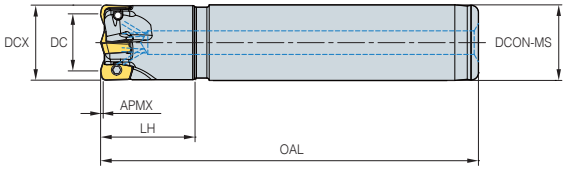
Parts

Specification	Screw	Wrench
Ø0.313~Ø0.375	FTKA01840	TW06S-A
Ø0.438~Ø0.813	FTKA01842	TW06S-A

Available inserts **B12, B13**

HFMSA1000





KAPR 13°

- GAMP : -4°
- GAMF : -6°~-3°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HFMSA	1056HR-3S056	◆	3	0.563	0.402	0.563	0.787	3.150	0.016~0.020	0.15
	1056HR-3M056	◆	3	0.563	0.402	0.563	0.984	4.134	0.016~0.020	0.20
	1056HR-3L056	◆	3	0.563	0.402	0.563	1.575	4.724	0.016~0.020	0.22
	1062HR-4S062	◆	4	0.625	0.480	0.625	0.787	3.150	0.016~0.020	0.24
	1062HR-4M062	◆	4	0.625	0.480	0.625	0.984	4.134	0.016~0.020	0.31
	1062HR-4L062	◆	4	0.625	0.480	0.625	1.575	4.724	0.016~0.020	0.35
	1068HR-4S062	◆	4	0.688	0.520	0.625	0.787	3.150	0.016~0.020	0.24
	1068HR-4M062	◆	4	0.688	0.520	0.625	0.984	4.134	0.016~0.020	0.33
	1068HR-4L062	◆	4	0.688	0.520	0.625	1.575	4.724	0.016~0.020	0.37
	1075HR-4S075	◆	4	0.750	0.559	0.750	0.787	3.150	0.016~0.020	0.70
	1075HR-4M075	◆	4	0.750	0.598	0.750	0.984	4.134	0.016~0.020	0.49
	1075HR-4L075	◆	4	0.750	0.598	0.750	1.575	4.724	0.016~0.020	0.57
	1075HR-5S075	◆	5	0.750	0.598	0.750	0.787	3.150	0.016~0.020	0.37
	1075HR-5M075	◆	5	0.750	0.598	0.750	0.984	4.134	0.016~0.020	0.51
	1075HR-5L075	◆	5	0.750	0.598	0.750	1.575	4.724	0.016~0.020	0.60
	1081HR-5S075	◆	5	0.813	0.677	0.750	0.787	3.150	0.016~0.020	0.37
	1081HR-5M075	◆	5	0.813	0.677	0.750	0.984	4.134	0.016~0.020	0.51
	1081HR-5L075	◆	5	0.813	0.677	0.750	1.575	4.724	0.016~0.020	0.60

◆: US stock ○: Made to order

Available inserts

LPMT-MF



LPMW



LPEW



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LPMT	040210R-MF								●	◆		○		◆	◆				
	040220R-MF								●	◆			○	◆	◆				
LPMW	040210R							●	●					◆	○				B12
	040220R							●	●					◆	◆				B13
LPEW	040210R							●	●					●	○				
	040220R							●	●					◆	◆				

●: Korea stock ◆: US stock ○: Made to order

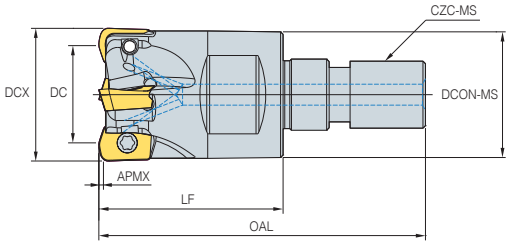
Parts

Specification	Screw	Wrench
Ø0.563~Ø0.813	FTKA01842	TW06S-A

Available inserts **B12, B13**

HFMMA





KAPR 13°

- GAMP : -4°
- GAMF : -14°~-3°

(inch)

Designation		Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
HFMMA	1031HR-M06	◆	1	0.313	0.173	0.295	0.669	1.260	M6	0.016~0.020	0.02
	1037HR-M06	◆	2	0.375	0.244	0.374	0.669	1.260	M6	0.016~0.020	0.02
	1043HR-M06	◆	2	0.438	0.283	0.433	0.669	1.260	M6	0.016~0.020	0.02
	1050HR-M06	○	3	0.500	0.323	0.433	0.748	1.339	M6	0.016~0.020	0.02
	1062HR-M08	◆	4	0.625	0.480	0.571	0.866	1.535	M8	0.016~0.020	0.07
	1068HR-M08	◆	4	0.688	0.520	0.571	0.866	1.535	M8	0.016~0.020	0.07
	1075HR-M10	◆	5	0.750	0.638	0.709	0.984	1.811	M10	0.016~0.020	0.13
	1081HR-M10	◆	5	0.813	0.677	0.709	0.984	1.811	M10	0.016~0.020	0.13
	1100HR-M12	◆	6	1.000	0.835	0.906	1.063	2.008	M12	0.016~0.020	0.24
	1106HR-M12	◆	6	1.063	0.874	0.906	1.063	2.008	M12	0.016~0.020	0.24
	1118HR-M16	◆	7	1.188	1.031	1.142	1.181	2.362	M16	0.016~0.020	0.37
	1125HR-M16	◆	8	1.250	1.110	1.142	1.181	2.362	M16	0.016~0.020	0.40
	1131HR-M16	◆	8	1.313	1.150	1.142	1.181	2.362	M16	0.016~0.020	0.40

◆: US stock ○: Made to order

Available inserts

LPMT-MF LPMW LPEW



Designation		Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LPMT	040210R-MF								●	◆		○		◆	◆				B12 B13
	040220R-MF								●	◆			○	◆	◆				
LPMW	040210R							●	●					◆	○				
	040220R							●	●					◆	◆				
LPEW	040210R							●	●					●	○				
	040220R							●	●					◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
HFMMA	1031HR-M06	MATA-M06
	1037HR-M06	
	1043HR-M06	
	1050HR-M06	
	1062HR-M08	MATA-M08
	1068HR-M08	

Designation		Available adaptors
HFMMA	1075HR-M10	MATA-M10
	1081HR-M10	
	1100HR-M12	MATA-M12
	1106HR-M12	
	1118HR-M16	MATA-M16
	1125HR-M16	
	1131HR-M16	

Designation: HFMMA1031HR-M06
Modular head threading measure size (M06)

=

Adaptor spec.: MATA-M06-078-S038S
Adaptor threading measure (M06)

Parts

Specification	Screw	Wrench
Ø0.313~Ø0.375	FTKA01840	TW06S-A
Ø0.438~Ø1.313	FTKA01842	TW06S-A

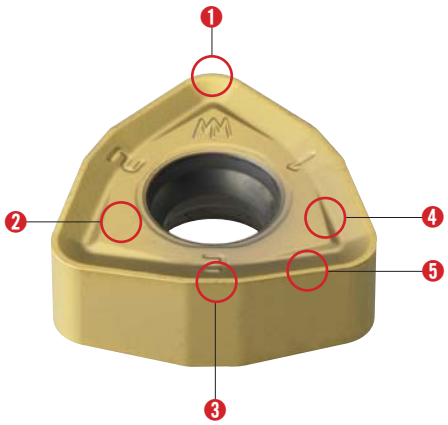
Available inserts **B12, B13** Available adaptors **B400**

Economical high feed milling tool with Negative type 6 corner cutting edges

HRMD

- HRMD is more economical due to the use of 6 cutting-edges compared to HRM tool with a 3-edge positive insert
- High-rake angle cutting-edge and chip breaker reduces cutting load
- Negative geometry has been designed for rigidity of cutting-edge and double-sided function
- Screw on system and stable support achieves strong clamping force
- Unique insert design for high feed and multifunctional machining
- With its unique design, HRMD insert can be used both right and left hand cutters and it ensures low cutting load machining

Features of insert



❶ Nose R

- Security of rigid edge in ramping pocket machining
- Round edge suitable for high feed rates insert geometry
- Possible to use R/L type machining

❷ Clamping surface

- Design for stable clamping
- Prevention of friction by chip

❸ Minor cutting-edge

- Improvement of surface roughness in high feed machining
- Special design for decreasing thrust force
- Symmetrical insert design for R/L type tool

❹ Chip breaker

- Reduction of cutting load due to High-rake angle
- Improvement of chip flow and evacuation in various applications
- Prevention of damage on clamping face of insert

❺ Major cutting-edge

- Symmetrical design insert for R/L type tool
- Superior cutting performance due to high rake angle cutting-edge
- Low cutting resistance in high feed
- Special design for decreasing thrust force

Features of cutter



» Inner coolant system

- Improvement of chip control and evacuation
- Longer tool life due to reduced cutting temperature

» 3-surface constrained system

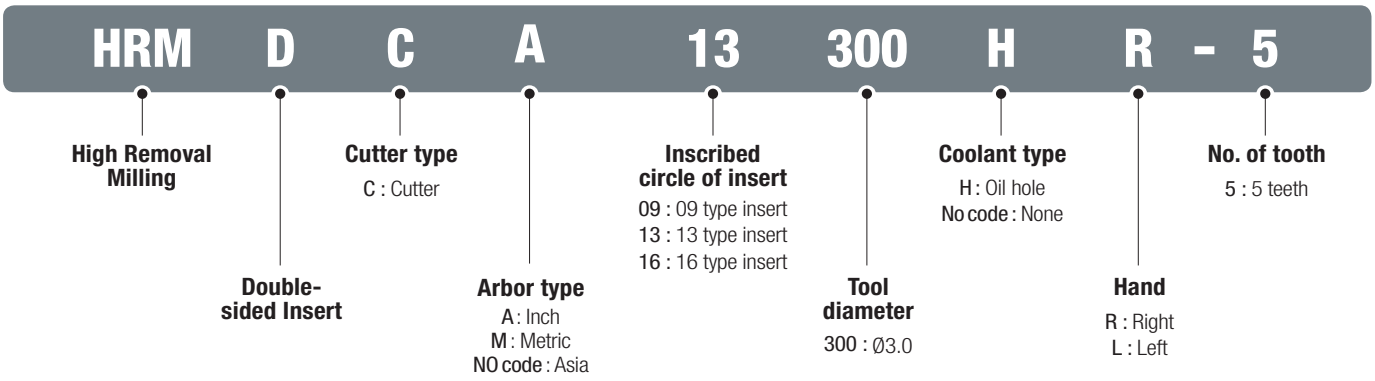
- Strong clamping system
- Stable clamping system against different cutting resistances in various machining applications

» Simple screw on system

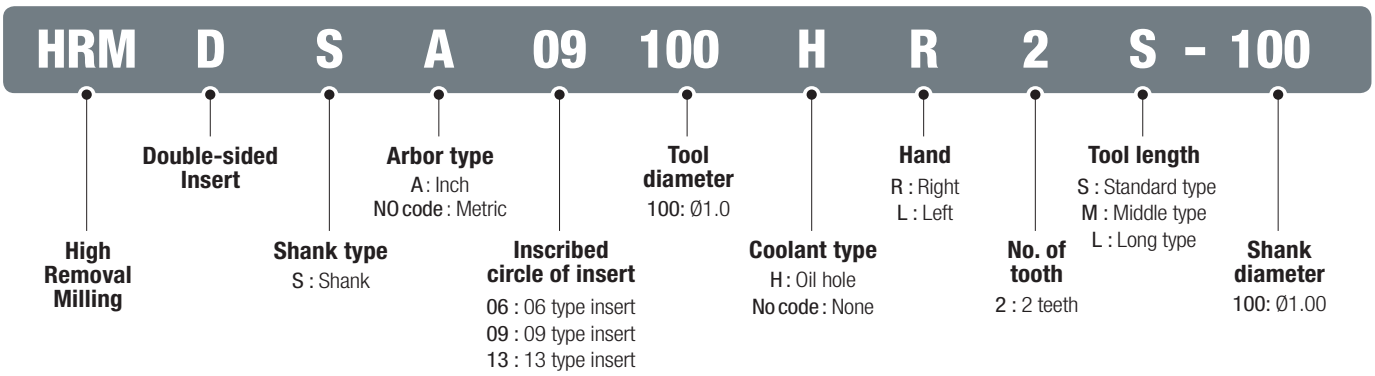
- Strong clamping of screw on system
- Convenient clamping system
- Wide chip pocket for better chip evacuation

Code system

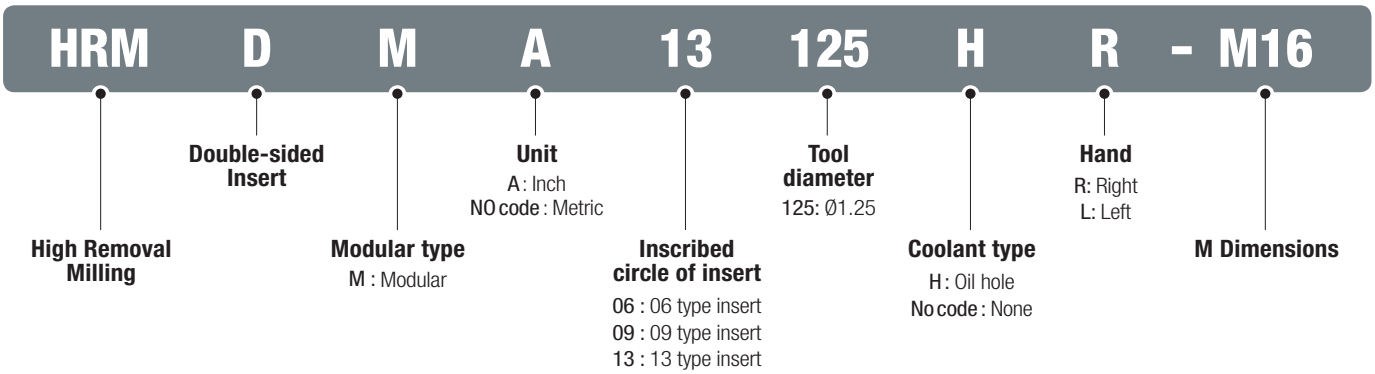
• **Cutter**



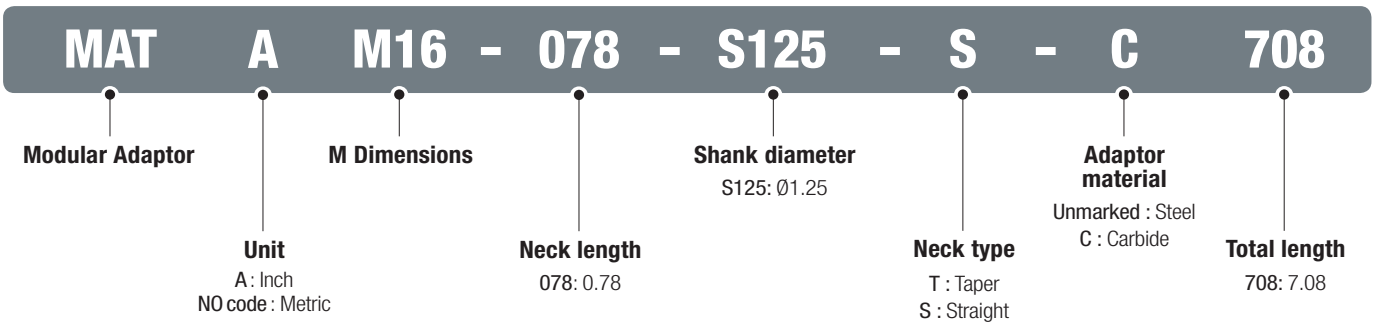
• **Shank**



• **Modular head**



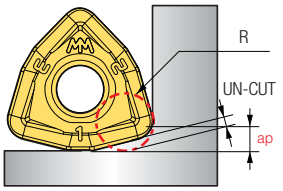
• **Modular adaptor**



Features of insert

Designation	Cutting conditions		Approx. R (mm)	
	Max.ap(inch)	Max.fz(ipt)	Input. R	Uncut
WNMX060312ZNN-□□	0.04	0.05	0.07	0.015
WNMX09T316ZNN-□□	0.06	0.08	0.10	0.024
WNMX130520ZNN-□□	0.08	0.12	0.12	0.032
WNMX160720ZNN-□□	0.10	0.14	0.14	0.047

* Information for uncut part by using "Input.R" for CAM program

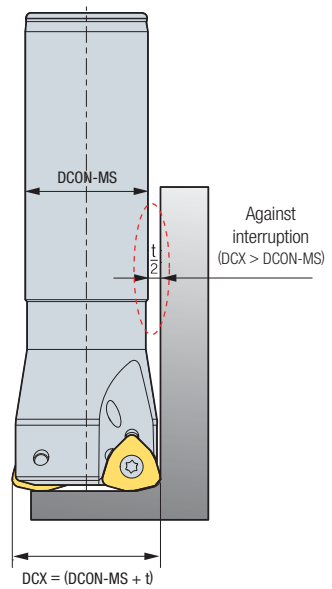


* Uncut part can be changed by poor machine conditions or weak clamp of workpiece, etc.

Interference prevent system

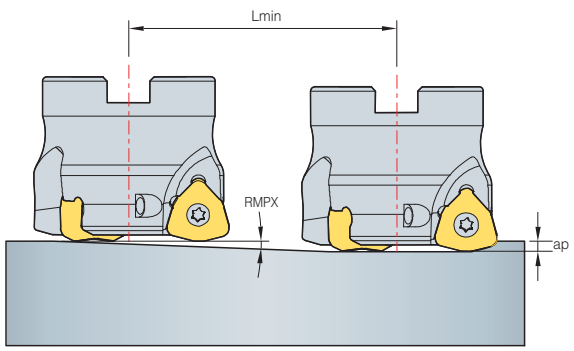
Designation	DCX(inch)	DCON-MS	t(inch)
HRMDSA06068HR-2□062	0.688	0.625	0.063
HRMDSA06087HR-2□075	0.875	0.75	0.125
HRMDSA06112HR-3□100	1.125	1	0.125
HRMDSA06137HR-4□125	1.375	1.25	0.125
HRMDSA09106HR-2□100	1.0625	1	0.06
HRMDSA09131HR-3□125	1.3125	1.25	0.06
HRMDSA09137HR-4□125	1.375	1.25	0.13
HRMDSA09150HR-4□125	1.5	1.25	0.25
HRMDSA09200HR-4□150	2	1.5	0.5
HRMDSA13131HR-2□125	1.313	1.25	0.06
HRMDSA13137HR-2□125	1.375	1.25	0.13
HRMDSA13150HR-3□125	1.5	1.25	0.25
HRMDSA13162HR-3□125	1.625	1.25	0.38
HRMDSA13162HR-3□150	1.625	1.5	0.13
HRMDSA13200HR-3□150	2	1.5	0.5
HRMDSA13250HR-4□150	2.5	1.5	1

* The side clearance prevents to interference between tool and workpiece even in deep hole machining

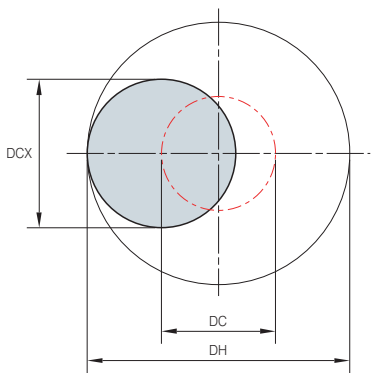


Ramping & helical cutting technical data

Ramping



Helical cutting



$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (inch)}$$

DC = DH-DCX

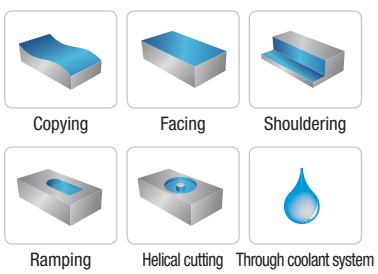
DC = Tool pass of tool center
DH = Desirable hole diameter on workpiece
DCX = Tool diameter

Note) - Adjust feed to under 70% of Recommended cutting conditions when ramping & helical cutting
- In helical ramping, max. cutting depth per 1 helical revolution of cutter should not exceed max. cutting depth as per insert size
- in ramping, max. cutting depth for 1 ramping process should not exceed max. depth of cut as per used insert size

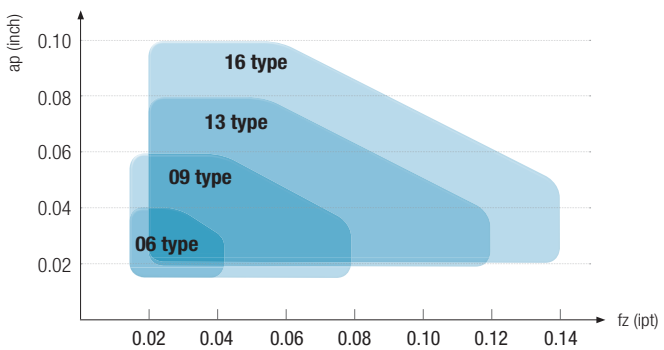
(inch)

Designation		Tool Dia.	Efficient cutting diameter ØDe (inch)	Ramping			Helical ramping	
				APMX	RMPX	Lmin	Dh Min. Cutting diameter	Dh Max. Cutting diameter
HRMDSA	06068HR	0.688	0.433	0.039	3.7	0.603	1.052	1.281
	06075HR	0.750	0.495	0.039	3.3	0.676	1.177	1.406
	06087HR	0.875	0.619	0.039	2.1	1.063	1.427	1.656
	06100HR	1.000	0.741	0.039	2.6	0.858	1.677	1.906
	06112HR	1.125	0.866	0.039	1.9	1.175	1.927	2.156
	06125HR	1.250	0.992	0.039	0.6	3.724	2.177	2.406
	06137HR	1.375	1.115	0.039	0.4	5.586	2.427	2.656
HRMDSA	09100HR-2□□□	1.000	0.606	0.059	5.4	0.622	1.480	1.843
	09106HR-2□□□	1.063	0.646	0.059	5.0	0.669	1.559	1.921
	09118HR-3□□□	1.188	0.803	0.059	3.9	0.866	1.874	2.236
	09125HR-3□□□	1.250	0.878	0.059	3.5	0.965	2.031	2.394
	09131HR-3□□□	1.313	0.917	0.059	3.3	1.016	2.110	2.472
	09137HR-4□□□	1.375	1.000	0.059	3.0	1.114	2.268	2.630
	09150HR-4□□□	1.500	1.125	0.059	2.5	1.351	2.512	2.874
	09162HR-4□□□	1.625	1.189	0.059	2.5	1.358	2.661	3.024
	09200HR-□□□□	2.000	1.583	0.059	1.8	1.850	3.449	3.811
	13125HR-2□□□□	1.250	0.760	0.079	5.7	0.787	1.850	2.362
	13131HR-2□□□□	1.313	0.799	0.079	5.4	0.839	1.929	2.441
	13137HR-2□□□□	1.375	0.878	0.079	4.8	0.945	2.087	2.598
	13150HR-3□□□□	1.500	0.996	0.079	3.7	1.222	2.331	2.843
	13162HR-3□□□□	1.625	1.071	0.079	3.7	1.209	2.480	2.992
	13200HR-□□□□	2.000	1.457	0.079	2.6	1.732	3.268	3.780
	13250HR-□□□□	2.500	1.969	0.079	1.9	2.413	4.291	4.803
HRMDCA	09200HR-□	2.000	1.583	0.059	1.8	1.850	3.449	3.811
	09250HR-□	2.500	2.091	0.059	1.4	2.492	4.472	4.835
	09300HR-□	3.000	2.760	0.059	1.0	3.327	5.811	6.173
	09400HR-□	4.000	3.543	0.059	0.8	4.311	7.386	7.748
	13200HR-□	2.000	1.457	0.079	2.6	1.732	3.268	3.780
	13250HR-□	2.500	1.969	0.079	1.9	2.413	4.291	4.803
	13300HR-□	3.000	2.634	0.079	1.4	3.307	5.630	6.142
	13400HR-□	4.000	3.421	0.079	1.0	4.358	7.205	7.717
	13500HR-□	5.000	4.406	0.079	0.8	4.488	9.173	9.685
HRMDCA	16300HR-□	3.000	2.343	0.098	1.5	3.742	5.134	5.843
	16400HR-□	4.000	3.344	0.098	1.0	5.614	7.134	7.843
	16500HR-□	5.000	4.345	0.098	0.8	7.018	9.134	9.843
	16600R-□	6.000	5.345	0.098	0.6	9.357	11.134	11.843
	16800R-□	8.000	7.346	0.098	0.3	18.716	15.134	15.843
	161000R-□	10.000	9.346	0.098	0.2	28.074	19.134	19.843
	161200R-□	12.000	11.346	0.098	0.1	56.149	23.134	23.843

Use



Application area

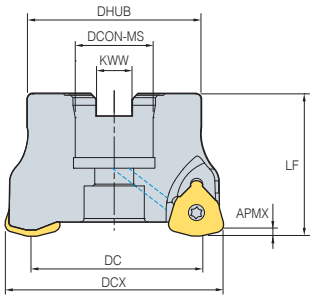


Recommended cutting conditions

ISO	Workpiece		Material	Grade	Cutting speed, vc (sfm)
P	Carbon steel	Low carbon steel	1213, C = 0.1~25	PC5300	919
				PC5400	804
		General carbon steel	C = 0.30~55	PC5300	837
				PC5400	722
		High carbon steel	C = 0.55~80	PC5300	787
				PC5400	673
	Low alloy steel (Alloy constituent < 5%)	-	4115, 4120, 4140	PC5300	640
				PC5400	558
		Hardened	-	PC5300	377
				PC5400	328
	High alloy steel (Alloy constituent > 5%)	Annealed	H13	PC5300	492
				PC5400	427
		Hardened	M2, M35	PC5300	394
				PC5400	344
M	Stainless steel	Ferritic / Martensitic	S41000, S42000, S43000	PC5300	525
				PC5400	443
		Austenitic	S30300, S30400, S31600	PC5300	427
				PC5400	361
		Duplex (Austenitic / Ferrictic)	31803	PC5300	328
				PC5400	279
K	Gray cast iron	Low tensile	No30B, No35B	PC5300	558
				PC5400	492
		Hight tensile	No45B, No50B	PC5300	492
				PC5400	427
	Ductile cast iron	Ferric	60-40-18, 80-55-06	PC5300	558
				PC5400	492
		Pearlitic	80-55-06, 100-70-03	PC5300	492
				PC5400	427
S	Fe Base	-	Incoloy	PC5300	197
				PC5400	164
	Ni Base	-	Inconel, Nimonic, Hastelloy	PC5300	180
				PC5400	148
	Co Base	-	Stelite	PC5300	82
				PC5400	66
	Titanium alloys	-	Pure Ti	PC5300	427
				PC5400	344
			Alloy(TiAl6V4)	PC5300	213
				PC5400	180

HRMDCA09





KAPR 14°

- GAMP : -7°
- GAMF : -12°~-18°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
HRMDCA	09200HR-4	◆	4	2.000	1.587	1.772	0.750	0.315	1.75	0.06	0.662
	09200HR-5	◆	5	2.000	1.587	1.772	0.750	0.315	1.75	0.06	0.662
	09250HR-5	◆	5	2.500	2.096	1.772	0.750	0.315	1.75	0.06	1.103
	09250HR-6	○	6	2.500	2.096	1.772	0.750	0.315	1.75	0.06	1.103
	09300HR-6	○	6	3.000	2.761	2.205	1.000	0.374	2.00	0.06	3.308
	09300HR-7	◆	7	3.000	2.761	2.205	1.000	0.374	2.00	0.06	3.308
	09400HR-7	○	7	4.000	3.547	2.874	1.250	0.500	2.00	0.06	4.631
	09400HR-8	◆	8	4.000	3.547	2.874	1.250	0.500	2.00	0.06	4.631

◆: US stock ○: Made to order

Available inserts

WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF								◆			○	◆	◆				B31
	09T316ZNN-ML								◆			○	◆	◆				
	09T316ZNN-MM				○		●	●	◆	◆	◆	○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

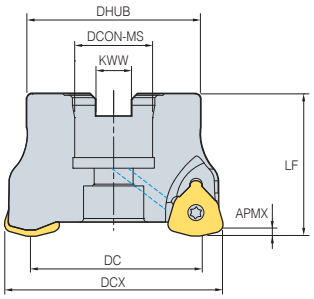
Parts

Specification	Screw	Wrench
Ø2.000~Ø4.000	FTKA0307	TW09S

Available inserts **B31** Available arbors and bolt **E94 ~ E96**

HRMDCA13











KAPR 14°

- GAMP : -7°
- GAMF : -12°~-4°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
HRMDCA	13200HR-3	○	3	2.0	0.769	1.772	0.75	0.315	1.75	0.08	0.662
	13200HR-4	◆	4	2.0	0.808	1.772	0.75	0.315	1.75	0.08	0.662
	13250HR-4	○	4	2.5	0.887	1.772	0.75	0.315	1.75	0.08	1.103
	13250HR-5	◆	5	2.5	1.077	1.772	0.75	0.315	1.75	0.08	1.103
	13300HR-5	○	5	3.0	1.461	2.205	1.00	0.374	2.00	0.08	2.205
	13300HR-6	◆	6	3.0	1.461	2.205	1.00	0.374	2.00	0.08	2.205
	13400HR-6	○	6	4.0	1.973	2.874	1.25	0.500	2.00	0.08	3.528
	13400HR-7	◆	7	4.0	1.973	2.874	1.25	0.500	2.00	0.08	3.528
	13500HR-7	○	7	5.0	2.640	3.433	1.50	0.626	2.50	0.08	4.410
	13500HR-8	◆	8	5.0	2.640	3.433	1.50	0.626	2.50	0.08	4.410

◆: US stock ○: Made to order

Available inserts

WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF								○			○	◆	◆				B31
	130520ZNN-ML											○	◆	◆				
	130520ZNN-MM				○		●	●	◆	◆	◆	●	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

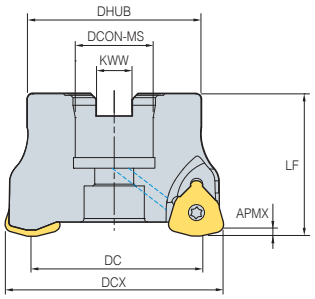
Parts

Specification	Screw	Wrench
Ø2.0~Ø5.0	FTKA0412B	TW15S

Available inserts **B31** Available arbors and bolt **E94 ~ E96**

HRMDCA16





KAPR 14°

- GAMP : -7°
- GAMF : -12°~-4°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
HRMDCA	16300HR-4	○	4	3.0	2.496	2.362	1.00	0.374	2.00	0.098	1.94
	16300HR-5	◆	5	3.0	2.496	2.362	1.00	0.374	2.00	0.098	1.81
	16400HR-5	○	5	4.0	3.283	3.346	1.25	0.500	2.00	0.098	3.77
	16400HR-6	◆	6	4.0	3.283	3.346	1.25	0.500	2.00	0.098	3.86
	16500HR-6	○	6	5.0	4.268	3.937	1.50	0.626	2.50	0.098	7.23
	16500HR-7	◆	7	5.0	4.268	3.937	1.50	0.626	2.50	0.098	7.25
	16600R-7	○	7	6.0	5.646	5.039	2.00	0.752	2.50	0.098	8.99
	16600R-8	◆	8	6.0	5.646	5.039	2.00	0.752	2.50	0.098	9.13
	16800R-8	○	8	8.0	7.220	5.701	2.50	1.000	2.50	0.098	14.70
	16800R-10	○	10	8.0	7.220	5.701	2.50	1.000	2.50	0.098	14.79
	161000R-10	○	10	10.0	9.189	7.480	2.50	1.000	2.50	0.098	24.98
	161000R-12	○	12	10.0	9.189	7.480	2.50	1.000	2.50	0.098	24.89
	161200R-12	○	12	12.0	11.748	9.646	2.50	1.000	2.50	0.098	37.15
	161200R-14	○	14	12.0	11.748	9.646	2.50	1.000	2.50	0.098	37.39

◆: US stock ○: Made to order

Available inserts

WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	160720ZNN-MF								○			○	●	●				B31
	160720ZNN-ML											○	●	○				
	160720ZNN-MM								◆			○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

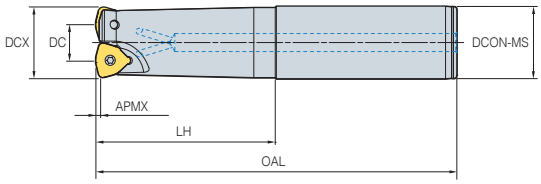
Parts

Specification	Screw	Wrench
Ø3.0~Ø12.0	FTGA0513-P	TW20-100

Available inserts **B31** Available arbors and bolt **E94 ~ E96**

HRMDSA06











KAPR 14°

- GAMP : -7°
- GAMF : -17°~-25°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HRMDSA	06068HR-2S062	○	2	0.688	0.459	0.625	0.787	4.331	0.039	0.32
	06068HR-2M062	○	2	0.688	0.459	0.625	0.787	5.906	0.039	0.44
	06068HR-2L062	○	2	0.688	0.459	0.625	0.787	7.874	0.039	0.60
	06075HR-2S075	◆	2	0.750	0.535	0.750	1.969	5.118	0.039	0.55
	06075HR-2M075	◆	2	0.750	0.535	0.750	3.937	7.087	0.039	0.75
	06075HR-2L075	○	2	0.750	0.535	0.750	5.118	9.843	0.039	1.06
	06087HR-2S075	◆	2	0.875	0.574	0.750	0.787	5.118	0.039	0.59
	06087HR-2M075	○	2	0.875	0.574	0.750	0.787	7.087	0.039	0.82
	06087HR-2L075	○	2	0.875	0.574	0.750	0.787	9.843	0.039	1.14
	06100HR-3S100	◆	3	1.000	0.728	1.000	2.362	5.512	0.039	1.01
	06100HR-3M100	○	3	1.000	0.728	1.000	3.150	7.087	0.039	1.31
	06100HR-3L100	○	3	1.000	0.728	1.000	4.724	9.843	0.039	1.84
	06112HR-3S100	◆	3	1.125	0.768	1.000	1.181	5.512	0.039	1.09
	06112HR-3M100	◆	3	1.125	0.768	1.000	1.181	7.087	0.039	1.40
	06112HR-3L100	○	3	1.125	0.768	1.000	1.181	9.843	0.039	1.95
	06125HR-4S125	◆	4	1.250	1.004	1.250	2.756	5.906	0.039	0.76
	06125HR-4M125	◆	4	1.250	1.004	1.250	3.937	7.874	0.039	2.38
	06125HR-4L125	○	4	1.250	1.004	1.250	7.087	11.811	0.039	3.58
	06137HR-4S125	○	4	1.375	1.043	1.250	1.575	7.874	0.039	2.53
	06137HR-4M125	○	4	1.375	1.043	1.250	1.575	9.843	0.039	3.17
	06137HR-4L125	○	4	1.375	1.043	1.250	1.757	11.811	0.039	3.81

◆: US stock ○: Made to order

Available inserts

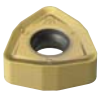
WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	060312ZNN-MF								○			○	◆	●				B31
	060312ZNN-ML											○	●	◆				
	060312ZNN-MM						●	●	◆		○	○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

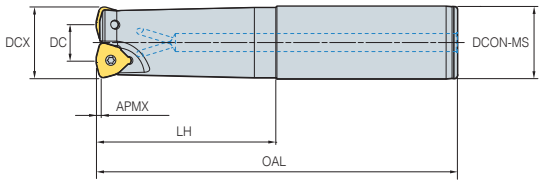
Parts

Specification	Screw	Wrench
Ø0.688~Ø1.375	ETNA02506	TW07S

Available inserts **B31**

HRMDSA09





KAPR 14°

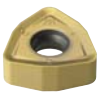
- GAMP : -7°
- GAMF : -17°~-25°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HRMDSA	09100HR-2S100	◆	2	1.0000	0.616	1.00	2.362	5.512	0.06	1.103
	09100HR-2M100	◆	2	1.0000	0.616	1.00	4.724	7.874	0.06	1.323
	09100HR-2L100	◆	2	1.0000	0.616	1.00	7.087	11.811	0.06	2.205
	09106HR-2S100	○	2	1.0625	0.656	1.00	2.362	5.512	0.06	1.103
	09106HR-2M100	○	2	1.0625	0.656	1.00	2.362	7.874	0.06	1.544
	09106HR-2L100	○	2	1.0625	0.656	1.00	2.362	11.811	0.06	2.205
	09118HR-3S125	○	3	1.1875	0.809	1.25	2.756	5.906	0.06	1.764
	09118HR-3M125	○	3	1.1875	0.809	1.25	4.724	7.874	0.06	2.205
	09118HR-3L125	○	3	1.1875	0.809	1.25	7.087	11.811	0.06	3.308
	09125HR-3S125	◆	3	1.2500	0.885	1.25	2.756	5.906	0.06	1.764
	09125HR-3M125	◆	3	1.2500	0.885	1.25	4.724	7.874	0.06	2.426
	09125HR-3L125	◆	3	1.2500	0.885	1.25	7.087	11.811	0.06	3.749

◆: US stock ○: Made to order

Available inserts

		WNMX-MF	WNMX-ML	WNMX-MM
				

	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF								◆			○	◆	◆				B31
	09T316ZNN-ML								◆			○	◆	◆				
	09T316ZNN-MM				○		●	●	◆	◆	◆	○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

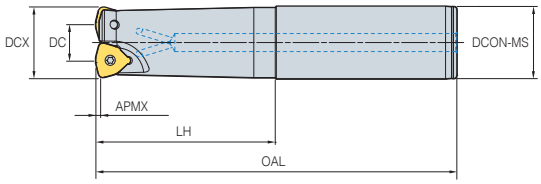
Parts

Specification	Screw	Wrench
Ø1.0000~Ø1.2500	FTKA0307	TW09S

Available inserts **B31**

HRMDSA09











KAPR 14°

- GAMP : -7°
- GAMF : -17°~-25°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HRMDSA	09131HR-3S125	○	3	1.3125	0.924	1.25	2.756	5.906	0.06	1.764
	09131HR-3M125	○	3	1.3125	0.924	1.25	2.756	7.874	0.06	2.426
	09131HR-3L125	○	3	1.3125	0.924	1.25	2.756	11.811	0.06	3.749
	09137HR-4S125	○	4	1.3750	1.007	1.25	1.969	5.906	0.06	1.985
	09137HR-4M125	○	4	1.3750	1.007	1.25	1.969	7.874	0.06	2.426
	09137HR-4L125	○	4	1.3750	1.007	1.25	1.969	11.811	0.06	3.749
	09150HR-4S125	◆	4	1.5000	1.195	1.25	1.969	5.906	0.06	1.985
	09150HR-4M125	◆	4	1.5000	1.195	1.25	1.969	9.843	0.06	3.308
	09150HR-4L125	○	4	1.5000	1.195	1.25	1.969	11.811	0.06	3.969
	09200HR-4S150	○	4	2.0000	1.587	1.50	1.575	5.906	0.06	3.087
	09200HR-4M150	○	4	2.0000	1.587	1.50	1.575	9.843	0.06	5.292
	09200HR-4L150	○	4	2.0000	1.587	1.50	1.575	11.811	0.06	6.395
	09200HR-5S150	○	5	2.0000	1.587	1.50	1.575	5.906	0.06	3.087
	09200HR-5M150	○	5	2.0000	1.587	1.50	1.575	9.843	0.06	5.292
	09200HR-5L150	○	5	2.0000	1.587	1.50	1.575	11.811	0.06	6.395

◆: US stock ○: Made to order

Available inserts

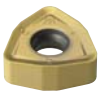
WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF								◆			○	◆	◆				B31
	09T316ZNN-ML											○	◆	◆				
	09T316ZNN-MM				○		●	●	◆	◆	◆	○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

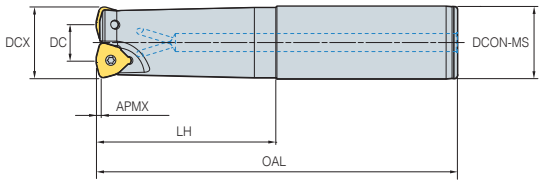
Parts

Specification	Screw	Wrench
Ø1.3125~Ø2.0000	FTKA0307	TW09S

Available inserts **B31**

HRMDSA13





KAPR 14°

- GAMP : -7°
- GAMF : -14°~-16°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HRMDSA	13125HR-2S125	◆	2	1.250	0.769	1.250	2.756	5.906	0.08	1.764
	13125HR-2M125	◆	2	1.250	0.769	1.250	4.724	7.874	0.08	2.205
	13125HR-2L125	○	2	1.250	0.769	1.250	7.087	11.811	0.08	3.528
	13131HR-2S125	○	2	1.313	0.808	1.250	2.756	5.906	0.08	1.754
	13131HR-2M125	◆	2	1.313	0.808	1.250	2.756	7.874	0.08	2.426
	13131HR-2L125	○	2	1.313	0.808	1.250	2.756	11.811	0.08	3.749
	13137HR-2S125	○	2	1.375	0.887	1.250	1.969	5.906	0.08	1.764
	13137HR-2M125	○	2	1.375	0.887	1.250	1.969	7.874	0.08	2.426
	13137HR-2L125	○	2	1.375	0.887	1.250	1.969	11.811	0.08	3.749
	13150HR-3S125	◆	3	1.500	1.077	1.250	1.969	5.906	0.08	1.764
	13150HR-3M125	◆	3	1.500	1.077	1.250	1.969	9.843	0.08	3.087
	13150HR-3L125	○	3	1.500	1.077	1.250	1.969	11.811	0.08	3.749
	13150HR-3S150	◆	3	1.500	1.077	1.500	2.362	5.906	0.08	2.646
	13150HR-3M150	◆	3	1.500	1.077	1.500	5.118	9.843	0.08	4.631
	13150HR-3L150	◆	3	1.500	1.077	1.500	7.087	11.811	0.08	5.733

◆: US stock ○: Made to order

Available inserts

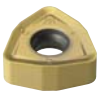
WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF								○			○	◆	◆				B31
	130520ZNN-ML											○	◆	◆				
	130520ZNN-MM				○		●	●	◆	◆	◆	●	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

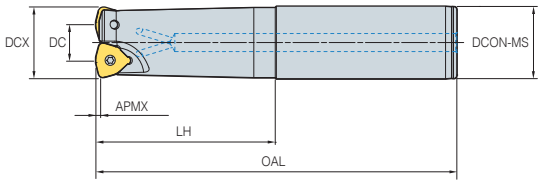
Parts

Specification	Screw	Wrench
Ø1.250~Ø1.500	FTKA0412B	TW15S

Available inserts **B31**

HRMDSA13











KAPR 14°

- GAMP : -7°
- GAMF : -14°~-16°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HRMDSA	13162HR-3S125	○	3	1.625	1.077	1.250	1.969	5.906	0.08	1.985
	13162HR-3M125	○	3	1.625	1.077	1.250	1.969	9.843	0.08	2.646
	13162HR-3L125		3	1.625	1.077	1.250	1.969	11.811	0.08	3.969
	13162HR-3S150	○	3	1.625	1.077	1.500	1.969	5.906	0.08	2.867
	13162HR-3M150	○	3	1.625	1.077	1.500	1.969	9.843	0.08	4.851
	13162HR-3L150	○	3	1.625	1.077	1.500	1.969	11.811	0.08	5.954
	13200HR-3S150	○	3	2.000	1.461	1.500	1.969	5.906	0.08	2.426
	13200HR-3M150	○	3	2.000	1.461	1.500	1.969	9.43	0.08	3.746
	13200HR-3L150	○	3	2.000	1.461	1.500	1.969	11.811	0.08	4.410
	13200HR-4S150	○	4	2.000	1.461	1.500	1.969	5.906	0.08	3.308
	13200HR-4M150	○	4	2.000	1.461	1.500	1.969	9.843	0.08	5.292
	13200HR-4L150	○	4	2.000	1.461	1.500	1.969	11.811	0.08	6.395
	13250HR-4S150	○	4	2.500	1.973	1.500	1.969	5.906	0.08	3.087
	13250HR-4M150	○	4	2.500	1.973	1.500	1.969	9.843	0.08	4.631
	13250HR-4L150	○	4	2.500	1.973	1.500	1.969	11.811	0.08	5.292
	13250HR-5S150	○	5	2.500	1.973	1.500	1.969	5.906	0.08	3.969
	13250HR-5M150	○	5	2.500	1.973	1.500	1.969	9.843	0.08	6.174
	13250HR-5L150	○	5	2.500	1.973	1.500	1.969	11.811	0.08	7.056

◆: US stock ○: Made to order

Available inserts

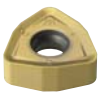
WNMX-MF



WNMX-ML



WNMX-MM



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF								○			○	◆	◆				B31
	130520ZNN-ML											○	◆	◆				
	130520ZNN-MM				○		●	●	◆	◆	◆	●	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

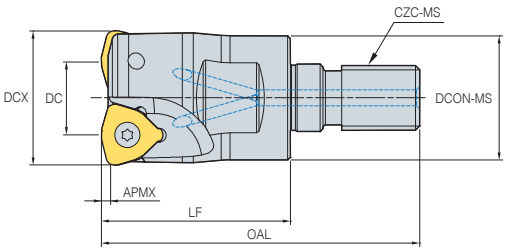
Parts

Specification	Screw	Wrench
Ø1.625~Ø2.500	FTKA0412B	TW15S

Available inserts **B31**

HRMDMA06





KAPR 14°

- GAMP : -7°
- GAMF : -18°~-25°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
HRMDMA	06068HR-M08	○	2	0.688	0.418	0.571	0.984	1.654	M08	0.039	0.07
	06075HR-M10	○	2	0.750	0.535	0.689	1.181	2.008	M10	0.039	0.13
	06087HR-M10	○	2	0.875	0.574	0.709	1.181	2.008	M10	0.039	0.15
	06100HR-M12	○	3	1.000	0.728	0.906	1.378	2.323	M12	0.039	0.23
	06112HR-M12	○	3	1.125	0.768	0.906	1.378	2.323	M12	0.039	0.28
	06125HR-M16	○	4	1.250	1.004	1.142	1.575	2.638	M16	0.039	0.45
	06137HR-M16	○	4	1.375	1.043	1.142	1.575	2.638	M16	0.039	0.51

◆: US stock ○: Made to order

Available inserts



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	060312ZNN-MF								○			○	◆	●				B31
	060312ZNN-ML											○	●	◆				
	060312ZNN-MM						●	●	◆		●	●	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Designation		Available adaptors
HRMDMA	06068HR-M08	MATA- M08
	06075HR-M10	MATA- M10
	06087HR-M10	

Designation		Available adaptors
HRMDMA	06100HR-M12	MATA- M12
	06112HR-M12	
	06125HR-M16	MATA- M16
	06137HR-M16	

Designation: HRMDMA06100HR-M12
Modular head threading measure size (M12)

II

Adaptor spec.: MATA-M12-118-S100S
Adaptor threading measure (M12)

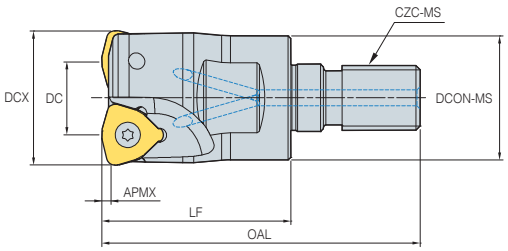
Parts

Specification	Screw	Wrench
Ø0.688~Ø1.375	ETNA02506	TW07S

Available inserts **B31** Available adaptors **B400**

HRMDMA09







KAPR 14°

- GAMP : -7°
- GAMF : -18°~-25°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
HRMDMA	09100HR-M12	◆	2	1.000	0.616	0.906	1.378	2.323	M12	0.06	0.22
	09106HR-M12	○	2	1.063	0.656	0.906	1.378	2.323	M12	0.06	0.24
	09118HR-M16	○	3	1.188	0.809	1.142	1.575	2.638	M16	0.06	0.42
	09125HR-M16	◆	3	1.250	0.885	1.142	1.575	2.638	M16	0.06	0.44
	09131HR-M16	○	3	1.313	0.924	1.142	1.575	2.638	M16	0.06	0.46
	09137HR-M16	○	4	1.375	1.007	1.142	1.575	2.638	M16	0.06	0.49
	09150HR-M16	◆	4	1.500	1.195	1.142	1.575	2.638	M16	0.06	0.55

◆: US stock ○: Made to order

Available inserts



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	09T316ZNN-MF								◆			○	◆	◆				B31
	09T316ZNN-ML											○	◆	◆				
	09T316ZNN-MM				○		●	●	◆	◆	◆	○	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
HRMDMA	09100HR-M12	MATA- M12
	09106HR-M12	
	09118HR-M16	MATA- M16
	09125HR-M16	
	09131HR-M16	
	09137HR-M16	
	09150HR-M16	

Designation: HRMDMA09125HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MATA-M16-137-S125S
Adaptor threading measure (M16)

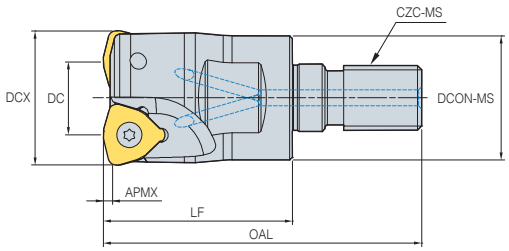
Parts

Specification	Screw	Wrench
Ø1.000~Ø1.500	FTKA0307	TW09S

Available inserts **B31** Available adaptors **B400**

HRMDMA13





KAPR 14°

- GAMP : -7°
- GAMF : -18°~-25°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
HRMDMA	13125HR-M16	◆	2	1.250	3.542	1.142	1.575	2.638	M16	0.08	0.44
	13131HR-M16	○	2	1.313	3.542	1.142	1.575	2.638	M16	0.08	0.44
	13137HR-M16	○	2	1.375	4.407	1.142	1.575	2.638	M16	0.08	0.49
	13150HR-M16	◆	3	1.500	4.407	1.142	1.772	2.835	M16	0.08	0.57

◆: US stock ○: Made to order

Available inserts



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WNMX	130520ZNN-MF								○			○	◆	◆				B31
	130520ZNN-ML											○	◆	◆				
	130520ZNN-MM				○		●	●	◆	◆	◆	●	◆	◆				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
HRMDMA	13125HR-M16	MATA-M16
	13131HR-M16	
	13137HR-M16	
	13150HR-M16	

Designation: HRMDMA13125HR-M16
Modular head threading measure size (M16)

=

Adaptor spec.: MATA-M16-137-S125S
Adaptor threading measure (M16)

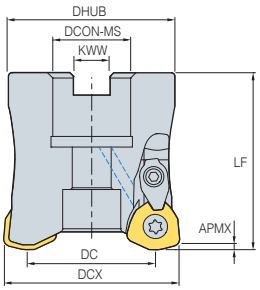
Parts

Specification	Screw	Wrench
Ø1.250~Ø1.500	FTKA0412B	TW15S

Available inserts **B31** Available adaptors **B400**

HRMCA13











KAPR 15°

- GAMP : 7°
- GAMF : -15°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
HRMCA	13200HR-3	○	3	2	1.447	1.850	3/4	0.321	1.75	0.08	0.88
	13200HR-4	○	4	2	1.447	1.850	3/4	0.321	1.75	0.08	0.88
	13250HR-4	○	4	2 1/2	1.958	2.362	3/4	0.321	1.75	0.08	1.54
	13300HR-5	○	5	3	2.627	2.992	3/4	0.384	2.00	0.08	3.52

◆: US stock ○: Made to order

Available inserts

WDKT-MH



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	130520ZDSR-MH						●	●	●	●	●		●	●				B30

●: Korea stock ◆: US stock ○: Made to order

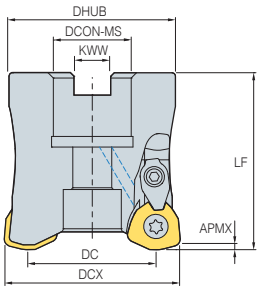
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø2~Ø3	FTGA0513-P	CHH4.5R1	CTX04513H	CR03	TW20-100

Available inserts **B30** Available arbors and bolt **E94 ~ E96**

HRMCA15







KAPR 15°

- GAMP : 7°
- GAMF : -15°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
HRMCA	15250HR-3	○	3	2 1/2	1.896	2.362	3/4	0.321	1.75	0.10	1.54
	15300HR-4	○	4	3	2.563	2.992	1	0.384	2	0.10	3.74
	15400HR-5	○	5	4	3.352	3.78	1 1/4	0.51	2	0.10	6.16
	15400HR-6	○	6	4	3.352	3.78	1 1/4	0.51	2	0.10	7.04
	15500HR-6	○	6	5	4.336	3.858	1 1/2	0.636	2.5	0.10	7.26
	15600HR-7	○	7	6	5.713	3.937	2	0.758	2.5	0.10	9.46

◆: US stock ○: Made to order

Available inserts

WDKT-MH



Designation		Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	150625ZDSR-MH								●	●	●		●	●				B30

●: Korea stock ◆: US stock ○: Made to order

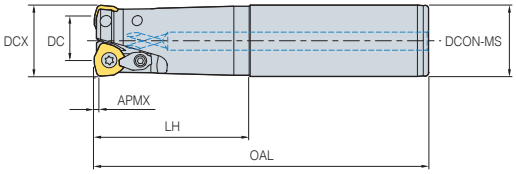
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø2 1/2~6	FTGA0513-P	CHH5.5R1	CTX0515	CR04	TW20-100

Available inserts **B30** Available arbors and bolt **E94 ~ E96**

HRMSA08/10











KAPR 15°

- GAMP : 7°
- GAMF : -11°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HRMSA	08075HR-2S075	○	2	3/4	0.484	3/4	1.969	5.118	0.04	0.66
	08075HR-2M075	○	2	3/4	0.484	3/4	3.937	7.087	0.04	0.88
	08075HR-2L075	○	2	3/4	0.484	3/4	5.118	9.843	0.04	1.10
	08087HR-2S075	○	2	7/8	0.523	3/4	1.969	5.118	0.04	0.66
	08087HR-2M075	○	2	7/8	0.523	3/4	1.969	7.087	0.04	0.88
	08087HR-2L075	○	2	7/8	0.523	3/4	1.969	9.843	0.04	1.10
	10100HR-2S100	○	2	1	0.611	1	2.362	5.512	0.06	0.88
	10100HR-2M100	○	2	1	0.611	1	4.724	7.874	0.06	0.32
	10100HR-2L100	○	2	1	0.611	1	7.087	11.811	0.06	0.98
	10106HR-2S100	○	2	1 1/16	0.650	1	2.362	5.512	0.06	0.88
	10106HR-2M100	○	2	1 1/16	0.650	1	2.362	7.874	0.06	1.32
	10106HR-2L100	○	2	1 1/16	0.650	1	2.362	11.811	0.06	2.20
	10118HR-2S125	○	2	1 3/16	0.807	1 1/4	2.756	5.906	0.06	1.76
	10118HR-2M125	○	2	1 3/16	0.807	1 1/4	4.724	7.874	0.06	2.20
	10118HR-2L125	○	2	1 3/16	0.807	1 1/4	7.087	11.811	0.06	3.30

◆: US stock ○: Made to order

Available inserts

WDKT-MH



Type	Designation		Cermet	Coated										Uncoated			Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
08 type	WDKT	080316ZDSR-MH						●	●	●	●	●		●	●				B30
10 type	WDKT	10T320ZDSR-MH						○	●	●	●	●		●	●				

●: Korea stock ◆: US stock ○: Made to order

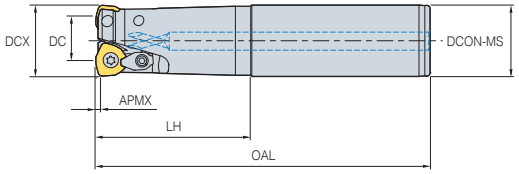
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø3/4~Ø7/8(08 type)	FTNA0306	-	-	-	TW09P
Ø1~Ø1 3/16(10 type)	FTKA0408	CHH3.5R1	CTX03510	CR03	TW15S

Available inserts **B30**

HRMSA13







KAPR 15°

- GAMP : 7°
- GAMF : -11°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HRMSA	13125HR-2S125	○	2	1 1/4	0.743	1 1/4	2.756	5.906	0.08	1.76
	13125HR-2M125	○	2	1 1/4	0.743	1 1/4	4.724	7.874	0.08	2.20
	13125HR-2L125	○	2	1 1/4	0.743	1 1/4	7.087	11.811	0.08	3.52
	13131HR-2S125	○	2	1 5/16	0.781	1 1/4	2.756	5.906	0.08	1.76
	13131HR-2M125	○	2	1 5/16	0.781	1 1/4	2.756	7.874	0.08	2.42
	13131HR-2L125	○	2	1 5/16	0.781	1 1/4	2.756	11.811	0.08	3.74
	13137HR-2S125	○	2	1 3/8	0.860	1 1/4	1.969	5.906	0.08	1.76
	13137HR-2M125	○	2	1 3/8	0.860	1 1/4	1.969	7.874	0.08	2.42
	13137HR-2L125	○	2	1 3/8	0.860	1 1/4	1.969	11.811	0.08	3.74
	13150HR-3S125	○	3	1 1/2	1.066	1 1/4	1.969	5.906	0.08	1.76
	13150HR-3M125	○	3	1 1/2	1.066	1 1/4	1.969	9.843	0.08	3.08
	13150HR-3L125	○	3	1 1/2	1.066	1 1/4	1.969	11.811	0.08	3.74
	13150HR-3S150	○	3	1 1/2	1.066	1 1/2	2.362	5.906	0.08	2.64
	13150HR-3M150	○	3	1 1/2	1.066	1 1/2	5.118	9.843	0.08	4.62
	13150HR-3L150	○	3	1 1/2	1.066	1 1/2	7.087	11.811	0.08	5.72

◆: US stock ○: Made to order

Available inserts

WDKT-MH



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	130520ZDSR-MH						●	●		●	●		●	●				B30

●: Korea stock ◆: US stock ○: Made to order

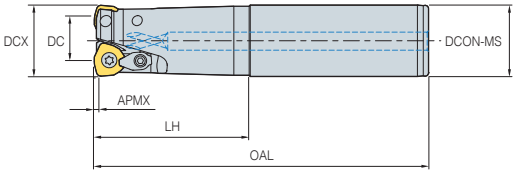
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø1 1/4, 1 5/16, 1 3/8	FTGA0510-P	CHH4.5R1	CTX04513H	CR03	TW20
Ø1 1/2	FTGA0512-P	CHH4.5R1	CTX04513H	CR03	TW20

Available inserts **B30**

HRMSA15











KAPR 15°

- GAMP : 7°
- GAMF : -8°~-6°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LH	OAL	APMX	lbs
HRMSA	15200HR-3S125	○	3	2	1.387	1 1/4	1.969	5.906	0.10	2.20
	15200HR-3M125	○	3	2	1.387	1 1/4	1.969	9.843	0.10	3.52
	15200HR-3L125	○	3	2	1.387	1 1/4	1.969	11.811	0.10	4.18
	15200HR-3S150	○	3	2	1.387	1 1/2	1.969	5.906	0.10	3.08
	15200HR-3M150	○	3	2	1.387	1 1/2	1.969	9.843	0.10	5.06
	15200HR-3L150	○	3	2	1.387	1 1/2	1.969	11.811	0.10	6.16
	15250HR-4S125	○	4	2 1/2	1.900	1 1/4	1.969	5.906	0.10	2.86
	15250HR-4M125	○	4	2 1/2	1.900	1 1/4	1.969	9.843	0.10	4.18
	15250HR-4L125	○	4	2 1/2	1.900	1 1/4	1.969	11.811	0.10	4.84
	15250HR-4S150	○	4	2 1/2	1.900	1 1/2	1.969	5.906	0.10	3.74
	15250HR-4M150	○	4	2 1/2	1.900	1 1/2	1.969	9.843	0.10	5.72
	15250HR-4L150	○	4	2 1/2	1.900	1 1/2	1.969	11.811	0.10	6.82

◆: US stock ○: Made to order

Available inserts

WDKT-MH



	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	150625ZDSR-MH								●	●	●		●	●				B30

●: Korea stock ◆: US stock ○: Made to order

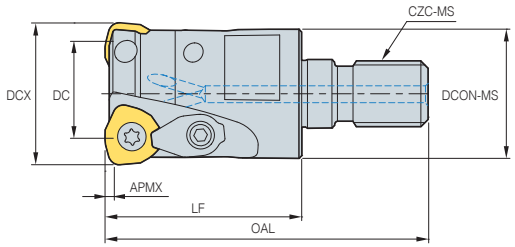
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench
Ø2~Ø2 1/2	FTGA0513-P	CHH5.5R1	CTX0515	CR04	TW20

Available inserts **B30**

HRMMA08







KAPR 15°

- GAMP : 7°
- GAMF : -11°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
HRMMA	08075HR-M10	○	2	3/4	0.484	0.689	1.181	2.008	M10	0.04	0.11
	08081HR-M10	○	2	13/16	0.523	0.689	1.181	2.008	M10	0.04	0.11
	08100HR-M12	○	3	1	0.680	0.906	1.378	2.323	M12	0.04	0.22
	08106HR-M12	○	3	1 1/16	0.720	0.906	1.378	2.323	M12	0.04	0.26
	08112HR-M12	○	3	1 1/8	0.798	0.906	1.378	2.323	M12	0.04	0.46
	08125HR-M16	○	4	1 1/4	0.963	1.142	1.575	2.638	M16	0.04	0.48
	08131HR-M16	○	4	1 5/16	1.002	1.142	1.575	2.638	M16	0.04	0.48
	08137HR-M16	○	4	1 3/8	1.074	1.142	1.575	2.638	M16	0.04	0.51
	08150HR-M16	○	5	1 1/2	1.261	1.142	1.575	2.638	M16	0.04	0.55

◆: US stock ○: Made to order

Available inserts

WDKT-MH



	Designation	Cermet	Coated										Uncoated			Page
		CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
WDKT	080316ZDSR-MH						●	●	●	●	●		●	●				B30

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
HRMMA	08075HR-M10	MATA-M10
	08081HR-M10	
	08100HR-M12	MATA-M12
	08106HR-M12	
	08112HR-M12	
	08125HR-M16	MATA-M16
	08131HR-M16	
	08137HR-M16	
	08150HR-M16	

Designation: HRMMA08075HR-M10
Modular head threading measure size (M10)

II

Adaptor spec.: MATA-M10-118-S075S
Adaptor threading measure (M10)

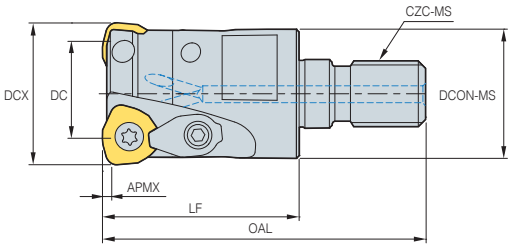
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench	Wrench
Ø3/4~Ø1 1/2	FTNA0306	-	-	-	TW09S	-

Available inserts **B30** Available adaptors **B400**

HRMMA10/13











KAPR 15°

- GAMP : 7°
- GAMF : -11°~-5°

(inch)

	Designation	Stock	CICT	DCX	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
HRMMA	10100HR-M12	○	2	1	0.611	0.906	0.492	1.378	M12	0.06	0.20
	10106HR-M12	○	2	1 1/16	0.650	0.906	0.492	1.378	M12	0.06	0.20
	10118HR-M16	○	2	1 3/16	0.807	1.142	0.669	1.575	M16	0.06	0.37
	10125HR-M16	○	3	1 1/4	0.896	1.142	0.669	1.772	M16	0.06	0.46
	10137HR-M16	○	3	1 3/8	1.005	1.142	0.669	1.772	M16	0.06	0.51
	10150HR-M16	○	4	1 1/2	1.212	1.142	0.669	1.772	M16	0.06	0.59
HRMMA	13125HR-M16	○	2	1 1/4	0.743	1.142	0.669	1.575	M16	0.08	0.37
	13131HR-M16	○	2	1 5/16	0.781	1.142	0.669	1.575	M16	0.08	0.37
	13137HR-M16	○	2	1 3/8	0.860	1.142	0.669	1.575	M16	0.08	0.42
	13150HR-M16	○	3	1 1/2	1.066	1.142	0.669	1.772	M16	0.08	0.53

◆: US stock ○: Made to order

Available inserts

WDKT-MH



Type	Designation		Cermet	Coated										Uncoated			Page
			CN30	NC5330	NCM325	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
10 type	WDKT	10T320ZDSR-MH						○	●	●	●	●		●	●				B30
13 type	WDKT	130520ZDSR-MH						●	●	●	●	●		●	●				

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
HRMMA	10100HR-M12	MATA-M12
	10106HR-M12	
	10118HR-M16	MATA-M16
	10125HR-M16	
	10137HR-M16	
	10150HR-M16	
	13125HR-M16	MATA-M16
	13131HR-M16	
	13137HR-M16	
	13150HR-M16	

Designation: HRMMA10125HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MATA-M16-137-S125S
Adaptor threading measure (M16)

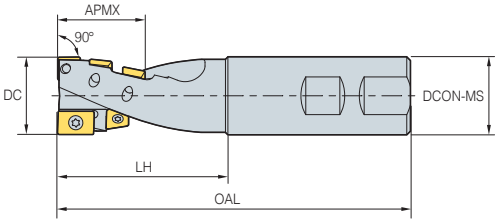
Parts

Specification	Screw	Clamp	Clamp Screw	C-ring	Wrench	Wrench
Ø1~Ø1 1/2(10 type)	FTKA0408	CHH3.5R1	CTX03510	CR03	TW15S	-
Ø1 1/4, 1 5/16, 1 3/8(13 type)	FTGA0510-P	CHH4.5R1	CTX04513H	CR03	-	TW20
Ø1 1/2(13 type)	FTGA0512-P	CHH5.5R1	CTX04513H	CR03	-	TW20

Available inserts B30 Available adaptors B400

THEA







KAPR 90°

- GAMP : 5°, 10°
- GAMF : -5°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LH	OAL	ZEFF	APMX	kg	Available inserts	
											Lower cutting-edge	External cutting-edge
THEA	098R	○	5	0.984	3/4	2.165	4.724	2	0.984	0.88	APLT070304R 1z	SPMT060304 4z
	125R	○	6	1.259	1	2.756	5.709	2	1.575	1.10	ADLT150308R 1z	SDMT090308-MM 5z

◆: US stock ○: Made to order

Available inserts

ADLT



APLT



SPMT-MM



SPMT



SDMT-MM



ZPMT-MM



Designation		Cermet	Coated											Uncoated			Page
		CN30	NCM325	NCM335	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPMT	060304		●	○						○									B4
SDMT	090308-MM		○			○				●				●					B5
SPMT	120408-MM									●				●					B20
APLT	070304R		○									○		●					B27
ADLT	150308R		●											●					B28
ZPMT	1504PPSR-MM									●				●					B34

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting conditions

• Grooving

Workpiece	cutting conditions		Grade
	vc (sfm)	fz (ipt)	
P	290~460	0.010~0.002	PC5300
M	165~295	0.010~0.002	PC5300
K	230~390	0.010~0.002	PC5300

• Side cutting

Workpiece	cutting conditions		Grade
	vc (sfm)	fz (ipt)	
P	490~790	0.008~0.002	PC5300
M	295~490	0.008~0.002	PC5300
K	390~655	0.010~0.004	PC5300

Parts

Specification	Screw	Wrench	Wrench
Ø0.984	ETNA02506	TW07P	-
Ø1.259	ETNA0408	-	TW15S
Ø1.574	ETNA0511	-	TW20S
Ø1.968	ETNA0511	-	TW20S

Available inserts **B4, B5, B20, B27, B28, B34**

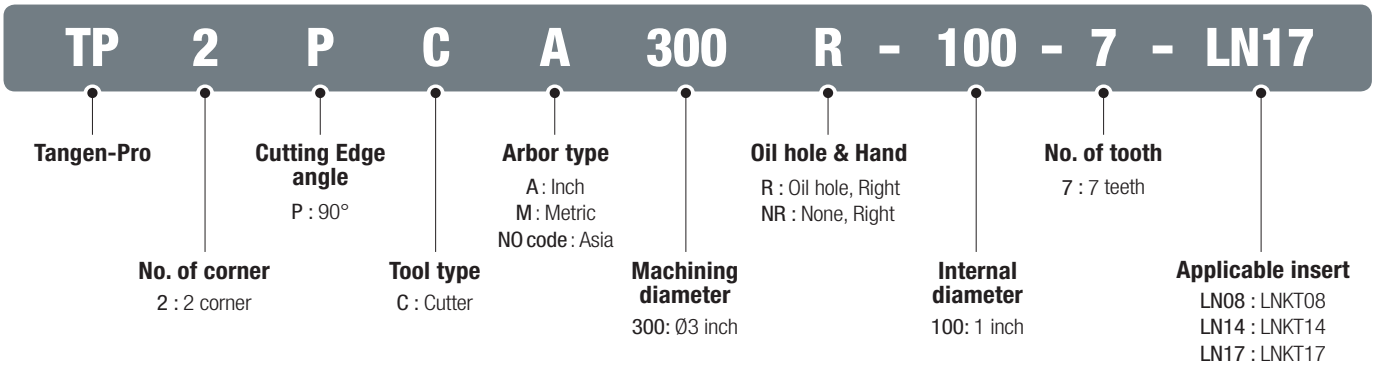
This milling tool series with its tangential clamping system increases stable machining and productivity, while improving perpendicularity

Tangen-Pro TP2P

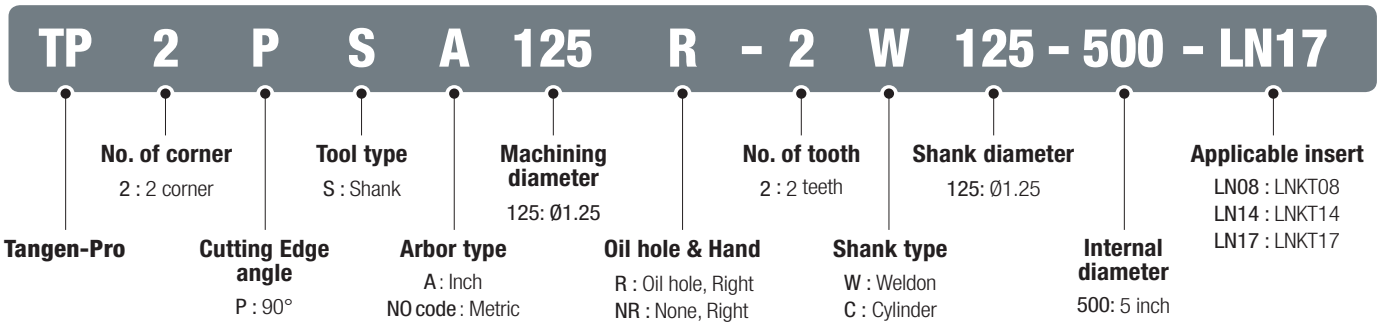
- Clamping stability gained through tangential clamping system and wedge-shaped inserts
- Excellent surface finish nearly perfect perpendicularity, and highly even flank surface compared to competitors' designs
- Improved productivity due to High-rake angles and sharp cutting-edges which lead to lower cutting resistance
  - Ideally suited for high speed and high feed machining

Code system

• Cutter



• Shank



Features of insert



1 Wedge type clamping area

- Clamping in wedge form on seats
  → Creates strong clamping force

2 High-rake angle chip breaker

- High-rake angle applied
- Produces smooth chip flow
  → Extended insert life

3 Convex projection

- Improved chip evacuation
- Minimized cutting load
  → Decreased cutting resistance

4 Side hole (tangential type)

- Higher clamping stability

5 High-rake angle cutting-edges

- Improves cutting performance while reducing cutting load

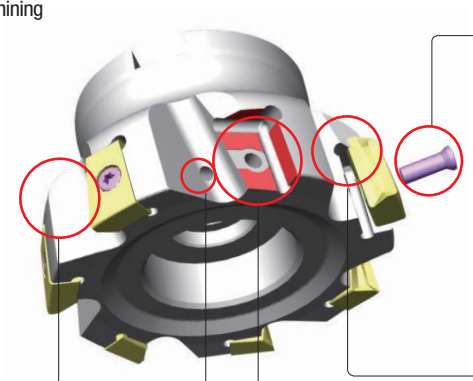
6 2-level flank relief surface

- 1st reverse positive relief surface enhances rigidity
- 2nd negative relief surface enables stable clamping
  → Improved chipping resistance and surface finish

Features of cutter

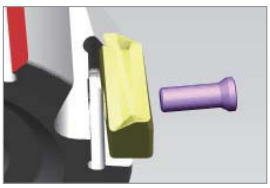
- Tangential clamping system, wedge-shaped inserts and wide seat area
  → Higher clamping stability
  → Lower vibrations and cutting resistance during machining

- **Optimized H/D design with curved surface for smooth chip flow**
  → Excellent chip evacuation in slotting or deep shouldering



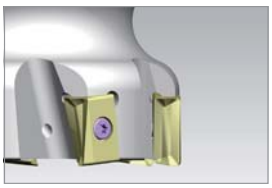
Tangential clamping

- Multi-corner use
  → High feed machining availabilit



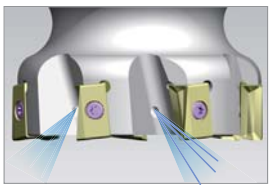
Streamlined holder design

- Smoother chip evacuation in slotting or deep shouldering



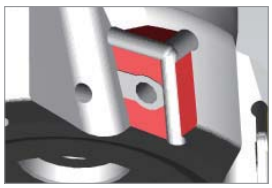
Through coolant system

- Improved chip evacuation
- Longer tool life due to insert cooling



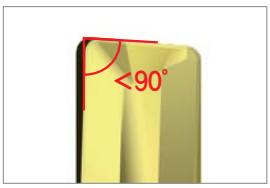
Wide seat area

- Strong clamping force



Wedge type clamping

- Ensures stable insert tool life



Application guideline for grade

Workpiece		P		K	N
		Carbon steel	Alloy steel	Cast iron	Aluminum
Grade	High speed cutting	PC5300	PC5300	PC6100	H01
	General cutting	PC5400	PC5300	PC6100	H01
	Interrupted cutting	PC5400	PC5400	PC5300	H01

Features of chip breaker

Insert		Cutting-edge	Use	Features
MA			Aluminum	Exclusive sharp cutting edge for aluminum machining ensures good chip flow due to surface buffing treatment and high welding resistance.
ML			Light cutting	Chip breaker design for low cutting resistance that provides excellent tool life and quality surface finishes in light cutting and hard-to-cut materials
MM			General cutting	Universal design for general shoulder milling operations, highly suitable in most applications

Recommended cutting conditions

• **LNKT08**

Workpiece		Grade	vc (sfm)	fz (ipt)	APMX (inch)	Applicable insert
P	Steel	PC5300	490~780	0.01~0.002	0.315	LNKT0804□□PNR-MM
		PC5400	430~680	0.01~0.002	0.315	
K	Cast iron	PC6510	330~820	0.01~0.002	0.315	LNKT0804□□PNR-ML
		PC5300	330~656	0.01~0.002	0.315	
N	Aluminum	H01	1580~3280	0.01~0.002	0.315	LNKT0804□□PNR-MA

※ The above data refer to general cutting conditions and can be adjustable to the speed of 900 sfm and the feed per tooth of 0.02 ipt depending on user environment.

• **LNKT14**

Workpiece		Grade	vc (sfm)	fz (ipt)	APMX (inch)	Applicable insert
P	Steel	PC5300	490~780	0.01~0.002	0.500	LNKT1406□□PNR-MM
		PC5400	430~680	0.01~0.002	0.500	
K	Cast iron	PC6510	330~820	0.01~0.002	0.500	LNKT1406□□PNR-ML
		PC5300	330~656	0.01~0.002	0.500	
N	Aluminum	H01	1580~3280	0.01~0.002	0.500	LNKT1406□□PNR-MA

※ The above data refer to general cutting conditions and can be adjustable to the speed of 900 sfm and the feed per tooth of 0.02 ipt depending on user environment.

• **LNKT17**

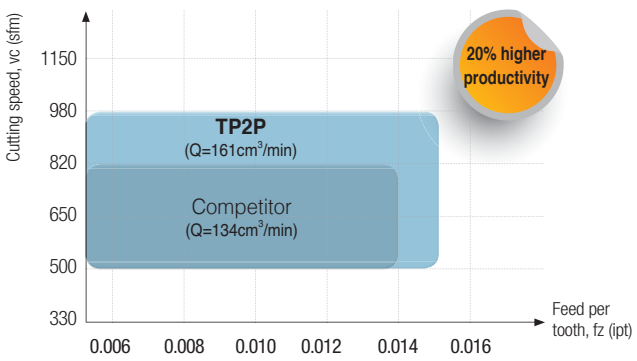
Workpiece		Grade	vc (sfm)	fz (ipt)	APMX (inch)	Applicable insert
P	Steel	PC5300	490~780	0.01~0.002	0.650	LNKT1707□□PNR-MM
		PC5400	430~680	0.01~0.002	0.650	
K	Cast iron	PC6510	330~820	0.01~0.002	0.650	LNKT1707□□PNR-ML
		PC5300	330~656	0.01~0.002	0.650	
N	Aluminum	H01	1580~3280	0.01~0.002	0.650	LNKT1707□□PNR-MA

※ The above data refer to general cutting conditions and can be adjustable to the speed of 900 sfm and the feed per tooth of 0.02 ipt depending on user environment.

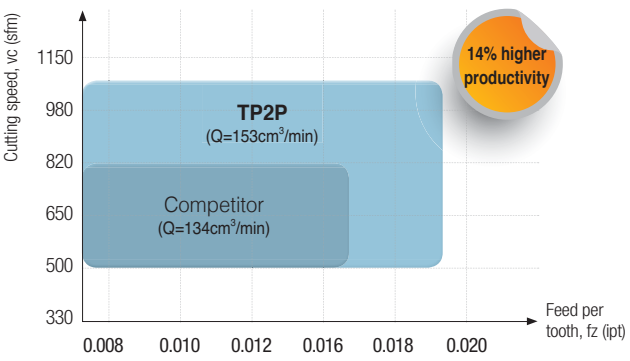
Application area

» **Higher speed and feed machining than competitor's increases machinability.**

• **Application area** : ap(inch) = 0.551, ae(mm) = 0.394

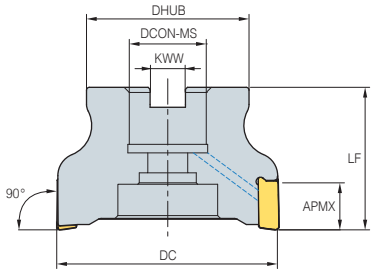


• **Application area** : ap(inch) = 0.315, ae(mm) = 0.394



TP2PCA-LN08





KAPR 90°

- GAMP : -6°
- GAMF : -26°~-22°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
TP2PCA	150R-050-6-LN08	○	6	1.5	1.417	0.5	0.252	1.5	0.310	0.419
	150R-050-7-LN08	○	7	1.5	1.417	0.5	0.252	1.5	0.310	0.419
	200R-075-7-LN08	○	7	2.0	1.772	0.75	0.315	1.75	0.310	0.705
	200R-075-10-LN08	○	10	2.0	1.772	0.75	0.315	1.75	0.310	0.683
	250R-100-10-LN08	○	10	2.5	2.205	1	0.374	1.75	0.310	1.124
	250R-100-11-LN08	○	11	2.5	2.205	1	0.374	1.75	0.310	1.102

◆: US stock ○: Made to order

Available inserts

LNKT-MA LNKT-ML LNKT-MM





	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	080404PNR-MA																	○	B10 B11
	080408PNR-MA																	○	
	080412PNR-MA																		
	080416PNR-MA																		
	080404PNR-ML													○	○				
	080408PNR-ML													○					
	080412PNR-ML																		
	080416PNR-ML																		
	080404PNR-MM													○	○				
	080408PNR-MM													○	○				
	080412PNR-MM																		
	080416PNR-MM																		

●: Korea stock ◆: US stock ○: Made to order

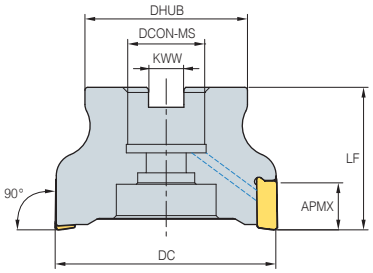
Parts

Specification	Screw	Wrench
Ø1.5~Ø2.5	FTKA02565	TW07S

Available inserts **B10, B11** Available arbors and bolt **E96**

TP2PCA-LN14





KAPR 90°

- GAMP : -6°
- GAMF : -22°~-12°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
TP2PCA	150R-050-4-LN14	○	4	1.5	1.417	0.5	0.252	1.5	0.47	0.402
	150R-050-5-LN14	○	5	1.5	1.417	0.5	0.252	1.5	0.47	0.402
	200R-075-5-LN14	○	5	2.0	1.772	0.75	0.315	1.75	0.47	0.661
	200R-075-6-LN14	○	6	2.0	1.772	0.75	0.315	1.75	0.47	0.639
	250R-100-6-LN14	○	6	2.5	2.205	1.0	0.374	1.75	0.47	1.124
	250R-100-8-LN14	○	8	2.5	2.205	1.0	0.374	1.75	0.47	1.146
	300R-100-7-LN14	○	7	3.0	2.205	1.0	0.374	2	0.47	1.918
	300R-100-10-LN14	○	10	3.0	2.205	1.0	0.374	2	0.47	2.028
	400R-125-8-LN14	○	8	4.0	3.386	1.25	0.5	2	0.47	3.99
	400R-125-13-LN14	○	13	4.0	3.386	1.25	0.5	2	0.47	4.101
	500R-150-9-LN14	○	9	5.0	3.937	1.5	0.626	2.5	0.47	6.768
	500R-150-17-LN14	○	17	5.0	3.937	1.5	0.626	2.5	0.47	6.945

◆: US stock ○: Made to order

Available inserts

LNKT-MA LNKT-ML LNKT-MM





Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	140604PNR-MA																	B10 B11
	140608PNR-MA															○		
	140612PNR-MA																	
	140616PNR-MA																	
	140604PNR-ML																	
	140608PNR-ML													○				

Designation		Cermet	Coated												Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	140612PNR-ML																	B11
	140616PNR-ML																	
	140604PNR-MM													○	○			
	140608PNR-MM																	
	140612PNR-MM																	
	140616PNR-MM																	

●: Korea stock ◆: US stock ○: Made to order

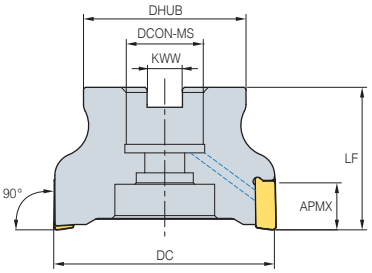
Parts

Specification	Screw	Wrench
Ø1.5~Ø5.0	FTKA03510	TW15S

Available inserts **B10, B11** Available arbors and bolt **E94 ~ E96**

TP2PCA-LN17







KAPR 90°

- GAMP : -6°
- GAMF : -21°~-15°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
TP2PCA	150R-050-3-LN17	◆	3	1.5	1.378	0.5	0.252	1.5	0.65	0.402
	150R-050-4-LN17	◆	4	1.5	1.378	0.5	0.252	1.5	0.65	0.379
	200R-075-4-LN17	◆	4	1.5	1.614	0.75	0.252	1.75	0.65	0.638
	200R-075-5-LN17	◆	5	1.5	1.614	0.75	0.252	1.75	0.65	0.685
	250R-100-6-LN17	◆	6	1.5	1.929	1.0	0.252	1.75	0.65	1.021
	250R-100-7-LN17	◆	7	1.5	1.929	1.0	0.252	1.75	0.65	1.038
	300R-100-7-LN17	◆	7	1.5	2.244	1.0	0.252	2.0	0.65	1.830
	300R-100-8-LN17	◆	8	1.5	2.244	1.0	0.252	2.0	0.65	1.853
	400R-150-8-LN17	◆	8	1.5	2.638	1.5	0.252	2.0	0.65	3.268
	400R-150-9-LN17	◆	9	1.5	2.638	1.5	0.252	2.0	0.65	3.269
	500R-150-10-LN17	◆	10	1.5	3.543	1.5	0.252	2.5	0.65	6.439
	500R-150-11-LN17	◆	11	1.5	3.543	1.5	0.252	2.5	0.65	6.372

◆: US stock ○: Made to order

Available inserts

LNKT-MA



LNKT-ML



LNKT-MM



	Designation	Cermet	Coated													Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	170704PNR-MA																○	B10 B11
	170708PNR-MA																○	
	170712PNR-MA																○	
	170716PNR-MA																○	
	170720PNR-MA																○	
	170704PNR-ML													○				
	170708PNR-ML										●			◆	●			
	170712PNR-ML													○				

	Designation	Cermet	Coated													Uncoated		Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	H01	
LNKT	170716PNR-ML													○				B11
	170720PNR-ML													○				
	170704PNR-MM													○				
	170708PNR-MM									○				◆	◆			
	170712PNR-MM													○				
	170716PNR-MM													○				
	170720PNR-MM																	

●: Korea stock ◆: US stock ○: Made to order

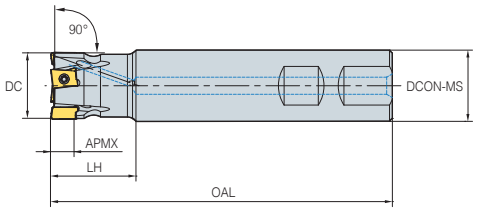
Parts

Specification	Screw	Wrench
Ø1.5~Ø5.0	FTKA0412B	TW15S

Available inserts **B10, B11** Available arbors and bolt **E94, E96**

TP2PSA-LN08





KAPR 90°

- GAMP : -6°
- GAMF : -35°~-26°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
TP2PSA	075R-2W075-450-LN08	○	2	0.75	0.75	1.181	4.50	0.315	0.463
	075R-3W075-450-LN08	○	3	0.75	0.75	1.181	4.50	0.315	0.463
	100R-3W100-500-LN08	○	3	1.00	1.00	1.181	5.00	0.315	0.860
	100R-4W100-500-LN08	○	4	1.00	1.00	1.181	5.00	0.315	0.860

◆: US stock ○: Made to order

Available inserts

LNKT-MA LNKT-ML LNKT-MM





	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	080404PNR-MA																	○	B10 B11
	080408PNR-MA																	○	
	080404PNR-ML													○	○				
	080408PNR-ML													○					
	080404PNR-MM													○	○				
	080408PNR-MM													○	○				

●: Korea stock ◆: US stock ○: Made to order

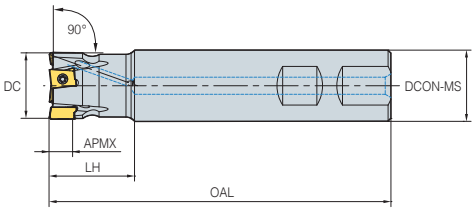
Parts

Specification	Screw	Wrench
Ø0.75~Ø1.00	FTKA02565	TW07S

Available inserts **B10, B11**

TP2PSA-LN14





KAPR 90°

- GAMP : -6°
- GAMF : -21°~-18°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
TP2PSA	100R-2W100-500-LN14	○	2	1.00	1.00	1.575	5.00	0.472	0.926
	125R-3W125-500-LN14	○	3	1.25	1.25	1.575	5.00	0.472	1.455
	150R-3W125-500-LN14	○	3	1.50	1.25	1.575	5.00	0.472	1.565
	150R-4W125-500-LN14	○	4	1.50	1.25	1.575	5.00	0.472	1.565
	200R-4W125-500-LN14	○	4	2.00	1.25	1.575	5.00	0.472	1.830
	200R-5W125-500-LN14	○	5	2.00	1.25	1.575	5.00	0.472	1.830

◆: US stock ○: Made to order

Available inserts

LNKT-MA LNKT-ML LNKT-MM





	Designation	Cermet	Coated											Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	140608PNR-MA																	○	B10 B11
	140608PNR-ML													○					
	140608PNR-MM																		

●: Korea stock ◆: US stock ○: Made to order

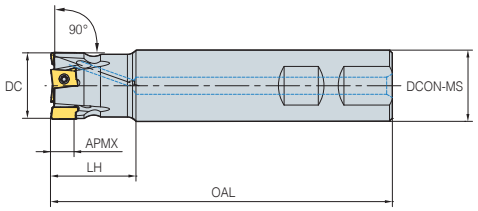
Parts

Specification	Screw	Wrench
Ø1.00 ~ Ø2.00	FTKA03510	TW15S

Available inserts **B10, B11**

TP2PSA-LN17





KAPR 90°

- GAMP : -6°
- GAMF : -26°~-18°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
TP2PSA	125R-2W125-500-LN17	◆	2	1.25	1.25	1.575	5.00	0.65	1.422
	125R-3W125-500-LN17	◆	3	1.25	1.25	1.575	5.00	0.65	1.422
	150R-3W125-500-LN17	◆	3	1.50	1.25	1.575	5.00	0.65	1.507
	150R-4W125-500-LN17	◆	4	1.50	1.25	1.575	5.00	0.65	1.507
	200R-4W125-500-LN17	◆	4	2.00	1.25	1.575	5.00	0.65	1.786
	200R-5W125-500-LN17	○	5	2.00	1.25	1.575	5.00	0.65	1.808

◆: US stock ○: Made to order

Available inserts

LNKT-MA



LNKT-ML



LNKT-MM



	Designation	Cermet	Coated												Uncoated			Page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LNKT	170704PNR-MA																	○	B10 B11
	170708PNR-MA																	○	
	170712PNR-MA																	○	
	170716PNR-MA																	○	
	170720PNR-MA																	○	
	170704PNR-ML													○					
	170708PNR-ML										●			◆	●				
	170712PNR-ML													○					
	170716PNR-ML													○					
	170720PNR-ML													○					
	170704PNR-MM													○					
	170708PNR-MM									○				◆	◆				
	170712PNR-MM													○					
	170716PNR-MM													○					
	170720PNR-MM																		

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.25~Ø2.00	FTKA0412B	TW15S

Available inserts **B10, B11**

Right angle Milling tool with tangential double-sided 8 corners

Tangen-Pro TP8P

- Double-sided insert with 8 corners realizes high cost efficiency thanks to right angle milling with high depth of cut.
- Excellent for productivity improvement because tangential type insert ensures rigid clamping and allows more flutes (extra close pitch) in accordance with a cutter diameter

Code system

• Cutter

TP8 P C A 250 R 075 - 6 - S014

- **TP8** Tangen-Pro
- **Approach angle** P : 90°
- **Tool type** C : Cutter
- **Arbor type** A : Inch, M : Metric, NO code : Asia
- **Machining diameter** 250 : Ø2.5 inch
- **Oil hole & Hand** R : Oil hole, Right; NR : None, Right
- **Internal diameter** 075 : Ø0.75 inch
- **No. of tooth** 6 : 6 teeth
- **Available inserts** S014 : SOKX14

• Shank

TP8 P S A 125 R - 3 W 125 - 450 - S014

- **TP8** Tangen-Pro
- **Approach angle** P : 90°
- **Tool type** S : Shank
- **Arbor type** A : Inch, NO code : Metric
- **Machining diameter** 125 : Ø1.25 inch
- **Oil hole & Hand** R : Oil hole, Right; NR : None, Right
- **No. of tooth** 3 : 3 teeth
- **Shank type** W : Weldon, C : Cylinder
- **Shank diameter** 125 : Ø1.25 inch
- **Overall length** 450 : 4.5 inch
- **Available inserts** S014 : SOKX14

Features of insert

- Economic perpendicular cutting tool with 8 corners insters
- Stable machining due to excellent clamping of tangential clamping
- Various insert line-up (one step or multi-steps)

High rake angle chip breaker
- Good chip flow
  → Longer insert tool life



APMX
SOKX14 : 10.5mm

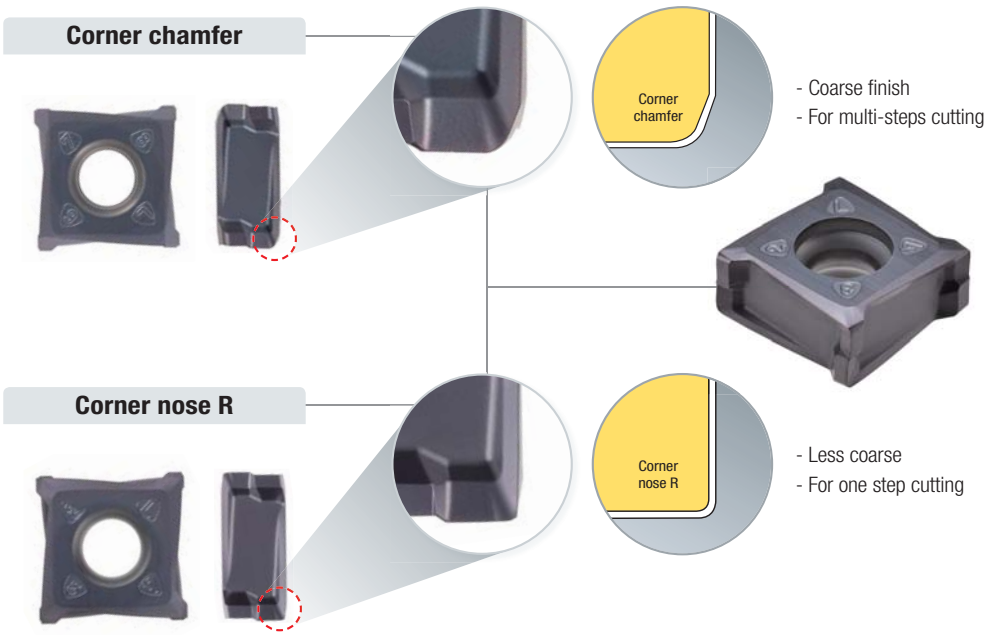
2 stepped side relief face
- 1st reverse positive relief face
- 2nd negative relief face: Stable clamping
  → Enhanced chipping resistance and cutting quality



Tangential clamping structure
- Stable cutting
- Increased clamping stability

Applying high helix
- Higher surface finish and lower cutting load

Features of insert



Recommended grade and cutting edge

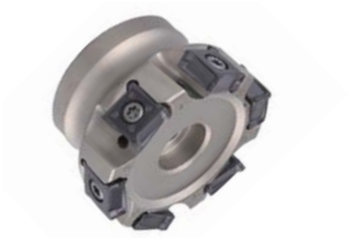
(● : 1st Recommendation)

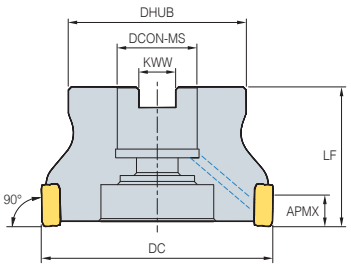
Chip breaker	Cutting edge shape	Recommended grade and cutting shape by workpiece materials	
		P	K
		Grade	Grade
ML		PC5300	PC6100 PC5300
MM		PC5300	PC5300

Recommended cutting conditions

Workpiece				Specific cutting force (N/mm²)	HRC	Recommended cutting condition					
ISO	Workpiece meterial	AISI	ISO			Grade	vc (sfm)	fz (ipt)	ap (Inch)	C/B	
										ML	MM
P	Carbon steel	1015 1020 1025	C15E4 C15M2 C25	1500	~10	PC5300	623	0.006	0.079~ 0.276	●	
							820	**0.008**		●	
							1050	0.006		●	
		1045 1050 1060	C45 C60	1700	10~30	PC5300	591	0.004			●
							787	**0.008**			●
							984	0.006			●
	Alloy steel	4140 8637	42CrMo4 41CrNiMo2	1700	20~40	PC5300	492	0.008			●
							656	**0.008**			●
							787	0.006			●
	Die steel	KP4M	-	2020	27~30	PC5300	459	0.004			●
							591	0.004			●
K	Gray cast iron	No 25 B No 35 B	250 350	900	~23	PC6100	525	0.006	0.079~ 0.276		●
							656	**0.005**		●	
							787	0.004		●	
						PC5300	394	0.006			●
							525	**0.005**		●	
							656	0.004		●	
	Ductile cast iron	No 25 B No 35 B	400-15 150-10 600-3	870	~10	PC6100	394	0.006		●	
							558	**0.005**		●	
							656	0.004		●	
						PC5300	328	0.008		●	
							525	0.006		●	

TP8PCA-S014





KAPR 90°

- GAMP : - 6°
- GAMF : - 23° ~ - 18°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
TP8PCA	150R-050-3-S014	○	3	1.5	1.417	0.5	0.252	1.5	0.413	0.397
	150R-050-4-S014	○	4	1.5	1.417	0.5	0.252	1.5	0.413	0.375
	200R-075-4-S014	○	4	2.0	1.772	0.75	0.315	1.75	0.413	0.617
	200R-075-5-S014	○	5	2.0	1.772	0.75	0.315	1.75	0.413	0.595
	200R-075-6-S014	○	6	2	1.772	0.8	0.315	1.75	0.413	0.617
	250R-100-6-S014	○	6	2.5	2.205	1.0	0.374	1.75	0.413	0.97
	250R-100-7-S014	○	7	2.5	2.205	1.0	0.374	1.75	0.413	0.992
	250R-100-8-S014	○	8	2.5	2.205	1.0	0.374	1.75	0.413	0.992
	300R-100-6-S014	○	6	3.0	2.205	1	0.374	2	0.413	1.917
	300R-100-7-S014	◆	7	3.0	2.205	1	0.374	2	0.413	1.895
	300R-100-9-S014	○	9	3.0	2.205	1	0.374	2	0.413	1.962
	400R-125-8-S014	◆	8	4.0	2.874	1.25	0.5	2	0.413	3.945
	400R-125-12-S014	○	12	4	2.874	1.25	0.5	2	0.413	3.945
	500R-150-9-S014	◆	9	5	3.937	1.5	0.626	2.5	0.413	6.502
	500R-150-15-S014	○	15	5	3.937	1.5	0.626	2.5	0.413	6.502

◆: US stock ○: Made to order

Available inserts


SOKX-ML


SOKX-MM

	Designation	Coated		Page
		PC6100	PC5300	
SOKX	1406XPNR-ML	●	◆	B26
	140608PNR-ML	●	◆	
	1406XPNR-MM	●	●	
	140608PNR-MM	●	●	

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.5	FTGA0511-P	TW20-100
Ø2.0 ~ Ø5.0	FTGA0513-P	TW20-100

Available inserts **B26** Available arbors and bolt **E94, E96**

TP8PSA-S014



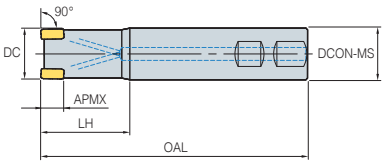


Fig. 1

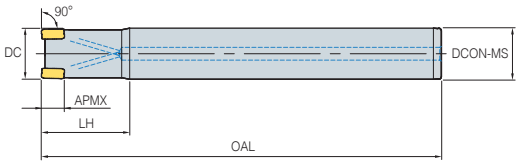


Fig. 2



KAPR 90°

- GAMP : - 6°
- GAMF : - 29° ~ - 23°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
TP8PSA	125R-2W125-500-S014	○	2	1.25	1.25	1.5	5.00	0.413	1.543
	125R-3W125-500-S014	○	3	1.25	1.25	1.5	5.00	0.413	1.521
	125R-2C125-1000-S014	○	2	1.25	1.25	1.5	10.00	0.413	3.086
	125R-3C125-1000-S014	○	3	1.25	1.25	1.5	10.00	0.413	3.064
	150R-3W125-500-S014	○	3	1.5	1.25	1.5	5	0.413	1.719
	150R-4W125-500-S014	○	4	1.5	1.25	1.5	5	0.413	1.697
	150R-3C125-1000-S014	○	3	1.5	1.25	1.5	10	0.413	3.328
	150R-4C125-1000-S014	○	4	1.5	1.25	1.5	10	0.413	3.328

◆: US stock ○: Made to order

Available inserts

SOKX-ML SOKX-MM





	Designation	Coated		Page
		PC6100	PC5300	
SOKX	1406XPNR-ML	●	◆	B26
	140608PNR-ML	●	◆	
	1406XPNR-MM	●	●	
	140608PNR-MM	●	●	

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.25	FTGA0511-P	TW20-100
Ø1.50	FTGA0513-P	TW20-100

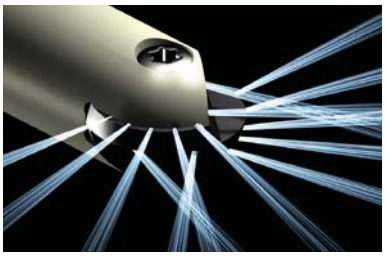
Available inserts B26

Longer tool life guaranteed thanks to the excellent cutting performance of our grades

Laser Mill

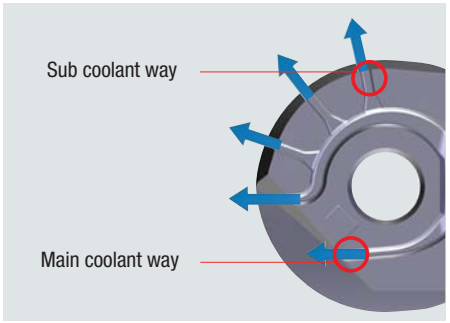
- Long tool life has been achieved due to the excellent cutting performance of the insert grade
- Optimum machining of molds has been achieved with the MQL available system
- Easy clamping with simple screw on system
- Various holder line up: steel shank, carbide shank, modular type
- High accuracy indexable endmills for mold finishing

MQL System

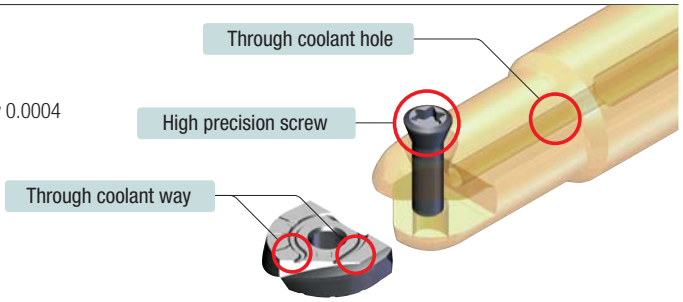


- Environmental friendly system
- Decreased coolant cost
- Lubrication of cutting-edge
- Improved chip control property
- Increased tool life & improved surface quality

Clamping system



- High precision
  (ground internal diameter)
  Run-out: 0.0008 inch
  Accuracy of 'R part: below 0.0004
- Through coolant system



Features of insert

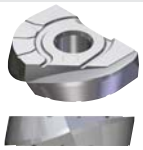
LBE

LBS, LR Order-made items



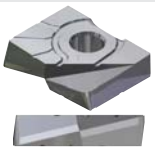
- Six types of inserts are available with one holder
- Single screw for clamping of insert: Easy clamping system
- Various types of holders
  (Steel shank, Carbide shank, Modular type)
- MQL applicable- environmentally responsible with longer tool life & improved surface quality.

LBH-Ball



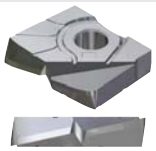
- Helical cutting-edge
- Suitable for harder material with high feed

LRH-Corner radius



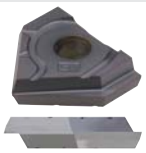
- Helical cutting-edge
- Variety of nose-R

LFH-High feed



- Helical cutting-edge
- Suitable for high feed

LCF-Chamfer



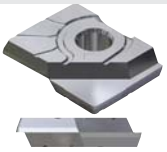
- Straight cutting-edge
- Center drilling and chamfering

LBS-Ball type



- Straight cutting-edge
- Suitable for precise

LR-Corner R type

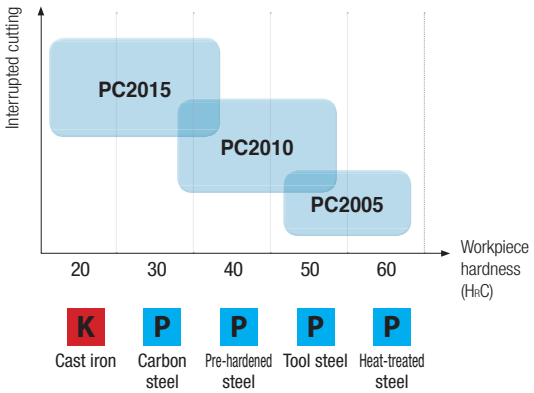


- Straight cutting-edge
- Variety of nose-R

Features of Laser Mill grades

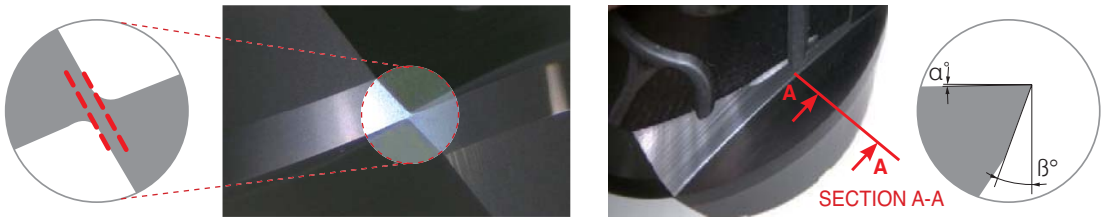
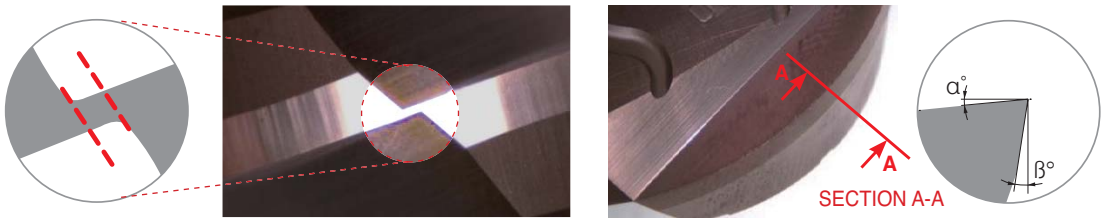
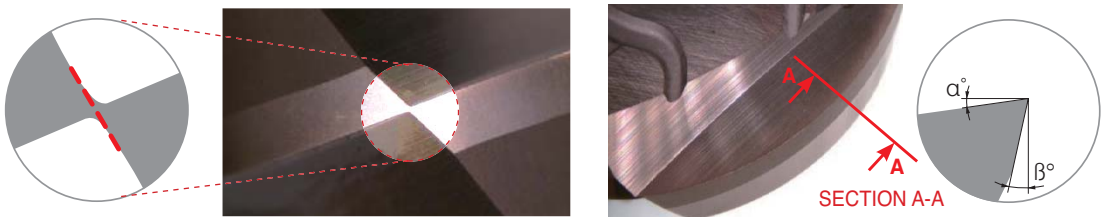
PC2005	• Extremely high hardness grade • The harmony between improved blade design and strong chip breaker • Optimized for machining heat-treated steel and high hardness steel
PC2010	• High wear resistance and excellent toughness • The harmony between excellent thermal shock resistance and strong cutting-edges • Optimized for machining tool steel and pre-hardened steel
PC2015	• High welding resistance and excellent toughness • The harmony between tough grade and excellent cutting-edge design • Optimized for machining carbon steel

Application guideline per workpiece



Features of KF/KH chip breaker

- KF: Exclusive chip breaker for stable machining of carbon steel with its characteristics of high wear resistance at center part and improved blade design
- KH: Stronger insert with the combination of rake angle and relief angle that are ideal for machining high hardness workpiece

Type	Shape comparison
Standard (For general cutting)	 • Proper to general cutting • Insert shape for uniform performance
KH (For high hardness steel)	 • Center shaper proper for machining high hardness workpiece and uniformed tool life at center part • Improved cutting-edge design by higher rake angle (α°) • Lower relief angle (β°) increases strength of cutting-edges than universal inserts.
KF (For carbon steel)	 • Smaller chisel improves wear resistance at center for machining carbon steel. • Improved cutting-edge design by higher rake angle (α°) • Longer tool life and better cutting performance with the use of excellent blade design

Recommended cutting conditions

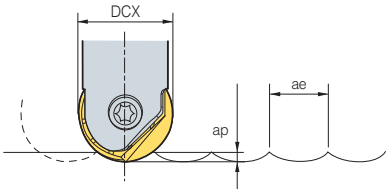
Workpiece				Grade	Chip breaker	Recommended cutting conditions			
ISO		Material	HB (HRC)			vc (sfm)	fz (ipt)	ap (inch)	ae (inch)
K	Gray cast iron	GC250	180 (8)	PC2015 PC2010 PC2005	KF	427~689	0.020~0.008	0.003D	0.003D
K	Ductile cast iron	GCD600	250 (24)						
P	Carbon steel	S20C~S50C	150			558~820	0.020~0.008	0.003D	0.003D
P	Alloy steel	SCM21~SCM5H	270 (28)	PC2010 PC2015 PC210F	KH	427~689	0.012~0.004	0.003D	0.003D
P	Pre-hardened steel	KP4M	300 (32)			328~525	0.012~0.004	0.020D	0.020D
P		NIMAX	370 (40)						
P		CENA1	370 (40)						
P		NAK80	400 (43)						
P		STAVAX	510 (52)						
P	High speed tool steel	SKH51~SKH59	550 (55)	PC2005 PC2010	KH	262~427	0.080~0.004	0.012D	0.012D
P	Alloy tool steel	STD61 (Hot forging)	630 (60)			230~394	0.080~0.004	0.020D	0.020D
P		STD11 (Cold forging)							

Overhang	vc (sfm)	fz (ipt)
Under 3D	100%	100%
3D~5D	70%	70%

Overhang	vc(m/min)	fz(mm/t)
5D~8D	60%	60%
8D~10D	50%	50%

Cutting speed calculation formulas

Practical cutting speed	RPM
$VCe = \frac{\pi \times De \times n}{1000}$ (sfm)	$n = \frac{VCe \times 1000}{\pi \times De}$ (min^{-1})
Feed per tooth	**Feed per minute**
$fz = \frac{vf}{Z \times n}$ (ipt)	$vf = fz \times n \times z$ (ipt)
Chip removal amount	**Power requirement**
$Q = \frac{ap \times ae \times vf}{1000}$ ($inch^3$/min)	$Pkw = \frac{Q \times kc}{60 \times 102 \times \eta}$ (kW) $Php = \frac{Pc}{0.75}$ (hp)



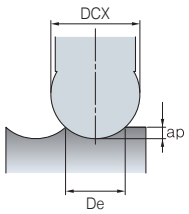
vc = Cutting speed (sfm)	**Pkw** = Power requirement (kW)
vce = Practical cutting speed (sfm)	**Php** = Horsepower requirement (hp)
n = Revolution per minute (min^{-1})	**Q** = Chip removal amount ($inch^3$/min)
D = Cutting diameter (inch)	**ap** = Depth of cut (inch)
De = Actual diameter (inch)	**ae** = Width of cut (inch)
vf = Feed per minute (ipm)	**kc** = Specific cutting resistance (kg/mm^2)
fz = Feed per tooth (ipt)	**η** = Mechanical efficiency (%)
z = Number of tooth	

Practical cutting speed calculation formulas

1 Formula of actual diameter

- **Formula**
  : Actual diameter

$De = 2\sqrt{ap\ (D - ap)}$



2 θ° Using: Calculating cutting speed at P point
(Cutting speed according to depth of cut when ramping)

- **Formula**
  : Practical cutting speed

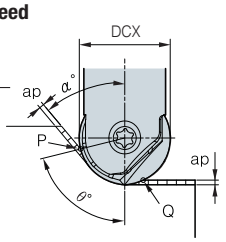
$vce = \frac{\pi\ Dsin\theta \times n}{1000}$ (sfm)

$\theta = \cos^{-1}\left(\frac{D - 2ap}{D}\right) + (90 - \theta°)$

3 In case of using ap: Calculating cutting speed at Q point

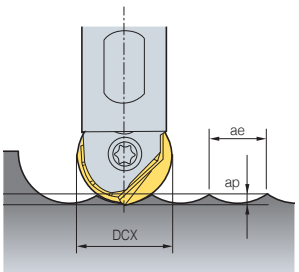
- **Formula**
  : Pratical cutting speed

$vce = \frac{2\pi n\sqrt{ap\ (D - ap)}}{1000}$



Theoretical surface roughness

h (surface roughness) (μm)										
R(inch) \ ae(inch)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
5	0.3	1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3	25.0
6	0.2	0.8	1.9	3.3	5.2	7.5	10.2	13.3	16.9	20.8
8	0.2	0.6	1.4	2.5	3.9	5.6	7.7	10.0	12.7	15.6
10	0.1	0.5	1.1	2.0	3.1	4.5	6.1	8.0	10.1	12.5
12.5	0.1	0.4	0.9	1.6	2.5	3.6	4.9	6.4	8.1	10.0
15	0.1	0.3	0.8	1.3	2.1	3.0	4.1	5.3	6.8	8.3
16	0.1	0.3	0.7	1.3	2.0	2.8	3.8	5.0	6.3	7.8

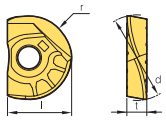
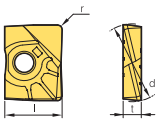
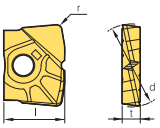
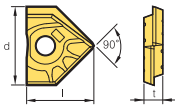
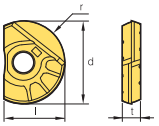
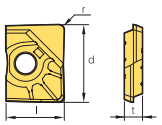


Formula of surface roughness: h (surface finish) = $\frac{(ae)^2}{8R} \times 1000$ (μm)

Actual diameter data

ap \ DCX	Ø0.31	Ø0.38	Ø0.50	Ø0.63	Ø0.75	Ø1.00	Ø1.25
0.0039	0.0709	0.0787	0.0866	0.0984	0.1102	0.126	0.1401
0.0079	0.0984	0.1102	0.122	0.1417	0.1575	0.1772	0.1978
0.0118	0.1181	0.1339	0.1457	0.1693	0.1929	0.2126	0.2419
0.0197	0.1535	0.1732	0.189	0.2205	0.2441	0.2756	0.2794
0.0394	0.2087	0.2362	0.2598	0.3031	0.3425	0.3858	0.4367
0.0591	0.2441	0.2795	0.311	0.7598	0.4134	0.4685	0.5304
0.0787	0.2717	0.315	0.3504	0.4173	0.4724	0.5354	0.6074
0.0984	0.2913	0.3425	0.3819	0.4567	0.5197	0.5906	0.6733
0.1181	0.3031	0.3622	0.4094	0.4921	0.563	0.6378	0.7313
0.1378	0.311	0.374	4291	0.5197	0.5984	0.6811	0.7803
0.1575	0.315	0.3858	0.4449	0.5472	0.6299	0.7205	0.8296
0.1969			0.4646	0.5827	0.6811	0.7874	0.9106
0.2362			0.4724	0.6102	0.7205	0.8425	0.9787
0.2756				0.626	0.752	0.8819	1.0364
0.315				0.6299	0.7717	0.9173	1.0854
0.3937					0.7874	0.9646	1.1613

Available inserts

Holders	LBH (Ball type)	LRH (Corner radius type)	LFH (High feed type)	LCF (Chamfer type)	LBS (Ball type)	LR (Corner radius type)
	 R accuracy ±0.005	 Corner R ±0.015			 R accuracy ±0.005	 Corner R ±0.015
LBE080	LBH080 LBH090 LBH080-KF LBH090-KF LBH080-KH LBH090-KH				LBS080 LBS090	
LBE100 **LRE100**	LBH100 LBH110 LBH100-KF LBH110-KF LBH100-KH LBH110-KH	LRH100-R05 LRH100-R10 LRH110-R05 LRH100-R20	LFH100		LBS100 LBS110	LR100-R05 LR100-R20 LR100-R10 LR110-R05
LBE120 **LRE120**	LBH120 LBH130 LBH120-KF LBH130-KF LBH120-KH LBH130-KH	LRH120-R05 LRH120-R10 LRH130-R05 LRH120-R20	LFH120		LBS120 LBS130	LR120-R05 LR120-R20 LR120-R10 LR130-R05
LBE160 **LRE160**	LBH160 LBH170 LBH160-KF LBH170-KF LBH160-KH LBH170-KH	LRH160-R05 LRH160-R10 LRH160-R20 LRH170-R05 LRH160-R30	LFH160	LCF160-D90	LBS160 LBS170	LR160-R05 LR160-R30 LR160-R10 LR170-R05 LR160-R20
LBE200 **LRE200**	LBH200 LBH210 LBH200-KF LBH210-KF LBH200-KH LBH210-KH	LRH200-R05 LRH200-R10 LRH200-R20 LRH210-R05 LRH200-R30	LFH200	LCF200-D90	LBS200 LBS210	LR200-R05 LR200-R30 LR200-R10 LR210-R05 LR200-R20
LBE250 **LRE250**	LBH250 LBH260 LBH250-KF LBH260-KF LBH250-KH LBH260-KH	LRH250-R05 LRH250-R10 LRH250-R20 LRH260-R05 LRH250-R30	LFH250	LCF250-D90	LBS250 LBS260	LR250-R05 LR250-R30 LR250-R10 LR260-R05 LR250-R20
LBE300 **LRE300**	LBH300 LBH310 LBH300-KF LBH310-KF LBH300-KH LBH310-KH	LRH300-R10 LRH300-R20 LRH310-R05 LRH300-R30	LFH300		LBS300 LBS310	LR300-R10 LR300-R30 LR300-R20 LR310-R05
LBE320 **LRE320**	LBH320 LBH330 LBH320-KF LBH330-KF LBH320-KH LBH330-KH	LRH320-R10 LRH330-R10 LRH320-R20 LRH330-R20 LRH320-R30 LRH330-R30	LFH320		LBS320	LR320-R10 LR320-R30 LR320-R20

* LBH for general cutting, LBH-KF for carbon steel, and LBH-KH for high hardened steel.

LBEA031-C/037-C/050-C/062-C/075-C/100-C/125-C

Straight type

Carbide Shank (Ball type)



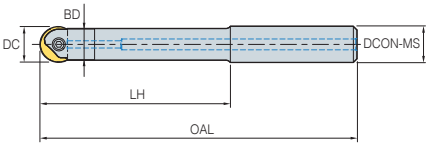


Fig. 1

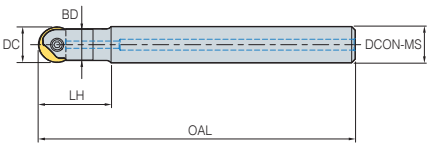


Fig. 2



(inch)

Designation		Stock	Dimension					Part		Available inserts(Ø)	Fig.
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench		
LBEA	031315S-S031C	◆	5/16	5/16	0.283	3.150	5.354	ETND02506F	TWP07S	5/16	1
	031394S-S031C	◆	5/16	5/16	0.283	3.937	6.142				
	031079S-S031C-512	◆	5/16	5/16	0.283	0.787	5.118	ETND02506F	TWP07S	5/16	2
	031079S-S031C-591	◆	5/16	5/16	0.283	0.787	5.906				
	037315S-S037C	◆	3/8	3/8	0.335	3.150	5.354	ETND0307F	TWP08S	3/8	1
	037472S-S037C	◆	3/8	3/8	0.335	4.724	6.929				
	037091S-S037C-512	◆	3/8	3/8	0.335	0.906	5.118	ETND0307F	TWP08S	3/8	2
	037091S-S037C-669	◆	3/8	3/8	0.335	0.906	6.693				
	050394S-S050C	◆	1/2	1/2	0.433	3.937	6.142	ETND03509	TWP10S	1/2	1
	050591S-S050C	◆	1/2	1/2	0.433	5.906	8.110				
	050098S-S050C-591	◆	1/2	1/2	0.433	0.984	5.906	ETND03509	TWP10S	1/2	2
	050098S-S050C-787	◆	1/2	1/2	0.433	0.984	7.874				
	062394S-S062C	◆	5/8	5/8	0.571	3.937	6.299	ETND0413	TWP15S	5/8	1
	062591S-S062C	◆	5/8	5/8	0.571	5.906	8.268				
	062118S-S062C-630	◆	5/8	5/8	0.571	1.181	6.299	ETND0413	TWP15S	5/8	2
	062118S-S062C-827	◆	5/8	5/8	0.571	1.181	5.268				
	075472S-S075C	◆	3/4	3/4	0.689	4.724	7.480	ETKD0516	TWP20	3/4	1
	075669S-S075C	◆	3/4	3/4	0.689	6.693	9.449				
	075138S-S075C-748	◆	3/4	3/4	0.689	1.378	7.480	ETKD0516	TWP20	3/4	2
	075138S-S075C-945	◆	3/4	3/4	0.689	1.378	9.449				
	100551S-S100C	◆	1	1	0.906	5.512	8.661	ETKD0620	TWP25	1	1
	100669S-S100C	◆	1	1	0.906	6.693	9.843				
	150157S-S100C-866		1	1	0.906	1.575	8.661	ETKD0620	TWP25	1	2
	150157S-S100C-984		1	1	0.906	1.575	9.843				
	125551S-S125C	◆	1 1/4	1 1/4	1.142	5.512	9.055	ETGD0825	TWP40	1 1/4	1
	125669S-S125C	◆	1 1/4	1 1/4	1.142	6.693	10.236				
	125197S-S125C-906	◆	1 1/4	1 1/4	1.142	1.969	9.055	ETGD0825	TWP40	1 1/4	2
	125197S-S125C1024	◆	1 1/4	1 1/4	1.142	1.969	10.236				

Available inserts **B8, B9**

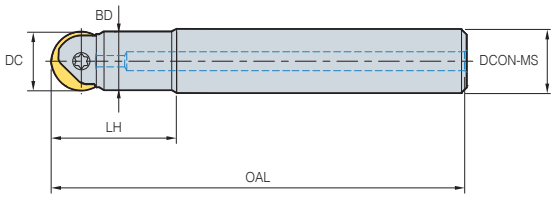
◆: US stock ○: Made to order

LBEA031/037/050/062/075/100/125

Taper type

Steel Shank (Ball type)







(inch)

Designation		Stock	Dimension					Part		Available inserts(Ø)
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench	
LBEA	031138T-S050	◆	5/16	1/2	0.283	1.378	3.583	ETND02506F	TWP07S	5/16
	031217T-S050	◆	5/16	1/2	0.283	2.165	4.370			
	031295T-S050	◆	5/16	1/2	0.283	2.953	5.157			
	037138T-S050	◆	3/8	1/2	0.335	1.378	3.583	ETND0307F	TWP08S	3/8
	037217T-S050	◆	3/8	1/2	0.335	2.165	4.370			
	037295T-S050	○	3/8	1/2	0.335	2.953	5.157			
	050217T-S050	◆	1/2	1/2	0.433	2.165	4.370	ETND03509	TWP10S	1/2
	050335T-S062		1/2	5/8	0.433	3.346	5.709			
	062256T-S062	◆	5/8	5/8	0.571	2.559	4.921	ETND0413	TWP15S	5/8
	062394T-S075	◆	5/8	3/4	0.571	3.937	6.693			
	075295T-S100		3/4	1	0.689	2.953	5.709	ETKD0516	TWP20	3/4
	075453T-S100	◆	3/4	1	0.689	4.528	7.677			
	100354T-S100	◆	1	1	0.906	3.543	6.693	ETKD0620	TWP25	1
	100532T-S125	◆	1	1 1/4	0.906	5.315	8.858			
	125413T-S125	◆	1 1/4	1 1/4	1.142	4.134	7.677	ETGD0825	TWP40	1 1/4
	125630T-S125	◆	1 1/4	1 1/4	1.142	6.299	9.843			

Available inserts **B8, B9**

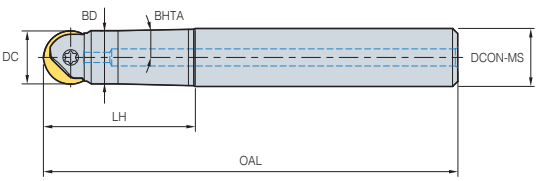
◆: US stock ○: Made to order

LBEA050/062/075/100/125

Straight type

Steel Shank (Ball type)







(inch)

Designation		Stock	Dimension					Part		Available inserts(Ø)
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench	
LBEA	050138S-S050	◆	1/2	1/2	0.433	1.378	3.583	ETND03509	TWP10S	1/2
	062138S-S062	◆	5/8	5/8	0.571	1.378	3.74	ETND0413	TWP15S	5/8
	075157S-S075	◆	3/4	3/4	0.689	1.575	4.331	ETKD0516	TWP20	3/4
	100177S-S100	◆	1	1	0.906	1.772	4.921	ETKD0620	TWP25	1
	125217S-S125	◆	1 1/4	1 1/4	1.142	2.165	5.709	ETGD0825	TWP40	1 1/4

Available inserts **B8, B9**

◆: US stock ○: Made to order

LREA-C/037-C/050-C/062-C/075-C/100-C/125-C

Straight type

Carbide Shank (Corner R type)



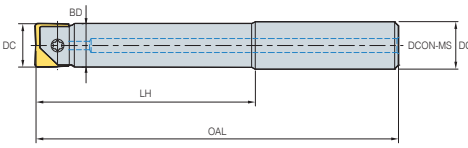


Fig. 1

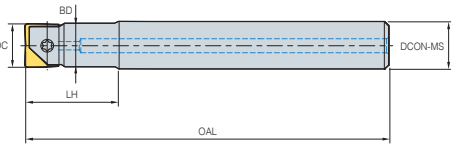


Fig. 2



(inch)

Designation		Stock	Dimension					Part		Available inserts(Ø)	Fig.
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench		
LREA	037315S-S037C	◆	3/8	3/8	0.335	3.150	5.354	ETND0307F	TWP08S	3/8	1
	037472S-S037C	◆	3/8	3/8	0.335	4.724	6.929				
	037091S-S037C-512	◆	3/8	3/8	0.335	0.906	5.118	ETND0307F	TWP08S		2
	037091S-S037C-660	◆	3/8	3/8	0.335	0.906	6.693				
	050394S-S050C	◆	1/2	1/2	0.433	3.937	6.142	ETND03509	TWP10S	1/2	1
	050591S-S050C	◆	1/2	1/2	0.433	5.906	8.110				
	050098S-S050C-591	◆	1/2	1/2	0.433	0.984	5.906	ETND03509	TWP10S		2
	050098S-S050C-787	◆	1/2	1/2	0.433	0.984	7.874				
	062394S-S062C	◆	5/8	5/8	0.571	3.937	6.299	ETND0413	TWP15S	5/8	1
	062591S-S062C	◆	5/8	5/8	0.571	5.906	8.268				
	062117S-S062C-630	◆	5/8	5/8	0.571	1.181	6.299	ETND0413	TWP15S		2
	062117S-S062C-827	◆	5/8	5/8	0.571	1.181	8.268				
	075472S-S075C	◆	3/4	3/4	0.689	4.724	7.480	ETKD0516	TWP20	3/4	1
	075669S-S075C	◆	3/4	3/4	0.689	6.693	9.449				
	075138S-S075C-748	◆	3/4	3/4	0.689	1.378	7.480	ETKD0516	TWP20		2
	075138S-S075C-945	◆	3/4	3/4	0.689	1.378	9.449				
	100551S-S100C	◆	1	1	0.906	5.512	8.661	ETKD0620	TWP25	1	1
	100669S-S100C	◆	1	1	0.906	6.693	0.843				
	100157S-S100C-866	◆	1	1	0.906	1.575	8.661	ETKD0620	TWP25		2
	100157S-S100C-984	◆	1	1	0.906	1.575	9.843				
	125551S-S125C	◆	1 1/4	1 1/4	1.142	5.512	9.055	ETGD0825	TWP40	1 1/4	1
	125669S-S125C	◆	1 1/4	1 1/4	1.142	6.693	10.236				
	125197S-S125C-906	◆	1 1/4	1 1/4	1.142	1.969	9.055	ETGD0825	TWP40		2
	125197S-S125C1024	◆	1 1/4	1 1/4	1.142	1.969	10.236				

Available inserts **B8, B9**

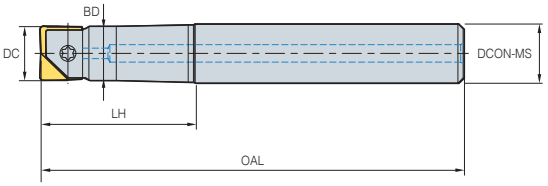
◆: US stock ○: Made to order

LREA037/050

Taper type

Steel Shank (Corner R type)





(inch)

	Designation	Stock	Dimension					Part		Available inserts(Ø)
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench	
LREA	037098T-S050	○	3/8	1/2	0.335	0.984	4.370	ETND0307F	TWP08S	3/8
	037197T-S050	○	3/8	1/2	0.335	1.969	5.906			
	050236T-S062		1/2	5/8	0.433	2.362	6.299	ETND03509	TWP10S	1/2

Available inserts **B8, B9**

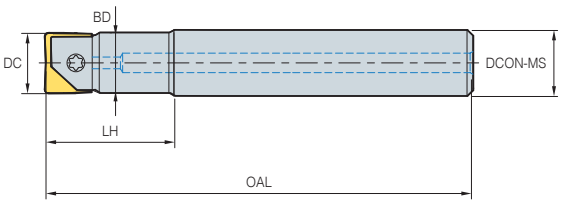
◆: US stock ○: Made to order

LREA050/062/075/100/125

Straight type

Steel Shank (Corner R type)





(inch)

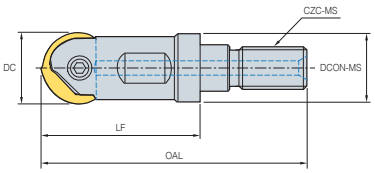
	Designation	Stock	Dimension					Part		Available inserts(Ø)
			DCX	DCON-MS	BDX	LH	OAL	Clamp screw	Wrench	
LREA	050117S-S050	○	1/2	1/2	0.433	1.181	4.370	ETND03509	TWP08S	1/2
	062197S-S062	○	5/8	5/8	0.571	1.969	5.157	ETND0413	TWP15S	5/8
	062236S-S062	○	5/8	5/8	0.571	2.362	6.299			
	075236S-S075	○	3/4	3/4	0.689	2.362	5.709	ETKD0516	TWP20	3/4
	075315S-S075	○	3/4	3/4	0.689	3.150	7.087			
	100276S-S100	○	1	1	0.906	2.756	5.709	ETKD0620	TWP20	1
	100394S-S100	○	1	1	0.906	3.937	8.858			
	125315S-S125	○	1 1/4	1 1/4	1.142	2.756	6.299	ETGD0825	TWP40	1 1/4
	125394S-S125	○	1 1/4	1 1/4	1.142	3.937	8.858			

Available inserts **B8, B9**

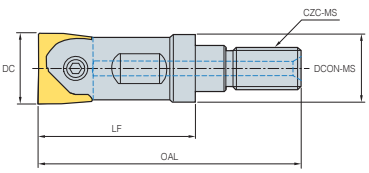
◆: US stock ○: Made to order

LBEA-MHD





LBH



LRH



(inch)

Designation		Stock	Dimension					Part		Available inserts(Ø)
			CZC-MS	DCX	OAL	LF	DCON-MS	Clamp screw	Wrench	
LBEA	037-MHD-M06	◆	M06	3/8	1.575	0.984	0.335	ETND0307F	TWP08S	3/8
	050-MHD-M06	○	M06	1/2	1.575	0.984	0.433	ETND03509	TWP10S	1/2
	062-MHD-M08	◆	M08	5/8	1.850	1.181	0.571	ETND0413	TWP15S	5/8
	075-MHD-M10	◆	M10	3/4	2.205	1.378	0.689	ETKD0516	TWP20	3/4
	100-MHD-M12	◆	M12	1	2.717	1.772	0.906	ETKD0620	TWP25	1
	125-MHD-M16	◆	M16	1 1/4	3.031	1.969	1.142	ETGD0825	TWP40	1 1/4

Available inserts **B8, B9** Available adaptor **B400**

◆: US stock ○: Made to order

Designation: LBEA125-MHD-M16 Modular head threading measure size (M16)	=	Adaptor spec.: MATA-M16-137-S125S Adaptor threading measure (M16)

Long tool life due to high hardness grade

GBE

- Indexable ball nose endmill for molds in medium & roughing applications
- Long tool life with high hardness grade
- Helical high accuracy cutting-edge
- Optimized mold machining process with our internal coolant system
- Able to adjust to medium processing in middle & big roughing mold process
- Wide variety of holders in normal & long style holders

Code system

GBE	A	063	-	S	125
Product Name	**Arbor type**	**Machining diameter**		**Type**	**Shank diameter**
General Indexable Ball Endmill	A : Inch NO code : Metric	Ø0.630, Ø0.790, Ø0.980, Ø1.180 Ø1.260, Ø1.530, Ø1.970		S : Standard shank L : Long shank	125 : Ø1.25

Internal



Flank support

External



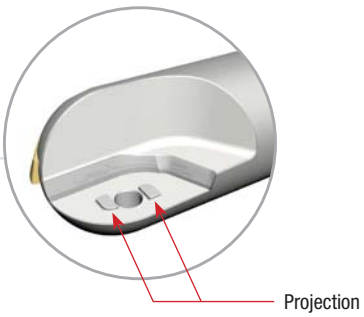
Concave bottom

- High accuracy machining & large depth of cut applications
  - Run-out: within 0.002 inch
  - R accuracy: within 0.002 inch
- Various diameters (Ø0.630, Ø0.790, Ø0.980, Ø1.180, Ø1.260, Ø1.530, Ø1.970)
- Minimal cutting resistance due to Helical cutting-edge
- Anti-rotation of insert due to concave bottom & stable setting by flank support
- Long tool life & better processing due to 2 cutting inserts
- Better tool life with new grade



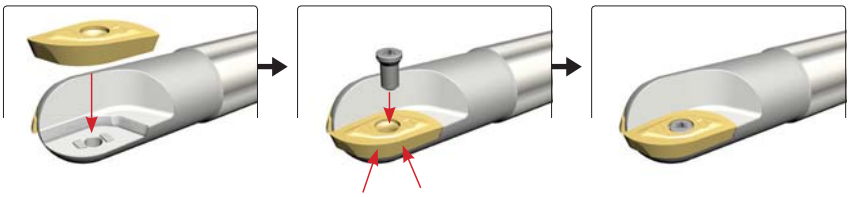
Multi-edge type | Single-edge type | Modular type

- Various diameters (Ø0.630, Ø0.790, Ø0.980, Ø1.180, Ø1.260, Ø1.530, Ø1.970)
- Improved chip treatment with internal coolant (cutting-edge portion)
- Long tool life & better processing
- Easy insert setting with projection part to prevent vibration during processing



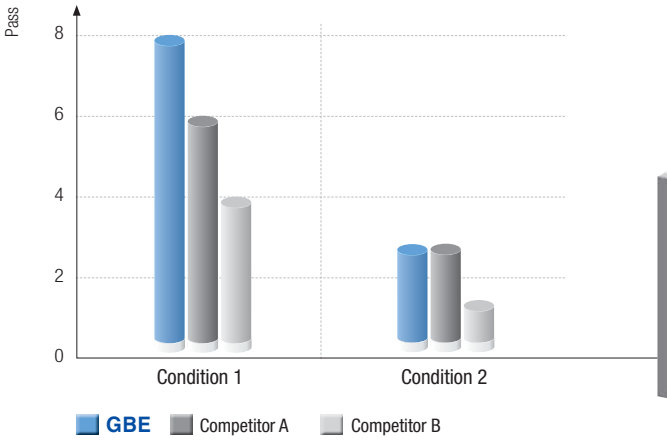
Projection

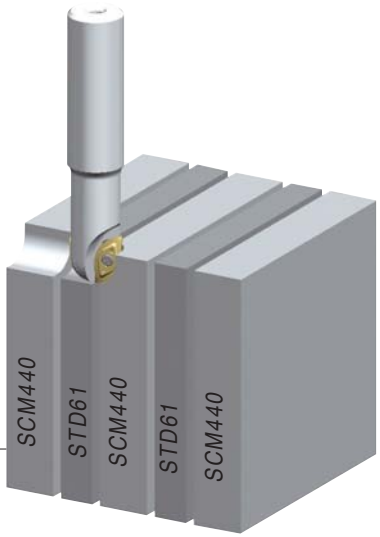
How to set insert



1. Set the insert onto the holder projection seat
2. Push the insert into the pocket as shown by red arrows and screw down with wrench

Performance evaluation





Cutting conditions

Class	Cutting speed (vc)	Feed (fz)	Depth of cut (ap)	Depth of cut (ae)	Workpiece	Etc.
Condition 1	492 sfm	0.006 ipt	0.197 inch	0.315 inch	H13(HRC50) + 4140(HRC20)	Dry
Condition 2	492 sfm	0.004 ipt	0.315 inch	0.315 inch		

Inserts/Parts

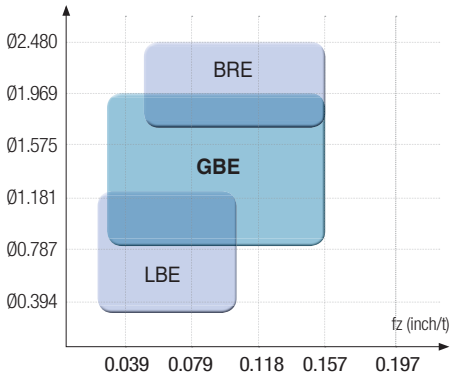
(inch)

Type	Available inserts			Part			
							
Dia.	**Internal**	**External**	**Ext. main**	**Screw**		**Wrench**	
				Int./Ext. type	**Ext. main type**	**Int./Ext. type**	**Ext. main type**
Ø0.630	ZPET080M-MM	ZPET080S-MM	-	FTKA02555S	-	TW08S	-
Ø0.709	ZPET090M-MM	ZPET090S-MM	-	FTKA0307	-	TW09S	-
Ø0.787	ZPET100M-MM	ZPET100S-MM	SPMT060304	FTKA0307	ETNA02506	TW09S	TW07P
Ø0.866	ZPET110M-MM	ZPET110S-MM	SPMT060304	FTKA0408	ETNA02506	TW15S	TW07P
Ø0.984	ZPET125M-MM	ZPET125S-MM	SPMT060304	FTKA0409	ETNA02506	TW15S	TW07P
Ø1.024	ZPET130M-MM	ZPET130S-MM	SDMT090308-MM	FTKA0409	ETNA0408	TW15S	TW15S
Ø1.102	ZPET140M-MM	ZPET140S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20	TW15S
Ø1.181	ZPET150M-MM	ZPET150S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø1.260	ZPET160M-MM	ZPET160S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø1.575	ZPET200M-MM	ZPET200S-MM	SPMT120408-MM	FTGA0614	ETNA0511	TW20-100	TW20S
Ø1.969	ZPET250M-MM	ZPET250S-MM	SPMT120408-MM	FTGA0818	ETNA0511	TW25S	TW20S

How to set insert

Workpiece	Machining type	Hardness (HRC)	vc (sfm)	fz (ipt)	ap (inch)	ae (inch)
Carbon, Alloy steel	Flank Groove Deep flank	Under 25	520~820 300~650 520~820	0.020~0.012 0.020~0.012 0.039~0.020	0.012~0.020D 0.012~0.020D 0.039~0.059D	0.008~0.012D - 0.004~0.008D
Carbon, Alloy steel	Flank Groove Deep flank	Under 45	300~650 300~520 300~650	0.020~0.012 0.020~0.012 0.039~0.020	0.012~0.020D 0.012~0.020D 0.039~0.059D	0.008~0.012D - 0.004~0.008D
Mold Alloy steel	Flank Groove Deep flank	30~40	300~650 300~520 300~650	0.012 0.012 0.039~0.012	0.012~0.020D 0.012~0.020D 0.039~0.059D	0.008~0.012D - 0.004~0.008D
Cast iron (GC, GCD)	Flank Groove Deep flank	20~30	150~300 150~300 150~300	0.028~0.012 0.028~0.012 0.039~0.028	0.012~0.020D 0.012~0.020D 0.039~0.059D	0.008~0.012D - 0.004~0.008D
Heat-treated steel	Flank Groove Deep flank	50~60	130~320 130~320 130~320	0.012 0.012 0.039~0.012	0.012~0.020D 0.012~0.020D 0.039~0.059D	0.008~0.012D - 0.004~0.008D

Line-up for indexable ball endmill

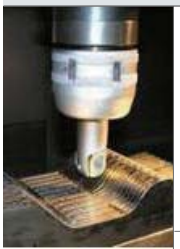


Type	Application				
	Quality	Machining Efficiency	Machining Dia. Equivalence	Economical	Flank Machining with Long Edge
Laser Mill	●	○	◐	○	○
GBE	◐	●	◐	◐	●
BRE	○	●	●	●	●

● : Very Good ◐ : Good ○ : Normal

Test result for wear resistance

Cutting conditions	Wear resistance photos



Workpiece KP4M(HRC33), Dry
Condition vc = 920 sfm
fz = 0.01 ipt
ap = 0.2~0.4 inch
ae = 0.2~0.4 inch
vf = 58.5 sfm
n = 2,971 rpm

Tool

Holder : GBEA118-S125
Insert : ZPET150M-MM (PC3700)
ZPET150S-MM (PC3700)

Cutting time : 4 Pass

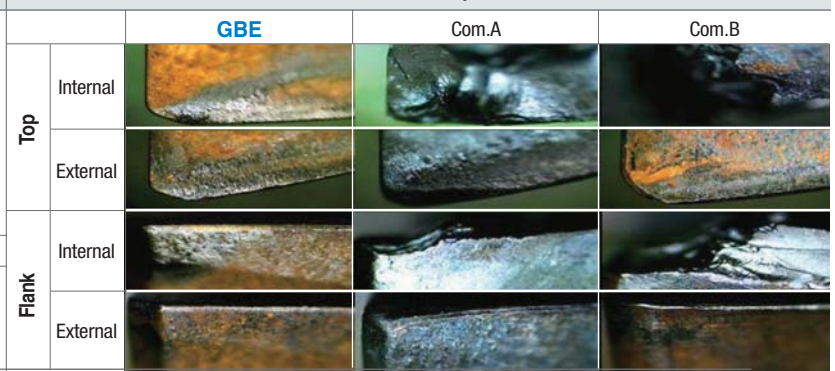


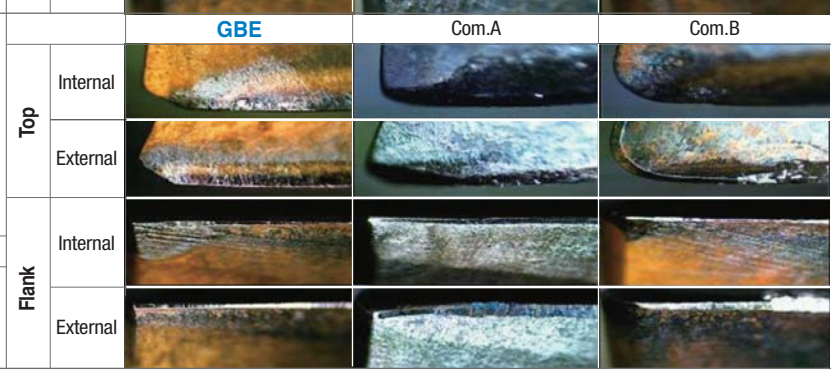
Workpiece STD11(HRC20), Dry
Condition vc = 820 sfm
fz = 0.008 ipt
ap = 0.2 inch
ae = 0.2 inch
vf = 42.45 sfm
n = 2,653 rpm

Tool

Holder : GBEA118-S125
Insert : ZPET150M-MM (PC3700)
ZPET150S-MM (PC3700)

Cutting time : 4 Pass





GBEA (Single-edge)



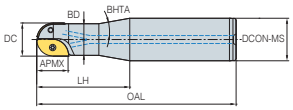


Fig. 1

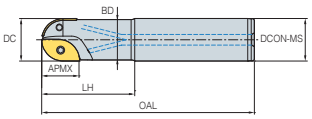


Fig. 2

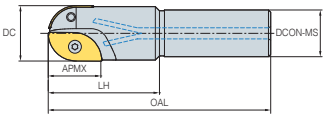


Fig. 3



(inch)

Designation		Stock	Dimensions					Available inserts		Part		Fig.
			DCX	DCON-MS	BD	LH	OAL	Internal	External	Screw	Wrench	
										Int./Ext. type	Ext. main type	
GBEA	063-S075	○	0.630	0.750	0.591	1.95	5.10	ZPET080M-MM	ZPET080S-MM	FTKA02555S	TW08S	1
	063-L075	○	0.630	0.750	0.591	3.50	7.90	ZPET080M-MM	ZPET080S-MM	FTKA02555S	TW08S	
	071-S075	○	0.709	0.750	0.638	2.35	5.10	ZPET090M-MM	ZPET090S-MM	FTKA0307	TW09S	
	071-L075	○	0.709	0.750	0.638	3.15	7.90	ZPET090M-MM	ZPET090S-MM	FTKA0307	TW09S	
	079-S100	○	0.787	1.000	0.732	2.35	5.50	ZPET100M-MM	ZPET100S-MM	FTKA0307	TW09S	
	079-L100	○	0.787	1.000	0.732	3.10	9.80	ZPET100M-MM	ZPET100S-MM	FTKA0307	TW09S	
	086-S100	○	0.866	1.000	0.815	2.75	5.50	ZPET110M-MM	ZPET110S-MM	FTKA0408	TW15S	
	086-L100	○	0.866	1.000	0.815	3.95	9.85	ZPET110M-MM	ZPET110S-MM	FTKA0408	TW15S	
	098-S125	○	0.984	1.250	0.913	2.70	5.90	ZPET125M-MM	ZPET125S-MM	FTKA0409	TW15S	
	098-L125	○	0.984	1.250	0.913	3.90	11.80	ZPET125M-MM	ZPET125S-MM	FTKA0409	TW15S	
	102-S125	○	1.024	1.250	0.961	2.75	5.90	ZPET130M-MM	ZPET130S-MM	FTKA0409	TW15S	
	102-L125	○	1.024	1.250	0.961	3.95	1.80	ZPET130M-MM	ZPET130S-MM	FTKA0409	TW15S	
	110-S125	○	1.102	1.250	1.031	2.75	5.90	ZPET140M-MM	ZPET140S-MM	FTGA0511-P	TW20	
	110-L125	○	1.102	1.250	1.031	4.70	11.80	ZPET140M-MM	ZPET140S-MM	FTGA0511-P	TW20	
	118-S125	○	1.181	1.250	1.094	2.70	6.30	ZPET150M-MM	ZPET150S-MM	FTGA0511-P	TW20-100	2
	118-L125	○	1.181	1.250	1.094	4.70	13.80	ZPET150M-MM	ZPET150S-MM	FTGA0511-P	TW20-100	
	126-S125	○	1.260	1.250	1.173	2.70	6.30	ZPET160M-MM	ZPET160S-MM	FTGA0511-P	TW20-100	
	126-L125	○	1.260	1.250	1.173	4.70	13.80	ZPET160M-MM	ZPET160S-MM	FTGA0511-P	TW20-100	

Available inserts **B34**

◆: US stock ○: Made to order

GBEA (Multi-edge)



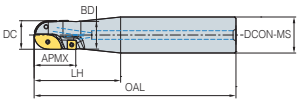


Fig. 1

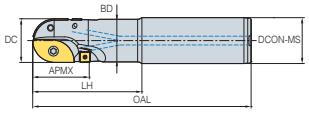


Fig. 2

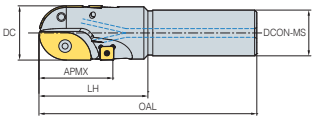


Fig. 3



(inch)

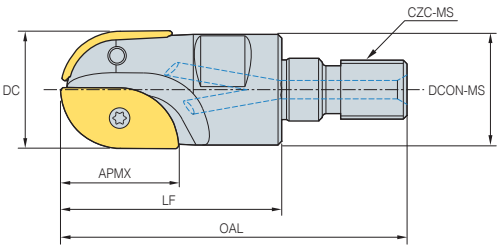
Designation		Stock	Dimensions					Available insert			Part				Fig.
			DCX	DCON-MS	BD	LH	OAL	Internal	External	Ext. main	Screw		Wrench		
											Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type	
GBEA	079M-S100	○	0.787	1.000	0.732	2.75	5.90	ZPET100M-MM	ZPET100S-MM	SPMT221	FTKA0307	ETNA02506	TW09S	TW07P	1
	079M-L100	○	0.787	1.000	0.732	2.75	9.80	ZPET100M-MM	ZPET100S-MM	SPMT221	FTKA0307	ETNA02506	TW09S	TW07P	
	086M-S100	○	0.866	1.000	0.815	3.15	5.90	ZPET110M-MM	ZPET110S-MM	SPMT060304	FTKA0408	ETNA02506	TW15S	TW07P	
	086M-L100	○	0.866	1.000	0.815	3.15	9.85	ZPET110M-MM	ZPET110S-MM	SPMT060304	FTKA0408	ETNA02506	TW15S	TW07P	
	098M-S125	○	0.984	1.250	0.913	3.10	7.10	ZPET125M-MM	ZPET125S-MM	SPMT221	FTKA0409	ETNA02506	TW15S	TW07P	
	098M-L125	○	0.984	1.250	0.913	3.10	11.80	ZPET125M-MM	ZPET125S-MM	SPMT221	FTKA0409	ETNA02506	TW15S	TW07P	
	102M-S125	○	1.024	1.250	0.961	3.15	7.10	ZPET130M-MM	ZPET130S-MM	SDMT090308-MM	FTKA0409	ETNA0408	TW15S	TW15S	
	102M-L125	○	1.024	1.250	0.961	3.15	11.80	ZPET130M-MM	ZPET130S-MM	SDMT090308-MM	FTKA0409	ETNA0408	TW15S	TW15S	
	110M-S125	○	1.102	1.250	1.031	3.15	7.10	ZPET140M-MM	ZPET140S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20	TW15S	
	110M-L125	○	1.102	1.250	1.031	3.15	11.80	ZPET140M-MM	ZPET140S-MM	SDMT090308-MM	FTGA0511-P	ETNA0408	TW20	TW15S	
	118M-S125	○	1.181	1.250	1.094	3.90	7.90	ZPET150M-MM	ZPET150S-MM	SDMT322-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	
	118M-L125	○	1.181	1.250	1.094	3.90	13.80	ZPET150M-MM	ZPET150S-MM	SDMT322-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	
	126M-S125	○	1.260	1.250	1.173	3.90	7.90	ZPET160M-MM	ZPET160S-MM	SDMT322-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	2
	126M-L125	○	1.260	1.250	1.173	3.90	13.80	ZPET160M-MM	ZPET160S-MM	SDMT322-MM	FTGA0511-P	ETNA0408	TW20-100	TW15S	

Available inserts **B20, B27, B34**

◆: US stock ○: Made to order

GBEMA







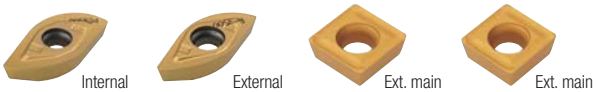
(inch)

Designation		Stock	Dimension					Available inserts	
			CZC-MS	DCX	OAL	LF	DCON-MS	Internal	External
GBEMA	063-M08	○	M08	0.630	1.9	1.2	0.591	ZPET080M-MM	ZPET080S-MM
	079-M10	○	M10	0.787	2.2	1.4	0.732	ZPET100M-MM	ZPET100S-MM
	098-M12	○	M12	0.984	2.7	1.8	0.913	ZPET125M-MM	ZPET125S-MM
	118-M16	○	M16	1.181	3.0	2.0	1.094	ZPET150M-MM	ZPET150S-MM
	126-M16	○	M16	1.260	3.0	2.0	1.173	ZPET160M-MM	ZPET160S-MM

◆: US stock ○: Made to order

Available inserts

ZPET-MM Internal | ZPET-MM External | SPMT Ext. main | SPMT-MM Ext. main



Designation		Coated				page
		NCM325	PC2510	PC3700	PC5300	
SPMT	060304	●		○		B27
	120408-MM			●	●	
SDMT	090308-MM	○		●	●	B20
ZPET	080M-MM			○		B34
	090M-MM					
	100M-MM		●	●	●	
	110M-MM					
	125M-MM		●	●	●	
	130M-MM			●	●	
	140M-MM			●		
	150M-MM					
	160M-MM					
	200M-MM					
	250M-MM			○		

Designation		Coated				page
		NCM325	PC2510	PC3700	PC5300	
ZPET	080S-MM					B34
	090S-MM					
	100S-MM		●	●	●	
	110S-MM					
	125S-MM		●	●	●	
	130S-MM					
	140S-MM					
	150S-MM			●	●	
	160S-MM		●	●	●	
	200S-MM			●		
	250S-MM					

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw		Wrench	
	Int./Ext. type	Ext. main type	Int./Ext. type	Ext. main type
Ø0.630	FTKA02555S	-	TW08S	-
Ø0.787	FTKA0307	ETNA02506	TW09S	TW07P
Ø0.984	FTKA0409	ETNA02506	TW15S	TW07P
Ø1.181	FTGA0511-P	ETNA0408	TW20-100	TW15S
Ø1.260	FTGA0511-P	ETNA0408	TW20-100	TW15S

Available inserts **B20, B27, B34** Available adaptor **B400**

Designation: GBEMA118-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MATA-M16-137-S125S
Adaptor threading measure (M16)

Better tool life with its anti-breakage special surface treatment

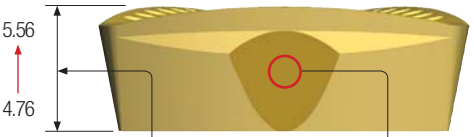
BRE

- **Cutting performance:** Good chip control & Superior cutting performance with optimal cutting-edge line
- **High rigidity body:** Better tool life and special surface treatment to strengthen the holder
  Easy to set and good durability with TCRX screw
  Good chip control with our 3D flute design & improved external quality
- **Insert :** Grade available for high speed & feed applications due to it's high wear and breakage resistance providing a stable cutting performance with high cutting-edge toughness and a chip breaker featuring a high rake angle

Multi-edge holder ISO View



- Good chip flow
- Good heat emission

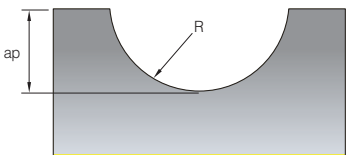


- Wider insert ensures cutting-edge strength
- Better setting force by recess



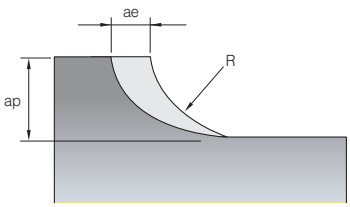
BRE machining type for roughing & Recommended cutting conditions

Machining type 1



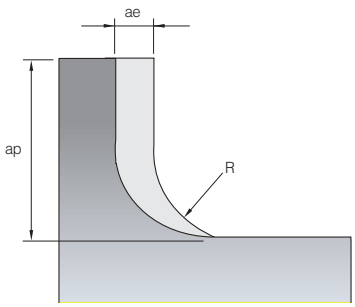
• ap = 0.3D~0.5D

Machining type 2



• ae = 0.2D~0.3D • ap = 0.3D~0.5D

Machining type 3



• ae = 0.1D~0.5D • ap = 1.2D~1.5D

Workpiece	Machining type	Cutting speed (sfm)	Feed (ipt)	Grades
Carbon/alloy steel	1 2 3	390~720 390~720 330~590	0.016~0.004 0.016~0.008 0.012~0.004	NCM325 NCM325 NCM325
Alloy steel	1 2 3	330~655 330~655 260~525	0.016~0.004 0.016~0.008 0.012~0.004	NCM325 NCM325 NCM325
Tool steel	1 2 3	260~490 260~490 195~395	0.012~0.004 0.014~0.006 0.012~0.004	NCM325 NCM325 NCM325
High hardness material (HRC35~45)	1 2 3	195~395 195~395 165~260	0.012~0.004 0.012~0.004 0.008~0.004	NCM325 NCM325 NCM325
Cast iron	1 2 3	330~590 330~590 260~525	0.020~0.008 0.020~0.008 0.016~0.006	NCM320K NCM320K NCM320K

BREA



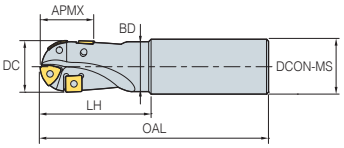


Fig. 1

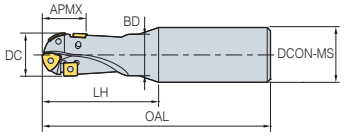


Fig. 2

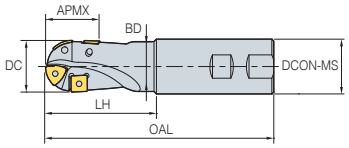


Fig. 3



• GAMP : 0°~10°
• GAMF : -3°~0°

(inch)

Designation		Stock	Dimension					Available insert		Part		lbs	Fig.
			DCX	DCON-MS	BD	LH	OAL	Internal	External	Screw	Wrench		
BREA	079-S	○	0.787	3/4	0.744	0.787	4.921	ZDMT08T2-R10-MM	SPMT221	ETNA02506	TW07P	0.3	1
	079-M	○	0.787	3/4	0.744	0.787	5.906						
	079-L	○	0.787	1	0.941	0.787	7.874						2
	079-SL	○	0.787	1	0.941	0.787	4.921						3
	098-S	○	0.984	1	0.941	0.906	5.906	ZDMT110312.5R-MM	SPMT221	ETNA02506	TW07P	0.5	1
	098-M	○	0.984	1	0.941	0.906	6.890						
	098-L	○	0.984	1 1/4	1.193	0.906	7.874					0.4	2
	098-SL	○	0.984	1	0.941	0.906	5.315						3

◆: US stock ○: Made to order

Available inserts

SPMT



ZDMT-R-MM



Designation		Coated					page
		NCM325	PC3700	PC5300	PC5400	PC6100	
SPMT	221	●	○				B27
ZDMT	080310R-MM		●	○			B34
	110312.5R-MM		○	●			
	130416R-MM		●	●			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.787~Ø0.984	ETNA02506	TW07P

Available inserts **B27, B34**

BREA





• GAMP : 0°~10°
• GAMF : -3°~0°

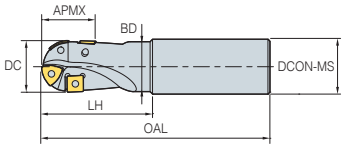


Fig. 1

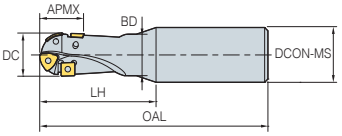


Fig. 2

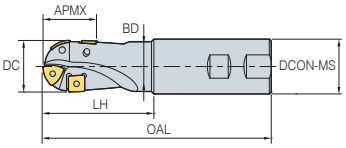


Fig. 3

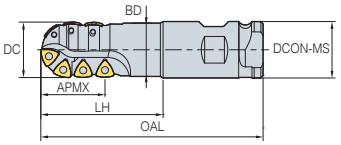


Fig. 4

(inch)

Designation		Stock	Dimension					Available insert		Part		lbs	Fig.
			DCX	DCON-MS	BD	LH	OAL	Main	Ext. main	Screw	Wrench		
BREA	126-S	○	1.260	1 1/4	1.193	1.220	6.890	ZDMT130416R-MM	SDMT322-MM	ETNA0408	TW15S	0.9	1
	126-M	○	1.260	1 1/4	1.193	1.220	7.874					0.9	1
	126-L	○	1.260	1 1/4	1.193	1.220	9.843					0.7	1
	126-SL	○	1.260	1 1/4	1.193	1.220	5.906					0.7	3
	157-S	○	1.575	1 1/2	1.508	1.614	6.890	ZPMT160520R-MM	SPMT432-MM SPMT442-MMN	ETNA0511	TW20-100	1.3	1
	157-S-150		1.575	1 1/2	1.508	1.614	6.890					1.3	1
	157-M	○	1.575	1 1/2	1.508	1.614	7.874					1.3	1
	157-M-150		1.575	1 1/2	1.508	1.614	7.874					1.3	1
	157-L	○	1.575	1 1/2	1.508	1.614	9.843					1.3	1
	157-L-150		1.575	1 1/2	1.508	1.614	9.843					1.3	1
	157-SL	○	1.575	1 1/2	1.508	1.614	6.299					1.3	3
	157-SL-150		1.575	1 1/2	1.508	1.614	6.299					1.3	3

◆: US stock ○: Made to order

Available inserts

	SDMT-MM	SPMT-MM	ZPMT-R-MM	ZPMT-R-MR
				

Designation		Coated					page
		NCM325	PC3700	PC5300	PC5400	PC6100	
SDMT	322-MM	○	●	●			B20
SPMT	432-MM		●	●			B27
	442-MMN						
ZPMT	160520R-MM		●	●			B34
	160525R-MM		●	●			
	160525R-MR		○	○	○		
	160531.5R-MM			●			

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.260	ETNA0408	TW15S
Ø1.575	ETNA0511	TW20-100

Available inserts **B20, B27, B34**

All applications for chamfers

Chamfer Tool

- Chamfer angles 15°, 30°, 45°, 60° for a variety of customer's needs
- The long cutting-edge provides a wide chamfering range

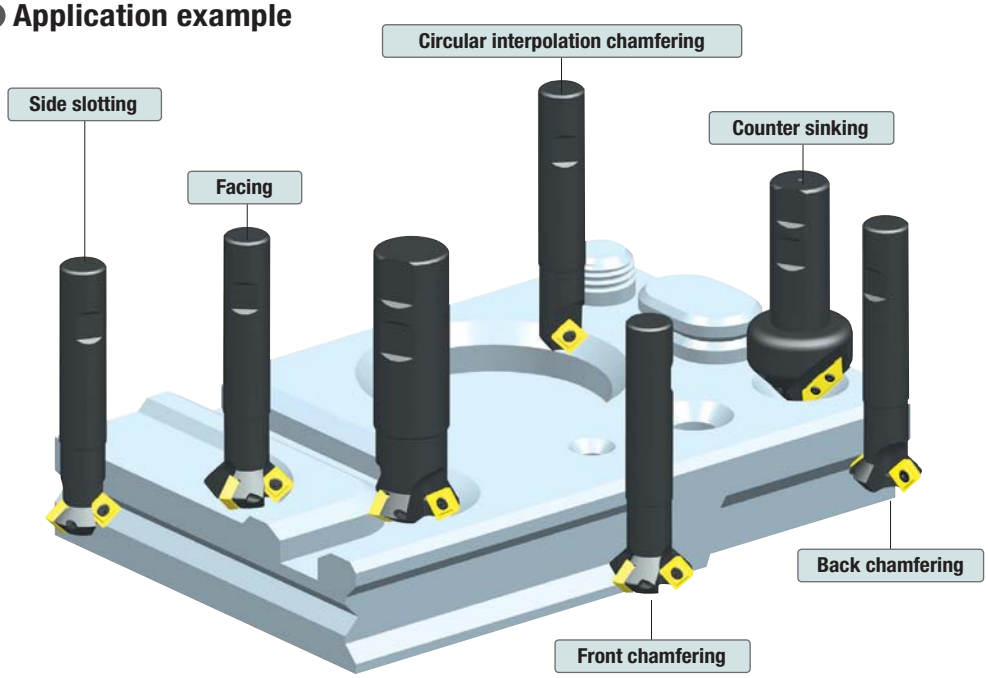
Code system

CE	A	45	-	11	100	R	-	S	075
Chamfer Endmill	**Arbor** A : Inch NO code : Metric	**Chamfer angle** 45°		**Inscribed circle of insert** 11 : SPMT110408-KC 12 : SPMN120308 31 : XCET310404ER-KC	**Min. Cutting diameter** Ø1 inch	**Hand** R : Right-handed L : Left-handed		**Overall length** S : Standard M : Middle L : Long	**Shank diameter** Ø0.75 inch

Recommended cutting conditions

Workpiece	Grade	DCX (Ø0.20~Ø0.79)		DCX (Ø0.10~Ø1.38)	
		vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)
P	PC3700	520~880	0.010~0.002	520~880	0.010~0.002
	PC5300	620~1010		620~1010	
	ST30A	200~330		200~330	
M	PC5300	330~520	0.008~0.002	330~520	0.012~0.004
	PC5400	230~390		230~390	
K	PC5300	360~590	0.012~0.004	360~590	0.020~0.012
	G10	160~290		160~290	

Application example



Back & Front Chamfer Tools



Long Chamfer Tools



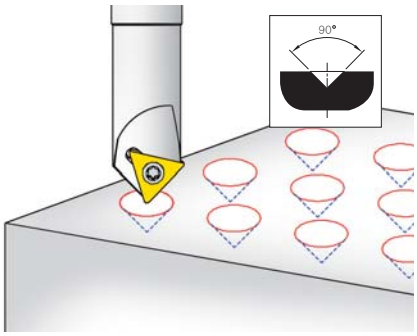
Multi-Functional Chamfer Tool

Code system

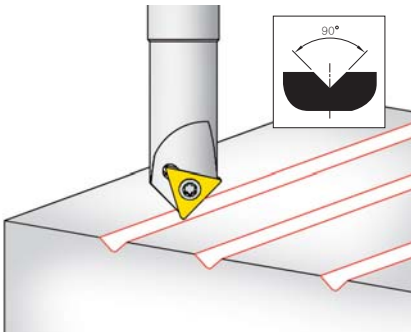
CE	A	45	-	16	00	R	-	S	075
Chamfer Endmill	**Arbor type** A : Inch NO code : Metric	**Chamfer angle** 45°		**Inscribed circle of insert** 16 : TWX16R-KC 22 : TWX22R-KC	**Min. Cutting diameter** Ø0	**Hand** R : Right-handed L : Left-handed		**Overall length** S : 3.543, 4.330 L : 7.874	**Shank diameter** Ø0.75 inch

Application area and recommended cutting conditions

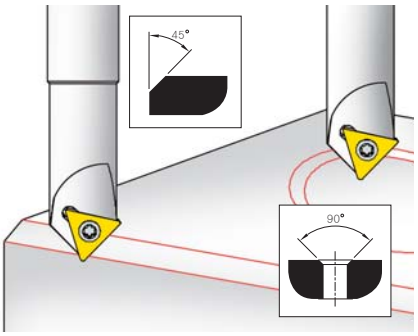
Centering



Grooving



Chamfering



Workpiece	Hardness (HRC)	Centering, Grooving		Chamfering	
		vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)
Mild steel, Carbon steel, Alloy steel	Under HRC 30	360~655	0.004~0.016	330~820	0.016~0.024
High Carbon steel, Alloy steel	HRC 30, 40	490~820	0.008~0.024	490~985	0.020~0.039
Aluminum, Copper	-	490~985	0.016~0.031	490~1,150	0.020~0.039
Cast iron	-	260~490	0.008~0.024	330~820	0.020~0.039
Stainless steel	-	195~395	0.004~0.012	195~490	0.012~0.024
HRSA		195~260	0.004~0.012	195~330	0.012~0.024

※ Note) Please keep fz. backtouch & chipping one caused by wrong fz

Machining example

Chamfering



Grooving

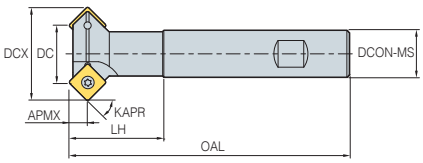


Centering



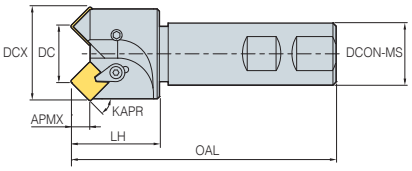
CEA (Back & front)





• GAMP : 0°
• GAMF : 0°

Fig. 1



• GAMP : 0°
• GAMF : -12°~0°

Fig. 2



(inch)

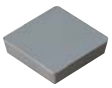
	Designation	Stock	CICT	DC	DCX	DCON-MS	APMX	Fig.	Available inserts	KAPR(°) Front	KAPR(°) Back	Machining range (Min-Max)	Use
CEA	15-11100R-S075	◆	2	1	1.204	3/4	0.376	1	SPMT110408-KC	15°	-	Ø1.00~Ø1.18	Front chamfering
	30-11100R-S075	◆	2	1	1.398	3/4	0.337	1		30°	60°	Ø1.00~Ø1.37	Front, Back chamfering
	45-11028R-S075	◆	1	9/32	0.850	3/4	0.275	1		45°	-	Ø0.28~Ø0.82	Front chamfering
	45-11075R-S075	◆	2	3/4	1.319	3/4	0.275	1		45°	45°	Ø0.75~Ø1.29	Front, Back chamfering
	45-11100R-S075	◆	3	1	1.569	3/4	0.275	1		45°	45°	Ø1.00~Ø1.53	Front, Back chamfering
	60-11100R-S125	◆	3	1	1.706	1 1/4	0.194	1		60°	30°	Ø1.00~Ø1.65	Front, Back chamfering
	45-12028R-S125	○	1	9/32	0.916	1 1/4	0.309	2	SPMN422	45°	-	Ø0.28~Ø0.86	Front chamfering
	45-12075R-S125	○	2	3/4	1.386	1 1/4	0.309	2		45°	-	Ø0.75~Ø1.41	Front chamfering
	45-12100R-S125	◆	2	1	1.636	1 1/4	0.309	2		45°	-	Ø1.00~Ø1.61	Front chamfering
	45-12137R-S125	○	2	1 3/8	2.052	1 1/4	0.309	2		45°	-	Ø1.37~Ø2.00	Front chamfering

◆: US stock ○: Made to order

Available inserts

SPMT-KC SPMN





	Designation	Cermet	Coated												Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
SPMT	110408-KC									◆	○			◆		●	●		B27
SPMN	120308															●			

●: Korea stock ◆: US stock ○: Made to order

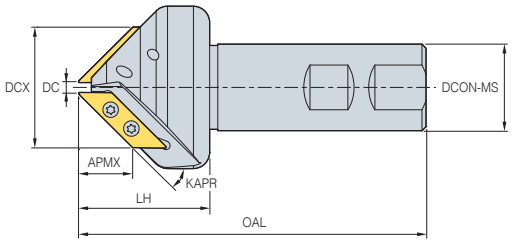
Parts

Specification	Screw	Clamp	C-Ring	Wrench	Wrench
Ø9/32~Ø1 (11□□□ type)	FTKA0408	-	-	TW15S	-
Ø9/32~Ø1 3/8 (12□□□ type)	CHX0617L	CH6R2N	CR05	-	HW30L

Available inserts **B27**

CEA (Long chamfer)







• GAMP : -5°~1°
• GAMF : 0°

(inch)

	Designation	Stock	CICT	DC	DCX	DCON-MS	APMX	KAPR	Machining range (Min-Max)	Use
CEA	30-31020R-S125	○	1	13/64	1.384	1 1/4	1.039	30°	Ø0.20~Ø1.37	Front chamfering
	45-31020R-S125	◆	2	13/64	1.896	1 1/4	0.846	45°	Ø0.20~Ø1.89	Front chamfering
	60-31020R-S125	◆	2	13/64	2.278	1 1/4	0.598	60°	Ø0.20~Ø2.27	Front chamfering

◆: US stock ○: Made to order

Available inserts

XCET-KC



	Designation	Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
XCET	310404ER-KC									◆				◆		●	●		B32

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø13/64	FTKA03510	TW15S

Available inserts **B32**

CEA (Multi-functional)



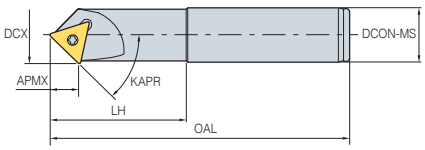


Fig. 1

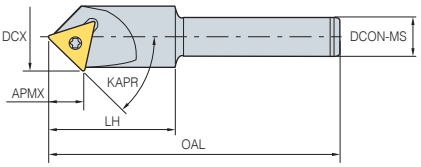


Fig. 2



• GAMP : -12°~15°
• GAMF : 0°

(inch)

	Designation	Stock	DCX	DCON-MS	LF	OAL	APMX	Fig.	Available inserts	Machining range (Min-Max)	Use
CEA	45-1600R-S050	◆	0.84	0.50	1.6	3.5	0.4	2	TWX16R-KC	Ø0.8	Centering Grooving Chamfering
	45-1600R-S075	◆	0.84	0.75	2.0	4.3	0.4	1	TWX16R-KC	Ø0.8	
	45-1600R-L075	◆	0.84	0.75	2.4	7.9	0.4	1	TWX16R-KC	Ø0.8	
	45-2200R-S050	◆	1.13	0.50	1.6	3.5	0.6	2	TWX22R-KC	Ø1.1	
	45-2200R-S100	◆	1.13	1.00	2.0	4.5	0.6	1	TWX22R-KC	Ø1.1	
	45-2200R-L100	○	1.13	1.00	2.4	8.0	0.6	1	TWX22R-KC	Ø1.1	

◆: US stock ○: Made to order

Available inserts

TWX-KC



	Designation	Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
TWX	16R-KC									●				●					B30
	22R-KC									●									

●: Korea stock ◆: US stock ○: Made to order

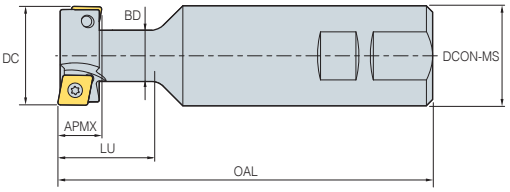
Parts

Specification	Screw	Wrench
Ø0.87~Ø1.14	FTNA0408	TW15L

Available inserts **B30**

TFEA







KAPR 90°

- GAMP : 5°
- GAMF : -5°

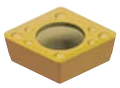
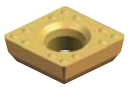
(inch)

	Designation	Stock	CICT	DC	DCON-MS	DN	LH	OAL	APMX	Available inserts
TFEA	083100R/L	○	2	0.83	1.00	0.41	0.79	4.25	0.35	CPMT21.51-MM
	098100R/L	○	2	0.98	1.00	0.49	0.83	4.50	0.43	CPMT21.51-MM
	126125R/L	○	2	1.26	1.25	0.65	1.02	5.00	0.55	CPMT2.522-MM
	157125R/L	○	2	1.57	1.25	0.81	1.26	5.25	0.71	CPMT32.52-MM
	197125R/L	○	4	1.97	1.25	1.00	1.50	5.50	1.30	CPMH432-MM

◆: US stock ○: Made to order

Available inserts

CPMT CPMH

	Designation	Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
CPMT	21.51-MM									●									B7 B8
	2.522-MM									●									
	32.52-MM									●									
CPMH	432-MM									●									

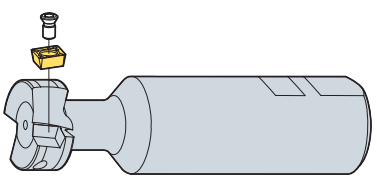
●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø0.83	FTNA02555	TW08S
Ø0.98	FTNA0306	TW09S
Ø1.26	FTNA0407	TW15S
Ø1.57	PTMA0511A	TW15S
Ø1.97	PTMA0511A	TW15S

Available inserts **B7, B8**

Assembling

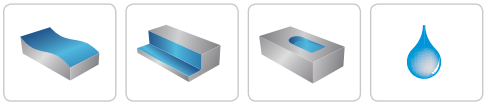


Inserts feature a buffed top surface ensuring better chip control and reducing built-up edge

Pro-A Mill

- Buffed top face of insert ensures good chip control and reduces built-up edge
- Small size modular type for aluminum machining
- Various line up of modular system for aluminum machining
- For shouldering, curved surface and ramping
- High rake angle chip breaker ensures excellent surface roughness, improved cooling effects, and chip control by through coolant system, even in deep pocket machining

Use



Copying | Shouldering | Ramping | Through coolant system

Pro-A Mill series

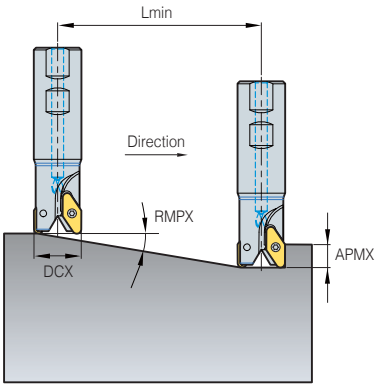
Type		Available inserts and tool holders	Through coolant system
Application of small-sized Aluminum machining	**Pro-A 2000**	 • Modular: Ø0.5~ Ø1.25 • Shank: Ø0.5~ Ø1.5 • Insert: VDKT11T210N-MA VDKT11T220N-MA	O
General application of Aluminum machining	**Pro-A 4000**	 • cutter: Ø1.5~ Ø4 • Shank: Ø1.25~ Ø1.5 • Insert: VCKT220530N-MA	O

Recommended cutting conditions

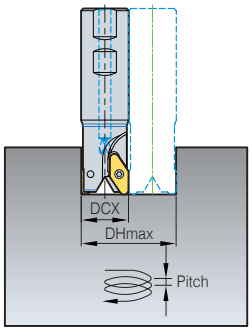
Workpiece		Cutting speed vc (sfm)
Aluminum alloy	Rm < 280 MPa	3300
	Rm > 280 MPa	2640
Copper alloy	Long chip	830
Thermo plastic	-	990
Aluminum alloy	Si < 12%	2640
Copper alloy	Short chip	1320
Magnesium alloy	-	1320
Duroplastics	-	500

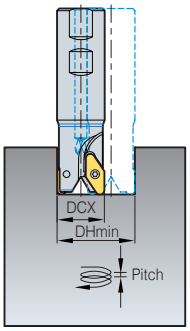
Pro-A Mill ramping & helical cutting technical data

Ramping



Helical cutting





(inch)

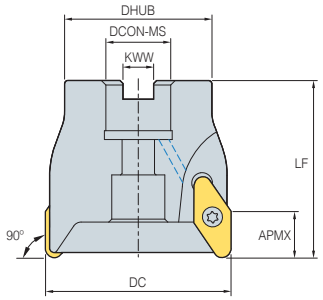
Designation	DCX	Ramping		Blind hole helical cutting				Thru hole helical cutting	
		RMPX	Lmin	DHmin	Max pitch	DHmax	Max pitch	DHmin	Max pitch
PASA2012HR	0.500	11.1	1.606	0.882	0.007	0.961	0.007	0.803	0.006
PASA2016HR	0.625	12.6	1.404	1.132	0.010	1.211	0.011	1.053	0.009
PASA2020HR	0.750	10.3	1.738	1.382	0.010	1.461	0.010	1.303	0.009
PASA2025HR	1.000	7.5	2.404	1.882	0.010	1.961	0.010	1.803	0.009
PASA2032HR	1.250	5.9	3.071	2.382	0.010	2.461	0.010	2.303	0.009
PASA2042HR	1.500	4.8	3.738	2.882	0.010	2.961	0.010	2.803	0.009
PASA4032HR	1.250	18.9	0.921	2.382	0.032	2.461	0.033	2.303	0.031
PASA4040HR	1.500	15.7	1.121	2.882	0.032	2.961	0.033	2.803	0.031
PASA4050HR	2.000	11.7	1.521	3.882	0.032	3.961	0.032	3.803	0.031
PASA4063HR	2.500	9.3	1.921	4.882	0.032	4.961	0.032	4.803	0.031
PACA4080HR	3.000	7.7	2.321	5.882	0.031	5.961	0.032	5.803	0.031
PACA4100HR	4.000	5.8	3.121	7.882	0.031	7.961	0.032	7.803	0.031

- **Lmin:** When ap = 0.315inch
- **Lmin:** Minimum inclination cutting length
- **RPMX:** Max. ramping angle
- **ap:** Depth of cut

$$\text{Lmin} = \frac{\text{APMX}}{\tan(\text{RMPX})} \text{ (inch)}$$

PACA4000







KAPR 90°

- GAMP : 0°
- GAMF : -3°

(inch)

	Designation	Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
PACA	4150HR	◆	3	1.50	1.378	0.50	0.250	2.165	0.591	0.20
	4200HR	◆	3	2.00	1.772	0.75	0.313	2.165	0.591	0.37
	4250HR	◆	4	2.50	1.969	0.75	0.313	2.362	0.591	0.64
	4300HR	◆	4	3.00	2.205	1.00	0.375	2.362	0.591	0.83
	4400HR	○	5	4.00	2.874	1.25	0.500	2.362	0.591	1.60

◆: US stock ○: Made to order

Available inserts

VCKT-MA



	Designation	Cermet	Coated												Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
VDKT	220530N-MA																	◆	B30

●: Korea stock ◆: US stock ○: Made to order

Parts

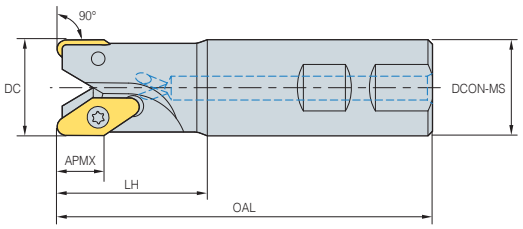
Specification	Screw	Wrench	Arbor Bolt
Ø1.50~Ø4.00	FTNC04509 (Ø1.50) FTNC04511	TW20S	PHMA0834 (Ø1.50)

Available inserts **B30** Available arbors and bolt **E96**

* For PAS2012·2016

PASA2000/4000













KAPR 90°

- GAMP : 0°~7°
- GAMF : -21°~-3°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
PASA	2050HR	◆	1	0.500	0.625	0.984	3.346	0.315	0.22
	2062HR	○	2	0.625	0.625	0.984	3.543	0.315	0.23
	2075HR	○	2	0.750	0.750	0.181	3.937	0.315	0.42
	2100HR	◆	3	1.000	1.000	0.375	4.528	0.315	0.84
	2125HR	○	4	1.250	1.250	1.575	4.921	0.315	1.42
	2150HR	○	5	1.500	1.250	1.654	5.118	0.315	1.67
	4125HR	○	2	1.250	1.250	1.969	4.921	0.315	1.32
	4150HR	○	3	1.500	1.250	1.969	5.512	0.315	1.61

* Holders marked with an asterisk (*) are only for VDKT11T220N-MA. ◆: US stock ○: Made to order

Available inserts

VDKT-MA VCKT-MA




Type	Designation		Cermet	Coated												Uncoated			page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
2000type	VDKT	11T210N-MA																	◆	B30
		11T220N-MA																	○	
4000type	VCKT	220530N-MA																	◆	

●: Korea stock ◆: US stock ○: Made to order

Parts

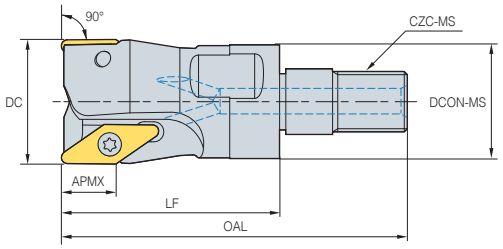
Specification	Screw	Wrench
Ø0.500~Ø1.500(2000 type)	ETNA02505* / ETNA02506	TW07S
Ø1.250~Ø1.500(4000 type)	FTNC04509	TW20S

Available inserts **B30**

* For PAS2012·2016

PAMA2000





KAPR 90°

- GAMP : 7°~10°
- GAMF : -21°~-9°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
PAMA	2050HR-M06	○	1	0.500	0.433	1.299	1.870	M06	0.315	0.02
	2062HR-M08	○	2	0.625	0.571	1.417	2.087	M08	0.315	0.04
	2075HR-M10	◆	2	0.750	0.709	1.417	2.205	M10	0.315	0.06
	2100HR-M12	○	3	1.000	0.886	1.614	2.480	M12	0.315	0.10
	2125HR-M16	○	4	1.250	1.122	1.772	2.717	M16	0.315	0.18

◆: US stock ○: Made to order

Available inserts

VDKT-MA



	Designation	Cermet	Coated												Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
VDKT	11T210N-MA																	◆	B30

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

	Designation	Available adaptors
PAMA	2050HR-M06	MATA - M06
	2062HR-M08	MATA - M08
	2075HR-M10	MATA - M10
	2100HR-M12	MATA - M12
	2125HR-M16	MATA - M16

Designation: PAMA2050HR-M06
Modular head threading measure size (M06)

II

Adaptor spec.: MAT-M06-078-S038S
Adaptor threading measure (M06)

Parts

Specification	Screw	Wrench
Ø0.50~Ø1.250	ETNA02505* ETNA02506	TW07S

Available inserts **B30** Available adaptor **E400**

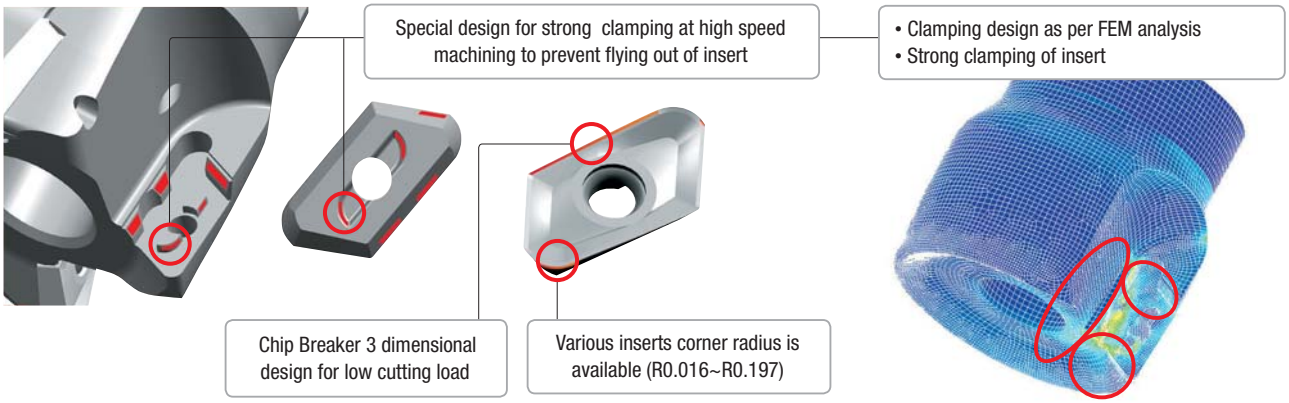
* For PAS2012·2016

Features a strong clamping provided by the concave grooves on the back surface of the inserts

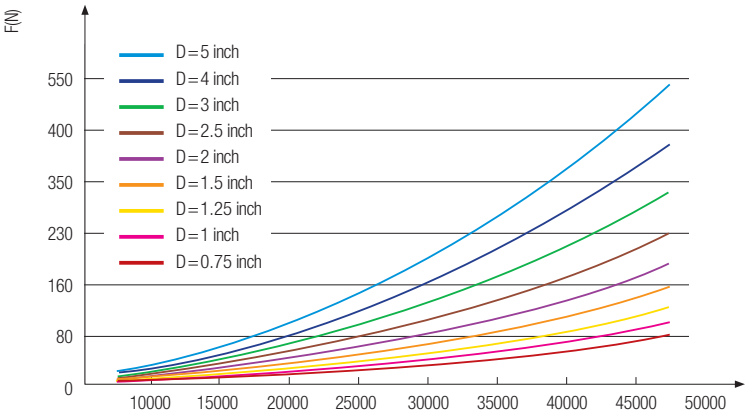
Pro-X Mill

- Inserts feature a buffed top surface ensuring a smoother chip evacuation and reducing built-up edge
- High rake angle of insert provides good surface finish and low cutting load
- Specially designed for high speed machining of aluminum
- Suitable for square shouldering and curved surface machining

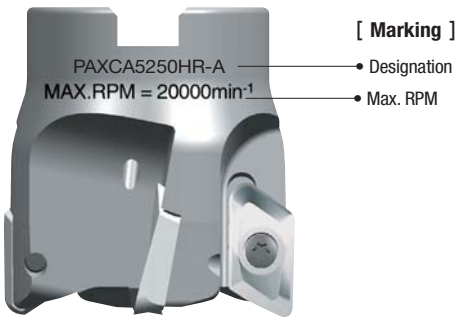
Clamping system for high speed



Centrifugal force as per RPM



※ Screw Torque = 4 N·m
※ Indexable insert: 6.8g



Max. RPM as per cutting diameter

Cutting diameter DC	5000 type		6000 type	
	n (min-1)	vc (sfm)	n (min-1)	vc (sfm)
3/4	14,000	2,883	-	-
1	28,000	7,215	15,000	3,865
1 1/4	25,000	8,245	23,000	7,585
1 1/2	22,000	9,068	20,000	8,245
2	20,000	10,305	18,000	9,275
2 1/2	18,000	11,686	16,000	10,387
3	16,000	13,192	14,000	11,542
4	14,000	14,429	13,000	13,399
5	13,000	16,749	11,000	14,170

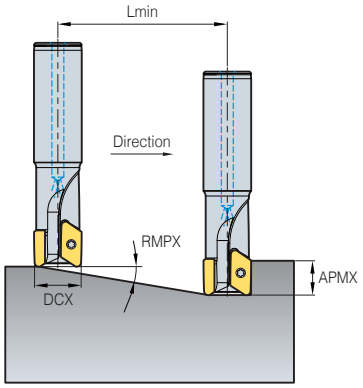
※ In case of actual machining accidental breakage of insert or tool could happen even under the written RPM special cover or door is necessary to prevent damage from broken insert or broken tool

Recommended cutting conditions

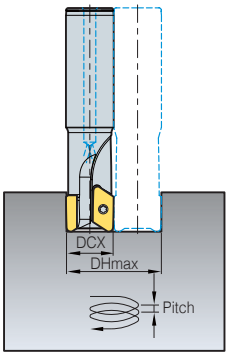
Workpiece		Cutting Speed vc (sfm)	Feed fz (ipt)
Aluminum alloy	Rm280 < MPa Rm280 > MPa	3960 3300	0.012 0.010
Copper alloy **Thermo plastic**	Long chipping -	1320 1150	0.008 0.006
Aluminum alloy	Si <12% Si ≥12%	3300 990	0.010 0.009
Copper alloy	Short chipping	1650	0.008
Magnesium alloy	-	1480	0.008
Duroplastics	-	680	0.006

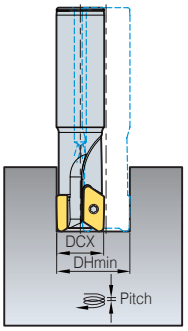
Pro-X Mill ramping & helical cutting technical data

Ramping



Helical cutting





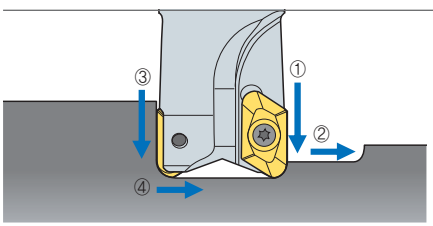
(inch)

Designation	DCX	Ramping		Blind hole Helical cutting				Thru hole Helical cutting	
		RMPX	Lmin	DHmin	Max pitch	DHmax	Max pitch	DHmin	Max pitch
PAXSA5075HR	0.75	9.1	2.47	1.185	0.007	1.264	0.008	0.988	0.006
PAXSA5100HR	1.00	11.9	1.86	1.685	0.014	1.764	0.015	1.488	0.012
PAXSA5125HR	1.25	9.0	2.49	2.185	0.014	2.264	0.014	1.988	0.012
PAXSA5150HR	1.50	7.2	3.11	2.685	0.013	2.764	0.014	2.488	0.012
PAXCA5200HR	2.00	5.2	4.36	3.685	0.013	3.764	0.013	3.488	0.012
PAXCA5250HR	2.50	4.0	5.61	4.685	0.013	4.764	0.013	4.488	0.012
PAXCA5300HR	3.00	3.3	6.86	5.685	0.013	5.764	0.013	5.488	0.012
PAXCA5400HR	4.00	2.4	9.36	7.685	0.013	7.764	0.013	7.488	0.012
PAXCA5500HR	5.00	1.9	11.86	9.685	0.013	9.764	0.013	9.488	0.012
PAXSA6100HR	1.00	9.0	2.48	1.685	0.011	1.764	0.011	1.488	0.009
PAXSA6125HR	1.25	6.8	3.31	2.185	0.010	2.264	0.011	1.988	0.009
PAXSA6150HR	1.50	10.8	2.07	2.685	0.020	2.764	0.021	2.488	0.019
PAXCA6200HR	2.00	7.7	2.91	3.685	0.020	3.764	0.020	3.488	0.019
PAXCA6250HR	2.50	6.0	3.74	4.685	0.019	4.764	0.020	4.488	0.019
PAXCA6300HR	3.00	4.9	4.57	5.685	0.019	5.764	0.020	5.488	0.019
PAXCA6400HR	4.00	3.6	6.24	7.685	0.019	7.764	0.019	7.488	0.019
PAXCA6500HR	5.00	2.9	7.91	9.685	0.019	9.764	0.019	9.488	0.019

$$\text{Lmin} = \frac{\text{APMX}}{\tan(\text{RMPX})} \text{ (inch)}$$

- **Lmin** = Minimum inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

Plunging, slotting, drilling technical data



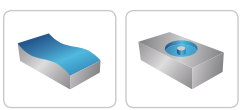
1. When drilling, grooving machining sequence is
   ① → ② → ③ → ④
2. When drilling, grooving, decrease the feed and cutting speed 30%~50% from the recommended data

• Cutting conditions for drilling

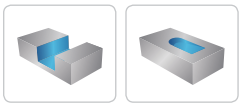
Holder	ap (inch)	
	5000 type	6000 type
Ø3/4	0.315	-
Ø1	0.157	0.433
Ø1 1/4	0.157	0.236
Ø1 1/2~5	0.157	0.236

Insert	ap (inch)
XEKT19	0.157
XEKT25	0.236

Use



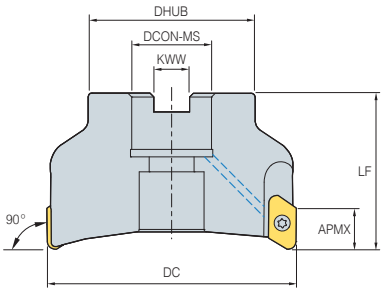
Copying | Helical cutting



Slotting & Shouldering | Ramping

PAXCA5000





KAPR 90°

- GAMP : 8°~17.5°
- GAMF : -9.5°~-5°

(inch)

Designation		Stock A	Stock B	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
PAXCA	5150HR-A,B	◆	○	3	1.5	1.417	0.50	0.252	1.50	0.67	0.35
	5200HR-A,B	◆	◆	4	2.0	1.772	0.75	0.321	1.75	0.67	0.81
	5250HR-A,B	◆	○	A:5, B:4	2.5	1.772	0.75	0.321	1.75	0.67	1.21
	5300HR-A,B	◆	◆	5	3.0	2.205	1.00	0.384	2.00	0.67	2.01
	5400HR-A,B	◆	◆	6	4.0	3.386	1.50	0.636	2.50	0.67	5.29
	5500HR-A,B	◆	○	7	5.0	3.386	1.50	0.636	2.50	0.67	8.38

• A type: Insert NoseR 0.016~0.126, B type: Insert NoseR 0.157~0.197 ◆: US stock ○: Made to order

Available inserts

XEKT-MA



XEKT-ML



Designation		Cermet CN30	Coated NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	Uncoated ST30A	G10	H01	H05	page
XEKT	19M504FR-MA													◆	◆			◆	●	B32
	19M508FR-MA													◆	◆			◆	●	
	19M512FR-MA													◆	◆			◆	●	
	19M516FR-MA													◆	◆			◆	●	
	19M518FR-MA																	◆		
	19M520FR-MA													◆	◆			◆	●	
	19M530FR-MA													◆	◆			◆	●	
	19M532FR-MA													◆	◆			◆	●	
	19M540FR-MA													◆	◆			◆	●	
	19M550FR-MA													◆	◆			◆	●	

Designation		Cermet CN30	Coated NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	Uncoated ST30A	G10	H01	H05	page
XEKT	19M504ER-ML																			B32
	19M508ER-ML																			
	19M512ER-ML																			
	19M516ER-ML																			
	19M518ER-ML																			
	19M520ER-ML																			
	19M530ER-ML																			
	19M532ER-ML																			
	19M540ER-ML																			
	19M550ER-ML																			

●: Korea stock ◆: US stock ○: Made to order

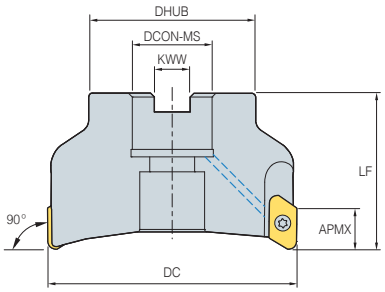
Parts

Specification	Screw	Wrench
Ø1.5~Ø5.0	PTKA0408	TW15S

Available inserts **B32** Available arbors and bolt **E94 ~ E96**

PAXCA6000





KAPR 90°

- GAMP : 8°~17.5°
- GAMF : -9.5°~-5°

(inch)

Designation		Stock A	Stock B	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
PAXCA	6200HR-A,B	○	○	2	2.0	1.772	0.75	0.315	1.75	0.91	0.72
	6250HR-A,B	○	○	3	2.5	1.772	0.75	0.315	1.75	0.91	1.19
	6300HR-A,B	○	○	4	3.0	2.205	1.00	0.374	2.00	0.91	1.56
	6400HR-A,B	○	○	5	4.0	2.874	1.25	0.500	2.50	0.91	4.03
	6500HR-A,B	○	○	6	5.0	3.386	1.50	0.626	2.50	0.91	6.86

• A type: Insert NoseR 0.016~0.126, B type: Insert NoseR 0.157~0.197 ◆: US stock ○: Made to order

Available inserts

XEKT-MA



XEKT-ML



Designation		Cermet	Coated												Uncoated				page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT	250604FR-MA																●	●	B32
	250608FR-MA																◆	●	
	250612FR-MA																●	●	
	250616FR-MA																○		
	250620FR-MA																●	●	
	250630FR-MA																○		
	250632FR-MA																●	●	
	250640FR-MA																○		
	250650FR-MA																●	●	

Designation		Cermet	Coated												Uncoated				page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT	250604ER-ML											○							B32
	250608ER-ML											○							
	250612ER-ML											○							
	250616ER-ML											○							
	250620ER-ML											○							
	250630ER-ML											○							
	250632ER-ML											○							
	250640ER-ML											○							
	250650ER-ML											○							

●: Korea stock ◆: US stock ○: Made to order

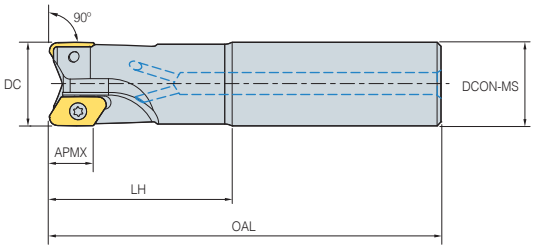
Parts

Specification	Screw	Wrench
Ø2.0~Ø5.0	FTGA0513-P	TW20-100

Available inserts **B32**

PAXSA5000













KAPR 90°

- GAMP : 5°~10°
- GAMF : -14°~-5°

(inch)

Designation		Stock A	Stock B	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
PAXSA	5075HR-A,B	◆	○	1	0.75	0.75	2.36	5.12	0.67	0.480
	5100HR-A,B	◆	◆	2	1.00	1.00	2.36	5.51	0.67	0.950
	5125HR-A,B	◆	◆	2	1.25	1.25	2.76	5.91	0.67	1.630
	5150HR-A,B	◆	◆	3	1.50	1.50	2.76	6.30	0.67	1.510

• A type: Insert NoseR 0.016~0.126, B type: Insert NoseR 0.157~0.197 ◆: US stock ○: Made to order

Available inserts

XEKT-MA



XEKT-ML



Designation		Cermet	Coated											Uncoated				page
		CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504FR-MA													● ◆			◆	●		B32
	19M508FR-MA													● ◆			◆	●		
	19M512FR-MA													● ◆			◆	●		
	19M516FR-MA													◆			◆	●		
	19M518FR-MA																◆			
	19M520FR-MA													● ◆			◆	●		
	19M530FR-MA													◆			◆	●		
	19M532FR-MA													● ◆			◆	●		
	19M540FR-MA													● ◆			◆	●		
	19M550FR-MA													● ◆			◆	●		

Designation		Cermet	Coated											Uncoated				page
		CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504ER-ML											○								B32
	19M508ER-ML											○								
	19M512ER-ML											○								
	19M516ER-ML											○								
	19M518ER-ML											○								
	19M520ER-ML											○								
	19M530ER-ML											○								
	19M532ER-ML											○								
	19M540ER-ML											○								
	19M550ER-ML											○								

●: Korea stock ◆: US stock ○: Made to order

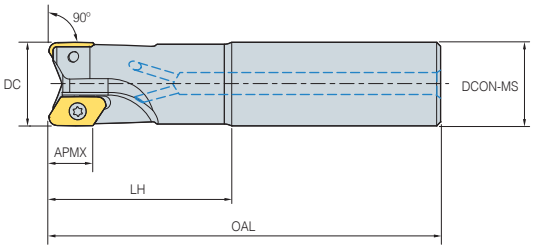
Parts

Specification	Screw	Wrench
Ø0.75	PTKA0407	TW15S
Ø1.00~Ø1.50	PTKA0408	TW15S

Available inserts **B32**

PAXSA6000







KAPR 90°

- GAMP : 5°~10°
- GAMF : -14°~-5°

(inch)

Designation		Stock A	Stock B	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
PAXSA	6100HR-A,B	○	○	1	1.00	1.00	2.36	5.51	0.91	0.93
	6125HR-A,B	○	○	1	1.25	1.25	2.76	5.91	0.91	1.68
	6150HR-A,B			2	1.50	1.50	2.76	6.30	0.91	2.65

• A type: Insert NoseR 0.016~0.126, B type: Insert NoseR 0.157~0.197 ◆: US stock ○: Made to order

Available inserts

XEKT-MA



XEKT-ML



Designation		Cermet	Coated											Uncoated				page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT	250604FR-MA																●	●		
	250608FR-MA																◆	●		
	250612FR-MA																●	●		
	250616FR-MA																○			
	250620FR-MA																●	●		B32
	250630FR-MA																○			
	250632FR-MA																●	●		
	250640FR-MA																○			
	250650FR-MA																●	●		

Designation		Cermet	Coated											Uncoated				page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	H05	
XEKT	250604ER-ML											○								
	250608ER-ML											○								
	250612ER-ML											○								
	250616ER-ML											○								
	250620ER-ML											○								B32
	250630ER-ML											○								
	250632ER-ML											○								
	250640ER-ML											○								
	250650ER-ML											○								

●: Korea stock ◆: US stock ○: Made to order

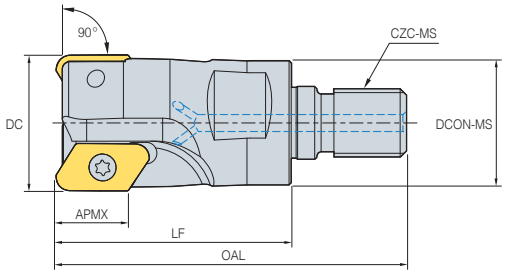
Parts

Specification	Screw	Wrench
Ø1.00~Ø1.25	FTGA0510-P	TW20-100
Ø1.50	FTGA0513-P	TW20-100

Available inserts B32

PAXMA5000













KAPR 90°

- GAMP : 6°~8°
- GAMF : -7°~-5°

(inch)

Designation		Stock A	Stock B	CICT	DC	DCON-MS	LF	OAL	CZC-MS	APMX	lbs
PAXMA	5100HR-A,B-M12	◆	○	2	1.00	0.906	2.165	3.110	M12	0.67	0.12
	5125HR-A,B-M16	◆	○	2	1.25	1.142	2.165	3.228	M16	0.67	0.24
	5150HR-A,B-M16	◆	○	3	1.50	1.142	2.165	3.228	M16	0.67	0.32

• A type: Insert NoseR 0.016~0.126, B type: Insert NoseR 0.157~0.197 ◆: US stock ○: Made to order

Available inserts

XEKT-MA



XEKT-ML



Designation		Cermet	Coated											Uncoated				page
		CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504FR-MA													●	◆			◆	●	B32
	19M508FR-MA													●	◆			◆	●	
	19M512FR-MA													●	◆			◆	●	
	19M516FR-MA														◆			◆	●	
	19M518FR-MA																	◆		
	19M520FR-MA													●	◆			◆	●	
	19M530FR-MA														◆			◆	●	
	19M532FR-MA													●	◆			◆	●	
	19M540FR-MA													●	◆			◆	●	
	19M550FR-MA													●	◆			◆	●	

Designation		Cermet	Coated											Uncoated				page
		CN30	NC5330	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD2000	PD1010	ST30A	G10	H01	H05	
XEKT	19M504ER-ML											○								B32
	19M508ER-ML											○								
	19M512ER-ML											○								
	19M516ER-ML											○								
	19M518ER-ML											○								
	19M520ER-ML											○								
	19M530ER-ML											○								
	19M532ER-ML											○								
	19M540ER-ML											○								
	19M550ER-ML											○								

●: Korea stock ◆: US stock ○: Made to order

Available adaptors

Cutter Designation		Available adaptors
PAXMA	5100HR-A,B-M12	MATA-M12
	5125HR-A,B-M16	MATA-M16
	5150HR-A,B-M16	

Designation: PAXMA5125HR-M16
Modular head threading measure size (M16)

II

Adaptor spec.: MATA-M16-354-S125S-C
Adaptor threading measure (M16)

Parts

Specification	Screw	Wrench
Ø1.00~Ø1.50	PTKA0408	TW15S

Available inserts **B32** Available adaptor **B400**

New indexable milling tool for the machining of high quality workpieces

Pro-L Mill

- Improved perpendicularity and lower cutting resistance due to the combined design of the clearance face and high helix edge of these inserts
- Strong clamping design by adaption of double screw on system
- Improved chip flow due to helical type design of chip pocket and application of coolant system

Use



Facing | Shouldering | Slotting | Ramping | Helical cutting

Code system

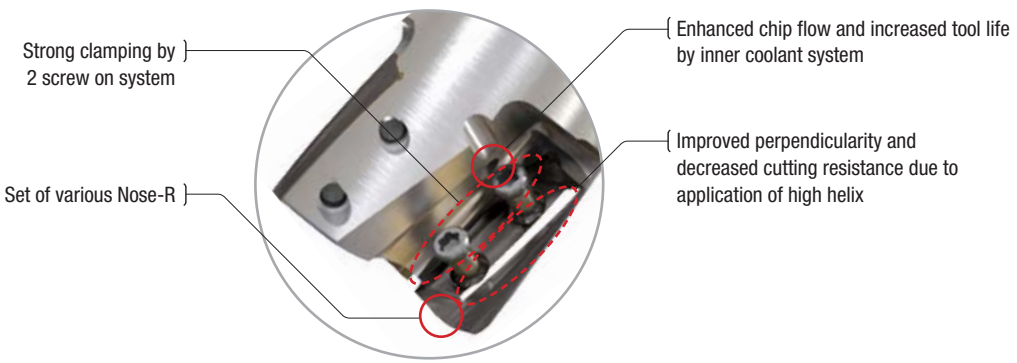
• **Cutter**

PAL	C	A	250	H	R
Pro-L Mill	**Cutter type** C : Cutter	**Arbor type** A : Inch M : Metric NO code : Asia	**Tool diameter** 250: Ø2.5	**Coolant type** H : Oil hole No code : None	**Hand** R : Right-handed M : Multi-edge

• **Shank**

PAL	S	A	200	H	R	-	3	S	200
Pro-L Mill	**Shank type** S : Shank	**Arbor type** A : Inch NO code : Metric	**Tool diameter** 200: Ø2	**Coolant type** H : Oil hole No code : None	**Hand** R : Right L : Left		**No. of tooth** 3 : 3 teeth	**Tool length** S : Standard type M : Middle type L : Long type	**Shank diameter** 200: Ø2

Features



Features of chip breakers

Insert		Cutting-edge	Use	Features
MA			Al	Edge optimized for aluminum machining and buffed finish ensuring an excellent machining quality
ML			Hard-to-cut material	Design of low cutting resistance chip breaker ensures excellent machining quality for light cutting and hard-to-cut material

Selection of grades and chip breaker

Category	M (Stainless steel)	N (Aluminum alloy)	S (HRSA)
Grade	PC5300/PC5400	H01	PC5300/PC5400
MA	-	○	-
ML	○	-	○

Application examples

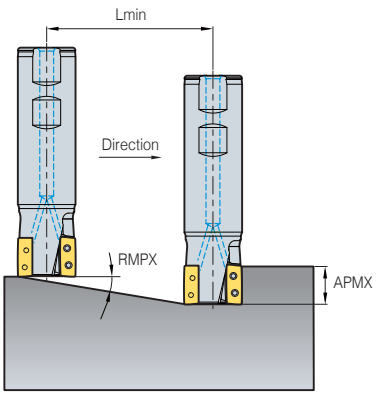
Al6061 (HRC30)

Cutting condition vc = 1640 sfm, fz = 0.007 ipt, ap = 1.18~2.36 inch,
ae = 0.039~0.197 inch (finishing: 0.039 inch, roughing: 0.197 inch), z = 3

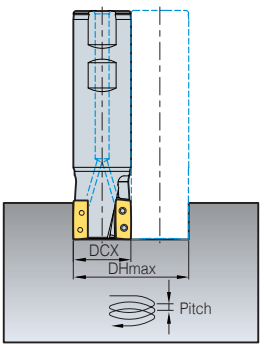


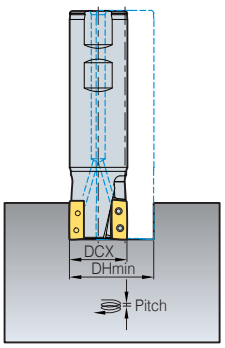
Pro-L Mill ramping & helical cutting technical data

Ramping



Helical cutting





(inch)

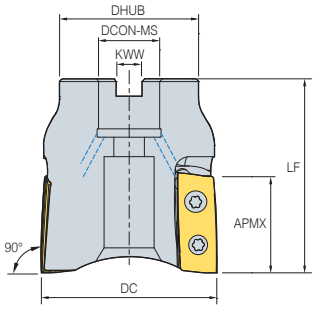
Designation	DCX	APMX	Ramping		Blind hole helical cutting			
			RMPX	Lmin	DHmax	Max. pitch	DHmin	Max. pitch
PALSA125HR-□□□□	1.25	0.984	1.22	37.087	2.441	0.05	60	0.043
PALSA150HR-□□□□	1.5	0.984	0.88	51.142	3.071	0.05	76	0.043
PALSA200HR-□□□□	2	1.339	0.85	80.039	3.858	0.06	96	0.051
PALSA250HR-□□□□	2.5	1.339	0.64	105.71	4.882	0.06	122	0.051

$$Lmin = \frac{APMX}{\tan(RMPX)} \text{ (inch)}$$

- **Lmin** = Minimum inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

PALCA







KAPR 90°

- GAMP : 16°
- GAMF : -8°

(inch)

Designation		Stock	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
PALCA	250HR	◆	4	2.5	1.77	0.75	0.314	1.75	1.339	0.57

◆: US stock ○: Made to order

Available inserts


LXET-MA


LXET-ML

Designation		Cermet	Coated												Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LXET	340504PEFR-63-MA																	○	B13
	3405PEFR-63-MA																	◆	
	340512PEFR-63-MA																	○	
	340516PEFR-63-MA																	○	
	340504PEER-63-ML													○	○				
	3405PEER-63-ML													◆	◆				
	340512PEER-63-ML													○	○				
	340516PEER-63-ML													○	○				

●: Korea stock ◆: US stock ○: Made to order

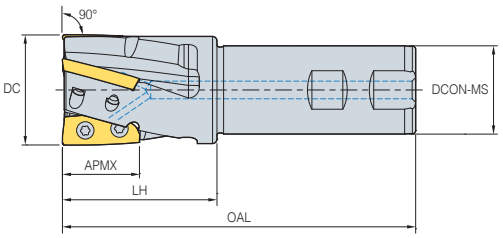
Parts

Specification	Screw	Wrench
Ø2.5	FTGA0511-P	TW20-100

Available inserts **B13** Available arbors and bolt **E96**

PALSA (Single-edge)







KAPR 90°

- GAMP : 12°~16°
- GAMF : -5°~-9°

(inch)

Designation		Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
PALSA	125HR-2S100	◆	2	1.25	1.00	1.969	5.512	0.984	1.09
	125HR-2S125	◆	2	1.25	1.25	1.969	5.512	0.984	1.54
	150HR-2S125	◆	2	1.50	1.25	1.969	5.512	0.984	1.73
	150HR-2S150	◆	2	1.50	1.50	1.969	5.512	0.984	2.27

◆: US stock ○: Made to order

Available inserts

LXET-MA LXET-ML



Type	Designation		Cermet	Coated											Uncoated			page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
Ø32	LXET	250404PEFR-32-MA																	○	B13
		2504PEFR-32-MA																	◆	
		250412PEFR-32-MA																	○	
		250416PEFR-32-MA																	○	
		250404PEER-32-ML													○	○				
		2504PEER-32-ML													◆	◆				
		250412PEER-32-ML													○	○				
		250416PEER-32-ML													○	○				
Ø40	LXET	250404PEFR-40-MA																	○	
		2504PEFR-40-MA																	○	
		250412PEFR-40-MA																	○	
		250416PEFR-40-MA																	○	
		250404PEER-40-ML													○	○				
		2504PEER-40-ML													◆	○				
		250412PEER-40-ML													○	○				
		250416PEER-40-ML													○	○				

●: Korea stock ◆: US stock ○: Made to order

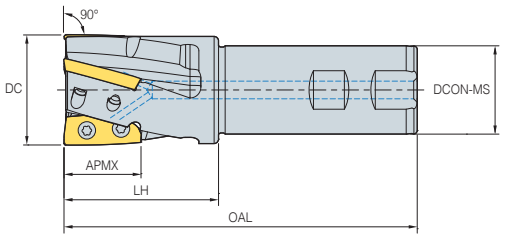
Parts

Specification	Screw	Wrench
Ø32	FTKA0408	TW15S
Ø40	FTKA0410	TW15S

Available inserts **B13**

PALSA (Single-edge)







KAPR 90°

- GAMP : 12°~16°
- GAMF : -5°~-9°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
PALSA	200HR-3S125	◆	3	2.00	1.25	2.756	6.299	1.339	2.43
	200HR-3S150	○	3	2.00	1.50	2.756	6.299	1.339	2.97
	250HR-4S125	◆	4	2.50	1.25	2.756	6.299	1.339	3.32
	250HR-4S150	◆	4	2.50	1.50	2.756	6.299	1.339	3.86

◆: US stock ○: Made to order

Available inserts

LXET-MA LXET-ML





Type	Designation		Cermet	Coated											Uncoated			page
			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
Ø50	LXET	340504PEFR-50-MA																	○	B13
		3405PEFR-50-MA																	◆	
		340512PEFR-50-MA																	○	
		340516PEFR-50-MA																	○	
		340504PEER-50-ML													○	○				
		3405PEER-50-ML													●	○				
		340512PEER-50-ML													○	○				
		340516PEER-50-ML													○	○				
Ø63	LXET	340504PEFR-63-MA																	○	
		3405PEFR-63-MA																	◆	
		340512PEFR-63-MA																	○	
		340516PEFR-63-MA																	○	
		340504PEER-63-ML													○	○				
		3405PEER-63-ML													◆	◆				
		340512PEER-63-ML													○	○				
		340516PEER-63-ML													○	○				

●: Korea stock ◆: US stock ○: Made to order

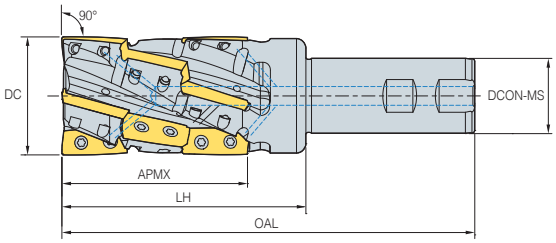
Parts

Specification	Screw	Wrench
Ø2.00	FTGA0510-P	TW20-100
Ø2.50	FTGA0511-P	TW20-100

Available inserts **B13**

PALSA (Multi-edge)







KAPR 90°

- GAMP : 16°
- GAMF : -8°

(inch)

	Designation	Stock	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
PALSA	250HM-4S125	◆	12	2.5	1.25	5.118	8.661	3.78	4.97
	250HM-4S150	◆	12	2.5	1.50	5.118	8.661	3.78	5.51

◆: US stock ○: Made to order

Available inserts

LXET-MA LXET-ML




	Designation	Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LXET	340504PEFR-63-MA																	○	B13
	3405PEFR-63-MA																	◆	
	340512PEFR-63-MA																	○	
	340516PEFR-63-MA																	○	
	340504PEER-63-ML													○	○				
	3405PEER-63-ML													◆	◆				
	340512PEER-63-ML													○	○				
	340516PEER-63-ML													○	○				

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø2.5	FTGA0511-P	TW20-100

Available inserts B13

Deep cutting milling tools to maximize productivity in aluminum machining

Pro-XL Mill

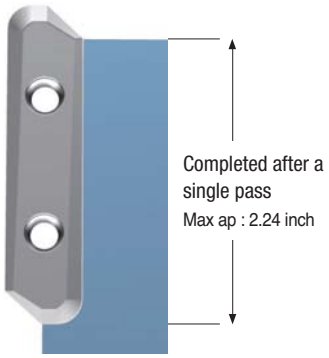
- **Productivity** - Cutting time is shortened by finishing the process with a single pass of deep shouldering in aluminum machining
- **High quality** - Shouldering within a single pass enables walls with perfect perpendicularity
- **Clamping stability** - Two-Screw On system secures clamping stability

Features

Existing cutters



Pro-XL Mill



- 4 times shorter cutting time
- Satisfactory surface finish of side faces with no need for further processing



Application examples

Al7075

Cutting condition

vc = 1640.42 sfm, fz = 0.01 ipt
ap = 2.205 inch, ae = 0.039 inch, z = 2

Tools

Insert LDET650550PPFR-MA (H01)
Holder BT50-PXL04090HR-2F (ØD = 1.575 inch)





PXLA



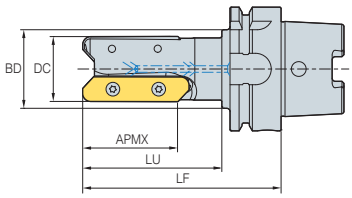


Fig. 1

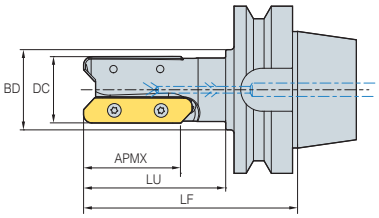


Fig. 2



KAPR 90°

- GAMP : 5°~17.5°
- GAMF : -14°~-5°

(inch)

Designation		Stock	CICT	DC	BD	LU	LF	APMX	lbs
HSK63A	PXLA150390HR-2F	○	2	1.5	2	2.478	3.5	2.24	1
HSK100A	PXLA150390HR-3F	○	3	1.5	2.5	3.937	3.5	2.24	1
	PXLA300350HR-5F	○	5	3	1.44	3.937	-	2.24	1
BT50	PXLA150390HR-2F	○	2	1.5	2	3.937	3.5	2.24	2

◆: US stock ○: Made to order

Available inserts

LDET-MA



Designation		Cermet	Coated											Uncoated			page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	ST30A	G10	H01	
LDET	650540PPFR-MA																	○	B10
	650550PPFR-MA																	○	

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.5~Ø3	FTGA0511-P	TW20-100

Available inserts **B10**

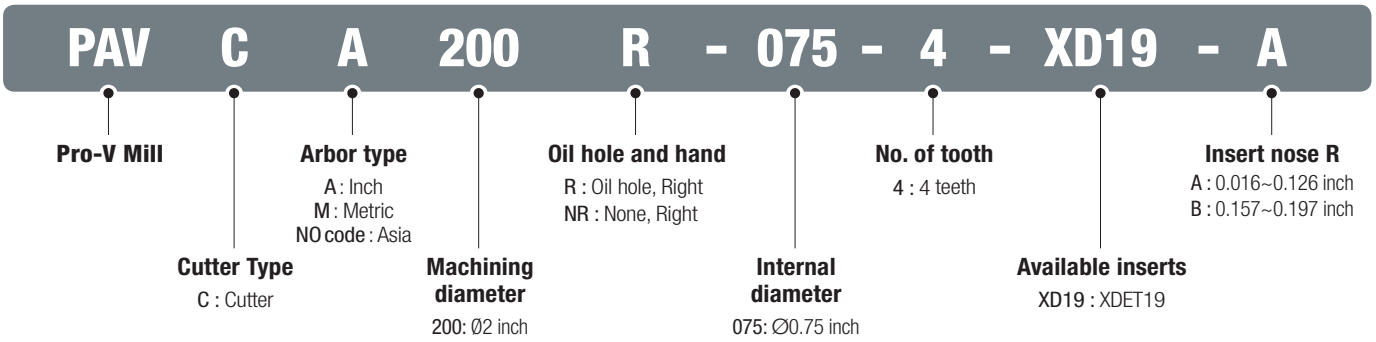
The Premium High-Speed Milling Tool for Aluminum

Pro-V Mill

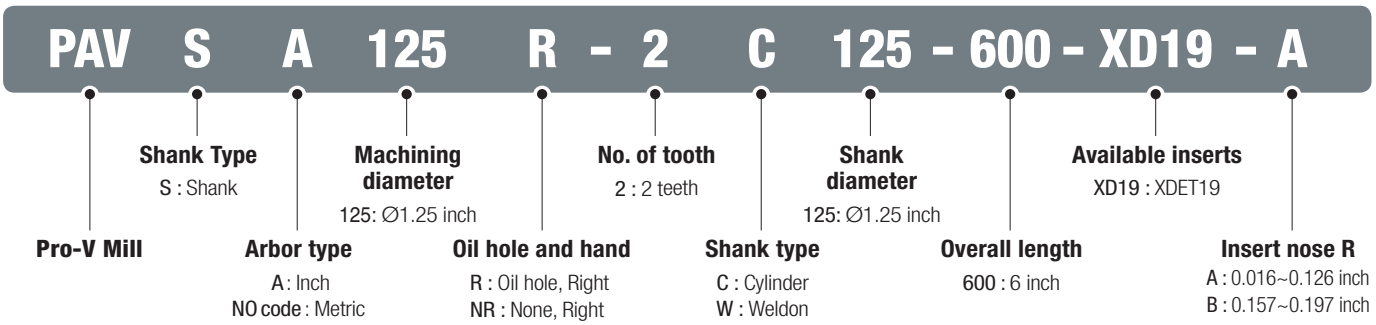
- **Enhanced productivity**- Increased productivity due to high speed capability
- **Improved surface finish**- Excellent surface finish and perpendicularity with high-precision products
- **Excellent clamping stability**- Satisfactory clamping force of inserts by the use of the key shape

Code system

• **Cutter**



• **Shank**



Features of cutter

- The combined clamping system of the key to key slot structure and simple screw-on type ensures strong clamping force
  - Stable machining / prevention of insert breakage
- Avoiding uplifting problems of insert due to axial acute-angle clamping of cutters
  - Reduced vibrations and excellent surface finish

Axial acute-angle clamping
• Inhibition of the axial force

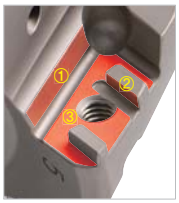




Screw-on clamping
• New screw shape



Insert clamping area
• Stable clamping force due to the key to key slot structure





Features of insert

Wide minor cutting edges
• Improved surface finish

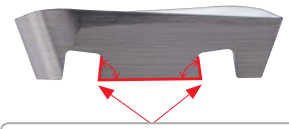
Mirror-like finish of the rake surface of insert
• Avoiding build-up edges through smooth chip flow





High-rake chip breaker and helix cutting edges
• High rake and lower cutting load





Application of the key slot design
• The bottom key of insert and the key slot in an acute angle
• High clamping stability of the holder contact area
→ Improved clamping force

Features of chip breaker

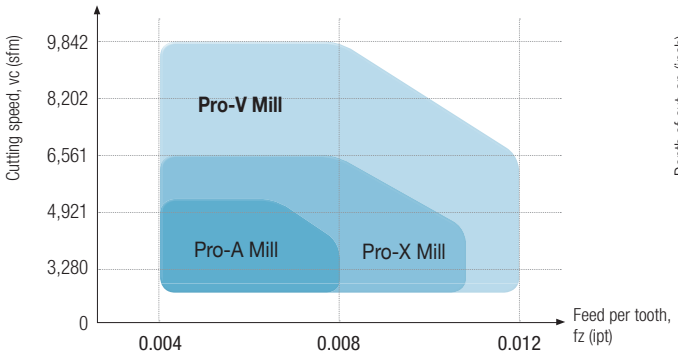
Insert		Cutting-edge	Use	Features
MA			For non-ferrous metals	Ensuring satisfactory machining quality with the application of mirror-like cutting edges optimized for aluminum machining

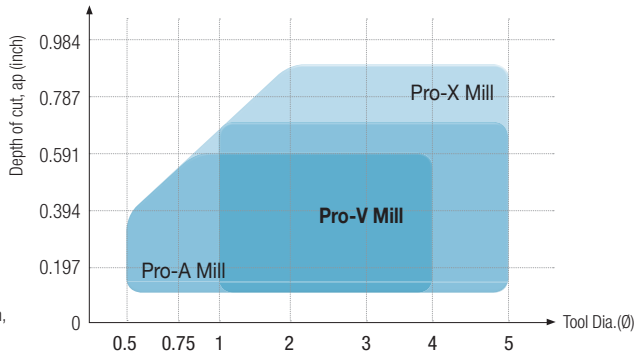
Recommended cutting conditions

Workpiece			Grade	vc (sfm)	APMX (inch)
N	Aluminum	Si ≤ 5%	H01	4,265 (1,640 - 7,217)	0.67
			H05	3,280 (984 - 5,577)	
			PD1005	4,921 (1,640 - 9,842)	
		Si ≤ 10%	PD1010	3,937 (948 - 7,217)	

※ The recommended cutting conditions above are a general guideline. Their details may vary depending on the machining method of users and other conditions.

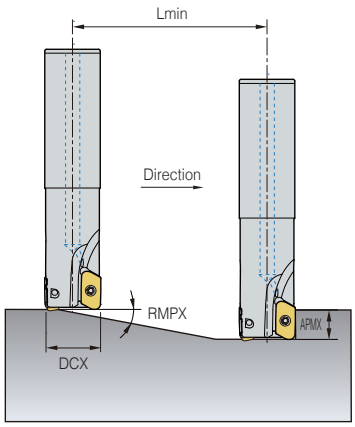
Application area



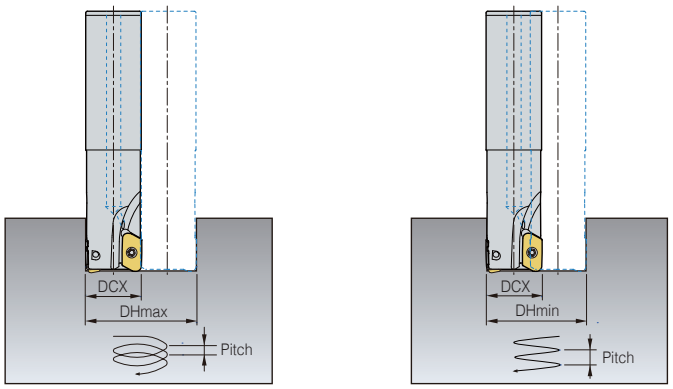


Pro-V Mill ramping & helical cutting technical data

Ramping



Helical cutting



(inch)

DCX	Ramping		Blind hole helical cutting				Thru hole helical cutting	
	RMPX	Lmin	DHmin	Max pitch	DHmax	Max pitch	DHmin	Max pitch
1.00	15.0	2.30	1.60	0.51	1.70	0.60	1.00	0.08
1.25	10.0	3.80	2.10	0.43	2.20	0.49	1.60	0.18
1.50	7.0	5.60	2.70	0.41	2.90	0.45	2.20	0.24
2.00	5.0	7.80	3.50	0.39	3.70	0.41	3.00	0.26
2.50	3.5	11.20	4.60	0.36	4.70	0.37	4.00	0.28
3.00	2.6	15.10	5.90	0.35	6.00	0.37	5.30	0.29
4.00	2.0	19.70	7.50	0.35	7.60	0.35	6.90	0.30
5.00	1.5	26.20	9.40	0.33	9.60	0.33	8.90	0.30

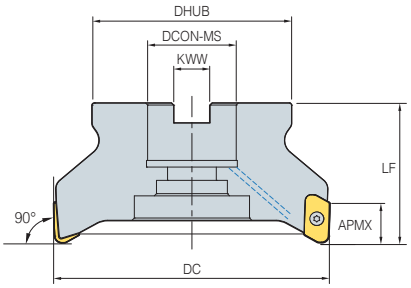
- When ramping and helical milling, table feed, vf (inch/min) should be lower than 70% of the recommended cutting conditions.
- When helical milling, Max. pitch, DHmax should be lower than APMX.
- When ramping, the depth of cut should be lower than APMX.

$$\text{Lmin} = \frac{\text{APMX}}{\tan(\text{RMPX})} \text{ (inch)}$$

- **Lmin** = Minimum inclination cutting length
- **ap** : Depth of cut
- **RMPX** : Max. ramping angle

PAVCA-XD19













KAPR 90°

- GAMP : 11°~14°
- GAMF : -11°~-9°

(inch)

Designation		Stock A	Stock B	CICT	DC	DHUB	DCON-MS	KWW	LF	APMX	lbs
PAVCA	150R-050-3-XD19-A,B	◆	◆	3	1.5	1.417	0.50	0.252	1.80	0.67	0.33
	200R-075-4-XD19-A,B	◆	◆	4	2.0	1.772	0.75	0.315	1.75	0.67	0.75
	250R-075-5-XD19-A,B	◆	◆	5	2.5	1.772	0.75	0.315	1.75	0.67	1.08
	300R-100-5-XD19-A,B	◆	◆	5	3.0	2.025	1.00	0.374	2.00	0.67	1.76
	400R-125-6-XD19-A,B	◆	◆	6	4.0	2.874	1.25	0.500	2.00	0.67	3.22
	500R-150-7-XD19-A,B	◆	◆	7	5.0	3.386	1.50	0.626	2.50	0.67	5.97

- Type A uses Insert Nose R 0.016~0.126, and Type B uses Nose R 0.157 ~ 0.197
- When using a spindle at high speed, please check the balance of tool and use it after replacing with the new screw.

◆: US stock ○: Made to order

Available inserts

XDET-MA



Designation		Cermet	Coated										Uncoated		page	Designation		Cermet	Coated										Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05			CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET	190504PEFR-MA													○	◆	◆	B32	XDET	190524PEFR-MA													○	◆	◆	
	190508PEFR-MA													○	◆	◆			190530PEFR-MA													○	◆	◆	
	190512PEFR-MA													○	◆	●			190532PEFR-MA													○	◆	◆	B32
	190516PEFR-MA													○	◆	●			190540PEFR-MA													○	◆	◆	
	190520PEFR-MA													○	◆	●			190550PEFR-MA													○	◆	◆	

●: Korea stock ◆: US stock ○: Made to order

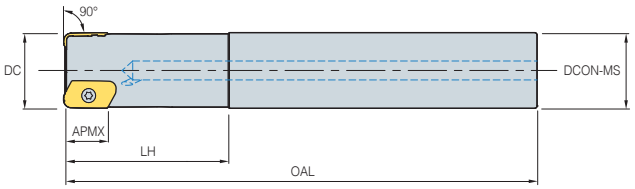
Parts

Specification	Screw	Wrench
Ø1.5 ~ Ø5.0	PTKA0408-A	TW15S

Available inserts **B32** Available arbors and bolt **E96**

PAVSA-XD19







KAPR 90°

- GAMP : 8°~11°
- GAMF : -14°~-11°

(inch)

Designation		Stock A	Stock B	CICT	DC	DCON-MS	LH	OAL	APMX	lbs
PAVSA	100R-2C100-550-XD19-A,B	◆	◆	2	1.00	1.00	2.5	5.5	0.67	0.917
	125R-2C125-600-XD19-A,B	◆	◆	2	1.25	1.25	3.0	6.0	0.67	1.680
	125R-2C125-800-XD19-A,B	◆	◆	2	1.25	1.25	3.0	8.0	0.67	2.310
	150R-3C150-800-XD19-A,B	◆	◆	3	1.50	1.50	3.0	8.0	0.67	3.750

- Type A uses Insert Nose R 0.016~0.126, and Type B uses Nose R 0.157 ~ 0.197
- When using a spindle at high speed, please check the balance of tool and use it after replacing with the new screw.

◆: US stock ○: Made to order

Available inserts

XDET-MA



Designation		Cermet	Coated										Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET	190504PEFR-MA													○	◆	◆	B32
	190508PEFR-MA													○	◆	◆	
	190512PEFR-MA													○	◆	●	
	190516PEFR-MA													○	◆	●	
	190520PEFR-MA													○	◆	●	

Designation		Cermet	Coated										Uncoated		page
		CN30	NC5330	NCM325	NCM335	NCM535	NCM545	PC3700	PC6100	PC9530	PC9540	PC5300	PC5400	PD1005	PD1010	H01	H05	
XDET	190524PEFR-MA													○	◆	◆	B32
	190530PEFR-MA													○	◆	◆	
	190532PEFR-MA													○	◆	◆	
	190540PEFR-MA													○	◆	◆	
	190550PEFR-MA													○	◆	◆	

●: Korea stock ◆: US stock ○: Made to order

Parts

Specification	Screw	Wrench
Ø1.00 ~ Ø1.50	PTKA0408-A	TW15S

Available inserts **B32**

MATA (Steel shank type)



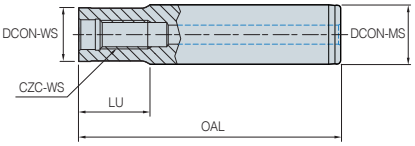


Fig. 1

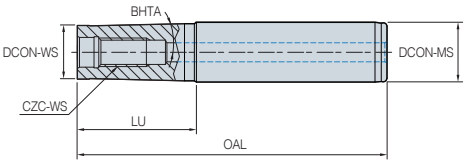


Fig. 2

(inch)

Designation		Stock	DCON-WS	DCON-MS	LU	OAL	CZC-WS	Fig.
MATA	M06-078-S037S	◆	0.354	3/8	0.787	2.756	M06	1
	M06-157-S050T	◆	0.354	1/2	1.575	3.780	M06	1
	M06-255-S062T	○	0.354	5/8	2.559	4.921	M06	1
	M6B-078-S050S	○	0.433	1/2	0.787	2.992	M06	1
	M6B-157-S050S	○	0.433	1/2	1.575	3.780	M06	1
	M6B-255-S062T	○	0.433	5/8	2.559	4.921	M06	1
	M6B-315-S062T	○	0.433	5/8	3.150	5.512	M06	1
	M08-078-S062S	○	0.571	5/8	0.787	3.150	M08	2
	M08-157-S062T	○	0.571	5/8	1.575	3.937	M08	2
	M08-255-S062T	○	0.571	5/8	2.559	4.921	M08	2
	M08-315-S075T	○	0.571	3/4	3.150	5.906	M08	2
	M08-433-S100T	○	0.571	1	4.331	7.480	M08	2
	M10-118-S075S	○	0.689	3/4	1.181	3.937	M10	2
	M10-196-S075T	○	0.689	3/4	1.969	4.724	M10	2
	M10-275-S075T	◆	0.689	3/4	2.756	5.512	M10	2
	M10-354-S100T	◆	0.689	1	3.543	6.693	M10	2
	M10-433-S100T	○	0.689	1	4.331	7.480	M10	2
	M10-511-S125T	○	0.689	1 1/4	5.118	8.661	M10	2
	M12-118-S100S	◆	0.906	1	1.181	4.331	M12	2
	M12-196-S100T	◆	0.906	1	1.969	5.118	M12	2
	M12-275-S100T	◆	0.906	1	2.756	5.906	M12	2
	M12-354-S100T	◆	0.906	1	3.543	6.693	M12	2
	M12-433-S125T	○	0.906	1 1/4	4.331	7.874	M12	2
	M12-689-S150T	○	0.906	1 1/2	6.890	11.811	M12	2
	M16-137-S125S	◆	1.142	1 1/4	1.378	4.921	M16	2
	M16-216-S125T	○	1.142	1 1/4	2.165	5.709	M16	2
	M16-315-S125T	◆	1.142	1 1/4	3.150	6.693	M16	2
	M16-472-S125T	○	1.142	1 1/4	4.724	8.268	M16	2
	M16-689-S150T	○	1.142	1 1/2	6.890	11.811	M16	2

• S: straight neck adaptor • T: taper neck adaptor

◆: US stock ○: Made to order

FMRMA type



B234 ~ B237
B251 ~ B254

LBEA-MHD type



B337

PAMA/PAXMA type



B357, B364

AMMA type



B199 ~ B201

RM3PMA type



B83

RM4PMA/RM4ZMA type



B94, B96

RM6PMA type



B112, B113

HFMDMA type



B283 ~ B285

HFMMA type



B291

HRMMA type



B313, B314

HRMDMA type



B305 ~ B307

GBEMA type



B343

MATA-C (Carbide shank type)



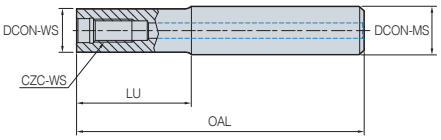


Fig. 1

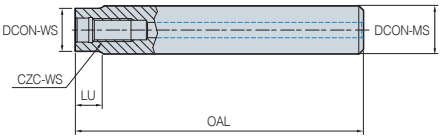


Fig. 2

(inch)

Designation		Stock	DCON-WS	DCON-MS	LU	OAL	CZC-WS	Fig.
MATA	M06-118-S039S-C-315	○	0.374	0.394	1.181	3.150	M06	1
	M06-196-S039S-C-393	○	0.374	0.394	1.969	3.937	M06	1
	M06-315-S039S-C-511	○	0.374	0.394	3.150	5.118	M06	1
	M06B-118-S039S-C-315	○	0.433	0.394	1.181	3.150	M06	1
	M06B-196-S039S-C-393	○	0.433	0.394	1.969	3.937	M06	1
	M06B-315-S039S-C-511	○	0.433	0.394	3.150	5.118	M06	1
	M08-315-S062S-C	○	0.571	5/8	3.150	5.906	M08	1
	M08-433-S062S-C	○	0.571	5/8	4.331	7.087	M08	1
	M08-590-S062S-C	○	0.571	5/8	5.906	9.843	M08	1
	M08-394-S062S-C-590	○	0.571	5/8	0.394	5.906	M08	2
	M08-394-S062S-C-708	○	0.571	5/8	0.394	7.087	M08	2
	M08-394-S062S-C-984	○	0.571	5/8	0.394	9.843	M08	2
	M10-354-S075S-C	○	0.689	3/4	3.543	6.693	M10	1
	M10-433-S075S-C	○	0.689	3/4	4.331	7.874	M10	1
	M10-689-S075S-C	○	0.689	3/4	6.890	11.811	M10	1
	M10-394-S075S-C-669	○	0.689	3/4	0.394	6.693	M10	2
	M10-394-S075S-C-787	○	0.689	3/4	0.394	7.874	M10	2
	M10-394-S075S-C-1181	○	0.689	3/4	0.394	11.811	M10	2
	M12-354-S100S-C	○	0.906	1	3.543	6.693	M12	1
	M12-433-S100S-C	◆	0.906	1	4.331	7.874	M12	1
	M12-689-S100S-C	○	0.906	1	6.890	11.811	M12	1
	M12-059-S100S-C-669	○	0.906	1	0.591	6.693	M12	2
	M12-059-S100S-C-787	○	0.906	1	0.591	7.874	M12	2
	M12-059-S100S-C-1181	○	0.906	1	0.591	11.811	M12	2
	M16-354-S125S-C	◆	1.142	1 1/4	3.543	7.087	M16	1
	M16-472-S125S-C	○	1.142	1 1/4	4.824	8.268	M16	1
	M16-689-S125S-C	○	1.142	1 1/4	6.890	11.811	M16	1
	M16-078-S125S-C-708	○	1.142	1 1/4	0.787	7.087	M16	2
	M16-078-S125S-C-826	○	1.142	1 1/4	0.787	8.268	M16	2
	M16-078-S125S-C-1181	○	1.142	1 1/4	0.787	11.811	M16	2

◆: US stock ○: Made to order

FMRMA type



B234 ~ B237
B251 ~ B254

LBEA-MHD type



B337

PAMA/PAXMA type



B357, B364

AMMA type



B199 ~ B201

RM3PMA type



B83

RM4PMA/RM4ZMA type



B94, B96

RM6PMA type



B112, B113

HFMDMA type



B283 ~ B285

HFMMA type



B291

HRMMA type



B313, B314

HRMDMA type



B305 ~ B307

GBEMA type



B343

Adjusting Side Cutter

Code system

R A FC B A 500 055 071 - R

Insert clamping way



R: Radial type (Using SDXT)



T: Tangential type (Using CNHQ)

Insert configuration



FC Full side cutter



HC Half side cutter

Arbor type

A : Inch
M : Metric
NO code : Asia

Cutter diameter

Min. width of cutter

Hand

Unmarked	R	L
Neutral	Right	Left
Full side cutter (Plane)	Half side cutter Boss type	

Adjusting

A : Adjusting side cutter

Cutter type

P: Plane type



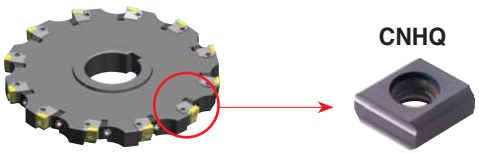
B: Boss type



Max. width of cutter

For half side cutter, minimum width of the cutter will be written only

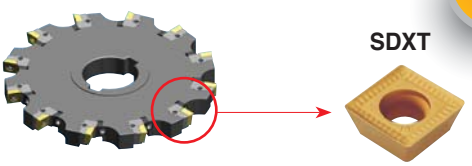
Tangential type (High rigidity)



- Medium/Roughing
- Excellent performance at medium to roughing range (0.551~1.181 inch)
- Table operation due to the strong rigidity of the cutter
- Good performance in heavy interruption and deep depth of cut application

Radial type (Low cutting load)

4 Corners Available

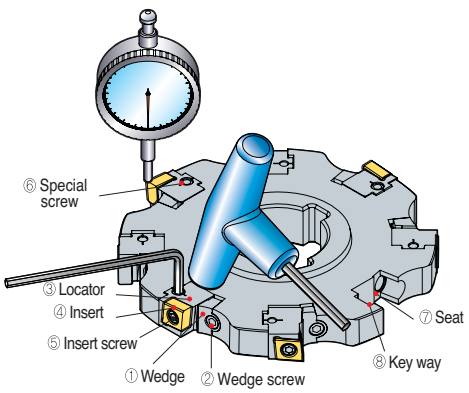


- Medium/Finishing
- Suitable for small width cutting operation (0.472~0.945 inch)
- 3 dimensional chip breaker provides smooth cutting operation
- Different chip breakers available depending on the application (MF, MM, FA)
- Economical insert using 4 cutting-edges per insert

Features of cutter

- Precise adjustable side cutter can control the width of the cutter by 5㎛ unit
- Since the width of the cutter is adjustable up to ±0.06 inch, single cutter can cover various cutting width
- Specially designed clamping system of the locator provides excellent rigidity by using elastic deformation of the locator
- Tangential type cliamping system of insert provides enough strength so that it can withstand large width cutting operations
- 3-dimensional chip breaker of insert provides smooth cutting with low cutting load at medium to finishing range

Operating manual



» How to assemble the adjusting side cutter

1. Clamp ❶ wedge slightly on ❼ locator-wedge pocket by using ❷ wedge screw
2. Put ❸ locator on ❼ locator-wedge pocket along with the ❽ key-way
3. Tighten the ❻ taper screw little bit to set proper position of locator
4. Tighten the ❷ wedge screw tightly by using 70~80N.m torque
5. Lastly, put the ❹ insert on insert pocket of ❸ locator, clamp it with ❺ insert screw.

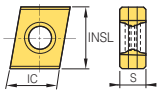
» How to adjust Run-out & cutting width

1. Settle the adjusting side cutter after cleaning the jig for measurement
2. Un-screw the ❷ Wedge screw first, then tighten ❶ wedge slightly again by using 8N.m torque
3. Adjust the heigh of cutting-edge by using a dial gauge to set the width of the cutter
4. Tighten the ❷ wedge screw tightly by using 70~80N.m torque
5. To finish the setting, tighten the ❻ taper screw for strong clamp

Tangential Type



CNHQ



Cutting width per insert & type of cutter

(inch)

Designation		Coated		Cutting width for half side cutter (ap)	Cutting width for full side cutter (ap)	INSL	IC	S
		NCM535	PC6510					
CNHQ1005	- C0.5			0.354	0.551~0.709	0.394	0.394	0.213
	- R0.5							
	- C1.0			0.335	0.551~0.669			
	- R1.0							
CNHQ1305	- C0.5			0.472	0.709~0.827/0.827~0.945	0.500	0.394	0.213
	- R0.5							
	- C1.0			0.453	0.709~0.827 / 0.827~0.910			
	- R1.0							
	- C1.5			0.433	0.709~0.827 / 0.827~0.866			
	- R1.5							
CNHQ1606	- C0.5			0.591	0.945~1.063 / 1.063~1.181	0.630	0.472	0.252
	- R0.5							
	- C1.0			0.571	0.945~1.063 / 1.063~1.142			
	- R1.0							
	- C1.5			0.561	0.945~1.063 / 1.063~1.102			
	- R1.5							
	- C2.0			0.531	0.945~1.063			
	- R2.0							

Applicable cutter **B383**

●: Korea stock ◆: US stock ○: Made to order

Recommended cutting condition

ISO	Grade	vc (sfm)	fz (ipt)
P	NCM535	490~990	0.012~0.004
	PC3700	330~990	
M	PC5300	330~590	0.012~0.004
	NCM335	400~660	
K	PC6100	490~990	0.012~0.004

Radial type


MA


MF


MM





Cutting width per insert & type of cutter

(inch)

Designation		Coated													Uncoated		Cutting width for half side cutter (ap)	Cutting width for full side cutter (ap)	IC	S
		NC5330	NCM325	NCM335	NCM535	NCM545	PC2505	PC2510	PC3700	PC6510	PC9530	PC9540	PC5300	PC5400	H01	H05				
SDXT	09M405R-MA														●	●	0.315	0.472~0.551 0.551~0.630	0.375	0.157
	09M405L-MA																			
	09M405R-MF		●							●	●		●	●						
	09M405L-MF																			
	09M405R-MM		●							●	●		●	●						
	09M405L-MM									●										
	130508R-MA														●	●	0.413	0.630~0.709 0.709~0.787 0.787~0.866 0.866~0.945	0.531	0.219
	130508L-MA																			
	130508R-MF		●							●	●		●	●						
	130508L-MF																			
	130508R-MM		●							●	●		●	●						
	130508L-MM																			

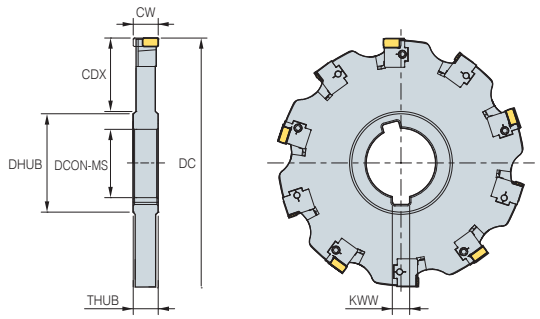
Applicable cutter **B385**

●: Korea stock ◆: US stock ○: Made to order

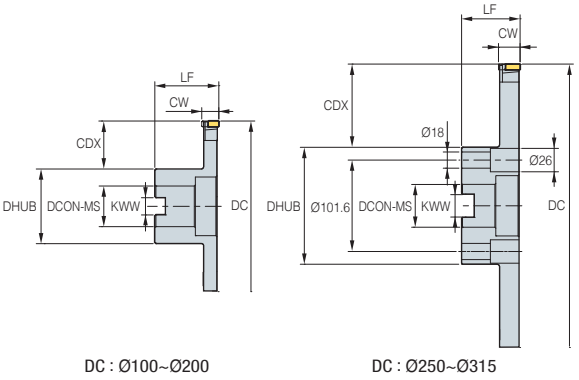
Recommended cutting condition

ISO	Grade	vc(sfm)	fz(ipt)
P	NCM325	623~1017	0.003~0.012
	NCM335	591~951	0.003~0.01
	PC3700	525~886	0.003~0.01
M	PC9530	295~492	0.004~0.01
	PC5300		
K	PC8110	459~755	0.004~0.01
	PC6100		

Tangential Type (Full side cutter)



• TAFCP(M)



DC : Ø100~Ø200 DC : Ø250~Ø315

• TAFCB(M)

(inch)

Designation		DCON-MS	THUB	DHUB	KWW	CDX	Designation		DCON-MS	LF	DHUB	KWW	CDX	DC	Dimension		
															CWN	CWX	CICT
TAFCPA	400-055-071	1 1/4	0.551	1.890	5/16.	0.976	TAFCBA	400-055-071R	1 1/4	1.969	2.126	1/2	0.858	4	0.551	0.708	6
	500-055-071	1 1/2	0.551	2.205	3/8	1.299		500-055-071R	1 1/2	2.362	2.756	5/8	1.024	5	0.551	0.708	8
	600-055-071	1 1/2	0.551	2.205	3/8	1.819		600-055-071R	1 1/2	2.362	2.756	5/8	1.543	6	0.551	0.708	10
	800-055-071	2	0.551	2.835	1/2	2.465		800-055-071R	2	2.559	3.543	3/4	2.15	8	0.551	0.708	12
	1000-055-071	2	0.551	2.835	1/2	3.465		1000-055-071R	2.5	2.559	5.118	1	2.362	10	0.551	0.708	16
	1200-055-071	2	0.551	2.835	1/2	4.445		1200-055-071R	2.5	2.559	5.118	1	3.343	12	0.551	0.708	20
	400-071-082	1 1/4	0.709	1.890	5/16	0.976		400-071-082R	1 1/4	1.969	2.126	1/2	0.858	4	0.708	0.826	6
	500-071-082	1 1/2	0.709	2.205	3/8	1.299		500-071-082R	1 1/2	2.362	2.756	5/8	1.024	5	0.708	0.826	8
	600-071-082	1 1/2	0.709	2.205	3/8	1.819		600-071-082R	1 1/2	2.362	2.756	5/8	1.543	6	0.708	0.826	10
	800-071-082	2	0.709	2.835	1/2	2.465		800-071-082R	2	2.559	3.543	3/4	2.15	8	0.708	0.826	12
	1000-071-082	2	0.709	2.835	1/2	3.465		1000-071-082R	2.5	2.559	5.118	1	2.362	10	0.708	0.826	16
	1200-071-082	2	0.709	2.835	1/2	4.445		1200-071-082R	2.5	2.559	5.118	1	3.343	12	0.708	0.826	20
	400-082-094	1 1/4	0.827	1.890	5/16	0.976		400-082-094R	1 1/4	1.969	2.126	1/2	0.858	4	0.826	0.944	6
	500-082-094	1 1/2	0.827	2.205	3/8	1.299		500-082-094R	1 1/2	2.362	2.756	5/8	1.024	5	0.826	0.944	8
	600-082-094	1 1/2	0.827	2.205	3/8	1.819		600-082-094R	1 1/2	2.362	2.756	5/8	1.543	6	0.826	0.944	10
	800-082-094	2	0.827	2.835	1/2	2.465		800-082-094R	2	2.559	3.543	3/4	2.15	8	0.826	0.944	12
	1000-082-094	2	0.827	2.835	1/2	3.465		1000-082-094R	2.5	2.559	5.118	1	2.362	10	0.826	0.944	16
	1200-082-094	2	0.827	2.835	1/2	4.445		1200-082-094R	2.5	2.559	5.118	1	3.343	12	0.826	0.944	20
	500-094-106	1 1/2	0.945	2.205	3/8	1.299		500-094-106R	1 1/2	2.362	2.756	5/8	1.024	5	0.944	1.062	8
	600-094-106	1 1/2	0.945	2.205	3/8	1.819		600-094-106R	1 1/2	2.362	2.756	5/8	1.543	6	0.944	1.062	10
	800-094-106	2	0.945	2.835	1/2	2.465		800-094-106R	2	2.559	3.543	3/4	2.15	8	0.944	1.062	12
	1000-094-106	2	0.945	2.835	1/2	3.465		1000-094-106R	2.5	2.559	5.118	1	2.362	10	0.944	1.062	16
	1200-094-106	2	0.945	2.835	1/2	4.445		1200-094-106R	2.5	2.559	5.118	1	3.343	12	0.944	1.062	20
	500-106-118	1 1/2	1.063	2.205	3/8	1.299		500-106-118R	1 1/2	2.362	2.756	5/8	1.024	5	1.062	1.181	8
	600-106-118	1 1/2	1.063	2.205	3/8	1.819		600-106-118R	1 1/2	2.362	2.756	5/8	1.543	6	1.062	1.181	10
	800-106-118	2	1.063	2.835	1/2	2.465		800-106-118R	2	2.559	3.543	3/4	2.15	8	1.062	1.181	12
	1000-106-118	2	1.063	2.835	1/2	3.465		1000-106-118R	2.5	2.559	5.118	1	2.362	10	1.062	1.181	16
	1200-106-118	2	1.063	2.835	1/2	4.445		1200-106-118R	2.5	2.559	5.118	1	3.343	12	1.062	1.181	20

Available inserts and Recommended Cutting conditions **B381**

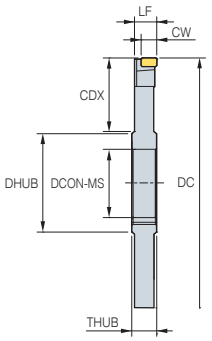
• The ap (Maximum width of cutter) size written above is the number when using insert having corner size C0.02 or R0.02

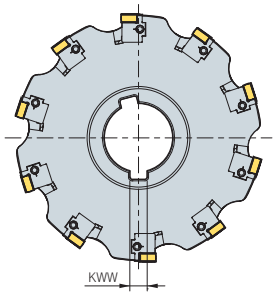
Parts

Specification / Edge width TAFCP(B)A	Insert	Locator	Wedge	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge Wrench	Locator Wrench
□□□055-071R/L	CNHQ1005-□□□	LSA-CH10R/L	WSA10N	FTKA0410	DHA0617	SHGA0411	TW15S	HW30	-
□□□071-082R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□082-094R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□094-1067R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L
□□□106-118R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L

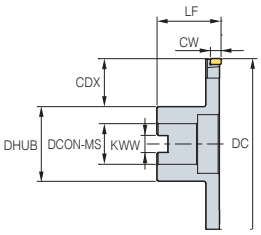
Note) The Wedge screw for 1001821, 1002124 cutter is DHA0818F

Tangential Type (Half side cutter)

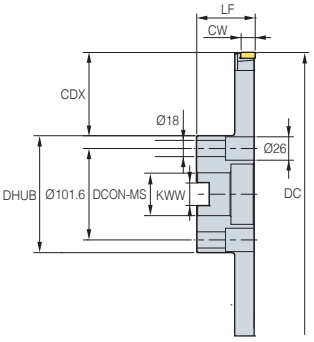




• TAHCP(M)



DC : Ø100~Ø200



DC : Ø250~Ø315

• TAHCB(M)

(inch)

Designation		DCON-MS	THUB	DHUB	KWW	CDX	Designation		DCON-MS	LF	DHUB	KWW	CDX	DC	Dimension	
															CW	CICT
TAHCPA	400-055R/L	1 1/4	0.551	1.890	5/16.	0.976	TAHCBA	400-055R/L	1 1/4	1.969	2.126	1/2	0.858	4	0.354	6
	500-055R/L	1 1/2	0.551	2.205	3/8	1.299		500-055R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.354	8
	600-055R/L	1 1/2	0.551	2.205	3/8	1.819		600-055R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.354	10
	800-055R/L	2	0.551	2.835	1/2	2.465		800-055R/L	2	2.559	3.543	3/4	2.150	8	0.354	12
	1000-055R/L	2	0.551	2.835	1/2	3.465		1000-055R/L	2.5	2.559	5.118	1	2.362	10	0.354	16
	1200-055R/L	2	0.551	2.835	1/2	4.445		1200-055R/L	2.5	2.559	5.118	1	3.343	12	0.354	20
	400-071R/L	1 1/4	0.709	1.890	5/16.	0.976		400-071R/L	1 1/4	1.969	2.126	1/2	0.858	4	0.472	6
	500-071R/L	1 1/2	0.709	2.205	3/8	1.299		500-071R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.472	8
	600-071R/L	1 1/2	0.709	2.205	3/8	1.819		600-071R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.472	10
	800-071R/L	2	0.709	2.835	1/2	2.465		800-071R/L	2	2.559	3.543	3/4	2.150	8	0.472	12
	1000-071R/L	2	0.709	2.835	1/2	3.465		1000-071R/L	2.5	2.559	5.118	1	2.362	10	0.472	16
	1200-071R/L	2	0.709	2.835	1/2	4.445		1200-071R/L	2.5	2.559	5.118	1	3.343	12	0.472	20
	400-082R/L	1 1/4	0.827	1.890	5/16.	0.976		400-082R/L	1 1/4	1.969	2.126	1/2	0.858	4	0.472	6
	500-082R/L	1 1/2	0.827	2.205	3/8	1.299		500-082R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.472	8
	600-082R/L	1 1/2	0.827	2.205	3/8	1.819		600-082R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.472	10
	800-082R/L	2	0.827	2.835	1/2	2.465		800-082R/L	2	2.559	3.543	3/4	2.150	8	0.472	12
	1000-082R/L	2	0.827	2.835	1/2	3.465		1000-082R/L	2.5	2.559	5.118	1	2.362	10	0.472	16
	1200-082R/L	2	0.827	2.835	1/2	4.445		1200-082R/L	2.5	2.559	5.118	1	3.343	12	0.472	20
	500-094R/L	1 1/2	0.945	2.205	3/8	1.299		500-094R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.591	8
	600-094R/L	1 1/2	0.945	2.205	3/8	1.819		600-094R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.591	10
	800-094R/L	2	0.945	2.835	1/2	2.465		800-094R/L	2	2.559	3.543	3/4	2.150	8	0.591	12
	1000-094R/L	2	0.945	2.835	1/2	3.465		1000-094R/L	2.5	2.559	5.118	1	2.362	10	0.591	16
	1200-094R/L	2	0.945	2.835	1/2	4.445		1200-094R/L	2.5	2.559	5.118	1	3.343	12	0.591	20
	500-106R/L	1 1/2	1.063	2.205	3/8	1.299		500-106R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.591	8
	600-106R/L	1 1/2	1.063	2.205	3/8	1.819		600-106R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.591	10
	800-106R/L	2	1.063	2.835	1/2	2.465		800-106R/L	2	2.559	3.543	3/4	2.150	8	0.591	12
	1000-106R/L	2	1.063	2.835	1/2	3.465		1000-106R/L	2.5	2.559	5.118	1	2.362	10	0.591	16
	1200-106R/L	2	1.063	2.835	1/2	4.445		1200-106R/L	2.5	2.559	5.118	1	3.343	12	0.591	20

Available inserts and Recommended Cutting conditions **B381**

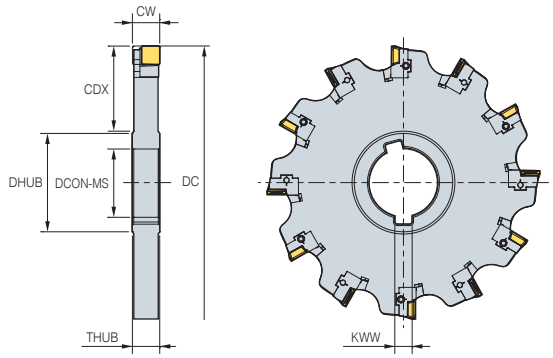
• The ap (Maximum width of cutter) size written above is the number when using insert having corner size C0.02 or R0.02

Parts

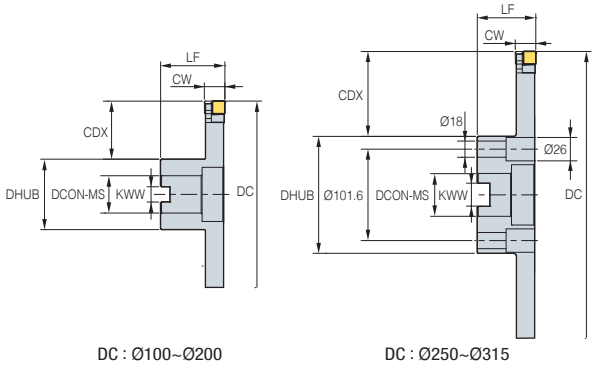
Specification / Edge width TAHCP(B)A	Insert	Locator	Wedge	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge Wrench	Locator Wrench
□□□055R/L	CNHQ1005-□□□	LSA-CH10R/L	WSA10N	FTKA0410	DHA0617	SHGA0411	TW15S	HW30	-
□□□071R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□082R/L	CNHQ1305-□□□	LSA-CH13R/L	WSA13N	FTKA0410	DHA0821F	SHGA0411	TW15S	HW40	HW30L
□□□094R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L
□□□106R/L	CNHQ1606-□□□	LSA-CH16R/L	WSA13N	FTGA0513-P	DHA0821F	SHGA0411	TW20S	HW40	HW30L

Note) The Wedge screw for 1001821, 1002124 cutter is DHA0818F

Radial Type (Full side cutter)



• RAFCP(M)



DC : Ø100~Ø200

DC : Ø250~Ø315

• RAFCB(M)

(inch)

Designation		DCON-MS	THUB	DHUB	KWW	CDX	Designation		DCON-MS	LF	DHUB	KWW	CDX	DC	Dimension		
															CWN	CWX	CICT
RAFCPA	400-047-055	1 1/4	0.472	1.890	5/16.	0.976	RAFCBA	400-047-055R/L	1 1/4	1.969	2.126	1/2	0.858	4	0.472	0.551	6
	500-047-055	1 1/2	0.472	2.205	3/8	1.299		500-047-055R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.472	0.551	8
	600-047-055	1 1/2	0.472	2.205	3/8	1.819		600-047-055R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.472	0.551	10
	800-047-055	2	0.472	2.835	1/2	2.465		800-047-055R/L	2	2.559	3.543	3/4	2.15	8	0.472	0.551	12
	1000-047-055	2	0.472	2.835	1/2	3.465		1000-047-055R/L	2.5	2.559	5.118	1	2.362	10	0.472	0.551	16
	1200-047-055	2	0.472	2.835	1/2	4.445		1200-047-055R/L	2.5	2.559	5.118	1	3.343	12	0.472	0.551	20
	400-055-063	1 1/4	0.551	1.890	5/16.	0.976		400-055-063R/L	1 1/4	1.969	2.126	1/2	0.858	4	0.551	0.629	6
	500-055-063	1 1/2	0.551	2.205	3/8	1.299		500-055-063R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.551	0.629	8
	600-055-063	1 1/2	0.551	2.205	3/8	1.819		600-055-063R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.551	0.629	10
	800-055-063	2	0.551	2.835	1/2	2.465		800-055-063R/L	2	2.559	3.543	3/4	2.15	8	0.551	0.629	12
	1000-055-063	2	0.551	2.835	1/2	3.465		1000-055-063R/L	2.5	2.559	5.118	1	2.362	10	0.551	0.629	16
	1200-055-063	2	0.551	2.835	1/2	4.445		1200-055-063R/L	2.5	2.559	5.118	1	3.343	12	0.551	0.629	20
	500-063-071	1 1/2	0.629	2.205	3/8	1.299		500-063-071R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.629	0.708	8
	600-063-071	1 1/2	0.629	2.205	3/8	1.819		600-063-071R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.629	0.708	10
	800-063-071	2	0.629	2.835	1/2	2.465		800-063-071R/L	2	2.559	3.543	3/4	2.15	8	0.629	0.708	12
	1000-063-071	2	0.629	2.835	1/2	3.465		1000-063-071R/L	2.5	2.559	5.118	1	2.362	10	0.629	0.708	16
	1200-063-071	2	0.629	2.835	1/2	4.445		1200-063-071R/L	2.5	2.559	5.118	1	3.343	12	0.629	0.708	20
	500-071-079	1 1/2	0.708	2.205	3/8	1.299		500-071-079R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.708	0.787	8
	600-071-079	1 1/2	0.708	2.205	3/8	1.819		600-071-079R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.708	0.787	10
	800-071-079	2	0.708	2.835	1/2	2.465		800-071-079R/L	2	2.559	3.543	3/4	2.15	8	0.708	0.787	12
	1000-071-079	2	0.708	2.835	1/2	3.465		1000-071-079R/L	2.5	2.559	5.118	1	2.362	10	0.708	0.787	16
	1200-071-079	2	0.708	2.835	1/2	4.445		1200-071-079R/L	2.5	2.559	5.118	1	3.343	12	0.708	0.787	20
	500-079-086	1 1/2	0.787	2.205	3/8	1.299		500-079-086R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.787	0.866	8
	600-079-086	1 1/2	0.787	2.205	3/8	1.819		600-079-086R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.787	0.866	10
	800-079-086	2	0.787	2.835	1/2	2.465		800-079-086R/L	2	2.559	3.543	3/4	2.15	8	0.787	0.866	12
	1000-079-086	2	0.787	2.835	1/2	3.465		1000-079-086R/L	2.5	2.559	5.118	1	2.362	10	0.787	0.866	16
	1200-079-086	2	0.787	2.835	1/2	4.445		1200-079-086R/L	2.5	2.559	5.118	1	3.343	12	0.787	0.866	20
	500-086-094	1 1/2	0.866	2.205	3/8	1.299		500-086-094R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.866	0.944	8
	600-089-094	1 1/2	0.866	2.205	3/8	1.819		600-089-094R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.866	0.944	10
	800-089-094	2	0.866	2.835	1/2	2.465		800-089-094R/L	2	2.559	3.543	3/4	2.15	8	0.866	0.944	12
	1000-089-094	2	0.866	2.835	1/2	3.465		1000-089-094R/L	2.5	2.559	5.118	1	2.362	10	0.866	0.944	16
	1200-089-094	2	0.866	2.835	1/2	4.445		1200-089-094R/L	2.5	2.559	5.118	1	3.343	12	0.866	0.944	20

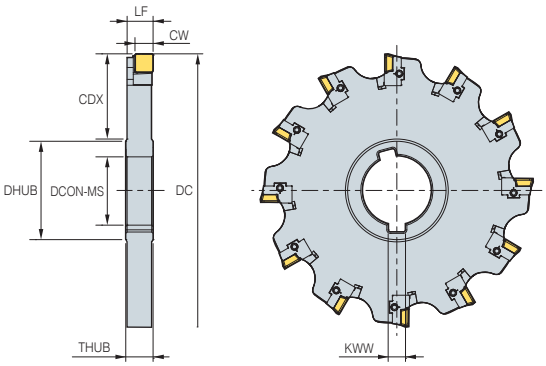
Available inserts and Recommended Cutting conditions **B382**

• The ap (Maximum width of cutter) size written above is the number when using insert having corner size C0.02 or R0.02

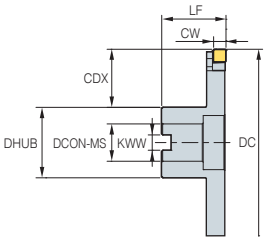
Parts

Specification / Edge width RAFCP(B)A	Insert	Locator	Wedge (WSD09N / WSA10N)	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge, locator wrench
□□□047-055R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□055-063R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□063-071R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□071-079R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□079-086R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□086-094R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30

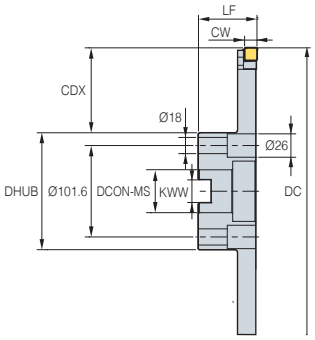
Radial Type (Half side cutter)



• RAHCP(M)



DC : Ø100~Ø200



DC : Ø250~Ø315

• RAHCB(M)

(inch)

Designation	DCON-MS	THUB	DHUB	KWW	CDX	Designation	DCON-MS	LF	DHUB	KWW	CDX	DC	Dimension CW	Dimension CICT
RAHCPA 400-047R/L	1 1/4	0.472	1.890	5/16.	0.976	RAHCBA 400-047R/L	1 1/4	1.969	2.126	1/2	0.858	4	0.315	6
500-047R/L	1 1/2	0.472	2.205	3/8	1.299	500-047R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.315	8
600-047R/L	1 1/2	0.472	2.205	3/8	1.819	600-047R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.315	10
800-047R/L	2	0.472	2.835	1/2	2.465	800-047R/L	2	2.559	3.543	3/4	2.150	8	0.315	12
1000-047R/L	2	0.472	2.835	1/2	3.465	1000-047R/L	2.5	2.559	5.118	1	2.362	10	0.315	16
1200-047R/L	2	0.472	2.835	1/2	4.445	1200-047R/L	2.5	2.559	5.118	1	3.343	12	0.315	20
400-055R/L	1 1/4	0.551	1.890	5/16.	0.976	400-055R/L	1 1/4	1.969	2.126	1/2	0.858	4	0.315	6
500-055R/L	1 1/2	0.551	2.205	3/8	1.299	500-055R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.315	8
600-055R/L	1 1/2	0.551	2.205	3/8	1.819	600-055R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.315	10
800-055R/L	2	0.551	2.835	1/2	2.465	800-055R/L	2	2.559	3.543	3/4	2.150	8	0.315	12
1000-055R/L	2	0.551	2.835	1/2	3.465	1000-055R/L	2.5	2.559	5.118	1	2.362	10	0.315	16
1200-055R/L	2	0.551	2.835	1/2	4.445	1200-055R/L	2.5	2.559	5.118	1	3.343	12	0.315	20
500-063R/L	1 1/2	0.629	2.205	3/8	1.299	500-063R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.413	8
600-063R/L	1 1/2	0.629	2.205	3/8	1.819	600-063R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.413	10
800-063R/L	2	0.629	2.835	1/2	2.465	800-063R/L	2	2.559	3.543	3/4	2.150	8	0.413	12
1000-063R/L	2	0.629	2.835	1/2	3.465	1000-063R/L	2.5	2.559	5.118	1	2.362	10	0.413	16
1200-063R/L	2	0.629	2.835	1/2	4.445	1200-063R/L	2.5	2.559	5.118	1	3.343	12	0.413	20
500-071R/L	1 1/2	0.708	2.205	3/8	1.299	500-071R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.413	8
600-071R/L	1 1/2	0.708	2.205	3/8	1.819	600-071R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.413	10
800-071R/L	2	0.708	2.835	1/2	2.465	800-071R/L	2	2.559	3.543	3/4	2.150	8	0.413	12
1000-071R/L	2	0.708	2.835	1/2	3.465	1000-071R/L	2.5	2.559	5.118	1	2.362	10	0.413	16
1200-071R/L	2	0.708	2.835	1/2	4.445	1200-071R/L	2.5	2.559	5.118	1	3.343	12	0.413	20
500-079R/L	1 1/2	0.787	2.205	3/8	1.299	500-079R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.413	8
600-079R/L	1 1/2	0.787	2.205	3/8	1.819	600-079R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.413	10
800-079R/L	2	0.787	2.835	1/2	2.465	800-079R/L	2	2.559	3.543	3/4	2.150	8	0.413	12
1000-079R/L	2	0.787	2.835	1/2	3.465	1000-079R/L	2.5	2.559	5.118	1	2.362	10	0.413	16
1200-079R/L	2	0.787	2.835	1/2	4.445	1200-079R/L	2.5	2.559	5.118	1	3.343	12	0.413	20
500-086R/L	1 1/2	0.866	2.205	3/8	1.299	500-086R/L	1 1/2	2.362	2.756	5/8	1.024	5	0.413	8
600-086R/L	1 1/2	0.866	2.205	3/8	1.819	600-086R/L	1 1/2	2.362	2.756	5/8	1.543	6	0.413	10
800-086R/L	2	0.866	2.835	1/2	2.465	800-086R/L	2	2.559	3.543	3/4	2.150	8	0.413	12
1000-086R/L	2	0.866	2.835	1/2	3.465	1000-086R/L	2.5	2.559	5.118	1	2.362	10	0.413	16
1200-086R/L	2	0.866	2.835	1/2	4.445	1200-086R/L	2.5	2.559	5.118	1	3.343	12	0.413	20

Available inserts and Recommended Cutting conditions **B382**

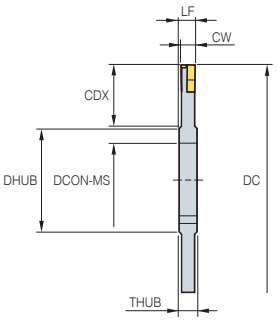
• The ap (Maximum width of cutter) size written above is the number when using insert having corner size R0.2. The ap is subject to change as per insert corner size
• The ap (Maximum width of cutter) size written above is the number when using SDXT09M405R-MM. The ap is subject to change as per insert corner size

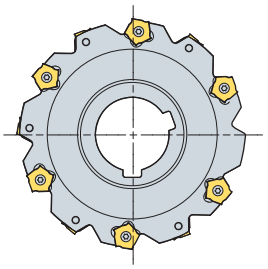
Parts

Specification / Edge width RAHCP(B)A	Insert	Locator	Wedge (WSD09N / WSA10N)	Insert screw	Wedge screw	Locator screw	Insert wrench	Wedge, locator wrench
□□□047R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□055R/L	SDXT09M40□R/L	LSD09R/L	WSD09N	FTGA03508	DHA0617	SHGA0409	TW15S	HW30
□□□063R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□071R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□079R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30
□□□086R/L	SDXT13050□R/L	LSD13R/L	WSA10N	FTNC04509	DHA0617	SHGA0411	TW20S	HW30

SPPA









• GAMP : -2°
• GAMF : -28°

(inch)

Designation		Stock	CICT	DC	CW	CDX	DCON-MS	KWW	THUB	DHUB	Insert	Screw	Wrench
SPPA	300-187	○	8	3	0.187	0.686	1	0.250	0.312	1.575	PNEJ1223N	PTMA0403F	TW15S
	300-218	○	8	3	0.218	0.702	1	0.250	0.312	1.575	PNEJ1230N	PTMA0404F	TW15S
	300-250	○	8	3	0.250	0.718	1	0.250	0.312	1.575	PNEJ1235N	PTMA0405F	TW15S
	400-187	○	10	4	0.187	0.938	1 1/4	0.313	0.312	1.850	PNEJ1223N	PTMA0403F	TW15S
	400-218	○	10	4	0.218	0.953	1 1/4	0.313	0.312	1.850	PNEJ1230N	PTMA0404F	TW15S
	400-250	○	10	4	0.250	0.969	1 1/4	0.313	0.312	1.850	PNEJ1235N	PTMA0405F	TW15S
	400-312	○	10	4	0.312	1.000	1 1/4	0.313	0.312	1.850	PNEJ1245N	PTKA0407F	TW15S
	400-375	○	10	4	0.375	0.938	1 1/4	0.313	0.500	1.850	PNEJ1250N	PTKA0408F	TW15S
	400-437	○	10	4	0.437	0.969	1 1/4	0.313	0.500	1.850	PNEJ1255N	PTKA0409F	TW15S
	500-187	○	12	5	0.187	1.188	1 1/2	0.375	0.312	2.205	PNEJ1223N	PTMA0403F	TW15S
	500-218	○	12	5	0.218	1.203	1 1/2	0.375	0.312	2.205	PNEJ1230N	PTMA0404F	TW15S
	500-250	○	12	5	0.250	1.219	1 1/2	0.375	0.312	2.205	PNEJ1235N	PTMA0405F	TW15S
	500-312	○	12	5	0.312	1.250	1 1/2	0.375	0.312	2.205	PNEJ1245N	PTKA0407F	TW15S
	500-375	○	12	5	0.375	1.188	1 1/2	0.375	0.500	2.205	PNEJ1250N	PTKA0408F	TW15S
	500-437	○	12	5	0.437	1.219	1 1/2	0.375	0.500	2.205	PNEJ1255N	PTKA0409F	TW15S
	600-187	○	12	6	0.187	1.688	1 1/2	0.375	0.312	2.598	PNEJ1223N	PTMA0403F	TW15S
	600-218	○	16	6	0.218	1.703	1 1/2	0.375	0.312	2.598	PNEJ1230N	PTMA0404F	TW15S
	600-250	○	16	6	0.250	1.719	1 1/2	0.375	0.312	2.598	PNEJ1235N	PTMA0405F	TW15S
	600-312	○	16	6	0.312	1.750	1 1/2	0.375	0.312	2.598	PNEJ1245N	PTKA0407F	TW15S
	600-375	○	16	6	0.375	1.688	1 1/2	0.375	0.500	2.598	PNEJ1250N	PTKA0408F	TW15S
	600-437	○	16	6	0.437	1.719	1 1/2	0.375	0.500	2.598	PNEJ1255N	PTKA0409F	TW15S
	600-500	○	16	6	0.500	1.750	1 1/2	0.375	0.500	2.598	PNEJ1265N	PTKA0411F	TW15S
	600-562	○	16	6	0.562	1.719	1 1/2	0.375	0.625	2.598	PNEJ1275N	PTKA0413F	TW15S
	800-250	○	18	8	0.050	2.385	2	0.500	0.312	2.756	PNEJ1235N	PTMA0405F	TW15S
	800-312	○	18	8	0.120	2.416	2	0.500	0.312	2.756	PNEJ1245N	PTKA0407F	TW15S
	800-375	○	18	8	0.375	2.353	2	0.500	0.500	2.756	PNEJ1250N	PTKA0408F	TW15S
	800-437	○	18	8	0.437	2.384	2	0.500	0.500	2.756	PNEJ1255N	PTKA0409F	TW15S
	800-500	○	18	8	0.500	2.416	2	0.500	0.500	2.756	PNEJ1265N	PTKA0411F	TW15S
	800-562	○	18	8	0.562	2.384	2	0.500	0.625	2.756	PNEJ1275N	PTKA0413F	TW15S

Available inserts **B16**

◆ : US stock ○ : Made to order

Recommended cutting conditions

Workpiece	Cutting conditions		Grade
	vc (sfm)	fz (ipt)	
P	190~310 160~270 60~100	0.10~0.25 0.10~0.30 0.10~0.25	**NCM325** **PC3700** **ST30A**
M	90~150	0.10~0.25	**PC9530**
K	140~230 50~90	0.10~0.35 0.10~0.40	**PC6100** **G10**

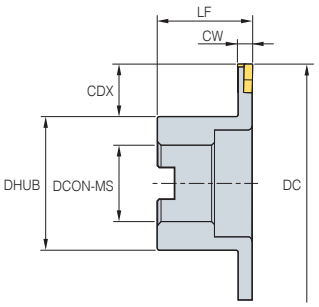
Code system

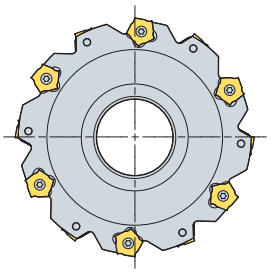
S P P A 160 - 06 R

- S — Cutter use (S ⇒ Side cutter)
- P — Insert Shape (P - Pentagonal Insert)
- P — Cutter type (P - Plane type, B - Boss type)
- A — Arbor type (A : Inch, M : Metric, NO code : Asia)
- 160 — Cutter diameter(DC)
- 06 — Width of cut (W)
- R — Hand (R : Right, L : Left)

SPBA









• GAMP : -2°
• GAMF : 28°

(inch)

Designation		Stock R	Stock L	CICT	DC	CW	CDX	DHUB	DCON-MS	KWW	LF	Insert	Screw	Wrench
SPBA	300-187R/L	○		8	3.0	0.187	0.713	1.575	1	0.49	1.969	PNEJ1223N	PTMA0403F	TW15S
	300-218R/L	○		8	3.0	0.218	0.713	1.575	1	0.49	1.969	PNEJ1230N	PTMA0404F	TW15S
	300-250R/L	○		8	3.0	0.250	0.713	1.575	1	0.49	1.969	PNEJ1235N	PTMA0405F	TW15S
	400-187R/L	○		10	4.0	0.187	0.937	2.126	1 1/4	0.57	1.969	PNEJ1223N	PTMA0403F	TW15S
	400-218R/L	○		10	4.0	0.218	0.937	2.126	1 1/4	0.57	1.969	PNEJ1230N	PTMA0404F	TW15S
	400-250R/L	○		10	4.0	0.250	0.937	2.126	1 1/4	0.57	1.969	PNEJ1235N	PTMA0405F	TW15S
	400-312R/L	○		10	4.0	0.312	0.937	2.126	1 1/4	0.57	1.969	PNEJ1245N	PTMA0407F	TW15S
	400-437R/L	○		10	4.0	0.437	0.937	2.126	1 1/4	0.57	1.969	PNEJ1255N	PTMA0409F	TW15S
	500-250R/L	○		12	5.0	0.250	1.122	2.756	1 1/2	0.65	2.362	PNEJ1235N	PTMA0405F	TW15S
	500-312R/L	○		12	5.0	0.312	1.122	2.756	1 1/2	0.65	2.362	PNEJ1245N	PTKA0407F	TW15S
	500-375R/L	○		12	5.0	0.375	1.122	2.756	1 1/2	0.65	2.362	PNEJ1250N	PTKA0408F	TW15S
	600-187R/L	○		16	6.0	0.187	1.622	2.756	1 1/2	0.65	2.362	PNEJ1223N	PTMA0403F	TW15S
	600-250R/L	○		16	6.0	0.250	1.622	2.756	1 1/2	0.65	2.362	PNEJ1235N	PTMA0405F	TW15S
	600-375R/L	○		16	6.0	0.375	1.622	2.756	1 1/2	0.65	2.362	PNEJ1250N	PTKA0408F	TW15S
	600-437R/L	○		16	6.0	0.437	1.622	2.756	1 1/2	0.65	2.362	PNEJ1255N	PTKA0409F	TW15S
	600-500R/L	○		16	6.0	0.500	1.622	2.756	1 1/2	0.65	2.362	PNEJ1265N	PTKA0411F	TW15S
	600-562R/L	○		16	6.0	0.562	1.622	2.756	1 1/2	0.65	2.362	PNEJ1275N	PTKA0413F	TW15S
	800-250R/L	○		18	8.0	0.250	2.228	3.543	2	0.65	2.559	PNEJ1235N	PTMA0405F	TW15S
	800-437R/L	○		18	8.0	0.437	2.228	3.543	2	0.65	2.559	PNEJ1255N	PTKA0409F	TW15S
	800-500R/L	○		18	8.0	0.500	2.228	3.543	2	0.65	2.559	PNEJ1265N	PTKA0411F	TW15S

Available inserts **B16**

◆: US stock ○: Made to order

Notice (When mounting inserts)

- ▶ Insert chip breaker should face chip pocket of the cutter
- ▶ Fasten screw after insert contacts securely on its seat
- ▶ If there is a gap between insert and its seat after mounting it may cause tool troubles

Recommended cutting conditions

Workpiece	Cutting conditions		Grade
	vc (sfm)	fz (ipt)	
P	623~1017 525~886 197~328	0.010~0.004 0.012~0.004 0.010~0.004	**NCM325** **PC3700** **ST30A**
M	295~492 262~492	0.010~0.004 0.010~0.004	**PC9530** **ST30A**
K	459~755	0.014~0.004	**PC6510** **G10**

SPSA



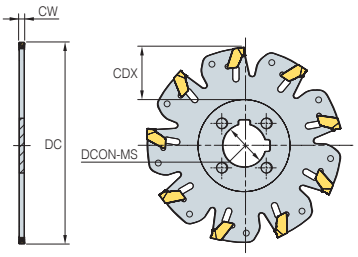


Fig. 1

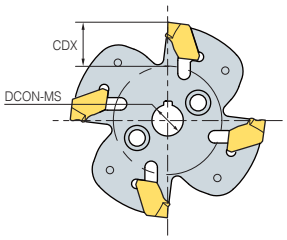


Fig. 2

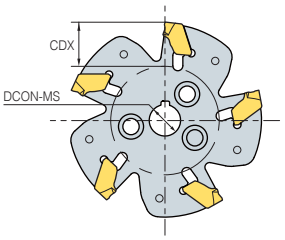


Fig. 3





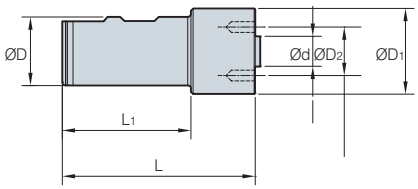
(inch)

	Designation	Stock	CICT	DC	CW	CDX	DCON-MS	KWW	OAL	Fig.	Insert	Adaptor WS	Adaptor DF	Wrench
SPSA	200-08704-0500R	○	4	2	0.087	0.449	0.5	0.08	0.071	2	SPFN200-N	WS2528-M4	-	SW17P (separately ordered)
	250-08705-0500R	○	5	2.5	0.087	0.62	0.5	0.12	0.071	3		WS2532-M5	-	
	300-08707-0875R/F	○	7	3	0.087	0.713(0.594)	0.875	0.24	0.071	1		WS3240-M5	DF22-46	
	400-08709-0875R/F	○	9	4	0.087	1.213(1.094)	0.875	0.24	0.071	1		WS3240-M5	DF22-46	
	500-08711-1250F	○	11	5	0.087	1.417	1.25	0.31	0.071	1		-	DF32-55	
	600-08714-1250F	○	14	6	0.087	1.917	1.25	0.31	0.071	3		-	DF32-55	
	250-11805-0500R	○	5	2.5	0.118	0.62	0.5	0.12	0.1	1	SPFN300-N	WS2532-M5	-	
	300-11807-0875R/F		7	3	0.118	0.713(0.594)	0.875	0.24	0.1	1		WS3240-M5	DF22-46	
	400-11809-0875R/F		9	4	0.118	1.213(1.094)	0.875	0.24	0.1	1		WS3240-M5	DF22-46	
	500-11811-1250F	○	11	5	0.118	1.417	1.25	0.31	0.1	1		-	DF32-55	
	600-11814-1250F	○	14	6	0.118	1.917	1.25	0.31	0.1	1		-	DF32-55	
	800-11818-1500F	○	18	8	0.118	2.425	1.5	0.39	0.1	1		-	DF40-80	
	300-15706-0875R/F		6	3	0.157	0.713(0.594)	0.875	0.24	0.134	1	SPFN400-N	WS3240-M5	DF22-46	
	400-15708-0875R/F		8	4	0.157	1.213(1.094)	0.875	0.24	0.134	1		WS3240-M5	DF22-46	
	500-15710-1250F		10	5	0.157	1.417	1.25	0.31	0.134	1		-	DF32-55	
	600-15713-1250F		13	6	0.157	1.917	1.25	0.31	0.134	1		-	DF32-55	
	800-15717-1500F		17	8	0.157	2.425	1.5	0.39	0.134	1		-	DF40-80	

Available inserts **B27**

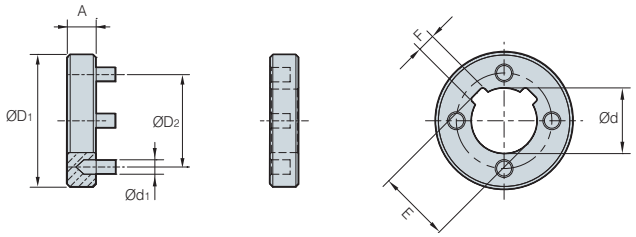
• Applicable wrench : SW17P (Separately sold) • CDX : ( )=> In use of DF adaptor ◆: US stock ○: Made to order

WS( )-( ) (Weldon shank)



Designation	L	L1	D	D1	D2	d	Screw
WSA2528-M4	4.431	3.346	0.984	1.102	0.709	0.500	PTKA0408
WSA2532-M5	4.431	3.346	0.984	1.260	0.866	0.500	PTKA0515
WSA3240-M5	4.724	3.543	1.260	1.575	1.260	0.875	PTKA0515

DF( )-( ) (Drive flange set)



Designation	D1	D2	d	d1	A	E	F
DFA22-46	1.811	1.260	0.875	0.197	0.394	0.948	0.125
DFA32-55	2.165	1.772	1.250	0.236	0.394	1.385	0.313
DFA40-80	3.150	2.480	1.500	0.433	0.472	1.666	0.375
DFA50-110	4.331	3.150	2.000	0.551	0.551	2.198	0.500

Recommended cutting conditions

Workpiece	Cutting conditions		Grade
	vc (sfm)	fz (ipt)	
P	525~886	0.010~0.005	PC3700
M	295~492	0.009~0.004	PC5300
K	361~591	0.010~0.004	PC6100

For slotting workpieces with corner radii of varying sizes and widths

Wind Mill

- Optimal machining for slotting applications
- A unique recess design on the minor cutting-edge reduces cutting load and improves tool life
- Special clamping system prevents incorrect clamping and fracture

Item description

Insert



Cutter



WFSP(M) - Plane type



WFSB(M) - Boss type

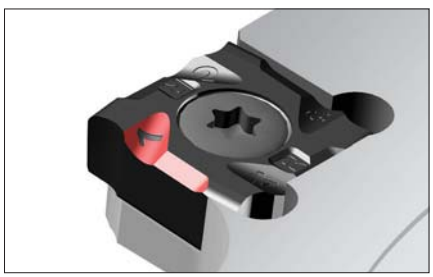
Code system

- **Cutter**

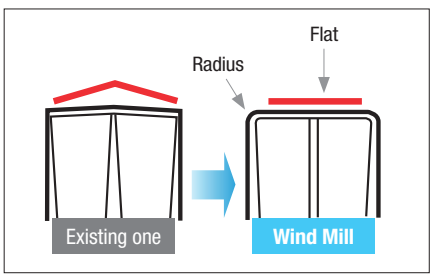
W	FS	P(B)	A	300	-	156	R
Wind Mill	**Insert arrangement** FS : Full side HS : Half side	**Cutter type** P : Plane type B : Boss type	**Arbor type** A : Inch M : Metric NO code : Asia	**DC**		**Width of cut (W)**	**Hand** R : Right L : Left

Features

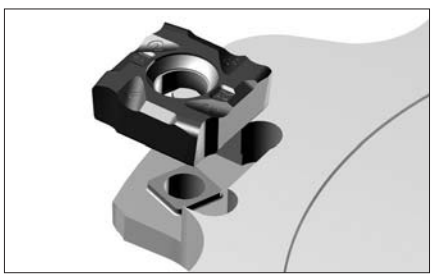
- Ideal geometry for superior surface roughness and extended tool life



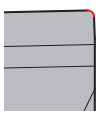
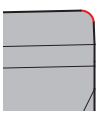
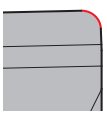
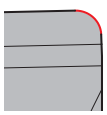
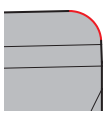
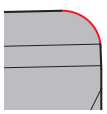
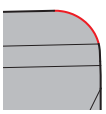
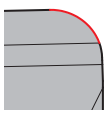
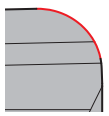
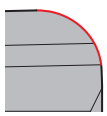
- Perpendicular slot



- Protruded part on tip seat prevents wrong clamping and fracture



- Workpieces with corner radii of varying size and width (R0.008~R0.079)

R0.008	R0.016	R0.023	R0.031	R0.039	R0.047	R0.055	R0.063	R0.07	R0.079
									

WFSBA (Boss type)





• GAMP : -2°
• GAMF : -12°

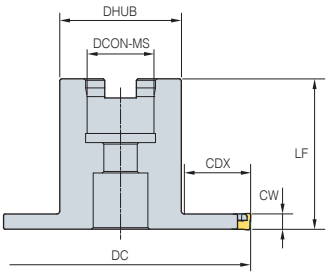


Fig. 1

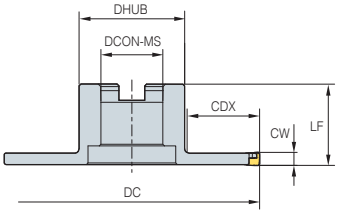


Fig. 2

(inch)

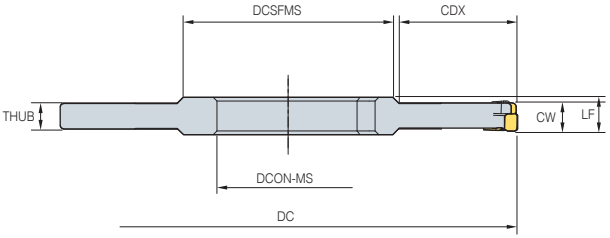
Designation		Stock R	Stock L	CICT	DC	CW	CDX	DHUB	DCON-MS	KWW	LF	Insert	Screw	Wrench
WFSBA	300-156R/L	○		8	3.0	0.156	0.7	1.58	3/4	0.315	1.50	SNHT11023R/L-WX	PTMA03503	TW09S
	300-187R/L	○		8	3.0	0.187	0.7	1.58	3/4	0.315	1.50	SNHT1103R/L-WX	PTMA03504	TW09S
	300-250R/L	○		8	3.0	0.250	0.7	1.58	3/4	0.315	1.50	SNHT12035R/L-WX	PTMA0405F	TW15S
	400-156R/L	○		10	4.0	0.156	0.9	1.89	1	0.374	1.50	SNHT11023R/L-WX	PTMA03503	TW09S
	400-187R/L	○		10	4.0	0.189	0.9	1.89	1	0.374	1.50	SNHT1103R/L-WX	PTMA03504	TW09S
	400-250R/L	○		10	4.0	0.250	0.9	1.89	1	0.374	1.50	SNHT12035R/L-WX	PTMA0405F	TW15S
	400-312R/L	○		10	4.0	0.312	0.9	1.89	1	0.374	1.50	SNHT12045R/L-WX	PTMA0406F	TW15S
	400-375R/L	○		10	4.0	0.375	0.9	1.89	1	0.374	1.50	SNHT1205R/L-WX	PTMA0408F	TW15S
	500-187R/L	○		12	5.0	0.187	1.1	2.75	1 1/4	0.500	1.75	SNHT1103R/L-WX	PTMA03504	TW09S
	500-250R/L	○		12	5.0	0.250	1.1	2.75	1 1/4	0.500	1.75	SNHT12035R/L-WX	PTMA0405F	TW15S
	500-312R/L	○		12	5.0	0.312	1.1	2.75	1 1/4	0.500	1.75	SNHT12045R/L-WX	PTMA0406F	TW15S
	500-375R/L	○		12	5.0	0.375	1.1	2.75	1 1/4	0.500	1.75	SNHT1205R/L-WX	PTMA0408F	TW15S
	600-187R/L	○		16	6.0	0.187	1.1	3.75	1 1/2	0.630	2.00	SNHT1103R/L-WX	PTMA03504	TW09S
	600-250R/L	○		16	6.0	0.250	1.1	3.75	1 1/2	0.630	2.00	SNHT12035R/L-WX	PTMA0405F	TW15S
	600-312R/L	○		16	6.0	0.312	1.1	3.75	1 1/2	0.630	2.00	SNHT12045R/L-WX	PTMA0406F	TW15S
	600-375R/L	○		16	6.0	0.375	1.1	3.75	1 1/2	0.630	2.00	SNHT1205R/L-WX	PTMA0408F	TW15S
	600-500R/L	○		16	6.0	0.500	1.1	3.75	1 1/2	0.630	2.00	SNHT1207R/L-WX	PTKA0411	TW15S
	800-250R/L	○		18	8.0	0.250	2.1	3.75	1 1/2	0.630	2.00	SNHT12035R/L-WX	PTMA0405F	TW15S
	800-312R/L	○		18	8.0	0.312	2.1	3.75	1 1/2	0.630	2.00	SNHT12045R/L-WX	PTMA0406F	TW15S
	800-375R/L	○		18	8.0	0.375	2.1	3.75	1 1/2	0.630	2.00	SNHT1205R/L-WX	PTMA0408F	TW15S
	800-500R/L	○		18	8.0	0.500	2.1	3.75	1 1/2	0.630	2.00	SNHT1207R/L-WX	PTKA0411	TW15S

Available inserts **B25**

• Ø3.0 : Fig.1 , Ø4~Ø8 : Fig.2 ◆: US stock ○: Made to order

WFSPA (Plane type)







• GAMP : -2°
• GAMF : -12°

(inch)

	Designation	Stock	CICT	DC	CW	CDX	DHUB	DCON-MS	KWW	THUB	Insert	Screw	Wrench
WFSPA	300-156	○	8	3.0	0.156	0.690	1.62	1	0.250	0.312	SNHT11023R/L-WX	PTMA03503	TW09S
	300-187	○	8	3.0	0.187	0.690	1.62	1	0.250	0.312	SNHT1103R/L-WX	PTMA03504	TW09S
	300-250	○	8	3.0	0.250	0.690	1.62	1	0.250	0.312	SNHT12035R/L-WX	PTMA04045F	TW15S
	400-156	○	10	4.0	0.156	1.125	1.75	1 1/4	0.312	0.312	SNHT11023R/L-WX	PTMA03503	TW09S
	400-187	○	10	4.0	0.187	1.125	1.75	1 1/4	0.312	0.312	SNHT1103R/L-WX	PTMA03504	TW09S
	400-250	○	10	4.0	0.250	1.125	1.75	1 1/4	0.312	0.312	SNHT12035R/L-WX	PTMA04045F	TW15S
	400-312	○	10	4.0	0.312	1.125	1.75	1 1/4	0.312	0.500	SNHT1204R/L-WX	PTMA0405F	TW15S
	400-375	○	10	4.0	0.375	1.125	1.75	1 1/4	0.312	0.500	SNHT12045R/L-WX	PTMA0406F	TW15S
	500-187	○	12	5.0	0.187	1.565	1.87	1 1/4	0.312	0.312	SNHT1205R/L-WX	PTMA0407F	TW15S
	500-250	○	12	5.0	0.250	1.565	1.87	1 1/4	0.312	0.312	SNHT12054R/L-WX	PTMA0408F	TW15S
	500-312	○	12	5.0	0.312	1.565	1.87	1 1/4	0.312	0.500	SNHT11023R/L-WX	PTMA03503	TW09S
	500-375	○	12	5.0	0.375	1.565	1.87	1 1/4	0.312	0.500	SNHT1103R/L-WX	PTMA03504	TW09S
	600-187	○	16	6.0	0.187	1.875	2.25	1 1/2	0.375	0.312	SNHT12035R/L-WX	PTMA04045F	TW15S
	600-250	○	16	6.0	0.250	1.875	2.25	1 1/2	0.375	0.312	SNHT1204R/L-WX	PTMA0405F	TW15S
	600-312	○	16	6.0	0.312	1.875	2.25	1 1/2	0.375	0.500	SNHT12045R/L-WX	PTMA0406F	TW15S
	600-375	○	16	6.0	0.375	1.875	2.25	1 1/2	0.375	0.500	SNHT1205R/L-WX	PTMA0407F	TW15S
	600-500	○	16	6.0	0.500	1.875	2.25	1 1/2	0.375	0.500	SNHT12054R/L-WX	PTMA0408F	TW15S
	800-250	○	18	8.0	0.250	2.625	2.625	1 1/2	0.375	0.312	SNHT11023R/L-WX	PTMA03503	TW09S
	800-312	○	18	8.0	0.312	2.625	2.625	1 1/2	0.375	0.500	SNHT1103R/L-WX	PTMA03504	TW09S
	800-375	○	18	8.0	0.750	2.625	2.625	1 1/2	0.375	0.500	SNHT12035R/L-WX	PTMA04045F	TW15S
	800-500	○	18	8.0	0.500	2.625	2.625	1 1/2	0.375	0.500	SNHT1204R/L-WX	PTMA0405F	TW15S

Available inserts B25

◆: US stock ○: Made to order

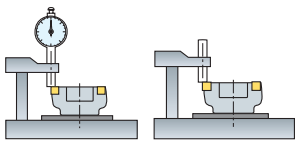
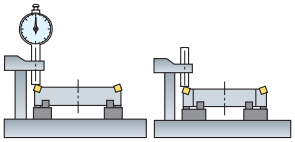
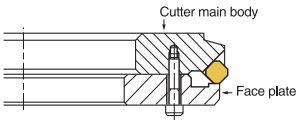
High feed cutter with extra pitch for cast iron and light alloy steels

High feed Cutter

- High feed cutter employs extra pitch for cast iron and light alloy steels
- Quick change type for reduction of cutter change time
- Cutting-edge chatter is controlled
- Quick change type for cutter size under Ø6.0, 2 piece types for cutter size over Ø8.0

Guide of insert setting

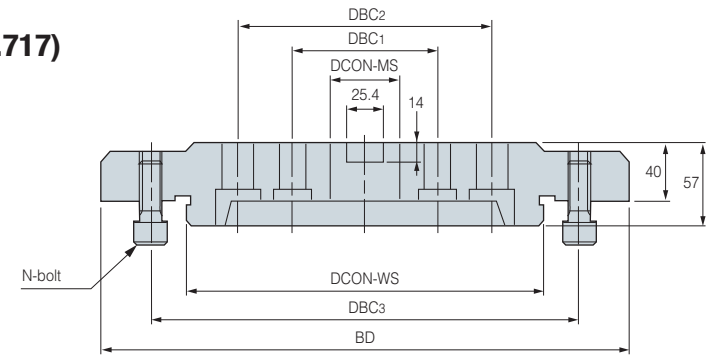
• Special equipment has to be used to get precise run out with high feed cutter.

Adaptor type	Roller type	Plate type
		
- Mainly under Ø6.0 diameter is used in 1 piece type - Available for fixed size of cutter and assembling & checking can be done at the same time	- Mainly over Ø8.0 diameter is used in 2 piece type - Due to 3 adjustable guide rollers, variety size of cutter can be assembled	- Suitable for small size cutter due to the simple structure - It is unnecessary to unclamp the cutter from the machine, it's possible to reassemble the cutter as it mounted on the machine - You should make plate by yourself

Guide of insert setting in adaptor/roller type

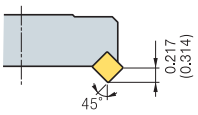
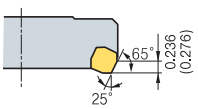
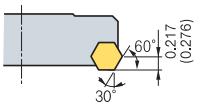
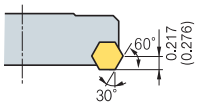
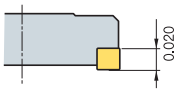
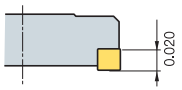
1. Clean the cutter and equipment
2. Pointer should be assembled with same height with cutter
3. Move to each insert on tip seat to end of pointer and tighten (torque 2 N.m) wedge
4. Exchange pointer to dial gauge
5. Measure the run-out totally
6. When an insert loosen wedge and adjust run-out. (for roughing 10~20 μ, for finishing 5~10 μ)
7. Tighten (torque 7-8 N.m) wedge
8. Measure the final run-out by dial gauge

Adaptor (Ø7.874-Ø17.717)



Designation		BD	DCON-MS	DCON-WS	DBC3	DBC1	DBC2	N	Cutter
APR	**200**	7.087	2.5	3.150	4.724	4.0	-	4	Ø7.874
	250	9.055	2.5	4.724	6.693	4.0	-	4	Ø9.842
	315	11.614	2.5	7.087	9.055	4.0	177.8	6	Ø12.402
	355	13.189	2.5	8.661	10.630	4.0	177.8	6	Ø13.976
	400	14.567	2.5	9.843	11.811	4.0	177.8	8	Ø15.748
	450	16.535	2.5	11.811	13.780	4.0	177.8	8	Ø17.716

High feed cutters type and features

Designation	Cutter diameter	Workpiece, Application range	Min. surface roughness	Approach angle and Max. cutting depth is for 5000 type	Axial rake angle	Radial rake angle	Available insert
ANH4000 ANH5000	Ø4.0~Ø18.0	Cast iron Roughing	25Z		-5°	-6°	SNCN43ENN SNCN53ENN
CDH4000 CDH5000	Ø4.0~Ø18.0	Cast iron Roughing Finishing	18Z		+10°	+5°	SDCN42R SDCN53R
DEH5000	Ø4.0~Ø18.0	Al alloy Roughing	20Z		+14°	+6°	HECN532FN
DPH5000	Ø4.0~Ø18.0	Cast iron Roughing Finishing	12Z		+5°	-3°	HPEN532FN/SN/EN HPEN532-WC
PNH4000 PNH5000	Ø5.0~Ø18.0	Cast iron Finishing	12Z		-5°	-6°	SNEF435 SNEF535
PPH4000	Ø5.0~Ø18.0	Cast iron Finishing	12Z		+5°	-5°	SPEN434-WC

Recommended cutting conditions

Workpiece	Cutting conditions		Grade	Remark
	vc (sfm)	fz (ipt)		
Cast iron	330~460	0.002~0.008	**PC6510**	PVD Coated
	260~490	0.002~0.008	**H01,G10**	Uncoated
Al alloy	1650~	0.002~0.008	**PC6510**	PVD Coated
	1650~	0.002~0.008	**H01,G10**	Uncoated

Special Korloy cutter for cast iron roughing

Cube Mill

- 8-corner using insert (maximum 16-corner available with 2 cutter, R/L cutter)
- Excellent cutting performance with positive rake angle made by 3-dimensional chip breaker
- Excellent tool life by a wide combination of grade varieties and chip breakers to match most working conditions
- 2 different type of inserts (chamfer/nose R) are available with 1 type cutter



Roughing for cast iron

Code system

CBM	E	A	3	300	R	(2)	-	28Z

Cutter
CBM : CUBE MILL

KAPR
Q : 88°
C : 65°
F : 85°
A : 45°
E : 75°

Arbor type
A : Inch
M : Metric
NO code : Asia

Inscribe circle of Insert
3 : 9.525
4 : 12.7

Cutter diameter
Ø300

Hand
R : Right
L : Left

Cutter shape
Unmarked : Normal type
2 : Quick change type (2 pieces type)

No. of tooth (Z)

※ Cube Mill and Cube Mill Couple are available by order made.

Insert (R/L type)

Chamfer type



Nose R type

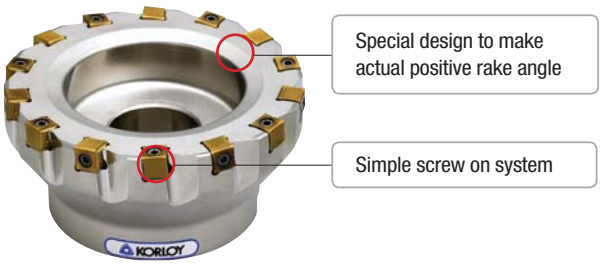


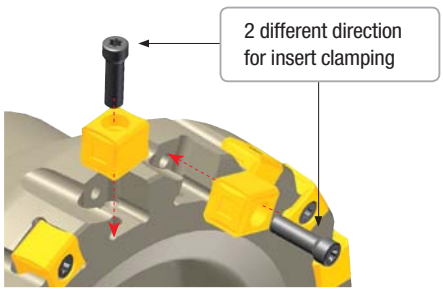
Cutter body

Cutter diameter (Ø)	Normal	Quick change
	3.0~12.0 inch	8.0~18.0 inch

KAPR : 2°, 5°, 15°, 25°, 45°

Cutter





Screw on clamping system

Parts



Cube Mill 3000 type

Screw	Wrench
FTGA0417CBM	TW15-100
ETGA0520CBM	TW20-100

Ideal combination of aluminum body with cast iron high feed cutter

Couple Mill

- Since the weight of the cutter has been reduced 50% vs. a steel cutter, it is very easy to handle and very effective in preventing loading accidents
- Applicable for Cube Mill, Storm Mill

Code system

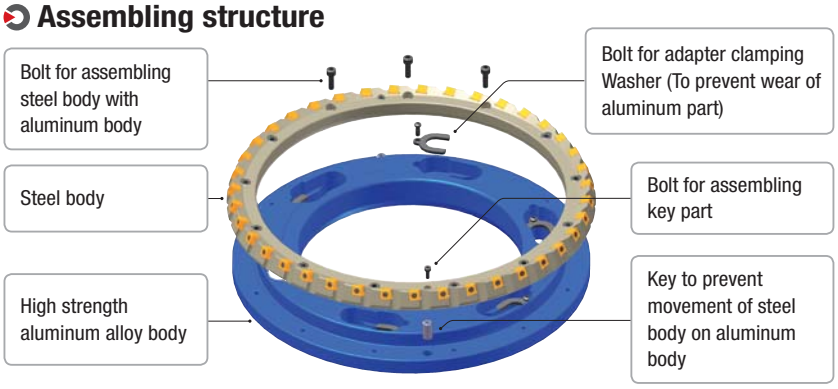
• Cube-couple

CBM	E	A	3	1400	R	28Z	-	CP
Cutter CBM : CUBE MILL	**KAPR** Q : 88° C : 65° F : 85° A : 45° E : 75°	**Uint** A : Inch NO code : Asia	**Inscribed circle of Insert** 3 : 3/8 inch 4 : 1/2 inch	**Cutter diameter** ISO : mm ASA : inch	**Hand** R : Right L : Left	**No. of tooth (Z)** 28Z : 28		**Couple Mill**

• Storm-couple

S	Q	N	A	3	1400	R	28Z	-	CP
Cutter S : Storm Mill	**KAPR** Q : 88° E : 75° F : 85° A : 45°	**Relief angle of insert** N : Negative (0°)	**Uint** A : Inch NO code : Asia	**Inscribed circle of Insert** 3 : 3/8 inch 4 : 1/2 inch	**Cutter diameter** ISO : mm ASA : inch	**Hand** R : Right L : Left	**No. of tooth (Z)** 28Z : 28		**Couple Mill**

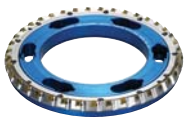
Assembling structure



Cutter body

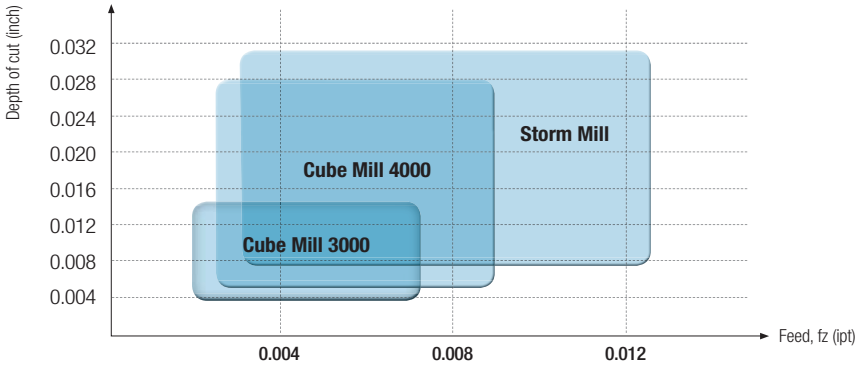
Cutter diameter (Ø)	Quick change	
	Metric	Ø355~450 mm
	Inch	14 1/4~18 Inch

Parts



		Screw	Wrench	Wrench	Bolt for body	Bolt for key	Key for body
Cube-Couple	**3000 type**	FTGA0417CBM	TW15-100	-	BHA0616	MHBO410	PN1019-DRV
	4000 type	ETGA0520CBM	TW20-100		BHA0620		
Storm-Couple	**3000 type**	FTNA0513	-	TW15S	-	-	-

Application range of high feed cutters for cast iron



Recommended cutting conditions

Cube Mill		Gray cast iron		Ductile cast iron	
		vc (sfm)	fz (ipt)	vc (sfm)	fz (ipt)
PVD	PC6100	490~990	0.007~0.003	330~660	0.007~0.003
Uncoated	G10	300~400	0.007~0.005	200~430	0.007~0.005

Optimal cutter for steel and cast iron machining with easily adjustable run-out

Shave Mill

- Adjustable Range (Adjustable range: 0.004 inch, Adjustable allowance: within 2 ㎛)
- Wiper crown type 8-cornered insert reduces machining cost and realizes excellent surface roughness
- Grades with high toughness and wear resistance ensures long tool life
- The cBN grade achieves superior surface finish

Code system

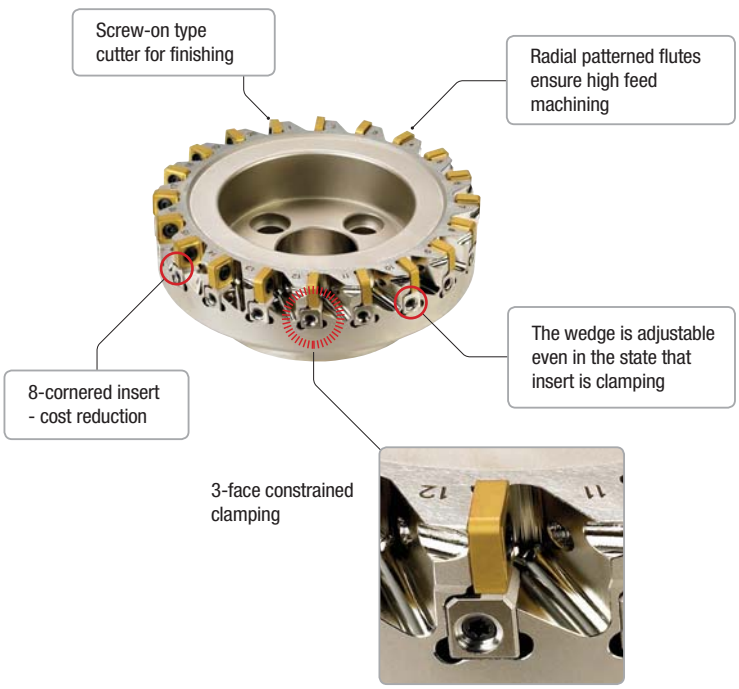
• Insert

Uncoated		cBN
• Nose R type	SNEU120420-MF	SNEU1204-TBW
• Chamfer type	SNEU1204ANN-MF	
• Low cutting type	SNEU1204-WMF	

• Cutter

SVM	A	4	250	R	Z6
Shave Mill	Uint A : Inch NO code : Asia	Inscribed Circle 4: 0.5 inch	Cutter diameter (Ø) ISO : mm ASA : inch	Hand of tool R : Right L : Left	No. of tooth (Z)

Features

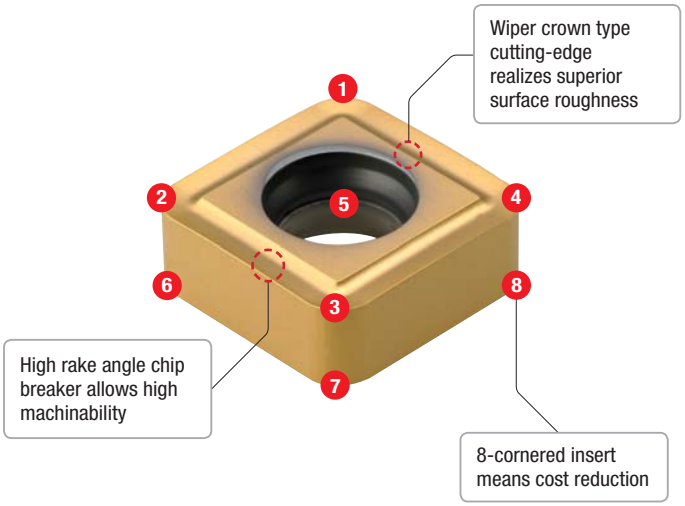




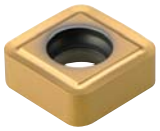
Adjustment

- Adjustable range: 2.54 inch
- Adjustability: below 2 μ
- Operation: easy and simple

Features of insert



SNEU120420-MF



Nose R type

SNEU1204ANN-MF



Chamfer type

SNEU1204-WMF



For low cutting load

SNEU1204-TBW



Wiper for high speed machining

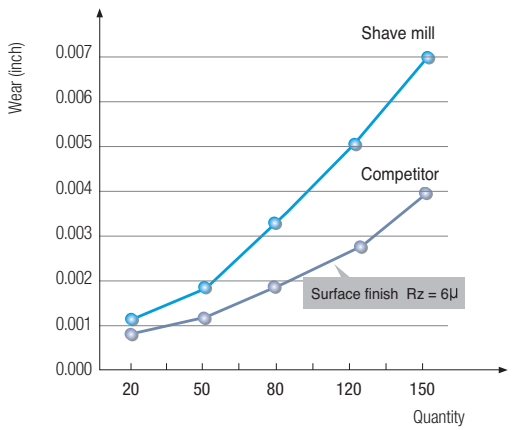
Recommended cutting conditions

Workpiece	Cutting conditions			Grade
	vc (sfm)	fz (ipt)	ap (inch)	
P	492 ~ 866	0.008 ~ 0.002	~ 0.02	PC3700
K	459 ~ 755 1969 ~ 3281	0.012 ~ 0.002 0.008 ~ 0.002	~ 0.02 ~ 0.02	PC6510 DBN920

Application example

Workpiece	Cylinder head (facing)
Cutting condition	vc = 656, fz = 0.006, ap = 0.02, dry
Tools	Cutter : SVMM4250R, Insert : PC6510 SNEU120420-MF

Workpiece	FC25 (HB250) Cylinder head (facing)
Cutting condition	vc = 2296, fz = 0.004, ap = 0.02, dry
Tools	Cutter : SVMM4160R Insert : DBN920 SNEU1204-CBN



• Results

Type	Tool life	Surface finish	Machinability
Shave Mill	250 pcs	Rz=3μ	High
Competitor	180 pcs	Rz=3.5μ	Normal

• KORLOY's Shave Mills ensure twice the machinability, adjustability, and surface roughness than competitor's, along with twice the tool life.

Better tool life with special grade which has both toughness and wear resistance

Shave Mill Ultra

- Superior surface roughness for this Finishing cutter when applied to heavy work pieces
- Easy to handle and good rigidity with simple screw on system
- Superior surface finishes due to the wiper crown cutting-edge
- Better tool life with special grade which has both toughness and wear resistance
- Two different types: economical normal type and adjustable run-out type 'B'

Code system

• Insert

L	N	C	S	1	9	0	7	-	R3.0	-	WC
			Shave Mill-Ultra						Corner type C : Chamfer R : Round		Wiper Crown

• Cutter

SVU	A	6	300	R	Z6	-	B
Shave Mill-Ultra	Uint A : Inch NO code : Asia	Inscribed Circle 6: 0.75 inch	Cutter diameter(Ø) ISO: mm ASA: inch	Hand of tool R : Right L : Left	No. of tooth(Z)		Cutter type None : Normal B : Adjustable

Features



[Normal type]

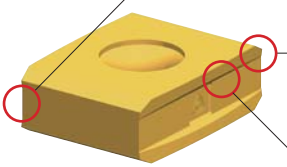
Good rigidity and economical due to simple screw on type

Better surface roughness when you use only 1 insert but adjust the 'ap' under 0.001 inch



[Adjustable cutting-edge (Type B)]

Easy to handle the run-out due to Korloy exclusive high toughness cutting-edge special Part



Good cutting performance & chip flow due to positive rake angle chip breaker

Economical 4 corner insert

Good surface roughness by wiper crown cutting-edge design

Adjustable Range

· Range: 0.039 inch
· Allowance: Within 2 μ

Recommended cutting conditions

Workpiece	Cutting conditions			Tooth	Grade
	vc (sfm)	fz (ipt)	ap (inch)		
P	492~820	0.008~0.002	~0.024	Full use	PC3700
	492~820	0.197~0.079	~0.001	1 use	
K	192~984	0.008~0.002	~0.024	Full use	PC6100
	192~984	0.197~0.079	~0.001	1 use	

Gear Cutter Applicable Example

Applicable example-external tooth gear

Finishing: M20



- **Cutter Dia**: Ø15.7
- **Tooth No**: 20 tooth
- **External tooth gear**: Formal cutter for gear processing which can be expected to KS 4 level accuracy
- Cutter can simultaneously chamfer while milling



M20XZ130-EX

Semi-finishing



- **Cutter Dia**: Ø11.02
- **Tooth No**: 48 tooth
- Designed for processing of external gear involute curve line shape
- Possible to work for gear root portion R with optimal insert R design



M20-M22-R0U

Roughing



- **Cutter Dia**: Ø22
- **Tooth No**: 140 tooth
- High feed rate with low cutting resistance due to V shape insert setting design



LNE333-02-1



LNE434-02-1



KEL1906-C0.6-MF

Applicable example-internal tooth gear

Finishing: M16



- **Cutter Dia**: Ø15.7
- **Tooth No**: 20 tooth
- **Internal tooth gear**: Formal cutter for gear processing which can be expected to KS 4 level accuracy
- Cutter can simultaneously chamfer while milling



M16XZ130

Semi-finishing



- **Cutter Dia**: Ø11.02
- **Tooth No**: 48 tooth
- The semi-finishing cutter was designed for processing of external gear involute curb line shape



M16-M18-R0U



LNE433-R60

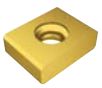
Roughing



- **Cutter Dia**: Ø22
- **Tooth No**: 40 tooth
- Possible to use for gear processing of all module due to step type of insert setting design



KEL1906-C0.6-MF



LNE434-02-1

Gear cutter machining example



Machine

Gleason - PFAUTER CNC Hobbing Machine (Power: 52 kW)

Cutting condition

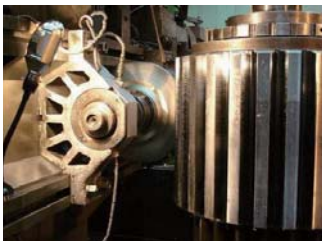
vc = 393.64 sfm, n = 86.8 rpm
fz = 0.020 ipt, vf = 17.717 ipm
ae = 1.417 inch, Dry

Tools

M16-PT-RACK-KOR03 (Ø17.3 x W3.54)

Semi-finishing cutter (low cut, low resistance)





Machine

KARATS (30kw)

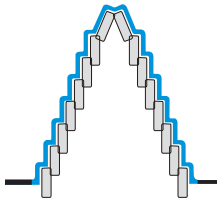
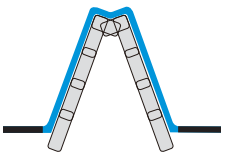
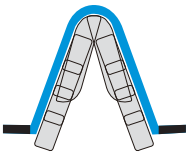
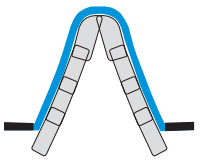
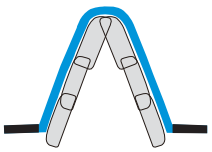
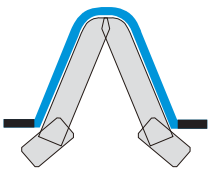
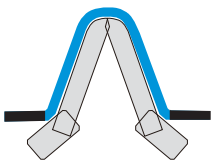
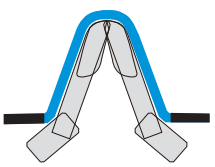
Cutting condition

vc = 492.13 sfm, n = 119 rpm
fz = 0.004 ipt, vf = 3.213 ipm
ae = 1.772 inch, Dry

Tools

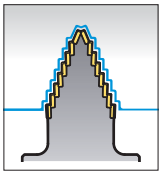
M24 Semi-finishing External type Applicable Insert
M40-ROU (Main),
KEL150708-MX (Flank)

B Gear Cutter Table

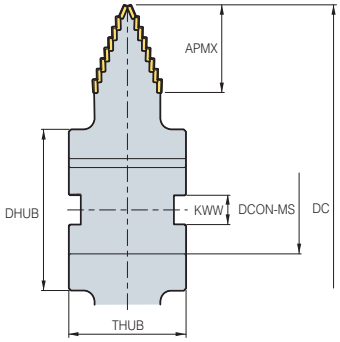
Type	Cutter shape	Cutting-edge shape	Type	Feature
Roughing			Step type	• Working for big sized gear tooth • Low cutting resistance with step type insert setting
			V shape type	• Low cutting resistance with V shape cutting insert setting • Optimal cutting-edge line setting according to Rach type & cutting-edge shape
Semi-finishing			Low cutting resistance type	• 4-Corner insert on Root portion • 3D chip breaker shape on flank • Optimal cutting-edge line setting for low cutting resistance
			External gear high rigidity type	• Optimal R type insert setting on Root portion • Superior Semi-finishing cutting with high rigidity shape of cutter & insert
			Internal gear high rigidity type	• Exclusive semi-finishing Internal Gear insert • Optimal cutting-edge line setting with Internal tooth shape
Finishing			External gear	• Concave shape of cutting-edge line according to external gear type • Optimal cutting insert setting design according to a customer conditions
			Internal gear	• 2-corner insert setting on right & left side and chamfering insert setting • Adjustable chamfering cartridge use for chamfering control
			2 STEP type	• Exclusive insert for machining the root part • 4-cornered insert

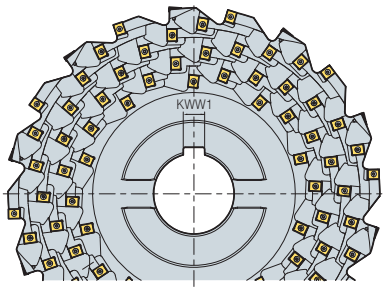
• Optimal cutting insert setting design according to customer condition

Gear Cutter for Roughing (Step type)







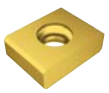
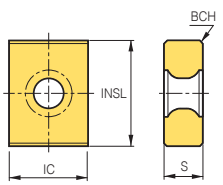


(mm)

Gear Module	CICT	DC	APMX	DCON-MS	DHUB	KWW	KWW1	THUB
30	96	450	90	100	180	25	14	140
	108	500	90	100	180	25	14	140
	120	560	90	120	220	40	32	160
40	112	450	105	100	180	25	14	140
	126	500	105	100	180	25	14	140
	140	560	105	120	220	40	32	160
50	160	560	119	120	220	40	32	160

M This is metric size. We can also provide in inch type

Available inserts

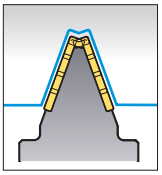
Picture	Designation		Coated				Uncoated		Dimension (mm)				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	BCH	
 Reinforced cutting-edge	LNE	434-02-1			○	◎			19.05	14.29	6.35	0.6	
 Low cutting resistance	KEL	1906-C0.6-MF			○	◎			19.05	14.29	6.35	0.6	
		190610-MR			○	◎			19.05	14.29	6.35	-	

M This is metric size. We can also provide in inch type

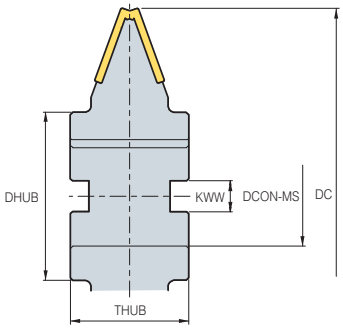
◎: 1st Rec ○: 2nd Rec

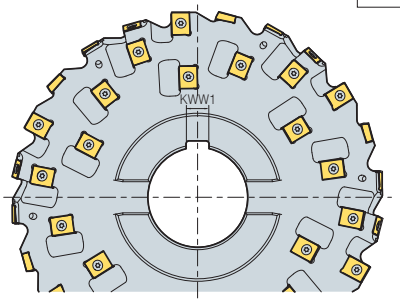
※ The above specification is subject to change according to customer related condition & Korloy technical condition

Gear Cutter for Roughing (V shape type)







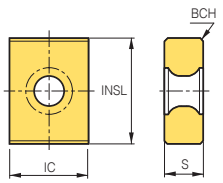
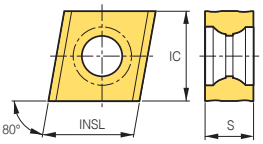


(mm)

Gear Module	TYPE	CICT	DC	DCON-MS	DHUB	KWW	KWW1	THUB
20	rack	48	280	80	135	25	18	95
22	rack	48	280	80	135	25	18	95
24	rack	48	320	80	145	25	18	105
26	rack	60	320	80	145	25	18	105
28	rack	96	400	100	180	25	24	130
30	rack	96	400	100	180	25	24	130
32	rack	96	400	100	180	25	24	130
34	rack	112	400	100	180	25	24	130
36	rack	112	450	100	180	25	24	130
38	rack	112	450	100	180	25	24	130
40	rack	128	450	100	180	25	24	160
42	rack	128	450	100	180	25	24	160
44	rack	128	560	120	220	32	32	160
46	rack	144	560	120	220	32	32	160
48	rack	144	560	120	220	32	32	160
50	rack	144	560	120	220	32	32	160

M This is metric size. We can also provide in inch type

Available inserts

Picture	Designation		Coated				Uncoated		Dimension (mm)				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	BCH	
 Reinforced cutting-edge	**LNE**	**434-02-1**			○	◎			19.05	14.29	6.35	0.6	
 Low cutting resistance	**KEL**	**1906-C0.6-MF**			○	◎			19.05	14.29	6.35	0.6	
		190610-MR							19.05	14.29	6.35	-	
 Reinforced cutting-edge	**LNE**	**333-02-1**			○	◎			14.3	12.7	6.35	0.8	
	**CNHQ**	**1005-C0.5**							10	10	5.4	-	

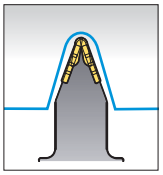
M This is metric size. We can also provide in inch type

◎: 1st Rec ○: 2nd Rec

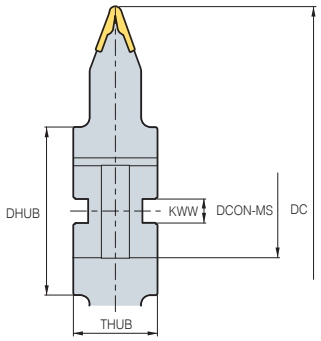
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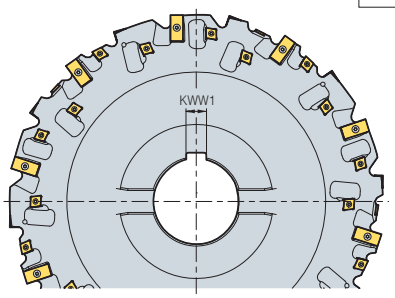
Gear Cutter for Semi-finishing

(High rigid edge type, External gear)







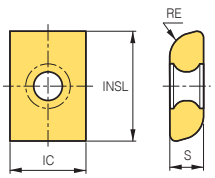
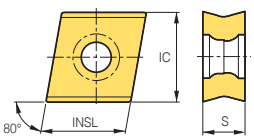


(mm)

Gear Module	No.of teeth	CICT	DC	DCON-MS	DHUB	KWW	KWW1	THUB
6	30,60,120	18	250	60	100	25	18	70
8	30,60,120	18	250	60	100	25	18	80
10	30,60,120	24	250	60	100	25	18	80
12	30,60,120	24	250	60	100	25	18	90
14	30,60,120	24	280	80	135	25	24	95
16	30,60,120	32	280	80	135	25	24	100
18	30,60,120	32	320	80	145	25	24	105
20	30,60,120	64	400	100	180	25	24	110
22	30,60,120	64	400	100	180	25	24	110
24	30,60,120	64	400	100	180	25	24	120

M This is metric size. We can also provide in inch type

Available inserts

Picture	Designation		Coated				Uncoated		Dimension (mm)				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	BCH	
		M6-2ST			○	◎			19.05	11.6	3.8	2.25	
		M8-2ST			○	◎			19.05	11.6	4	3	
		M10-2ST			○	◎			19.05	11.6	4.76	3.75	
		M12-2ST			○	◎			19.05	14.3	6.35	4.5	
		M14-2ST			○	◎			25.4	14.3	6.35	5.25	
		M16-2ST			○	◎			31.8	14.3	7.14	6	
		M18-2ST			○	◎			31.8	14.3	7.14	6.75	
		M20-2ST			○	◎			31.8	14.3	9.52	7.5	
		M22-2ST			○	◎			31.8	14.3	9.52	8.25	
		M24-2ST			○	◎			31.8	14.3	9.52	9	
	KEC	120606-MX			○	◎			12	12.7	6.35	-	
		150708-MX			○	◎			15.15	15	7.6	-	

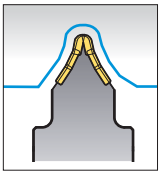
M This is metric size. We can also provide in inch type

◎: 1st Rec ○: 2nd Rec

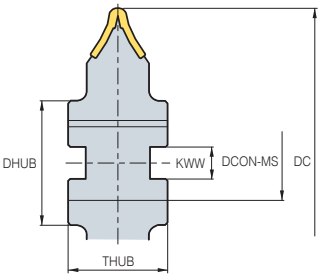
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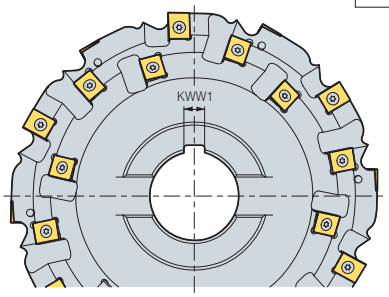
Gear Cutter for Semi-finishing

(High rigid edge type, External gear)







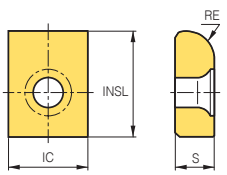
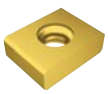
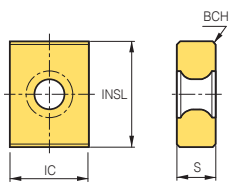


(mm)

Gear Module	No.of teeth	CICT	DC	DCON-MS	DHUB	KWW	KWW1	THUB
12	30, 60, 120	24	250	60	100	25	14	70
14	30, 60, 120	36	250	60	100	25	14	80
16	30, 60, 120	36	250	60	100	25	14	80
18	30, 60, 120	36	250	60	100	25	14	90
20	30, 60, 120	48	280	80	135	25	18	95
22	30, 60, 120	48	280	80	135	25	18	100
24	30, 60, 120	48	320	80	145	25	18	105
26	30, 60, 120	72	400	100	180	25	24	110
28	30, 60, 120	72	400	100	180	25	24	110
30	30, 60, 120	72	400	100	180	25	24	120
32	30, 60, 120	84	400	100	180	25	24	130
34	30, 60, 120	84	400	100	180	25	24	130

M This is metric size. We can also provide in inch type

Available inserts

Picture	Designation		Coated				Uncoated		Dimension (mm)					Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	RE	BCH	
		**M8-R0U**			○	◎			15.875	11	4.76	4.6	-	
		M12-M14-R0U			○	◎			19.05	14.29	6.35	5.4	-	
		M16-M18-R0U			○	◎			19.05	14.29	7	5.4	-	
		M20-M22-R0U			○	◎			19.05	14.29	7.94	5.4	-	
		M40-R0U			○	◎			25.4	14.29	9.52	5.4	-	
	**LNE**	**434-02-1**			○	◎			19.05	14.29	6.35	-	0.6	
	**KEL**	**1906-C0.6-MF**			○	◎			19.05	14.29	6.35	-	0.6	
		190610-MR			○	◎			19.05	14.29	6.35	-	-	

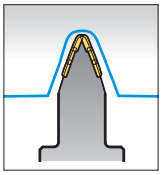
M This is metric size. We can also provide in inch type

※ The above specification is subject to change according to customer related condition & Korloy technical condition

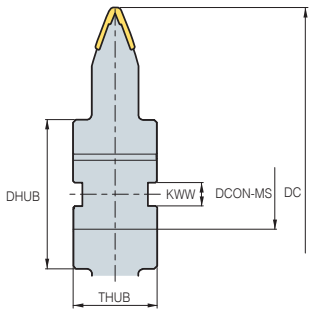
◎: 1st Rec ○: 2nd Rec

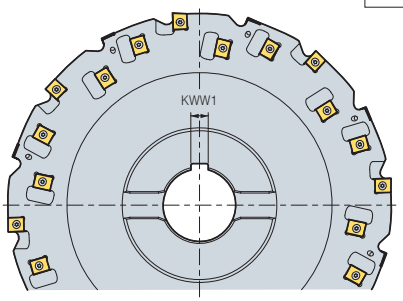
Gear Cutter for Semi-finishing

(High rigid edge type, Internal gear)







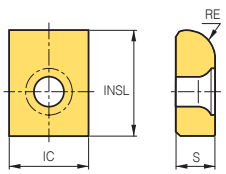
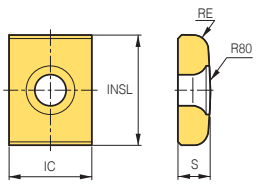


(mm)

Gear Module	No.of teeth	CICT	DC	DCON-MS	DHUB	KWW	KWW1	THUB
12	30, 60, 120	24	250	60	100	25	14	70
14	30, 60, 120	36	250	60	100	25	14	80
16	30, 60, 120	36	250	60	100	25	14	80
18	30, 60, 120	36	250	60	100	25	14	90
20	30, 60, 120	48	280	80	135	25	18	95
22	30, 60, 120	48	280	80	135	25	18	100
24	30, 60, 120	48	320	80	145	25	18	105
26	30, 60, 120	72	400	100	180	25	24	110
28	30, 60, 120	72	400	100	180	25	24	110
30	30, 60, 120	72	400	100	180	25	24	120
32	30, 60, 120	84	400	100	180	25	24	130
34	30, 60, 120	84	400	100	180	25	24	130

M This is metric size. We can also provide in inch type

Available inserts

Picture	Designation		Coated				Uncoated		Dimension (mm)				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	RE	
		**M8-ROU**			○	◎			15.875	11	4.76	2	
		M12-M14-ROU			○	◎			19.05	14.29	6.35	3	
		M16-M18-ROU			○	◎			19.05	14.29	7	5	
		M20-M22-ROU			○	◎			19.05	14.29	7.94	7	
		M40-ROU			○	◎			25.4	14.29	9.52	10	
	**LNE**	**433-R80**			○	◎			19.05	14.29	5.56	2.5	

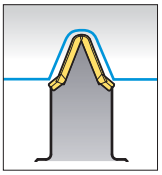
M This is metric size. We can also provide in inch type

◎: 1st Rec ○: 2nd Rec

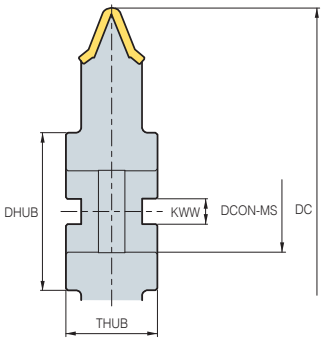
※ The above specification is subject to change according to customer related condition & Korloy technical condition

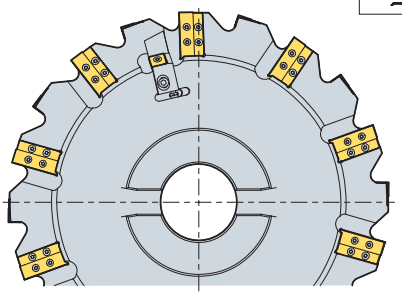
Gear Cutter for Finishing

(1 Step type, External gear)







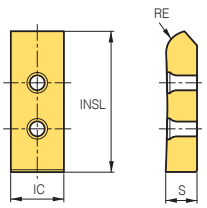
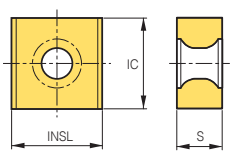


(mm)

Gear Module	CICT	DC	DCON-MS	DHUB	KWW	THUB
6	20	400	80	155	25	90
8	20	400	80	155	25	90
10	20	400	80	155	25	90
12	20	400	80	155	25	90
14	20	400	80	155	25	90
16	20	400	80	155	25	90
18	20	400	80	155	25	90
20	20	400	80	155	25	90
22	20	400	80	155	25	90
24	20	400	80	155	25	90

M This is metric size. We can also provide in inch type

Available inserts

Picture	Designation		Coated				Uncoated		Dimension (mm)				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	RE	
		**M6**			○	◎			19	14.3	5	2.25	
		M8			○	◎			27	14.3	5.4	3	
		M10			○	◎			29	14.3	6.35	3.75	
		M12			○	◎			33	14.3	6.35	4.5	
		M14			○	◎			39	14.3	6.35	5.25	
		M16			○	◎			43	14.3	7.94	6	
		M18			○	◎			50	14.3	7.94	6.75	
		M20			○	◎			54	14.3	9.53	7.5	
		M22			○	◎			57	14.3	9.53	8.25	
		M24			○	◎			64	14.3	9.53	9	
	**SNEQ**	**1507-C0.8**			○	◎			15.875	15.875	7.94	-	

M This is metric size. We can also provide in inch type

※ The above specification is subject to change according to customer related condition & Korloy technical condition

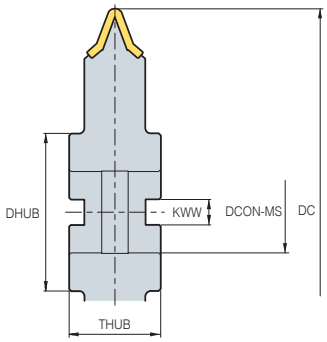
◎: 1st Rec ○: 2nd Rec

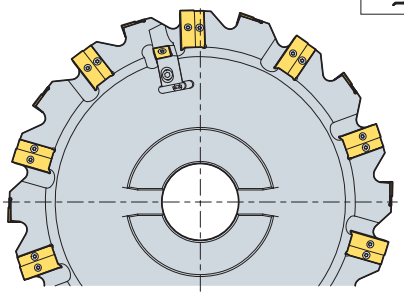
Gear Finishing Cutter

(1 step type, internal gear)







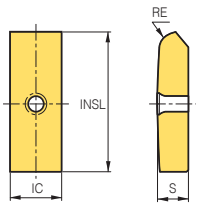
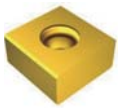
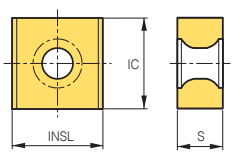


(mm)

Gear Module	CICT	DC	DCON-MS	DHUB	KWW	THUB
6	20	400	80	155	25	90
8	20	400	80	155	25	90
10	20	400	80	155	25	90
12	20	400	80	155	25	90
14	20	400	80	155	25	90
16	20	400	80	155	25	90
18	20	400	80	155	25	90
20	20	400	80	155	25	90
22	20	400	80	155	25	90
24	20	400	80	155	25	90

M This is metric size. We can also provide in inch type

Available inserts

Picture	Designation		Coated				Uncoated		Dimension (mm)				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	RE	
		**M6**			○	◎			19	14.3	5	2.25	
		M8			○	◎			27	14.3	5.4	3	
		M10			○	◎			29	14.3	6.35	3.75	
		M12			○	◎			33	14.3	6.35	4.5	
		M14			○	◎			39	14.3	6.35	5.25	
		M16			○	◎			43	14.3	7.94	6	
		M18			○	◎			50	14.3	7.94	6.75	
		M20			○	◎			54	14.3	9.53	7.5	
		M22			○	◎			57	14.3	9.53	8.25	
		M24			○	◎			64	14.3	9.53	9	
	**SNEQ**	**1507-C0.8**			○	◎			15.875	15.875	7.94	-	

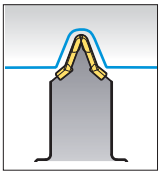
M This is metric size. We can also provide in inch type

◎: 1st Rec ○: 2nd Rec

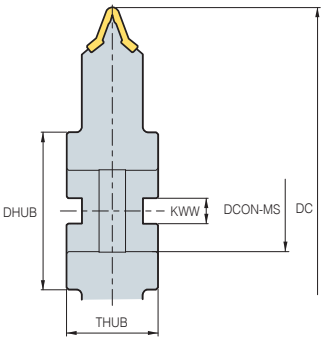
※ The above specification is subject to change according to customer related condition & Korloy technical condition

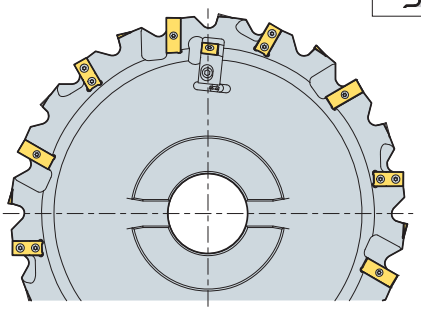
Gear Cutter for Finishing

(2 Step type, Internal / External gear)







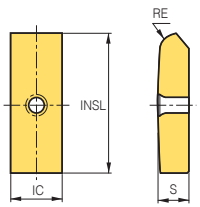
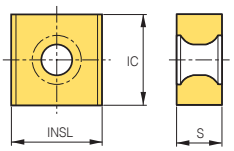
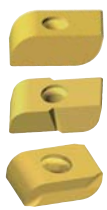
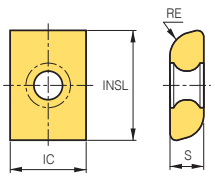


(mm)

Gear Module	CICT	DC	DCON-MS	DHUB	KWW	THUB
6	24	400	80	155	25	90
8	24	400	80	155	25	90
10	24	400	80	155	25	90
12	24	400	80	155	25	90
14	24	400	80	155	25	90
16	24	400	80	155	25	90
18	24	400	80	155	25	90
20	24	400	80	155	25	90
22	24	400	80	155	25	90
24	24	400	80	155	25	90

M This is metric size. We can also provide in inch type

Available inserts

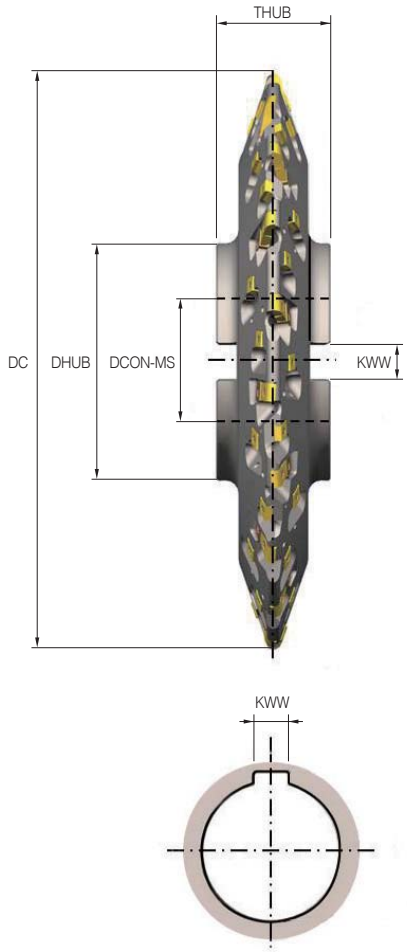
Picture	Designation		Coated				Uncoated		Dimension (mm)				Configuration
			NC5330	PC9530	PC3700	PC5300	H01	G10	INSL	IC	S	RE	
		**M6**		○		◎			19	14.3	5	2.25	
		M8		○		◎			27	14.3	5.4	3	
		M10		○		◎			29	14.3	6.35	3.75	
		M12		○		◎			33	14.3	6.35	4.5	
		M14		○		◎			39	14.3	6.35	5.25	
		M16		○		◎			43	14.3	7.94	6	
		M18		○		◎			50	14.3	7.94	6.75	
		M20		○		◎			54	14.3	9.53	7.5	
		M22		○		◎			57	14.3	9.53	8.25	
		M24		○		◎			64	14.3	9.53	9	
	**SNEQ**	**1507-C0.8**		○		◎			15.875	15.875	7.94	-	
		**M6-2ST**							19.05	11.6	3.8	2.25	
		M8-2ST							19.05	11.6	4	3	
		M10-2ST							19.05	11.6	4.76	3.75	
		M12-2ST							19.05	14.3	6.35	4.5	
		M14-2ST							25.4	14.3	6.35	5.25	
		M16-2ST							31.8	14.3	7.14	6	
		M18-2ST							31.8	14.3	7.14	6.75	
		M20-2ST							31.8	14.3	9.52	7.5	
		M22-2ST							31.8	14.3	9.52	8.25	
		M24-2ST							31.8	14.3	9.52	9	

M This is metric size. We can also provide in inch type

◎: 1st Rec ○: 2nd Rec

※ The above specification is subject to change according to customer related condition & Korloy technical condition

Gear cutter order form



Cutter Type

☐ **Roughing**
- ☐ Step
- ☐ V shape

☐ **Semi-finishing**
- ☐ Low cutting resistance
- ☐ High rigid edge

☐ **Finishing**
- ☐ 1 Step
- ☐ 2 Step

■ Stock for finishing(one side) (inch) :

■ Outside diameter DC(inch) :

■ Bore diameter DCON-MS(inch) :

■ Hub diameter DHUB(inch) :

■ Cutter width THUB(inch) :

■ Radial keyway width KWW(inch) :

■ Radial keyway depth(inch) :

■ Axial keyway width KWW (inch) :

■ Axial keyway depth(inch) :

Involute gear data

☐ **External Gear** ☐ **Internal Gear** ☐ **Rack Gear**

■ Module m_n :

■ No.of teeth Z(mm) :

■ Pressure angle α(°) :

■ Helix angle β(°) :

■ Addendum modification coefficient x :

■ Tip diameter da(inch) :

■ Root diameter d_f(inch) :

■ Root radius ρ_{fp}(inch)

■ Base tangent length W_k(inch)

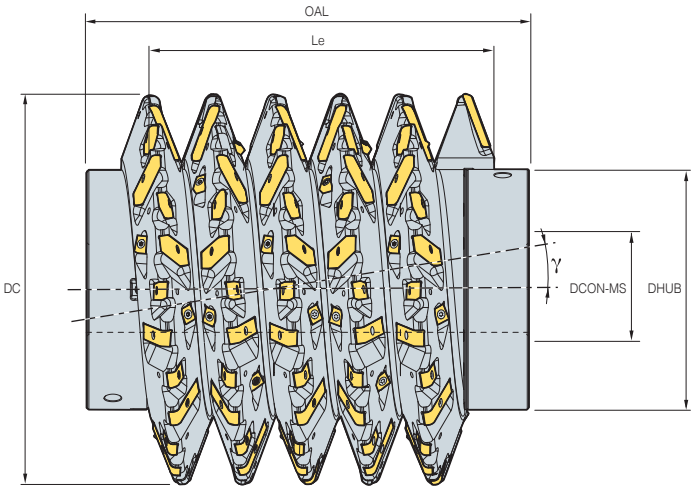
■ No. of measuring teeth K :

■ Dimension over balls M_d(inch) :

■ Ball diameter D_M(inch) :

■ Gear quality (DIN, AGMA) :

Indexable HOB

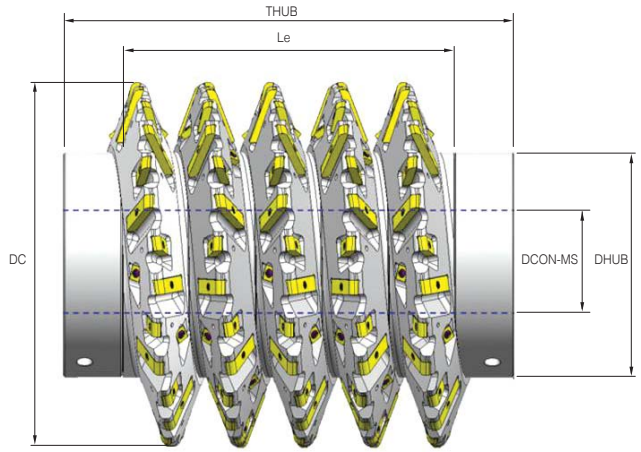


(mm)

Gear Module	DC	DHUB	DCON-MS	No.Segm. (Pitch)	Le	Segment insert	Total insert	γ (Lead Ang.)
6	180	125	40	6	(113)	15	90	2.084
	210	125	50	6	(113)	17	102	1.763
	240	160	60	6	(113)	19	114	1.528
7	180	125	40	6	(132)	15	90	2.469
	210	125	50	6	(132)	17	102	2.084
	240	160	60	6	(132)	19	114	1.803
8	210	125	50	6	(151)	17	102	2.413
	240	160	60	6	(151)	19	114	2.084
	270	180	80	6	(151)	21	126	1.834
9	210	125	50	6	(169)	17	102	2.751
	240	160	60	6	(169)	19	114	2.372
	270	180	80	6	(169)	21	126	2.084
10	210	125	50	6	(189)	17	102	3.099
	240	160	60	6	(189)	19	114	2.666
	270	180	80	6	(189)	21	126	2.339
12	240	140	60	6	(226)	18	108	3.276
	270	180	80	6	(226)	22	132	2.866
	350	215	80	6	(226)	26	156	2.149
14	270	180	80	6	(264)	22	132	3.415
	350	215	80	6	(264)	26	156	2.547
16	270	160	80	6	(302)	22	132	3.989
	350	215	80	6	(302)	26	156	2.959
18	270	145	80	5	(283)	22	110	4.589
	350	215	80	5	(283)	26	130	3.383
20	350	215	80	5	(314)	26	130	3.823
	450	265	100	5	(314)	34	170	2.866

M This is metric size. We can also provide in inch type

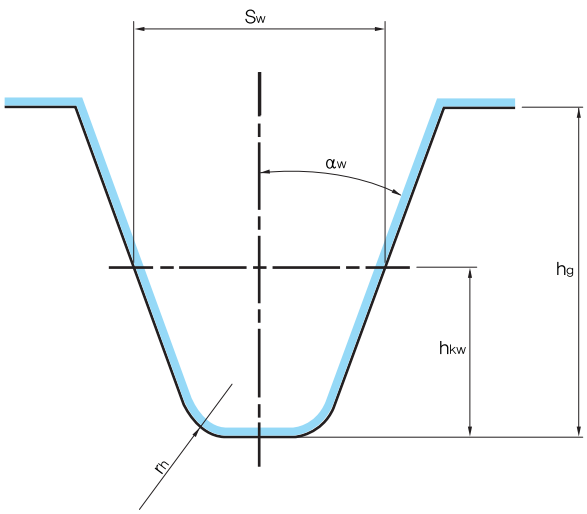
Indexable HOB Cutter Order Form



Tool SPEC.

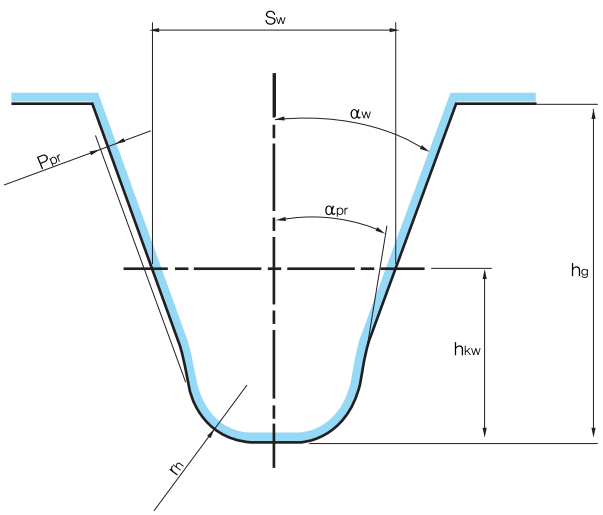
- Outside diameter DC(inch) :
- Bore diameter DCON-MS(inch) :
- Hub diameter DHUB(inch) :
- Hob length THUB(inch) :
- Cutting length Le(inch) :
- Spiral direction RH/LH :
- Quality class acc. to DIN 3968 :

Profile of Hob [Module m6 ~]



- Module m_n :
- Addendum hkw(inch) :
- Tooth thickness Sw(inch) :
- Tooth depth hg(inch) :

Profile of Roughing hob [Module m8 ~]

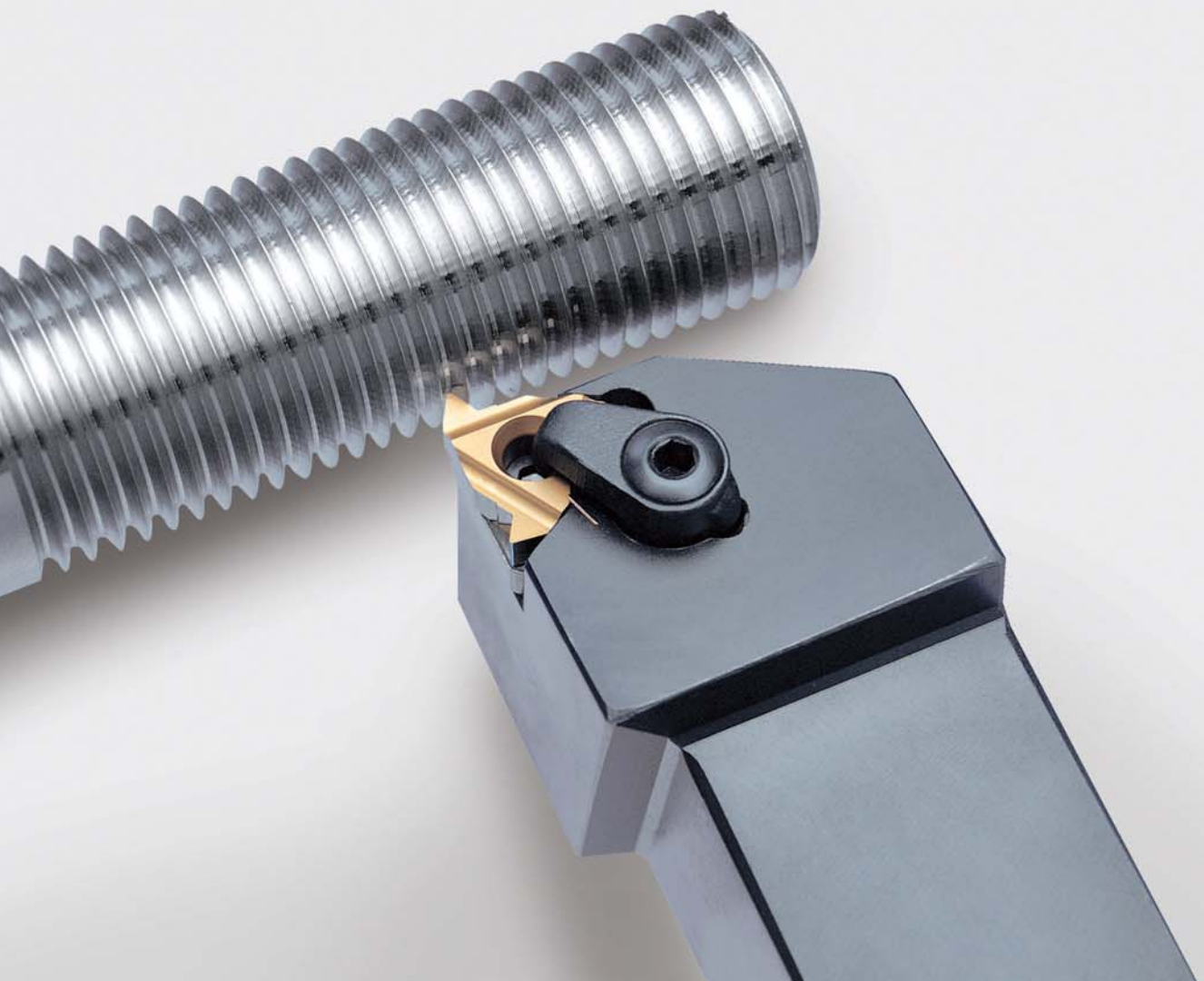


- Pressure a ngle αw(inch) :
- Protuberance amount Ppr(inch) :
- Protuberance angle αpr(inch) :
- Tip radius rh(inch) :

PART

THREADING

Korloy threading tools are available for machining various shapes of thread at various pitches while ensuring high quality performances



Technical information for THREADING

Technical Information for Threading

C2 Technical Information for Thread Milling
C2 Thread Milling Holders Code System
C3 Thread Milling
C10 Preparing for the Thread Milling Operation

Thread Milling Inserts

C12 ISO Metric
C13 American UNC
C14 UNJ (Unified Constant Thread)
C15 Whitworth (BSW, BSF, BSP, BSB)
C16 NPT
C16 NPTF
C16 BSPT

Thread Milling Holders

C17 Standard Type
C17 Long Type
C17 Taper Type

Thread Milling Holders Code System

TM	S	R	L	050	-	11
1	2	3	4	5		6
Insert Shape	Holder style	Hand	Shank type	Shank diameter		Cutting edge length

1 Product name

TM S R L 050 - 11

Thread Milling Holder

3 Hand

TM S **R** L 050 - 11

R : Right-handed L : Left-handed

5 Shank diameter

TM S R L **050** - 11

050: 0.50	100: 1.00
0625: 0.625	125: 1.25
075: 0.75	150: 1.50

2 Holder style

TM **S** R L 050 - 11

S : Shank Type

4 Shank type

TM S R **L** 050 - 11

None : Standard
L : Long Type
T : Taper Type

6 Cutting edge length(mm)

TM S R L 050 - **11**

10 : 10.4	22 : 22
11 : 11	27 : 27
16 : 16	38 : 38.5

Thread Milling Inserts Code System

TM	2	I	-	16	1.5	ISO
1	2	3		4	5	6
Insert Shape	Cutting edge	Type of insert		Cutting edge length	Pitch	Type

1 Insert style

TM 2 I 16 - 1.5 ISO

Thread Milling Insert

2 Cutting edge

TM **2** I 16 - 1.5 ISO

None : 1 cutting edge
2 : 2 cutting edge

3 Type of insert

TM 2 **I** 16 - 1.5 ISO

I : Internal
E : External
EI : External & Internal

4 Cutting edge length

TM 2 I **16** - 1.5 ISO

10 : 10.4
11 : 11
16 : 16
22 : 22
27 : 27
38 : 38.5

5 Pitch

TM 2 I 16 - **1.5** ISO

mm : 0.5 ~ 6 tpi : 48 ~ 6

6 Type

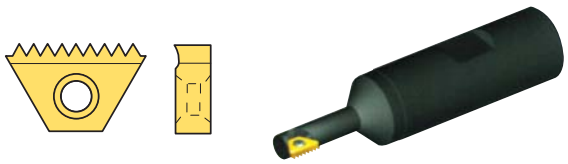
TM 2 I 16 - 1.5 **ISO**

ISO Metric
American UN (UNC, UNF, UNEF)
UNJ
Whitworth (BSW, BSF, BSP, BSB)
National Pipe Thread (NPT)
National Pipe Thread (NPTF)
British Standard Pipe Thread (BSPT)

Thread Milling

The right tool for the job

Small diameter type



- **Tool holder**: TMSR • **Insert**: TM L = 0.41 inch
- For small bore diameters down to 9.5 mm / L = 10.4 mm

Standard type



- **Tool holder**: TMSR • **Insert**: TM2
- For standard length threads

Long type



- **Tool holder**: TMSR • **Insert**: TM2
- For long or remote threads

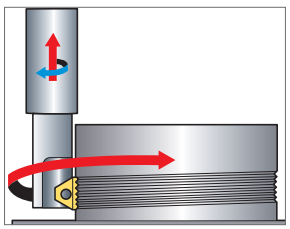
Tapered type



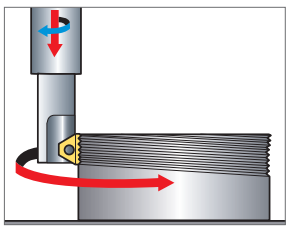
- **Tool holder**: TMSR • **Insert**: TM2 (BSPT, NPT, NPTF)
- For taper thread

Thread milling methods

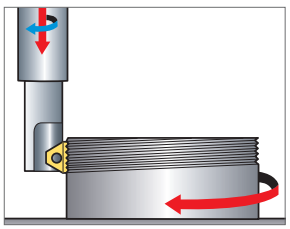
External threading



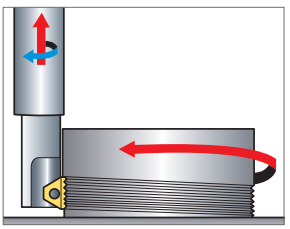
Right handed thread
conventional milling



Left handed thread
down milling

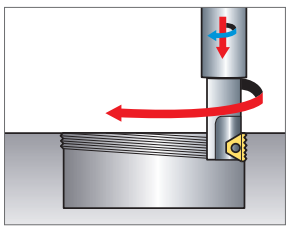


Right handed thread
down milling

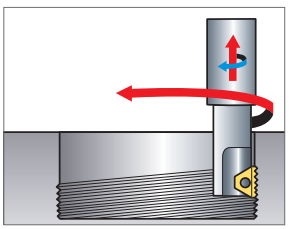


Left handed thread
conventional milling

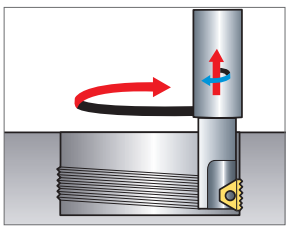
Internal threading



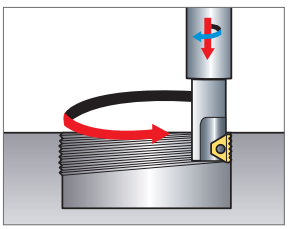
Right handed thread
down milling



Left handed thread
conventional milling

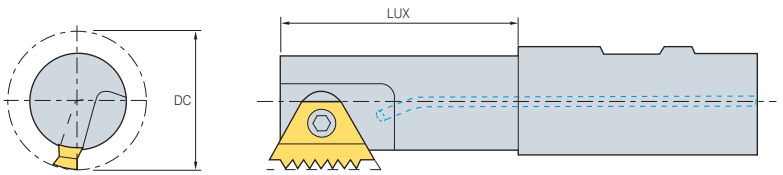


Right handed thread
conventional milling



Left handed thread
down milling

Tooling recommendation for given internal thread specification

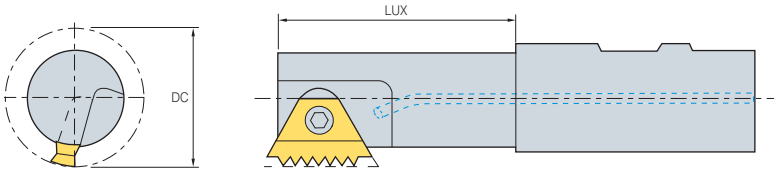


• ISO

TP	TDZ (mm)	Holder	Insert	LUX	DC	TDN
0.75	11	TMSR 12-10	TM2I 10-0.75ISO	0.47	0.35	0.017
1	12-14	TMSR 12-10	TM2I 10-1.0ISO	0.47	0.35	0.023
	15-18	TMSR 12-11	TM2I 11-1.0ISO	0.47	0.45	
	20	TMSR 16-16	TM2I 16-1.0ISO	0.87	0.67	
	22	TMSR 20-22	TM2I 22-1.0ISO	1.14	0.75	
	24	TMSR 20-16	TM2I 16-1.0ISO	1.69	0.79	
	25-28	TMSRL 25-16	TM2I 16-1.0ISO	0.98	0.87	
1.25	14	TMSR 12-10	TM2I 10-1.25ISO	0.47	0.35	0.028
1.5	14-15	TMSR 12-10	TM2I 10-1.5ISO	0.47	0.35	0.034
	16-20	TMSR 12-11	TM2I 11-1.5ISO	0.47	0.45	
	22	TMSR 16-16	TM2I 16-1.5ISO	0.87	0.67	
	24	TMSR 20-22	TM2I 22-1.5ISO	1.14	0.75	
	25-26	TMSR 20-16	TM2I 16-1.5ISO	1.69	0.79	
	27-30	TMSRL 25-16	TM2I 16-1.5ISO	0.98	0.87	
	35-42	TMSR 25-27	TM2I 27-1.5ISO	2.05	1.18	
	45	TMSR 32-27	TM2I 27-1.5ISO	2.28	1.46	
2	22	TMSRT 16-16	TM2I 16-2.0ISO	0.87	0.61	0.045
	24	TMSR 16-16	TM2I 16-2.0ISO	0.87	0.67	
	25	TMSR 20-22	TM2I 22-2.0ISO	1.14	0.75	
	27	TMSR 20-16	TM2I 16-2.0ISO	1.69	0.79	
	28-32	TMSRL 25-16	TM2I 16-2.0ISO	0.98	0.87	
	39-42	TMSR 25-27	TM2I 27-2.0ISO	2.05	1.18	
	45-48	TMSR 32-27	TM2I 27-2.0ISO	2.28	1.46	
3	42-48	TMSR 25-27	TM2I 27-3.0ISO	2.05	1.18	0.068
	50-52	TMSR 32-27	TM2I 27-3.0ISO	2.28	1.46	
4	45-52	TMSR 25-27	TM2I 27-4.0ISO	2.05	1.18	0.091
	55	TMSR 32-38	TM2I 38-4.0ISO	2.17	1.38	
	56-58	TMSR 32-27	TM2I 27-4.0ISO	2.28	1.46	
	60-65	TMSR 40-38	TM2I 38-4.0ISO	2.56	1.81	
5	48-52	TMSR 32-38	TM2I 38-5.0ISO	2.05	1.18	0.114
5.5	56	TMSR 32-38	TM2I 38-5.5ISO	2.17	1.38	0.125
	60	TMSR 40-38	TM2I 38-5.5ISO	2.56	1.81	
6	64-68	TMSR 40-38	TM2I 38-6.0ISO	2.56	1.81	0.136

• The recommended holder is the largest for the given thread specification
• Holder with smaller or equal cutting diameters (DC) can also be used

Tooling recommendation for given internal thread specification

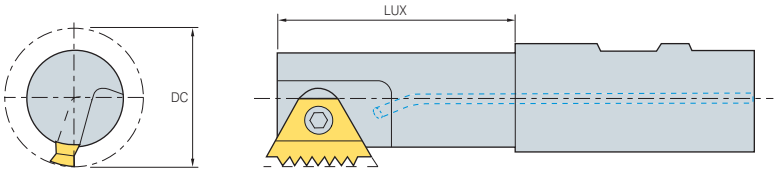


• UN

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
32	7/16-1/2	TMSR 12-10	TMI 10-32UN	0.47	0.35	0.018
	9/16-11/16	TMSR 12-11	TM2I 11-32UN	0.47	0.45	
	3/4-13/16	TMSR 16-16	TM2I 16-32UN	0.87	0.67	
	7/8-15/16	TMSR 20-16	TM2I 16-32UN	1.69	0.79	
	1	TMSR 25-16	TM2I 16-32UN	0.98	0.87	
28	7/16-1/2	TMSR 12-10	TMI 10-28UN	0.47	0.35	0.020
	9/16-3/4	TMSR 12-11	TM2I 11-28UN	0.47	0.45	
	13/16-7/8	TMSR 16-16	TM2I 16-28UN	0.87	0.67	
	15/16	TMSR 20-16	TM2I 16-28UN	1.69	0.79	
	1-1 1/8	TMSRL 25-16	TM2I 16-28UN	0.98	0.87	
24	9/16-11/16	TMSR 12-11	TM2I 11-24UN	0.47	0.45	0.024
20	1/2-9/16	TMSR 12-10	TMI 10-20UN	0.47	0.35	0.029
	5/8-13/16	TMSR 12-11	TM2I 11-20UN	0.47	0.45	
	7/8	TMSR 16-16	TM2I 16-20UN	0.87	0.67	
	15/16-1	TMSR 20-16	TM2I 16-20UN	0.69	0.79	
	1 1/16-1 1/8	TMSRL 25-16	TM2I 16-20UN	0.98	0.87	
	1 3/8-1 5/8	TMSR 25-27	TM2I 27-20UN	2.05	1.18	
	1 11/16-1 13/16	TMSR 32-27	TM2I 27-20UN	2.28	1.46	
18	5/8	TMSR 12-11	TM2I 11-18UN	0.47	0.45	0.032
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-18UN	0.98	0.87	
	1 7/16-1 5/8	TMSR 25-27	TM2I 27-18UN	2.05	1.18	
	1 11/16	TMSR 32-27	TM2I 27-18UN	2.28	1.46	
16	11/16-13/16	TMSR 12-11	TM2I 11-16UN	0.47	0.45	0.036
	7/8-15/16	TMSR 16-16	TM2I 16-16UN	0.87	0.67	
	1	TMSR 20-16	TM2I 16-16UN	1.69	0.79	
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-16UN	0.98	0.87	
	1 7/16-1 5/8	TMSR 25-27	TM2I 27-16UN	2.05	1.18	
	1 11/16-1 7/8	TMSR 32-27	TM2I 27-16UN	2.28	1.46	
14	7/8	TMSR 12-11	TM2I 11-14UN	0.47	0.45	0.041
12	7/8	TMSRT 16-16	TM2I 16-12UN	0.87	0.61	0.048
	15/16	TMSR 16-16	TM2I 16-12UN	0.87	0.67	
	1	TMSR 20-22	TM2I 22-12UN	1.14	0.75	
	1 1/16	TMSR 20-16	TM2I 16-12UN	1.69	0.79	
	1 1/8-1 1/4	TMSRL 25-16	TM2I 16-12UN	0.98	0.87	
	1 1/2-1 11/16	TMSR 25-27	TM2I 27-12UN	2.05	1.18	
	1 3/4-1 15/16	TMSR 32-27	TM2I 27-12UN	2.28	1.46	
8	1 11/16-1 15/16	TMSR 25-27	TM2I 27-8UN	2.05	1.18	0.072
	2-1 1/8	TMSR 32-27	TM2I 27-8UN	2.28	1.46	
6	2-2 1/8	TMSR 25-27	TM2I 27-6UN	2.05	1.18	0.096
	2 1/4	TMSR 32-27	TM2I 27-6UN	2.28	1.46	
	2 3/8-2 1/2	TMSR 40-38	TM2I 38-6UN	2.56	1.18	
4.5	2-2 1/4	TMSR 32-38	TM2I 38-4.5UN	2.17	1.38	0.128
4	2 1/2	TMSR 40-38	TM2I 38-4UN	2.56	1.81	0.144

• The recommended holder is the largest for the given thread specification
• Holder with smaller or equal cutting diameters (DC) can also be used

Tooling recommendation for given internal thread specification



• UNJ

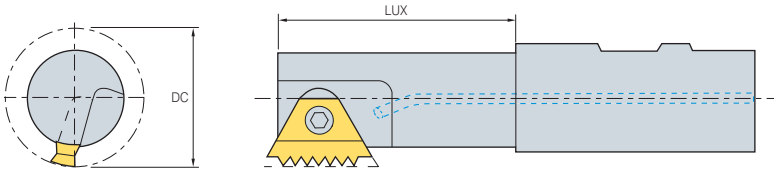
TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
24	9/16-11/16	TMSR 12-11	TM2I 11-24UNJ	0.47	0.45	0.024
20	1/2	TMSR 12-10	TMI 10-20UNJ	0.47	0.35	0.029
	3/4-13/16	TMSR 12-11	TM2I 11-20UNJ	0.47	0.45	
	7/8	TMSR 16-16	TM2I 16-20UNJ	0.87	0.67	
	15/16-1	TMSR 20-16	TM2I 16-20UNJ	1.69	0.79	
18	5/8	TMSR 12-11	TM2I 11-18UNJ	0.47	0.45	0.032
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-18UNJ	0.98	0.87	
16	11/16-13/16	TMSR 12-11	TM2I 11-16UNJ	0.47	0.45	0.036
	7/8-15/16	TMSR 16-16	TM2I 16-16UNJ	0.87	0.67	
	1	TMSR 20-16	TM2I 16-16UNJ	1.69	0.79	
	1 1/16-1 3/16	TMSRL 25-16	TM2I 16-16UNJ	0.98	0.87	
	1 7/16-1 5/8	TMSR 25-27	TM2I 27-16UNJ	2.05	1.18	
	1 11/16-1 7/8	TMSR 32-27	TM2I 27-16UNJ	2.28	1.46	
14	7/8	TMSR 12-11	TM2I 11-14UNJ	0.47	0.45	0.041
12	7/8	TMSRT 16-16	TM2I 16-12UNJ	0.87	0.61	0.048
	15/16-1	TMSR 16-16	TM2I 16-12UNJ	0.87	0.67	
	1 1/16	TMSR 20-16	TM2I 16-12UNJ	1.69	0.79	
	1 1/8-1 1/4	TMSRL 25-16	TM2I 16-12UNJ	0.98	0.87	
	1 1/2-1 11/16	TMSR 25-27	TM2I 27-12UNJ	2.05	1.18	
	1 3/4-1 15/16	TMSR 32-27	TM2I 27-12UNJ	2.28	1.46	

• W

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
26	1/2-9/16	TMSR 12-10	TMEI 10-26W	0.47	0.35	0.025
	5/8-3/4	TMSR 12-11	TM2EI 11-26W	0.47	0.45	
	13/16-7/8	TMSR 16-16	TM2EI 16-26W	0.87	0.67	
	15/16-1	TMSR 20-16	TM2EI 16-26W	1.69	0.79	
	1 1/16-1 1/8	TMSRL 25-16	TM2EI 16-26W	0.98	0.87	
20	9/16	TMSR 12-10	TM2EI 10-20W	0.47	0.35	0.032
	5/8-13/16	TMSR 12-11	TM2EI 11-20W	0.47	0.45	
	7/8-15/16	TMSR 16-16	TM2EI 16-20W	0.87	0.67	
	1	TMSR 20-16	TM2EI 16-20W	1.69	0.79	
	1 1/16-1 3/16	TMSRL 25-16	TM2EI 16-20W	0.98	0.87	
16	13/16	TMSR 16-16	TM2EI 16-16W	0.87	0.61	0.040
	7/8-15/16	TMSR 16-16	TM2EI 16-16W	0.87	0.67	
	1-1 1/16	TMSR 20-16	TM2EI 16-16W	1.69	0.79	
	1 1/8-1 1/4	TMSRL 25-16	TM2EI 16-16W	0.98	0.87	
	1.4-1 5/8	TMSR 25-27	TM2EI 27-16W	2.05	1.18	
	1 3/4-1.9	TMSR 32-27	TM2EI 27-16W	2.28	1.46	
12	1 1/2-1 3/4	TMSR 25-27	TM2EI 27-12W	2.05	1.18	0.054
	1 7/8	TMSR 32-27	TM2EI 27-12W	2.28	1.46	
8	1 7/8-1.9	TMSR 25-27	TM2EI 27-8W	2.05	1.18	0.080
	2.1-2 1/8	TMSR 32-27	TM2EI 27-8W	2.28	1.46	
7	2	TMSR 25-27	TM2EI 27-7W	2.05	1.18	0.091
6	2.1-2 1/8	TMSR 25-27	TM2EI 27-6W	2.05	1.18	0.107
	2 1/4	TMSR 32-38	TM2EI 38-6W	2.17	1.38	
	2 3/8-2.6	TMSR 32-27	TM2EI 27-6W	2.28	1.46	
	2 5/8-2 3/4	TMSR 40-38	TM2EI 38-6W	2.56	1.81	
5	3	TMSR 40-38	TM2EI 38-5W	2.56	1.81	0.128
4.5	3 1/2	TMSR 40-38	TM2EI 38-4.5W	2.56	1.81	0.142

• The recommended holder is the largest for the given thread specification
• Holder with smaller or equal cutting diameters (DC) can also be used

Tooling recommendation for given internal thread specification



• BSPT

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
19	3/8	TMSR 21-11	TM2EI 11-19BSPT	0.79	0.45	0.034
14	1/2-3/4	TMSRT 16-11	TM2EI 16-14BSPT	0.87	0.61	0.046
11	1-1 1/4	TMSRT 20-16	TM2EI 16-11BSPT	0.91	0.75	0.058
	1 1/2	TMSR 25-27	TM2EI 27-11BSPT	2.05	1.18	
	2-6	TMSRT 32-27	TM2EI 27-11BSPT	2.28	1.46	

• NPT

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
14	1/2	TMSRT 16-16	TM2EI 16-14NPT	0.87	0.61	0.052
	3/4	TMSRT 20-16	TM2EI 16-14NPT	0.91	0.75	
11.5	1	TMSRT 20-16	TM2EI 16-11.5NPT	0.91	0.75	0.056
	1 1/4	TMSR 25-27	TM2EI 27-11.5NPT	2.05	1.18	
	1 1/2-2	TMSRT 32-27	TM2EI 27-11.5NPT	2.28	1.46	
8	2 1/2	TMSRT 32-27	TM2EI 27-8NPT	2.28	1.46	0.095
	3-24	TMSR 40-38	TM2EI 38-8NPT	2.28	1.81	

• NPTF

TPI	TDZ (inch)	Holder	Insert	LUX	DC	TDN
14	1/2	TMSRT 16-16	TM2EI 16-14NPTF	0.87	0.61	0.053
	3/4	TMSRT 20-16	TM2EI 16-14NPTF	0.91	0.75	
11.5	1	TMSRT 20-16	TM2EI 16-11.5NPTF	0.91	0.75	0.064
	1 1/2	TMSR 25-27	TM2EI 27-11.5NPTF	2.05	1.18	
	2	TMSRT 32-27	TM2EI 27-11.5NPTF	2.28	1.46	
8	2 1/2	TMSRT 32-27	TM2EI 27-8NPTF	2.28	1.46	0.095
	3	TMSR 40-38	TM2EI 38-8NPTF	2.28	1.81	

• The recommended holder is the largest for the given thread specification
• Holder with smaller or equal cutting diameters (DC) can also be used

Minimum bore diameters for thread milling

Pitch	mm	0.5	0.6	0.7	0.75 0.80	0.9	1	1.25	1.5	1.75	2	-	2.5	3	3.5	4	4.5	5	5.5	-	6	-
	tpi	48	44	36	32	28	26 24	20 19	18 16	14	13 12	11.5 11	10	9 8	7	6	-	5	-	4.5	-	4
Holder designation	diameter	Minimum diameter for machining																				
TMSR 12-10	0.35	0.37	0.38	0.39	0.39	0.41	0.42	0.45	0.47													
TMSR 20-10	0.35	0.37	0.38	0.39	0.39	0.41	0.42	0.45	0.47													
TMSR 12-11	0.45	0.47	0.48	0.49	0.49	0.51	0.52	0.55	0.57	0.59												
TMSR 20-11	0.45	0.47	0.48	0.49	0.49	0.51	0.52	0.55	0.57	0.5												
TMSRL 25-11	0.45	0.47	0.48	0.49	0.49	0.51	0.52	0.55	0.57	0.59												
TMSRT 16-16	0.61	0.63	0.64	0.65	0.65	0.67	0.68	0.7	0.73	0.75	0.77	0.79										
TMSR 16-16	0.67	0.69	0.7	0.71	0.72	0.74	0.75	0.77	0.79	0.81	0.83	0.85										
TMSR 16-22	0.67	0.69	0.7	0.71	0.72	0.74	0.75	0.77	0.79	0.81	0.83	0.85										
TMSR 20-22	0.75	0.78	0.79	0.8	0.8	0.82	0.83	0.85	0.87	0.89	0.91	0.93										
TMSRT 20-16	0.75	0.78	0.79	0.8	0.8	0.82	0.83	0.85	0.87	0.89	0.91	0.93										
TMSR 20-16	0.79	0.81	0.83	0.83	0.84	0.86	0.87	0.89	0.91	0.93	0.94	0.96										
TMSRW 25-22	0.87	0.89	0.91	0.91	0.92	0.94	0.94	0.97	0.98	1	1.02	1.04										
TMSRL 25-22	0.87	0.89	0.91	0.91	0.92	0.94	0.94	0.97	0.98	1	1.02	1.04										
TMSRL 25-16	0.87	0.89	0.91	0.91	0.92	0.94	0.94	0.97	0.98	1	1.02	1.04										
TMSR 25-27	1.18	1.21	1.22	1.23	1.24	1.25	1.26	1.29	1.32	1.34	1.36	1.4	1.44	1.54	1.65	1.77	1.89					
TMSRL 25-27	1.18	1.21	1.22	1.23	1.24	1.25	1.26	1.29	1.32	1.34	1.36	1.4	1.44	1.54	1.65	1.77	1.89					
TMSR 32-38	1.38															1.97	2.1	1.67	1.97	1.76	2.26	2.23
TMSR 32-27	1.46	1.5	1.5	1.51	1.52	1.54	1.56	1.59	1.61	1.63	1.65	1.69	1.73	1.83	1.93	2.05	2.19					
TMSRL 32-27	1.46	1.5	1.5	1.51	1.52	1.54	1.56	1.59	1.61	1.63	1.65	1.69	1.73	1.83	1.93	2.05	2.19					
TMSRT 32-27	1.46	1.5	1.5	1.51	1.52	1.54	1.56	1.59	1.61	1.63	1.65	1.69	1.73	1.83	1.93	2.05	2.19					
TMSR 40-38	1.81															2.19	2.17	2.07	2.13	2.15	2.26	2.23
TMSRL 40-38	1.81															2.19	2.17	2.07	2.13	2.15	2.26	2.23

- In order to perform a thread milling operation, a milling machine with three-axis control capability for helical interpolation is required is required
- Helical interpolation is a CNC function producing tool movement along a helical path. This helical motion combines a circular movement in one plane with a simultaneous linear motion in a plane perpendicular to the first. For example, the path from point A to point B (Fig.A) on the envelope of the cylinder combines a circular movement in the x-y plane with a linear displacement in the z direction
- On most CNC systems this function can be executed in two different ways:

G02: Helical interpolation in a clockwise direction

G03: Helical interpolation in a counter-clockwise direction

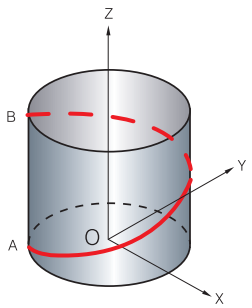


Fig. A

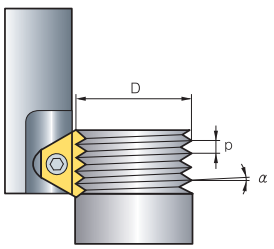


Fig. B

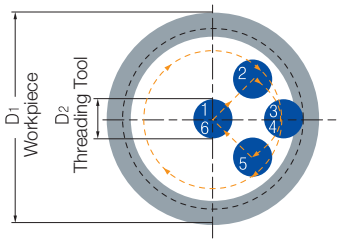
- The thread milling operation (Fig. B) consists of circular rotation of fhe tool around its own axis togerther with an orbiting motion along the bore or workpiece circumference. During one such orbit, the tool will shift vertically by one pitch length. These movements combined with the insert geometry create the required thread form. There are three acceptable ways of approaching the workpiece with the tool to initiate production of the thread.

1. Tangential Arc Approach
2. Radial Approach
3. Tangential Line Approach

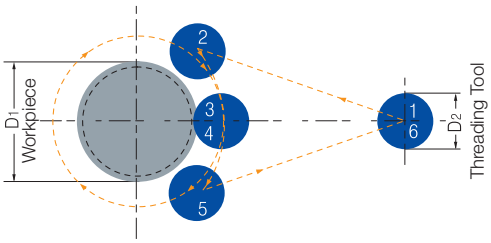
Tangential arc approach

- With this method, the tool enters and exits the workpiece smoothly. No marks are left on the workpiece and there is no vibration, even with harder materials. Although it requires slightly more complex programming than the radial approach (see below), this is the method recommended for machining the highest quality threads

Internal thread



External thread

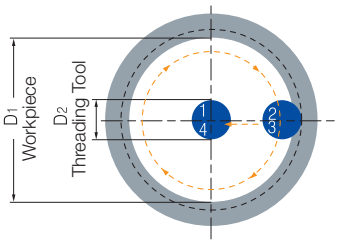


1-2: rapid approach
2-3: tool entry along tangential arc, with simultaneous feed along z-axis
3-4: helical movement during one full orbit (360°)
4-5: tool exit along tangential arc, with continuing feed along z-axis
5-6: rapid return

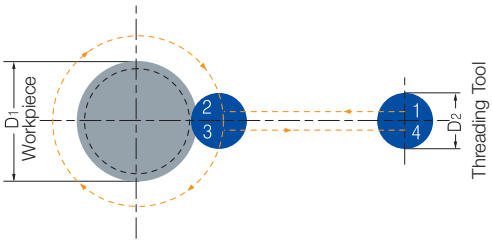
Radial approach

- This is the simplest method. This is the simplest method and below are the two characteristics of radial approach:
  ① a small vertical mark may be left at the entry (and exit) point. This is of no significance to the thread itself
  ② when using this method with very hard materials, there may be a tendency of the tool to vibrate as it approaches the full cutting depth
- Note: Radial feed during entry to the full profile depth should only be 1/3 of the subsequent circular feed

Internal thread



External thread

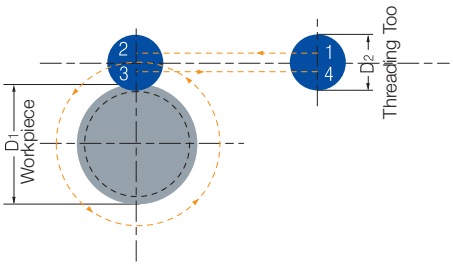


1-2: radial entry
2-3: helical movement during one full orbit (360°)
3-4: radial exit

Tangential line approach

- This method is very simple, and has all of the advantages of the tangential arc method However, it is applicable only with external threads

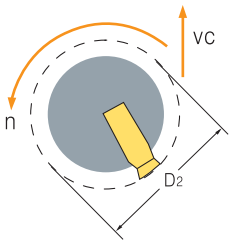
External thread



1-2: radial entry with simultaneous feed along z axis
2-3: helical movement during one full orbit (360°)
3-4: radial exit

Preparing for the Thread Milling Operation

Calculation of rotational velocity and feed at the cutting edge



$$n = \frac{vc \times 1000}{\pi \times D2}$$

$$vc = \frac{n \times \pi \times D2}{1000}$$

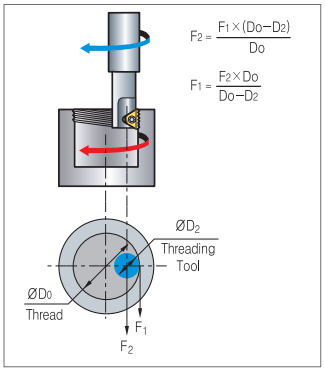
$$F_1 = n \times z \times fn$$

n: Rotational Velocity (R.P.M)
vc: Cutting Speed (sfm)
D_2: Tool holder Cutting Dia. (inch)
F_1: Real Feed rate at the Cutting edges (ipm)
z: No. of Cutting Edges
fn: Feed per Rooth per Rotation (ipr)

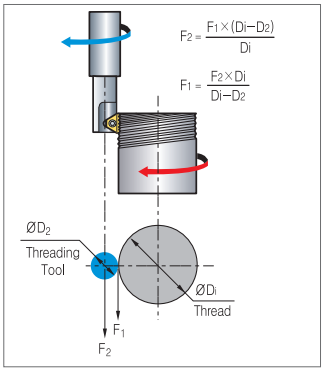
Calculation of feed rates at the tool center line

- On most CNC machines, the feed rate required for programming is that of the center-line of the tool. When dealing with linear tool movement, the feed rate at the cutting edge and the center line are identical, but with circular tool movement this is not the case The equations define the relationship between feed rates at the cutting edge and at the tool center line

Internal thread



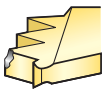
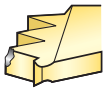
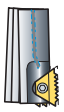
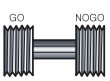
External thread



Grades and applications

- **Grade:** PC9570T
- **Application:** The general-purpose grade for machining steel and cast iron is a high toughness fine-grain material with excellent toughness. It is coated with TiCN, offering outstanding toughness and wear resistance, which enhances chip resistance and extends tool life.

Trouble shooting

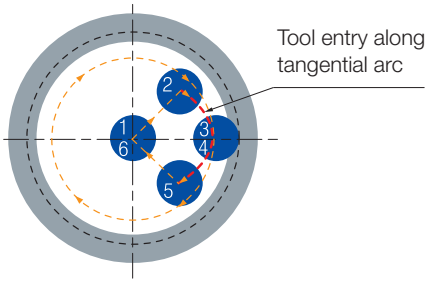
Problem		Possible	Solution
	**Increased insert flank wear**	Cutting speed too high	Reduce cutting speed/use coated insert
		Chip is too thin	Increase feed rate
		Insufficient coolant	Increase coolant flow rate
	**Chipping of cutting edge**	Chip is too thick	Reduce feed rate/Use the tangential arc method Increase RPM
		Vibration	Check stability
	**Material built-up on the cutting edge**	Incorrect cutting speed	Change cutting speed
		Unsuitable carbide grade	Use a coated carbide grade
	**Chatter/ vibration**	Feed rate is too high	Reduce the feed.
		Profile is too deep	Execute two passes, each with increased cutting depth/ Execute two passes, each cutting only half the thread length
		Thread length is too long	Execute two passes, each cutting only half the thread length
	**Insufficient thread accuracy**	Tool deflection	Reduce feed rate/Execute a “zero” cut

Recommended cutting conditions

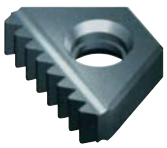
Workpiece			Hardness brinell (HB)	vc (sfm)		Feed fz (ipt)	
				Grade			
				PC9570T	PC9070M	Indexable insert	Solid endmill
P	Carbon steel	Low carbon (C+0.1-0.25%)	125	330~690	260~820	0.002~0.012	0.001~0.006
		Medium carbon (C = 0.25-0.55%)	150	330~590	260~755	0.002~0.010	0.001~0.004
		High carbon (C = 0.55-0.85%)	170	330~560	260~655	0.002~0.008	0.001~0.003
	Low alloy steel	Non-hardened	180	290~520	195~590	0.002~0.010	0.001~0.004
		Hardened	275	260~490	195~560	0.002~0.008	0.001~0.003
		Hardened	350	230~460	195~525	0.002~0.006	0.0004~0.001
	High alloy steel	Annealed	200	200~430	130~330	0.002~0.008	0.001~0.002
		Hardened	325	230~360	100~260	0.002~0.004	0.000~0.001
	Cast steel	Low alloy	200	330~560	260~820	0.002~0.006	0.001~0.004
		High alloy	225	230~390	195~560	0.002~0.004	0.0004~0.001
M	Ferritic stainless steel	Non-hardened	200	330~560	195~490	0.002~0.006	0.002~0.004
		Hardened	330	330~560	195~395	0.002~0.004	0.0004~0.002
	Austenitic stainless steel	Austenitic	180	230~460	195~460	0.002~0.006	0.002~0.004
		Super austenitic	200	230~460	195~425	0.002~0.004	0.002~0.004
	Ferritic Stainless Steel Castings	Non-hardened	200	230~460	195~525	0.002~0.006	0.002~0.004
		Hardened	330	230~460	195~360	0.002~0.004	0.001~0.002
	Austenitic Stainless Steel Castings	Austenitic	200	230~390	195~490	0.002~0.006	0.002~0.004
		Hardened	330	230~390	195~330	0.002~0.004	0.001~0.002
	High temperature alloys	Annealed (Iron based)	200	70~150	100~195	0.002~0.004	0.002~0.004
		Aged (Iron based)	280	70~100	65~165	0.001~0.002	0.0004~0.001
		Annealed (Nickel or Cobalt based)	250	50~70	50~115	0.001~0.002	0.0004~0.001
		Aged (Nickel or Cobalt based)	350	30~50	50~100	0.001~0.002	0.0004~0.001
	Titanium alloys	Pure 99.5 Ti	400Rm	230~460	130~260	0.001~0.002	0.001~0.002
		α+β alloys	1050Rm	70~160	65~165	0.001~0.002	0.001~0.002
K	Extra hard steel	Hardened & tempered	55HRC	70~150	50~160	0.0004~0.001	0.0002~0.0004
	Malleable cast iron	Ferritic (short chips)	130	200~430	230~525	0.0008~0.003	0.0004~0.001
		Pearlitic (long chips)	230	200~390	195~490	0.0008~0.002	0.001~0.002
	Grey cast iron	Low tensile strength	180	200~430	230~525	0.002~0.006	0.002~0.004
		High tensile strength	260	200~330	130~395	0.002~0.004	0.001~0.002
	Nodular SG iron	Ferritic	160	200~410	130~360	0.002~0.006	0.002~0.004
		Pearlitic	260	160~290	130~330	0.002~0.004	0.001~0.002
N	Aluminum alloys Wrought	Non-aging	60	330~820	655~985	0.004~0.016	0.004~0.010
		Aged	100	330~590	490~820	0.004~0.012	0.004~0.008
	Aluminum alloys	Cast	75	490~1310	330~655	0.004~0.012	0.004~0.008
		Cast & aged	90	490~920	395~720	0.002~0.010	0.004~0.006
		Cast Si 13-22%	130	260~490	655~985	0.004~0.012	0.004~0.008
	Copper and copper alloys	Brass	90	390~670	655~985	0.004~0.012	0.004~0.010
		Bronze and non-leaded copper	100	390~670	490~820	0.002~0.010	0.004~0.008

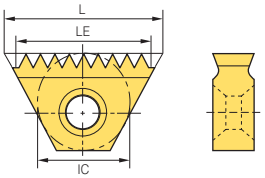
Example

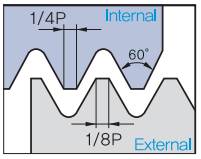
- At tool entry, set the Feed fz (mm/tooth) to 70% lower than the threading Feed
- Threading Feed: 0.3 (mm/t)
- Tool entry Feed: 0.09 (mm/t)



ISO Metric







Defined by : R262 (DIN 13)
Tolerance class : 6g/6H

• External/Internal

(inch)

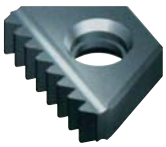
Insert size		TP	Designation						LE	NT (Number of Teeth)	Tool holder
IC	L		External		PC9570T	Internal		PC9570T			
0.236	0.41	0.5		-		TMI	10-0.5ISO	●	0.39	20	TMSR - 10
		0.75		-			10-0.75ISO	○	0.38	13	
		1		-			10-1.0ISO	●	0.35	9	
		1.25		-			10-1.25ISO	○	0.34	7	
		1.5		-			10-1.5ISO		0.35	6	
1/4	0.43	0.5		-		TM2I	11-0.5ISO	○	0.39	20	TMSR - 11
		0.75	TM2E	11-0.75ISO	○		11-0.75ISO	●	0.41	14	
		1		11-1.0ISO	○		11-1.0ISO	●	0.39	10	
		1.25		11-1.25ISO	○		-		0.39	8	
		1.25		-			11-1.25ISO		0.34	7	
		1.5		11-1.5ISO	○		-		0.35	6	
		1.5		-			11-1.5ISO	●	0.41	7	
3/8	0.63	0.5		-		TM2I	16-0.5ISO	○	0.59	30	TMSR - 16
		0.75	TM2E	16-0.75ISO	○		16-0.75ISO	○	0.59	20	
		0.8		-			16-0.8ISO		0.57	18	
		1		16-1.0ISO			-		0.55	14	
		1		-			16-1.0ISO	●	0.59	15	
		1.25		16-1.25ISO	○		16-1.25ISO	○	0.59	12	
		1.5		16-1.5ISO	●		16-1.5ISO	●	0.59	10	
		1.75		16-1.75ISO	○		16-1.75ISO		0.55	8	
		2		16-2.0ISO			16-2.0ISO	●	0.55	7	
3/8B	0.87	1	TM2E	22-1.0ISO	○	TM2I	22-1.0ISO	○	0.87	22	TMSR - 22
		1.25		22-1.25ISO	○		22-1.25ISO	○	0.84	17	
		1.5		22-1.5ISO	○		22-1.5ISO	●	0.83	14	
		1.75		22-1.75ISO	○		22-1.75ISO	○	0.83	12	
		2		22-2.0ISO	●		22-2.0ISO	●	0.87	11	
5/8	1.06	1	TM2E	27-1.0ISO	○	TM2I	27-1.0ISO		1.02	26	TMSR - 27
		1.25		27-1.25ISO	○		27-1.25ISO	○	0.98	20	
		1.5		27-1.5ISO	○		27-1.5ISO	●	1.00	17	
		1.75		27-1.75ISO	○		27-1.75ISO	○	0.96	14	
		2		27-2.0ISO	○		27-2.0ISO	●	0.94	12	
		2.5		27-2.5ISO			27-2.5ISO	○	0.98	10	
		3		27-3.0ISO			27-3.0ISO	●	0.94	8	
		3.5		27-3.5ISO	○		27-3.5ISO		0.96	7	
		4		27-4.0ISO	○		27-4.0ISO	●	0.94	6	
		4.5		27-4.5ISO	○		27-4.5ISO	○	0.89	5	
3/4B	1.52	1.5	TM2E	38-1.5ISO	○	TM2I	38-1.5ISO	○	1.42	24	TMSR - 38
		2		38-2.0ISO	○		38-2.0ISO		1.42	18	
		3		38-3.0ISO	○		38-3.0ISO	○	1.42	12	
		4		38-4.0ISO	○		38-4.0ISO	○	1.26	8	
		4.5		38-4.5ISO	○		38-4.5ISO	○	1.24	7	
		5		38-5.0ISO	○		38-5.0ISO		1.18	6	
		5.5		38-5.5ISO	○		38-5.5ISO	○	1.30	6	
		6		38-6.0ISO	○		38-6.0ISO	○	1.18	5	

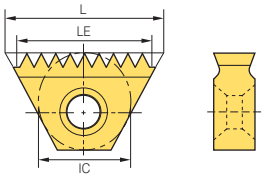
Applicable holders C17

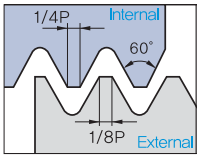
* All inserts except TMI10 code have 2 cutting edges

●: Korea Stock ◆: US Stock ○: Made to order

American UNC







Defined by : ANSI B1.1.74
Tolerance class : Class 2A/2B

• External/Internal

(inch)

Insert size		TPI	Designation						LE	NT (Number of Teeth)	Tool holder
IC	L		External		PC9570T	Internal		PC9570T			
0.236	0.41	32		-		TMI	10-32UN		0.38	12	TMSR - 10
		28		-			10-28UN	○	0.36	10	
		24		-			10-24UN	○	0.38	9	
		20		-			10-20UN	●	0.35	7	
		18		-			10-18UN	○	0.33	6	
		16		-			10-16UN	○	0.31	5	
1/4	0.43	48		-		TM2I	11-48UN	○	0.39	19	TMSR - 11
		40		-			11-40UN	○	0.4	16	
		32		-			11-32UN		0.41	13	
		28	TM2E	11-28UN	○		11-28UN	○	0.39	11	
		27		11-27UN	○		11-27UN	○	0.41	11	
		24		11-24UN	○		11-24UN	○	0.38	9	
		20		11-20UN	○		11-20UN		0.4	8	
		18		11-18UN	○		11-18UN	●	0.39	7	
		16		11-16UN	○		11-16UN	○	0.38	6	
		14		11-14UN	○		11-14UN	○	0.36	5	
3/8	0.63	40		-		TM2I	16-40UN	○	0.58	40	TMSR - 16
		32		-			16-32UN	○	0.59	32	
		28	TM2E	16-28UN	○		16-28UN	○	0.57	28	
		27		16-27UN	○		16-27UN	○	0.55	27	
		24		16-24UN	○		16-24UN	○	0.58	24	
		20		16-20UN	○		16-20UN	○	0.55	20	
		18		16-18UN	○		16-18UN		0.56	18	
		16		16-16UN	○		16-16UN	●	0.56	16	
		14		16-14UN	○		16-14UN		0.57	14	
		13		16-13UN	○		16-13UN	○	0.54	13	
		12		16-12UN	○		16-12UN	●	0.58	12	
		11.5		16-11.5UN	○		16-11.5UN	○	0.52	11.5	
3/8B	0.87	24	TM2E	22-24UN	○	TM2I	22-24UN	○	0.83	20	TMSR - 22
		20		22-20UN	○		22-20UN	○	0.85	17	
		18		22-18UN	○		22-18UN	○	0.83	15	
		16		22-16UN	○		22-16UN	○	0.81	13	
		14		22-14UN	○		22-14UN		0.86	12	
		13		22-13UN	○		22-13UN	○	0.85	11	
		12		22-12UN	○		22-12UN	○	0.83	10	
5/8	1.06	24	TM2E	27-24UN	○	TM2I	27-24UN	○	1	24	TMSR - 27
		20		27-20UN	○		27-20UN	○	1	20	
		18		27-18UN	○		27-18UN	○	1	18	
		16		27-16UN	○		27-16UN	○	1	16	
		14		27-14UN	○		27-14UN	○	1	14	
		13		27-13UN	○		27-13UN	○	1	13	
		12		27-12UN	○		27-12UN	○	1	12	
		11.5		27-11.5UN			27-11.5UN	○	0.96	11	
		11		27-11UN	○		27-11UN	○	1	11	
		10		27-10UN	○		-		0.9	9	
		10		-			27-10UN	○	1	10	
		9		27-9UN	○		27-9UN	○	0.89	8	
		8		27-8UN	○		27-8UN		0.88	7	
		7		27-7UN	○		-		0.86	6	
		7		-			27-7UN	○	1	7	
		6		27-6UN	○		-		0.83	5	
		6		-			27-6UN	○	1	6	
3/4B	1.52	6	TM2E	38-6UN	○	TM2I	38-6UN	○	1.33	8	TMSR - 38
		5		38-5UN	○		38-5UN	○	1.2	6	
		4.5		38-4.5UN	○		38-4.5UN	○	1.33	6	
		4		38-4UN	○		38-4UN	○	1.25	5	

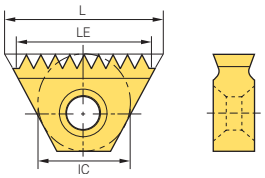
Applicable holders C17

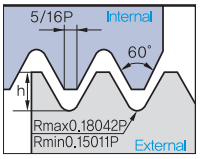
* All inserts except TMI10 code have 2 cutting edges

●: Korea Stock ◆: US Stock ○: Made to order

UNJ(Unified Constant Thread)







Defined by : MIL-S-8879C
Tolerance class : 3A/3B

• External/Internal

(inch)

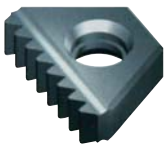
Insert size		TPI	Designation						LE	NT (Number of Teeth)	Tool holder
IC	L		External		PC9570T	Internal		PC9570T			
0.236	0.41	24	-			TMI	10-24UNJ	○	0.38	9	TMSR - 10
		20	-				10-20UNJ	○	0.35	7	
		18	-				10-18UNJ	○	0.33	6	
		16	-				10-16UNJ	○	0.5	8	
1/4	0.43	24	TM2E	11-24UNJ	○	TM2I	11-24UNJ	○	0.38	9	TMSR - 11
		20		11-20UNJ	○		11-20UNJ	○	0.4	8	
		18		-			11-18UNJ	○	0.39	7	
		16		11-16UNJ	○		11-16UNJ	○	0.38	6	
		14		11-14UNJ	○		11-14UNJ	○	0.36	5	
3/8	0.63	24	TM2E	16-24UNJ	○	TM2I	16-24UNJ	○	0.58	14	TMSR - 16
		20		16-20UNJ	○		16-20UNJ	○	0.55	11	
		18		16-18UNJ	○		16-18UNJ	○	0.56	10	
		16		16-16UNJ	○		16-16UNJ	○	0.56	9	
		14		16-14UNJ	○		16-14UNJ	○	0.57	8	
		13		16-13UNJ	○		-		0.54	7	
		12		16-12UNJ	○		16-12UNJ	○	0.58	7	
5/8	1.06	16	TM2E	27-16UNJ		TM2I	27-16UNJ	○	1	16	TMSR - 27
		12		27-12UNJ			27-12UNJ	○	1	12	
		11		27-11UNJ			27-11UNJ	○	1	11	

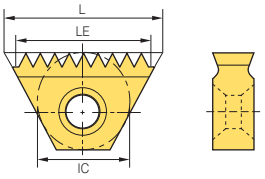
Applicable holders C17

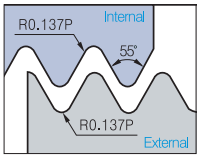
* All inserts except TMI10 code have 2 cutting edges

●: Korea Stock ◆: US Stock ○: Made to order

Whitworth(BSW, BSF, BSP, BSB)







BSW Defined by : B.S.84:1956, DIN 259, ISO228/1:1982
BSP Defind by : B.S.2779:1956
Tolerance class : BSW-Medium class A, BSP-Medium class

• External/Internal

(inch)

Insert size		TPI	Designation		PC9570T	LE	NT (Number of Teeth)	Tool holder
IC	L		External + Internal					
0.236	0.41	28	TMEI	10-28W	○	0.36	10	TMSR - 10
		26		10-26W	○	0.35	9	
		24		10-24W	○	0.38	9	
		20		10-20W	○	0.35	7	
		19		10-19W	○	0.37	7	
1/4	0.43	28	TM2EI	11-28W	○	0.39	11	TMSR - 11
		26		11-26W	○	0.38	10	
		24		11-24W	○	0.38	9	
		20		11-20W	○	0.4	8	
		19		11-19W		0.37	7	
		14		11-14W	○	0.36	5	
3/8	0.63	26	TM2EI	16-26W	○	0.58	15	TMSR - 16
		24		16-24W	○	0.58	14	
		20		16-20W	○	0.55	11	
		19		16-19W	○	0.58	11	
		18		16-18W		0.56	10	
		16		16-16W	○	0.56	9	
		14		16-14W		0.57	8	
		12		16-12W	○	0.58	7	
		11		16-11W	●	0.55	6	
3/8B	0.87	24	TM2EI	22-24W	○	0.83	20	TMSR - 22
		20		22-20W	○	0.85	17	
		19		22-19W	○	0.84	16	
		18		22-18W	○	0.83	15	
		16		22-16W	○	0.81	13	
		14		22-14W		0.86	12	
		12		22-12W	○	0.83	10	
		11		22-11W	○	0.82	9	
5/8	1.06	16	TM2EI	27-16W	○	1	16	TMSR - 27
		14		27-14W	○	1	14	
		12		27-12W	○	0.92	11	
		11		27-11W	○	0.91	10	
		10		27-10W	○	1	10	
		9		27-9W	○	0.89	8	
		8		27-8W	○	0.88	7	
		7		27-7W	○	0.66	6	
		6		27-6W	○	0.83	5	
3/4B	1.52	11	TM2EI	38-11W	○	1.38	15	TMSR - 38
		6		38-6W	○	1.33	8	
		5		38-5W	○	1.2	6	
		4.5		38-4.5W	○	1.33	6	
		-		38-15W		-	-	

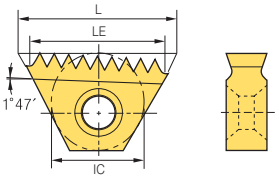
Applicable holders C17

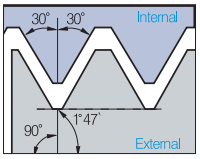
* All inserts except TMI10 code have 2 cutting edges

●: Korea Stock ◆: US Stock ○: Made to order

NPT







Defined by : USAS B2.1:1968
Tolerance class : Standard NPT

• External/Internal

(inch)

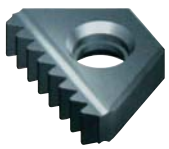
Insert size		TPI	Designation		PC9570T	LE	NT (Number of Teeth)	Tool holder	
IC	L		External + Internal					RH	LH
3/8	0.63	18	TM2E	16-18NPT *		0.56	10	TMSRT - 16	TMSLT - 16
		14	TM2EI	16-14NPT	○	0.57	8		
		11.5		16-11.5NPT	○	0.52	6		
3/8B	0.87	14	TM2EI	22-14NPT	○	0.86	12	TMSRT - 22	TMSLT - 22
5/8	1.06	11.5	TM2EI	27-11.5NPT	●	0.96	11	TMSR - 27	TMSL - 27
		8		27-8NPT	●	0.88	7		
3/4B	1.52	11.5	TM2EI	38-11.5NPT	○	1.39	16	TMSR - 38	TMSL - 38
		8		38-8NPT	○	1.25	10		

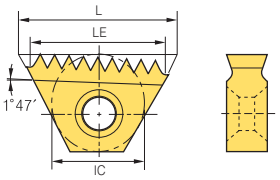
Applicable holders **C17**

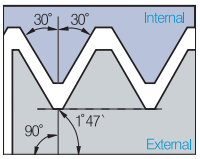
* TM2E16-18NPT is for external threading

●: Korea Stock ◆: US Stock ○: Made to order

NPTF







Defined by : ANSI 1.20.3-1976
Tolerance class : Standard NPTF

• External/Internal

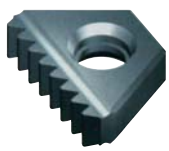
(inch)

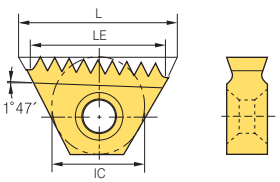
Insert size		TPI	Designation		PC9570T	LE	NT (Number of Teeth)	Tool holder	
IC	L		External + Internal					RH	LH
3/8	0.63	14	TM2EI	16-14NPTF	●	0.57	8	TMSRT - 16	TMSLT - 16
		11.5		16-11.5NPTF	○	0.52	6		
3/8B	0.87	14	TM2EI	22-14NPTF	○	0.86	12	TMSRT - 22	TMSLT - 22
		11.5		22-11.5NPTF	○	0.78	9		
5/8	1.06	11.5	TM2EI	27-11.5NPTF		0.96	11	TMSR - 27	TMSL - 27
		8		27-8NPTF	○	0.88	7		
3/4B	1.52	11.5	TM2EI	38-11.5NPTF	○	1.39	16	TMSR - 38	TMSL - 38
		8		38-8NPTF	○	1.25	10		

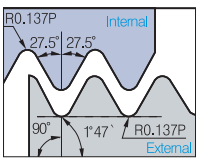
Applicable holders **C17**

●: Korea Stock ◆: US Stock ○: Made to order

BSPT







Defined by : B.S 21:1985
Tolerance class : Standard BSPT

• External/Internal

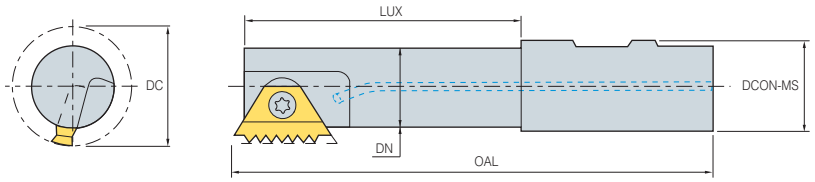
(inch)

Insert size		TPI	Designation		PC9570T	LE	NT (Number of Teeth)	Tool holder	
IC	L		External + Internal					RH	LH
1/4	0.43	19	TM2EI	11-19BSPT	○	0.37	7	TMSR - 10	TMSL - 10
3/8	0.63	14	TM2EI	16-14BSPT	○	0.57	8	TMSRT - 16	TMSLT - 16
		11		16-11BSPT	○	0.56	6		
5/8	1.06	11	TM2EI	27-11BSPT	○	0.91	10	TMSR - 27	TMSL - 27

Applicable holders **C17**

●: Korea Stock ◆: US Stock ○: Made to order

Standard Type



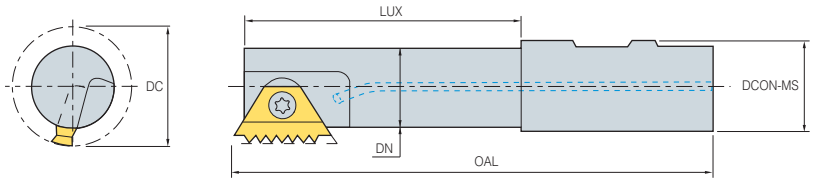
(inch)

Insert size IC	Designation		Stock	DC	DCON-MS	DN	LUX	OAL	Screw	Wrench
0.236	TMSR	050-10	○	0.35	0.5	0.27	0.47	2.72	STM10	TW07P
		075-10	○	0.35	0.75	0.27	0.67	3.5		
1/4	TMSR	050-11	○	0.45	0.5	0.35	0.47	2.75	STM11	TW08P
		075-11	○	0.45	0.75	0.35	0.79	3.5		
3/8	TMSR	0625-16	○	0.67	0.625	0.54	0.87	3.56	STM1622	TW10P
		075-16	○	0.79	0.75	0.65	1.69	3.75		
3/8B	TMSR	0625-22	○	0.67	0.625	0.53	1.14	3.15	STM1622	TW10P
		075-22	○	0.75	0.75	0.61	1.14	3.27		
		100-22	○	0.75	1	0.61	1.18	3.68		
	TMSRW	100-22	○	0.87	1	0.73	1.18	3.62		
5/8	TMSR	100-27	○	1.18	1	0.94	2.05	4.38	STM27	TW25L
	TMSL	100-27		1.18	1	0.94	2.05	4.38		
	TMSR	125-27	○	1.46	1.25	1.22	2.28	4.75		
3/4B	TMSR	125-38	○	1.38	1.25	1.06	2.16	4.45	STM38	TW30L
		150-38	○	1.81	1.5	1.5	2.56	5.25		

Applicable Insters **C12 ~ C16**

◆: US Stock ○: Made to order

Long Type



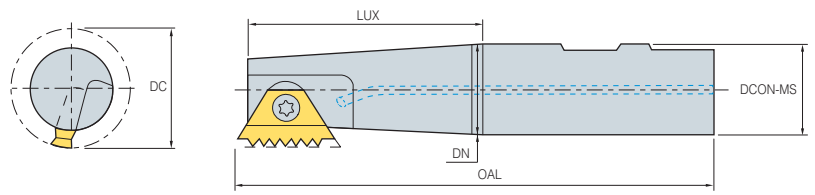
(inch)

Insert size IC	Designation		Stock	DC	DCON-MS	DN	LUX	OAL	Screw	Wrench
3/8	TMSRL	100-16		0.87	1	0.73	0.98	5	STM11	TW08P
3/8B	TMSRL	100-16		0.87	1	0.73	2.5	4.95	STM1622	TW10P
5/8	TMSRL	075-22	○	0.75	0.75	0.61	1.73	3.86	STM1622	TW10P
		100-22	○	0.87	1	0.73	2.5	4.95		
5/8	TMSRL	100-27	○	1.18	1	0.94	3.62	5.88	STM27	TW25L
		125-27	○	1.46	1.25	1.22	3.86	6.33		
3/4B	TMSRL	150-38	○	1.81	1.5	1.5	3.74	6.55	STM38	TW30L

Applicable Insters **C12 ~ C16**

◆: US Stock ○: Made to order

Taper Type



(inch)

Insert size IC	Designation		Stock	DC	DCON-MS	DN	LUX	OAL	Screw	Wrench
9.525	TMSRT	0625-16	○	0.61	0.625	0.49	0.87	3.56	STM1622 STMT16	TW10P
		075-16	○	0.75	0.75	0.59	0.91	3.38		
9.525B	TMSRT	0625-22	○	0.67	0.625	0.53	1.14	3.15	STM1622	TW10P
		075-22	○	0.75	0.75	0.61	1.14	3.27		
15.875	TMSRT	125-27	○	1.46	1.25	1.22	2.28	4.75	STM27	TW25L

Applicable Insters **C12 ~ C16**

◆: US Stock ○: Made to order



PART D

DRILL

Korloy drills provide a total solution for hole making, based on tooling know-how as well as extensive research and development for our tools.

Technical information for DRILL

D2 **KORLOY Drills**

Indexable Drills

D3 **Technical Information for KING Drill**

D11 **KING Drill** (For through coolant system with a lathe)

D15 **Technical Information for KING Drill** (For large diameter drilling)

D16 **KING Drill** (For large diameter drilling)

D17 **Technical Information for TPDC Plus Drill**

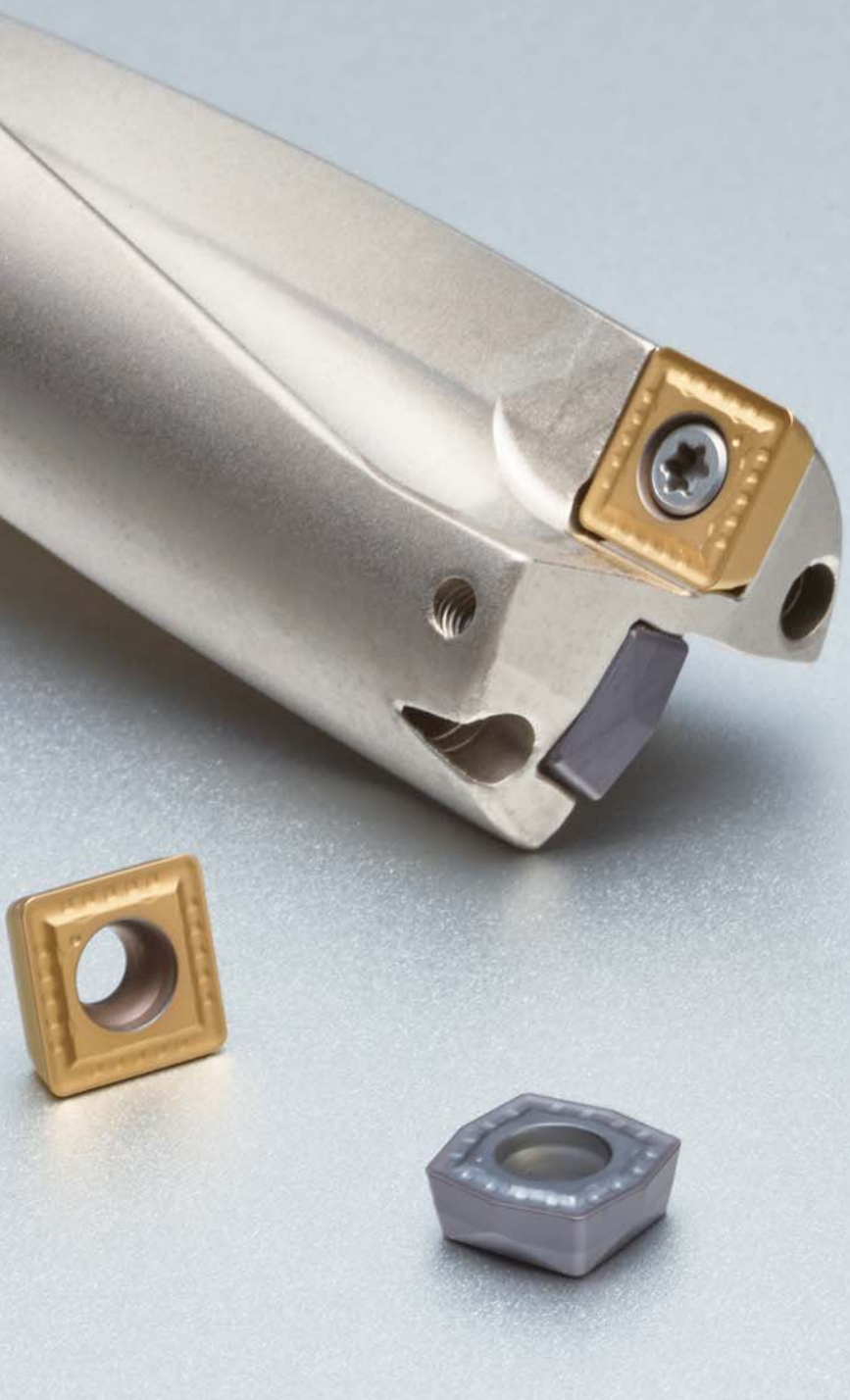
D25 **TPDC Plus Drill**

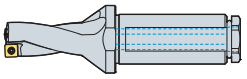
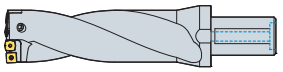
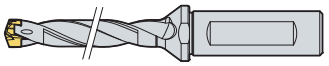
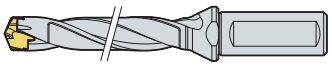
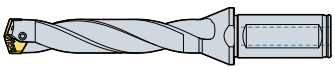
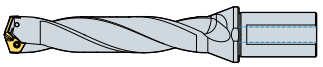
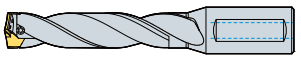
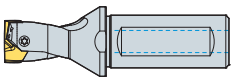
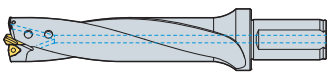
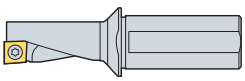
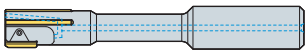
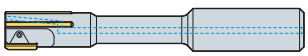
D34 **Technical Information for TPDB Plus Drill**

D40 TPDB Plus Drill
D48 Technical Information for TPDB-DS
D51 TPDB-DS
D53 Technical Information for TPDB-H
D56 TPDB-H
D59 Technical Information for TPDB-F
D61 TPDB-F
D63 Technical Information for WPDC
D66 Center Drill
D67 WPDC
D69 Technical Information for Multi Turn
D71 Multi Turn

Indexable Reamers

D72 Technical Information for Indexable Reamer
D75 Indexable Reamer

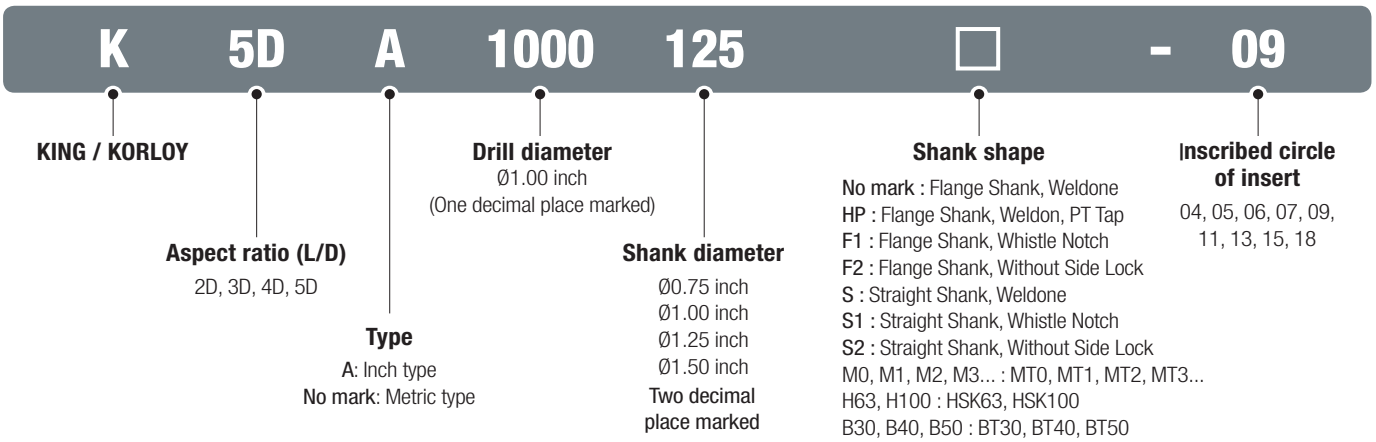


Type	Designation		Shape	Drills dia.(Ø)	Aspect ratio	Page
Indexable Drills	KING Drill HP	K□DA..HP	 Available insert:SP□T, XO□T	Ø0.484~Ø2.375	2D~5D	D11 ~ D14
	KING Drill (for large diameter drilling)	K□DA	 Available insert:SP□T, XO□T	Ø2.40~Ø3.94	2D~4D	D16
	TPDC Plus Drill	TPDXA	 Available insert:TPD□□□□XPA	Ø0.315~Ø0.469	3D~8D	D26
		TPDCA	 Available insert:TPD□□□□CA□	Ø0.472~Ø1.220	1.5D~12D	D31 ~ D33
	TPDB Plus Drill	TPDBA-P	 Available insert:TPD□□□BA	Ø0.394~Ø1.298	3D~12D	D43 ~ D47
		TPDBA-DS	 Available insert:TPD□□□BA–DS	Ø1.299~Ø1.574	3D~8D	D52
		TPDBA-H	 Available insert:TPD□□□BA–H	Ø0.551~Ø1.219	3D~8D	D57 ~ D58
		TPDBA-F	 Available insert:TPD□□□BA–F	Ø0.551~Ø1.219	1.5D	D62
	Indexable Drills & Drill with center	WPDCA	 Available insert:WC□T	Ø1.000~Ø3.130	5D~8D	D67 ~ D68
	Multi Turn	MT	 Available insert:QC□T	Ø0.394~Ø1.260	2.25D	D71
Reamer	Indexable Reamer	IRTA	 Available insert: RI	Ø0.375~Ø1.250	3D~5D	D76
		IRBA	 Available insert:RI	Ø0.375~Ø1.250	3D~5D	D77

Optimized insert design for maximum drilling efficiency

KING Drill

Code system

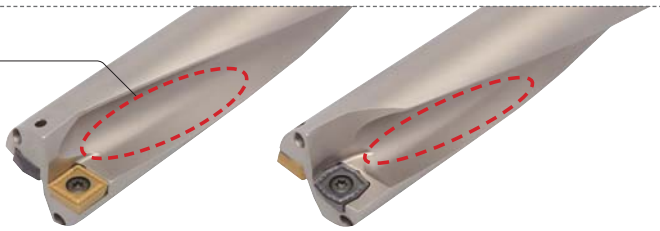


Features

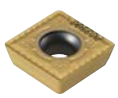
- Optimized design of inserts for maximum drilling efficiency
- Excellent cutting performance and chip control due to the optimized geometry and chip breaker of both inserts, central & peripheral
- Different inserts, optimized for the central and peripheral insert locations in order to maximize cutting tool life

Optimized flute system - 2 coolant holes applied

- The optimized shape of the flute increases the rigidity of the drill body and improves chip evacuation



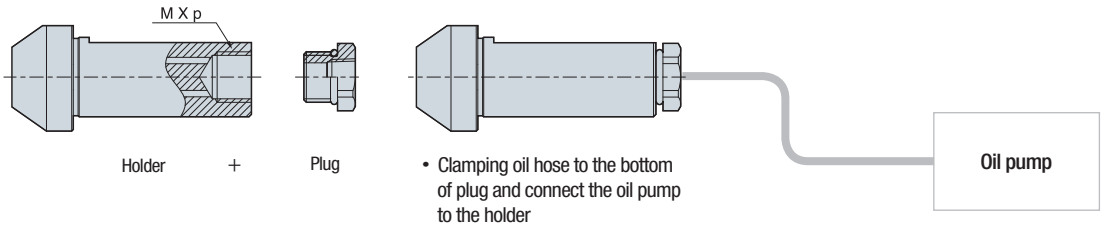
Features of chip breaker

Chip breaker	PD		LD		ND		RD
Features	- Universal - At medium speed and medium feed		- Superior chip control for machining mild steel and stainless steel - Light cutting (at low~medium speed and low feed)		- Sharp cutting edge for aluminum machining - Insert surface buffed for high quality result - E Class tolerance		- Improved chipping resistance - Excellent performance in case of frequent fracture and chipping on the cutting edge
Insert	Peripheral insert	Central insert	Peripheral insert	Central insert	Peripheral insert	Central insert	Central insert
Shape							
Grades for workpiece	NC5330 : P, M, K PC3700 : P PC5300 : P, M, K, S PC6100 : K PC9540 : P, M, S	PC5300 : P, M, K, S PC9540 : P, M, S	PC5335 : P, M		H01 : N		PC5300 : P,M,K,S

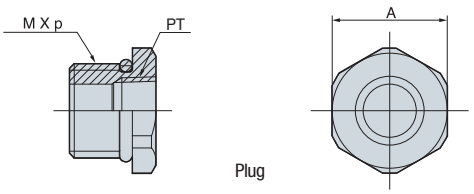
Drill with through coolant system for general lathe and CNC lathe without through coolant system

KING Drill (For through coolant system with a lathe)

- Through coolant system with drill holder, plug, oil-hole hose and oil-hole pump
- PT TAP in the plug is combined to PT TAP connected to oil hose
- Available to use the drill without a plug in milling machine



Tap type	Diameter	Shank dia.	M x p	Plug
K□DA0484075~0625075HP-□□	Ø0.484~Ø0.625	Ø0.75	M12 x 1.5	PLG12NPT18
K□DA0687100~0875100HP-□□	Ø0.687~Ø0.875	Ø1.00	M16 x 1.5	PLG16NPT18
K□DA0937125~1375125HP-□□	Ø0.937~Ø1.375	Ø1.25	M20 x 2.0	PLG20NPT14
K□DA1437150~2375150HP-□□	Ø1.437~Ø2.375	Ø1.50	M27 x 2.0	PLG27NPT38



• Plug is assembled

Plug Type	M x p	PT Tap	A
PLG12NPT18	M12 x 1.5	1/8	5/8
PLG16NPT18	M16 x 1.5	1/8	7/8
PLG20NPT14	M20 x 2.0	1/4	9/8
PLG27NPT38	M27 x 2.0	3/8	11/8

Recommended cutting conditions

Workpiece				Insert			vc (sfm)	Aspect ratio (L/D) = 2D, 3D, 4D					
ISO		Workpiece	Hardness (HB)	Chip breaker	Grade			Feed rate (ipr) per drill dia. (inch)					
					Central	Peripheral		Ø0.484~Ø0.63	Ø0.64~Ø0.91	Ø0.92~Ø1.14	Ø1.15~Ø1.65	Ø1.66~Ø2.375	Ø2.40~Ø3.94
P	Carbon steel	Low carbon steel	80~180	LD	PC5335	PC5335	394 (197~558)	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031
				PD/RD	PC5300	PC3700	492 (394~591)						
						NC5330	591 (459~722)						
		High carbon steel	180~280	PD	PC5300	PC3700	394 (295~492)	0.0016~0.0039	0.0016~0.0047	0.002~0.0063	0.0024~0.0063	0.0024~0.0071	0.0024~0.0071
						NC5330	492 (361~623)	0.0016~0.0024	0.0016~0.0028	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031
	Alloy steel	Low alloy steel	140~260	LD	PC5335	PC5335	394 (197~525)	0.0024~0.0039	0.0024~0.0039	0.0024~0.0047	0.0024~0.0055	0.0024~0.0055	0.0024~0.0055
				PD	PC5300	PC3700	492 (394~558)	0.0024~0.0047	0.0024~0.0047	0.0024~0.0055	0.0024~0.0063	0.0024~0.0063	0.0024~0.0063
						NC5330	591 (459~689)	0.0024~0.0031	0.0024~0.0031	0.0024~0.0039	0.0024~0.0047	0.0024~0.0047	0.0024~0.0047
		Low alloy heattreated steel	200~400	PD	PC5300	PC5300	328 (164~492)	0.0016~0.0039	0.0024~0.0039	0.0024~0.0047	0.0024~0.0055	0.0024~0.0055	0.0024~0.0055
		High alloy steel	260~320	PD	PC5300	PC3700	328 (164~525)	0.002~0.0043	0.002~0.0043	0.002~0.0051	0.002~0.0059	0.002~0.0059	0.002~0.0059
		High alloy heattreated steel	300~450	PD	PC5300	PC5300	230 (98~394)	0.0016~0.0031	0.0024~0.0031	0.0024~0.0039	0.0024~0.0047	0.0024~0.0047	0.0024~0.0047
M	Stainless steel	Stainless steel	135-275	LD	PC5335	PC5335	394 (262~459)	0.0016~0.0028	0.0016~0.0028	0.0016~0.0028	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031
				PD	PC5300	PC5300	427 (328~525)	0.0016~0.0028	0.0016~0.0028	0.0016~0.0028	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031
					PC9540	PC9540	295 (197~394)	0.0016~0.0028	0.0016~0.0028	0.0016~0.0028	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031
K	Cast iron	Gray cast iron	150~230	PD	PC5300	PC6510	623 (492~820)	0.0016~0.0047	0.002~0.0055	0.0024~0.0071	0.0039~0.0087	0.0039~0.0102	0.0039~0.0102
		Ductile cast iron	150~230	PD	PC5300	PC6510	427 (328~525)	0.0016~0.0028	0.0016~0.0031	0.0016~0.0039	0.002~0.0047	0.002~0.0047	0.002~0.0047
S	Heat resisting alloy	Ni-heat resisting alloy	130~400	PD	PC5300	PC5300	164 (98~328)	0.0016~0.0039	0.0016~0.0039	0.0016~0.0039	0.0016~0.0039	0.0016~0.0039	0.0016~0.0039
					PC9540	PC9540	131 (66~262)	0.0016~0.0039	0.0016~0.0039	0.0016~0.0039	0.0016~0.0039	0.0016~0.0039	0.0016~0.0039
		Ti-heat resisting alloy	130~400	LD	PC5335	PC5335	197 (131~262)	0.0016~0.0031	0.0016~0.0039	0.0024~0.0047	0.0024~0.0055	0.0024~0.0063	0.0024~0.0063
				PD	PC5300	PC5300	197 (131~262)	0.0016~0.0031	0.0016~0.0039	0.0024~0.0047	0.0024~0.0055	0.0024~0.0063	0.0024~0.0063
		High hardened steel	over 400	PD	PC5300	PC5300	131 (66~262)	0.0016~0.002	0.0016~0.0024	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031	0.0016~0.0031
N	Aluminium	Aluminium	30~150	ND	H01	H01	984 (820~1312)	0.0020~0.0055	0.0024~0.0063	0.0039~0.0079	0.0039~0.0087	0.0047~0.0098	0.0047~0.0098
		Alloyed copper	150-160	ND	H01	H01	820 (656~984)	0.0020~0.0055	0.0024~0.0063	0.0039~0.0079	0.0039~0.0087	0.0047~0.0098	0.0047~0.0098

• The Max. feed of 5D holders is 70%~80% of the max. conditions of 2D/3D/4D holders

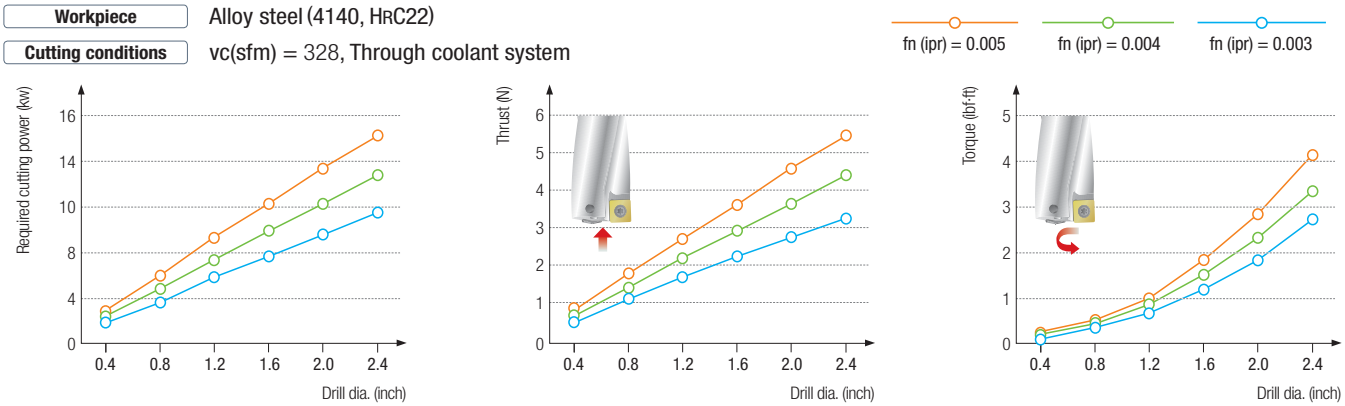
• In interrupted machining part, reduce 30~50% of feed from the above machining around interrupted part

Required cutting power

- The graphs below show the cutting force required in drilling
- Machining with the KING Drill and a machine with high rigidity and power

Workpiece Alloy steel (4140, HRC22)

Cutting conditions vc(sfm) = 328, Through coolant system

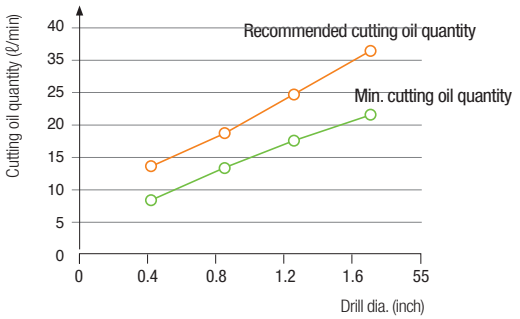


Cutting oil quantity

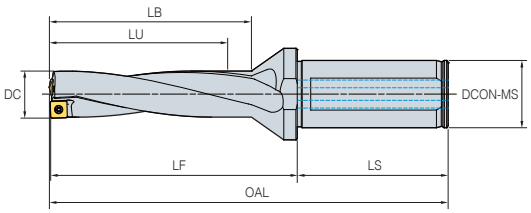
Workpiece Alloy steel (4140, HRC22)

Cutting conditions vc(sfm) = 328, Through coolant system

※ The data of the graph above could be changed depending on workpiece and cutting condition



Drill tolerance and hole tolerance



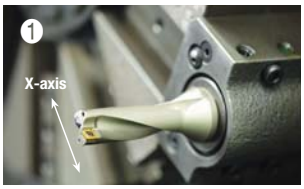
(inch)

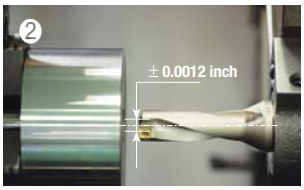
Drill dia.(DC)		Ø0.484~Ø1.125	Ø1.187~Ø1.750	Ø1.812~Ø2.375
2D~3D	Drill tolerance	-0.006~0	-0.006~0	-0.006~0
	Hole tolerance	-0.016~+0.008	-0.004~+0.010	-0.004~+0.011
4D~5D	Drill tolerance	-0.006~0	-0.006~0	-0.006~0
	Hole tolerance	-0.002~+0.010	-0.002~+0.012	-0.002~+0.013

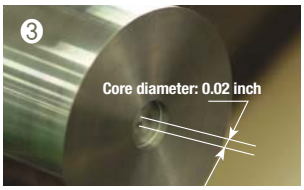
Notice for setting the drill in the lathe

- Set the peripheral insert parallel to the X axis. (based on the side lock)
- If the machined core is 0.024 inch after machining 0.2 inch, that is the proper setting

※ Please make sure that the location of the side lock could be different depending on manufacturers of machine

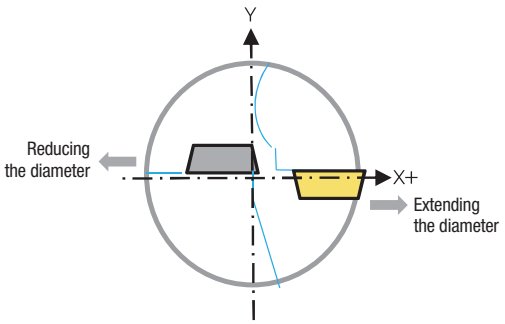






Range of adjusting machining diameter in the lathe

- In machining in the lathe, the KING Drill can extend and reduce the machining diameter by adjusting the x-axis. Please refer to the table showing the range of adjusting drilling diameter below
- The more the drilling diameter is extended or reduced, the more the drill loses drilling balance. In this case, reduce the feed or cutting speed in machining
- Reducing the machining diameter excessively could damage the holder



(inch)

Drill dia. (Ø)	Range of adjusting drilling diameter (Ø)	Drill dia. (Ø)	Range of adjusting drilling diameter (Ø)	Drill dia. (Ø)	Range of adjusting drilling diameter (Ø)
0.484	0.476 ~ 0.494	1.062	1.046 ~ 1.077	1.812	1.791 ~ 1.829
0.500	0.492 ~ 0.51	1.125	1.109 ~ 1.14	1.875	1.854 ~ 1.892
0.531	0.523 ~ 0.541	1.187	1.169 ~ 1.204	1.937	1.916 ~ 1.954
0.562	0.551 ~ 0.574	1.250	1.232 ~ 1.267	2.000	1.979 ~ 2.017
0.625	0.614 ~ 0.637	1.312	1.294 ~ 1.329	2.062	2.041 ~ 2.079
0.687	0.674 ~ 0.699	1.375	1.357 ~ 1.392	2.125	2.104 ~ 2.142
0.750	0.737 ~ 0.762	1.437	1.419 ~ 1.454	2.187	2.166 ~ 2.204
0.812	0.796 ~ 0.827	1.500	1.482 ~ 1.517	2.250	2.229 ~ 2.267
0.875	0.859 ~ 0.89	1.562	1.544 ~ 1.579	2.313	2.292 ~ 2.33
0.937	0.921 ~ 0.952	1.625	1.607 ~ 1.642	2.375	2.354 ~ 2.392
1.000	0.984 ~ 1.015	1.687	1.669 ~ 1.704		
1.031	1.015 ~ 1.046	1.750	1.729 ~ 1.767		

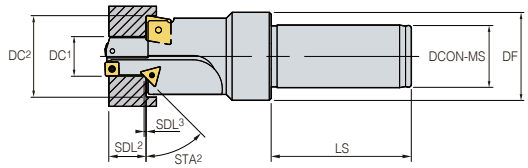
Insert and parts

Drill dia. (inch)	Peripheral insert	Central insert	Screw	Wrench	Torque (N•m)
Ø0.484~Ø0.531	SP□T040204-□□	XO□T040204-□□	FTNA0204	TW06P	0.295
Ø0.562~Ø0.625	SP□T050204-□□	XO□T050204-□□	FTNA0204	TW06P	0.295
Ø0.687~Ø0.750	SP□T060205-□□	XO□T060204-□□	FTKA02206S	TW07P	0.590
Ø0.812~Ø0.875	SP□T07T208-□□	XO□T07T205-□□	FTKA02565	TW07S	0.590
Ø0.937~Ø1.125	SP□T090308-□□	XO□T090305-□□	FTKA0307	TW09S	0.885
Ø1.187~Ø1.375	SP□T11T308-□□	XO□T11T306-□□	FTKA03508	TW15S	2.214
Ø1.437~Ø1.687	SP□T130410-□□	XO□T130406-□□	FTKA0410	TW15S	2.214
Ø1.750~Ø2.000	SP□T15M510-□□	XO□T15M508-□□	FTNC04511	TW20S	3.689
Ø2.062~Ø2.375	SP□T180510-□□	XO□T180508-□□	FTNA0511	TW20-100	3.689

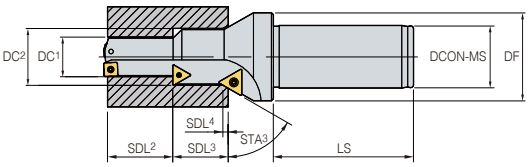
- In clamping an insert, please clean the tip seat and apply CASMOLY1000 on the screw
- Please make sure to use a Korloy-produced wrench and screw only

Special Drill Order Form

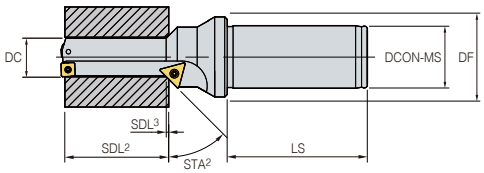
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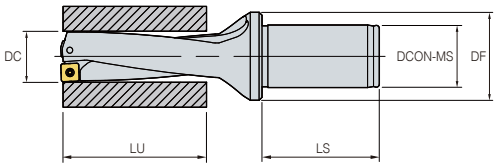
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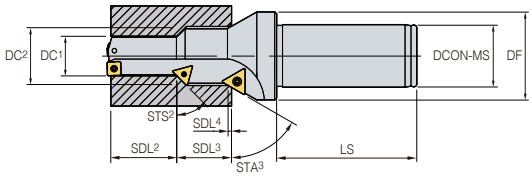
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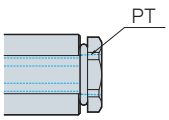


☐



■ Coolant type

☐ Through coolant Plug type (Standard)



☐ Through coolant Non plug type



☐ No coolant

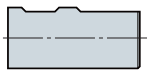


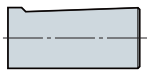
■ Hole type

☐ Blind hole ☐ Thru hole

■ Types of shank

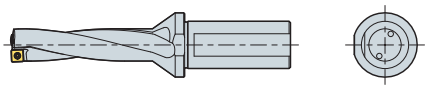
☐  Flat Type

☐  Weldon Type

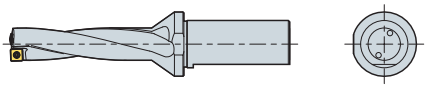
☐  Whistle Notch Type

■ Location of side lock

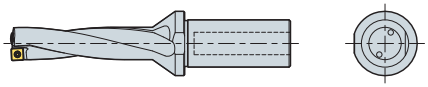
☐ Parallel to peripheral insert (standard)



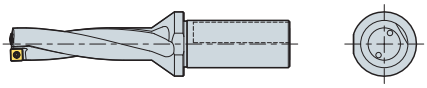
☐ 90°angle to peripheral insert (standard)



☐ 180°angle to peripheral insert (standard)

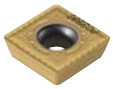
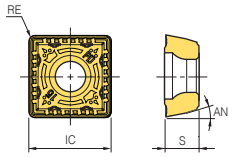
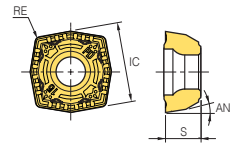
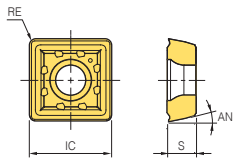
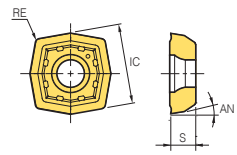
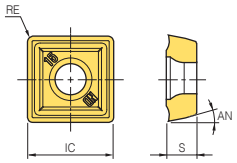


☐ 270° angle to peripheral insert (standard)



Special note	
	• Currently using tool: • Current cutting condition - n (rpm) or vc (sfm) : - vf (ipm) or fn (ipr) : - Depth of cut, ap (inch) :
	• Standard of measuring tool life: • Currently using machine - Machining center: - General lathe: - CNC lathe:

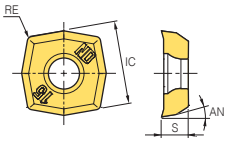
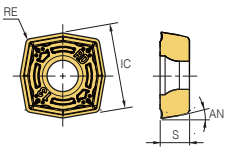
Available insert

Picture	Designation	Coated							Uncoated	Dimension(inch)					Configuration
		NC5330	NCM535	PC3700	PC6100	PC9540	PC5335	PC5300	H01	IC	S	RE	L	AN	
[Peripheral] SPMT-PD  Universal	040204-PD	◆	●	◆	◆	●	○	◆		0.185	0.094	0.016	-	11	
	050204-PD	●	●	◆	◆	●	○	◆		0.201	0.094	0.016	-	11	
	060205-PD	◆	●	◆	◆	●	○	◆		0.244	0.098	0.020	-	11	
	07T208-PD	◆	●	◆	◆	●	○	◆		0.295	0.110	0.028	-	11	
	090308-PD	◆	●	◆	◆	●	○	◆		0.362	0.130	0.031	-	11	
	11T308-PD	◆	●	◆	◆	●	○	◆		0.433	0.157	0.031	-	11	
	130410-PD	◆	●	◆	◆	●	○	◆		0.512	0.177	0.039	-	11	
	15M510-PD	◆	●	◆	◆	●	○	◆		0.598	0.197	0.039	-	11	
	180510-PD	◆	●	◆	◆	●	○	◆		0.717	0.217	0.039	-	11	
[Central] XOMT-PD  Universal	040204-PD	○		○		●	○	◆		0.169	0.094	0.016	-	9	
	050204-PD	○		○		●	○	◆		0.189	0.094	0.016	-	9	
	060204-PD	○		○		●	○	◆		0.228	0.098	0.016	-	9	
	07T205-PD	○		○		●		◆		0.272	0.110	0.020	-	9	
	090305-PD	○		○		●	○	◆		0.331	0.130	0.020	-	9	
	11T306-PD	○		○		●	○	◆		0.394	0.157	0.024	-	9	
	130406-PD	○		○		●		◆		0.469	0.177	0.024	-	9	
	15M508-PD	○		○		●	○	◆		0.547	0.197	0.031	-	9	
	180508-PD	○		○		●	○	◆		0.650	0.217	0.031	-	9	
[Peripheral] SPMT-LD  Mild steel	060205-LD						◆	○		0.244	0.098	0.020	-	11	
	07T208-LD						◆	○		0.295	0.110	0.028	-	11	
	090308-LD						◆	○		0.362	0.130	0.031	-	11	
	11T308-LD						◆	○		0.433	0.156	0.031	-	11	
	130410-LD						◆	○		0.512	0.177	0.039	-	11	
	15M510-LD						◆	○		0.598	0.197	0.039	-	11	
	180510-LD						◆	○		0.171	0.217	0.039	-	11	
[Central] XOMT-LD  Mild steel	060204-LD						◆			0.228	0.098	0.016	-	9	
	07T205-LD						◆	○		0.272	0.110	0.020	-	9	
	090305-LD						◆	○		0.331	0.130	0.020	-	9	
	11T306-LD						◆	○		0.394	0.156	0.024	-	9	
	130406-LD						◆	○		0.469	0.177	0.022	-	9	
	15M508-LD						◆			0.547	0.197	0.031	-	9	
	180508-LD						◆	○		0.650	0.217	0.031	-	9	
[Peripheral] SPET-ND  Al	040204-ND								◆	0.185	0.094	0.016	-	11	
	050204-ND								◆	0.201	0.094	0.016	-	11	
	060205-ND								◆	0.244	0.098	0.020	-	11	
	07T208-ND								◆	0.295	0.110	0.028	-	11	
	090308-ND								◆	0.362	0.130	0.031	-	11	
	11T308-ND								◆	0.433	0.157	0.031	-	11	
	130410-ND								◆	0.512	0.177	0.039	-	11	
	15M510-ND								◆	0.598	0.197	0.039	-	11	
	180510-ND								◆	0.717	0.217	0.039	-	11	

Applicable holders **D11 ~ D16**

●: Korea Stock ◆: US Stock ○: Made to order

Available insert

Picture	Designation	Coated							Uncoated	Dimension(inch)					Configuration
		NC5330	NCM535	PC3700	PC6100	PC9540	PC5335	PC5300	H01	IC	S	RE	L	AN	
[Central] XOET-ND  Al	040204-ND								◆	0.169	0.094	0.016	-	9	
	050204-ND								◆	0.189	0.094	0.016	-	9	
	060204-ND								◆	0.228	0.098	0.016	-	9	
	07T205-ND								◆	0.272	0.110	0.020	-	9	
	090305-ND								◆	0.331	0.130	0.020	-	9	
	11T306-ND								◆	0.394	0.157	0.024	-	9	
	130406-ND								◆	0.469	0.177	0.024	-	9	
	15M508-ND								◆	0.547	0.197	0.031	-	9	
	180508-ND								◆	0.650	0.217	0.031	-	9	
[Central] XOMT-RD  Rein fored cutting-edge	07T207-RD						○	●		0.331	0.130	0.031	-	9	
	090308-RD						○	●		0.394	0.157	0.0.35	-	9	
	11T309-RD						○	●		0.469	0.177	0.039	-	9	
	130410-RD						○	●		0.547	0.197	0.043	-	9	
	15M511-RD						○	●		0.650	0.217	0.047	-	9	
	180512-RD						○	●		18.9	5.5	1.2	9	4	

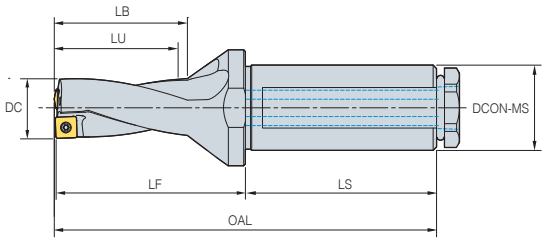
Applicable holders **D11 ~ D16**

●: Korea Stock ◆: US Stock ○: Made to order

KING Drill (2D)

For through coolant system with a lathe





(inch)

	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K2DA	0484075HP-04	◆	31/64	0.75	0.945	1.603	1.063	1.969	3.583	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	0500075HP-04	◆	1/2	0.75	1.024	1.681	1.142	1.969	3.661			
	0531075HP-04	◆	17/32	0.75	1.024	1.681	1.142	1.969	3.661			
	0562075HP-05	◆	9/16	0.75	1.102	1.795	1.220	1.969	3.780	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	0625075HP-05	◆	5/8	0.75	1.260	1.988	1.378	1.969	3.976			
	0687100HP-06	◆	11/16	1.00	1.339	2.067	1.457	2.205	4.291	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	0750100HP-06	◆	3/4	1.00	1.496	2.260	1.614	2.205	4.488			
	0812100HP-07	◆	13/16	1.00	1.654	2.500	1.772	2.205	4.724	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	0875100HP-07	◆	7/8	1.00	1.732	2.575	1.850	2.205	4.803			
	0937125HP-09	◆	15/16	1.25	1.890	2.846	2.008	2.362	5.236	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	1000125HP-09	◆	1	1.25	1.969	2.925	2.087	2.362	5.315			
	1031125HP-09	◆	1 1/32	1.25	2.047	3.004	2.165	2.362	5.394			
	1062125HP-09	◆	1 1/16	1.25	2.126	3.118	2.244	2.362	5.512			
	1125125HP-09	◆	1 1/8	1.25	2.283	3.315	2.402	2.362	5.709			
	1187125HP-11	◆	1 3/16	1.25	2.362	3.504	2.480	2.362	5.906	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	1250125HP-11	◆	1 1/4	1.25	2.520	3.661	2.638	2.362	6.063			
	1312125HP-11	◆	1 5/16	1.25	2.598	3.780	2.717	2.362	6.181			
	1375125HP-11	◆	1 3/8	1.25	2.756	3.933	2.874	2.362	6.339			
	1437150HP-13	◆	1 7/16	1.50	2.835	4.138	2.992	2.756	6.929	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	1500150HP-13	◆	1 1/2	1.50	2.992	4.327	3.150	2.756	7.126			
	1562150HP-13	◆	1 9/16	1.50	3.150	4.520	3.307	2.756	7.323			
	1625150HP-13	◆	1 5/8	1.50	3.228	4.598	3.386	2.756	7.402			
	1687150HP-13	◆	1 11/16	1.50	3.307	4.713	3.465	2.756	7.520			
	1750150HP-15	◆	1 3/4	1.50	3.465	4.992	3.661	2.756	7.795	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	1812150HP-15	◆	1 13/16	1.50	3.622	5.185	3.819	2.756	7.992			
	1875150HP-15	◆	1 7/8	1.50	3.780	5.378	3.976	2.756	8.189			
	1937150HP-15	◆	1 15/16	1.50	3.858	5.453	4.055	2.756	8.268			
	2000150HP-15	◆	2	1.50	3.937	5.531	4.134	2.756	8.346			
	2062150HP-18	◆	2 1/16	1.50	4.094	5.850	4.331	2.756	8.661	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	2125150HP-18	◆	2 1/8	1.50	4.252	6.000	4.488	2.756	8.819			
	2187150HP-18	◆	2 3/16	1.50	4.409	6.232	4.646	2.756	9.055			
	2250150HP-18	◆	2 1/4	1.50	4.488	6.350	4.764	2.756	9.173			
	2313150HP-18	◆	2 5/16	1.50	4.646	6.583	5.000	2.756	9.409			
	2375150HP-18	◆	2 3/8	1.50	4.724	6.701	5.118	2.756	9.528			

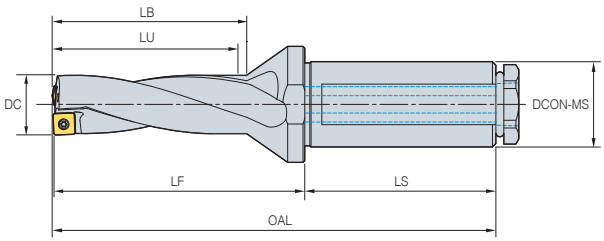
Applicable holders D9 ~ 10

◆: US Stock ○: Made to order

KING Drill (3D)

For through coolant system with a lathe





(inch)

	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K3DA	0484075HP-04	◆	31/64	0.75	1.417	2.075	1.535	1.969	4.055	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	0500075HP-04	◆	1/2	0.75	1.535	2.193	1.654	1.969	4.173			
	0531075HP-04	◆	17/32	0.75	1.535	2.193	1.654	1.969	4.173			
	0562075HP-05	◆	9/16	0.75	1.654	2.346	1.772	1.969	4.331	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	0625075HP-05	◆	5/8	0.75	1.890	2.618	2.008	1.969	4.606			
	0687100HP-06	◆	11/16	1.00	2.008	2.736	2.126	2.205	4.961	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	0750100HP-06	◆	3/4	1.00	2.244	3.008	2.362	2.205	5.236			
	0812100HP-07	◆	13/16	1.00	2.480	3.327	2.598	2.205	5.551	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	0875100HP-07	◆	7/8	1.00	2.598	3.441	2.717	2.205	5.669			
	0937125HP-09	◆	15/16	1.25	2.835	3.791	2.953	2.362	6.181	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	1000125HP-09	◆	1	1.25	2.953	3.909	3.071	2.362	6.299			
	1031125HP-09	◆	1 1/32	1.25	3.071	4.028	3.189	2.362	6.417			
	1062125HP-09	◆	1 1/16	1.25	3.189	4.181	3.307	2.362	6.575			
	1125125HP-09	◆	1 1/8	1.25	3.425	4.457	3.543	2.362	6.850			
	1187125HP-11	◆	1 3/16	1.25	3.543	4.685	3.661	2.362	7.087	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	1250125HP-11	◆	1 1/4	1.25	3.780	4.921	3.898	2.362	7.323			
	1312125HP-11	◆	1 5/16	1.25	3.898	5.079	4.016	2.362	7.480			
	1375125HP-11	◆	1 3/8	1.25	4.134	5.311	4.252	2.362	7.717			
	1437150HP-13	◆	1 7/16	1.50	4.252	5.555	4.409	2.756	8.346	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	1500150HP-13	◆	1 1/2	1.50	4.488	5.823	4.646	2.756	8.622			
	1562150HP-13	◆	1 9/16	1.50	4.724	6.094	4.882	2.756	8.898			
	1625150HP-13	◆	1 5/8	1.50	4.843	6.213	5.000	2.756	9.016			
	1687150HP-13	◆	1 11/16	1.50	4.961	6.366	5.118	2.756	9.173			
	1750150HP-15	◆	1 3/4	1.50	5.197	6.724	5.394	2.756	9.528	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	1812150HP-15	◆	1 13/16	1.50	5.433	6.996	5.630	2.756	9.803			
	1875150HP-15	◆	1 7/8	1.50	5.669	7.268	5.866	2.756	10.079			
	1937150HP-15	◆	1 15/16	1.50	5.787	7.382	5.984	2.756	10.197			
	2000150HP-15	◆	2	1.50	5.906	7.500	6.102	2.756	10.315			
	2062150HP-18	◆	2 1/16	1.50	6.142	7.898	6.378	2.756	10.709	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	2125150HP-18	◆	2 1/8	1.50	6.378	8.126	6.614	2.756	10.945			
	2187150HP-18	◆	2 3/16	1.50	6.614	8.437	6.850	2.756	11.260			
	2250150HP-18	◆	2 1/4	1.50	6.732	8.594	7.008	2.756	11.417			
	2313150HP-18	◆	2 5/16	1.50	6.969	8.906	7.323	2.756	11.732			
	2375150HP-18	◆	2 3/8	1.50	7.087	9.063	7.480	2.756	11.890			

Applicable holders D9 ~ 10

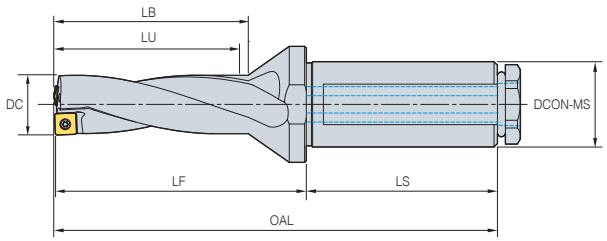
※ The items marked * can machine a tap foundation hole(Reference D7 page)

◆: US Stock ○: Made to order

KING Drill (4D)

For through coolant system with a lathe





(inch)

	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K4DA	0484075HP-04	◆	31/64	0.75	1.890	2.548	2.008	1.969	4.528	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	0500075HP-04	◆	1/2	0.75	2.047	2.705	2.165	1.969	4.685			
	0531075HP-04	◆	17/32	0.75	2.047	2.705	2.165	1.969	4.685			
	0562075HP-05	◆	9/16	0.75	2.205	2.898	2.323	1.969	4.882	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	0625075HP-05	◆	5/8	0.75	2.520	3.248	2.638	1.969	5.236			
	0687100HP-06	◆	11/16	1.00	2.677	3.406	2.795	2.205	5.630	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	0750100HP-06	◆	3/4	1.00	2.992	3.756	3.110	2.205	5.984			
	0812100HP-07	◆	13/16	1.00	3.307	4.154	3.425	2.205	6.378	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	0875100HP-07	◆	7/8	1.00	3.465	4.307	3.583	2.205	6.535			
	0937125HP-09	◆	15/16	1.25	3.780	4.736	3.898	2.362	7.126	SP□T090308-□□ XO□T090305-□□	FTKA0307	TW09S
	1000125HP-09	◆	1	1.25	3.937	4.894	4.055	2.362	7.283			
	1031125HP-09	◆	1 1/32	1.25	4.094	5.051	4.213	2.362	7.441			
	1062125HP-09	◆	1 1/16	1.25	4.252	5.244	4.370	2.362	7.638			
	1125125HP-09	◆	1 1/8	1.25	4.567	5.598	4.685	2.362	7.992			
	1187125HP-11	◆	1 3/16	1.25	4.724	5.866	4.843	2.362	8.268	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	1250125HP-11	◆	1 1/4	1.25	5.039	6.181	5.157	2.362	8.583			
	1312125HP-11	◆	1 5/16	1.25	5.197	6.378	5.315	2.362	8.780			
	1375125HP-11	◆	1 3/8	1.25	5.512	6.689	5.630	2.362	9.094			
	1437150HP-13	◆	1 7/16	1.50	5.669	6.972	5.827	2.756	9.764	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	1500150HP-13	◆	1 1/2	1.50	5.984	7.319	6.142	2.756	10.118			
	1562150HP-13	◆	1 9/16	1.50	6.299	7.669	6.457	2.756	10.472			
	1625150HP-13	◆	1 5/8	1.50	6.457	7.827	6.614	2.756	10.630			
	1687150HP-13	◆	1 11/16	1.50	6.614	8.374	6.772	2.756	11.181			
	1750150HP-15	◆	1 3/4	1.50	6.929	8.457	7.126	2.756	11.260	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	1812150HP-15	◆	1 13/16	1.50	7.244	8.807	7.441	2.756	11.614			
	1875150HP-15	◆	1 7/8	1.50	7.559	9.157	7.756	2.756	11.969			
	1937150HP-15	◆	1 15/16	1.50	7.717	9.311	7.913	2.756	12.126			
	2000150HP-15	◆	2	1.50	7.874	9.469	8.071	2.756	12.283			
	2062150HP-18	◆	2 1/16	1.50	8.189	9.945	8.425	2.756	12.756	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	2125150HP-18	◆	2 1/8	1.50	8.504	10.252	8.740	2.756	13.071			
	2187150HP-18	◆	2 3/16	1.50	8.819	10.642	9.055	2.756	13.465			
	2250150HP-18	◆	2 1/4	1.50	8.976	10.839	9.252	2.756	13.661			
	2313150HP-18	◆	2 5/16	1.50	9.291	11.228	9.646	2.756	14.055			
	2375150HP-18	◆	2 3/8	1.50	9.449	11.425	9.843	2.756	14.252			

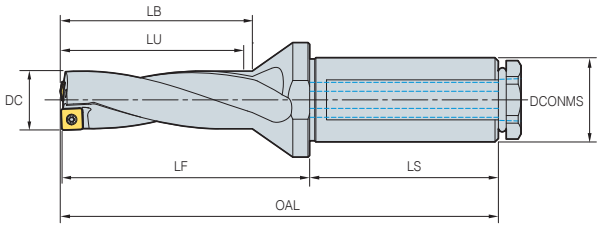
Applicable holders D9 ~ 10

◆: US Stock ○: Made to order

KING Drill (5D)

For through coolant system with a lathe





(inch)

	Designation	Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert	Screw	Wrench
K5DA	0484075HP-04	◆	31/64	0.75	2.362	3.020	2.480	1.969	5.000	SP□T040204-□□ XO□T040204-□□	FTNA0204	TW06P
	0500075HP-04	◆	1/2	0.75	2.559	3.217	2.677	1.969	5.197			
	0531075HP-04	◆	17/32	0.75	2.559	3.217	2.677	1.969	5.197			
	0562075HP-05	◆	9/16	0.75	2.756	3.449	2.874	1.969	5.433	SP□T050204-□□ XO□T050204-□□	FTNA0204	TW06P
	0625075HP-05	◆	5/8	0.75	3.150	3.878	3.268	1.969	5.866			
	0687100HP-06	◆	11/16.	1.00	3.346	4.075	3.465	2.205	6.299	SP□T060205-□□ XO□T060204-□□	FTKA02206S	TW07P
	0750100HP-06	◆	3/4	1.00	3.740	4.504	3.858	2.205	6.732			
	0812100HP-07	◆	13/16	1.00	4.134	4.980	4.252	2.205	7.205	SP□T07T208-□□ XO□T07T205-□□	FTKA02565	TW07S
	0875100HP-07	◆	7/8	1.00	4.331	5.173	4.449	2.205	7.402			
	0937125HP-09	◆	15/16	1.25	4.724	5.681	4.843	2.362	8.071	SP□T07T208-□□ XO□T07T205-□□	FTKA0307	TW09S
	1000125HP-09	◆	1	1.25	4.921	5.878	5.039	2.362	8.268			
	1031125HP-09	◆	1 1/32	1.25	5.118	6.075	5.236	2.362	8.465			
	1062125HP-09	◆	1 1/16	1.25	5.315	6.307	5.433	2.362	8.701			
	1125125HP-09	◆	1 1/8	1.25	5.709	6.740	5.827	2.362	9.134			
	1187125HP-11	◆	1 3/16	1.25	5.906	7.047	6.024	2.362	9.449	SP□T11T308-□□ XO□T11T306-□□	FTKA03508	TW15S
	1250125HP-11	◆	1 1/4	1.25	6.299	7.441	6.417	2.362	9.843			
	1312125HP-11	◆	1 5/16	1.25	6.496	7.677	6.614	2.362	10.079			
	1375125HP-11	◆	1 3/8	1.25	6.890	8.067	7.008	2.362	10.472			
	1437150HP-13	◆	1 7/16	1.50	7.087	8.390	7.244	2.756	11.181	SP□T130410-□□ XO□T130406-□□	FTKA0410	TW15S
	1500150HP-13	◆	1 1/2	1.50	7.480	8.815	7.638	2.756	11.614			
	1562150HP-13	◆	1 9/16	1.50	7.874	9.244	8.031	2.756	12.047			
	1625150HP-13	◆	1 5/8	1.50	8.071	9.441	8.228	2.756	12.244			
	1687150HP-13	◆	1 11/16	1.50	8.268	9.673	8.425	2.756	12.480			
	1750150HP-15	◆	1 3/4	1.50	8.661	10.189	8.858	2.756	12.992	SP□T15M510-□□ XO□T15M508-□□	FTNC04511	TW20S
	1812150HP-15	○	1 13/16	1.50	9.055	10.618	9.252	2.756	13.425			
	1875150HP-15	◆	1 7/8	1.50	9.449	11.047	9.646	2.756	13.858			
	1937150HP-15	◆	1 15/16	1.50	9.646	11.240	9.843	2.756	14.055			
	2000150HP-15	◆	2	1.50	9.843	11.437	10.039	2.756	14.252			
	2062150HP-18	○	2 1/16	1.50	10.236	11.992	10.472	2.756	14.803	SP□T180510-□□ XO□T180508-□□	FTNA0511	TW20-100
	2125150HP-18	◆	2 1/8	1.50	10.630	12.378	10.866	2.756	15.197			
	2187150HP-18	◆	2 3/16	1.50	11.024	12.846	11.260	2.756	15.669			
	2250150HP-18	◆	2 1/4	1.50	11.220	13.083	11.496	2.756	15.906			
	2313150HP-18	◆	2 5/16	1.50	11.614	13.551	11.969	2.756	16.378			
	2375150HP-18	◆	2 3/8	1.50	11.811	13.787	12.205	2.756	16.614			

Applicable holders **D9 ~ 10**

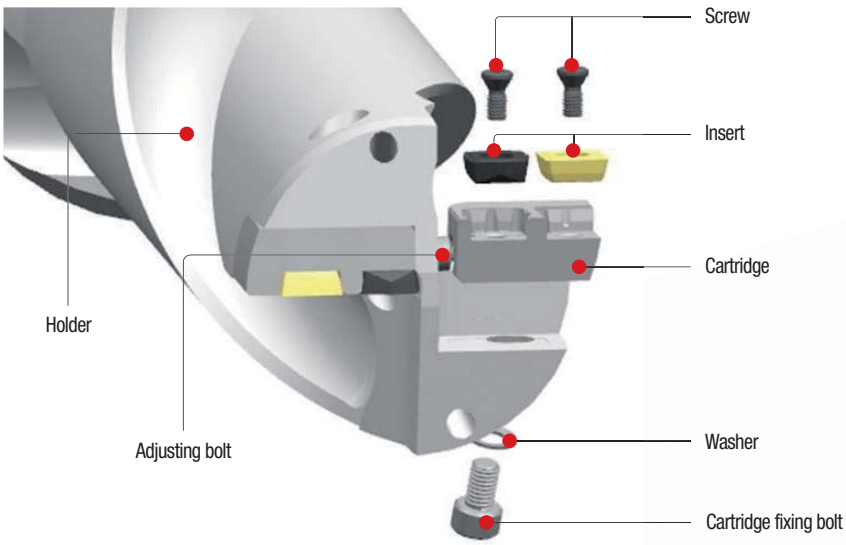
◆: US Stock ○: Made to order

High rigidity drill produces cost efficiency due to cartridge replacement

KING Drill (For large diameter drilling)

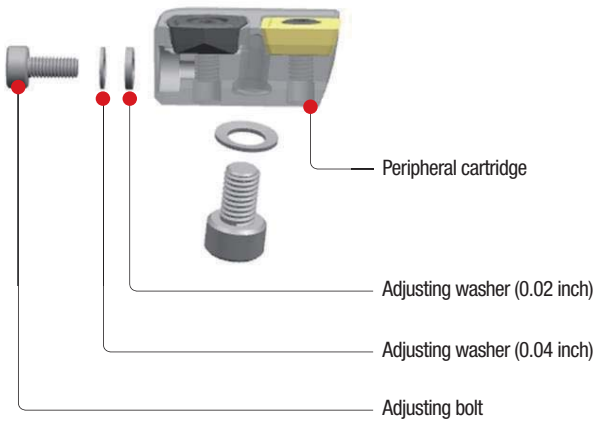
- Cartridge type for Ø2.4~Ø3.94 drilling
- Peripheral cartridge can adjust the drilling diameter within 0.197 inch
- Easy to adjust drilling diameter with adjusting bolt

Structure of KING Drill (for large diameter) parts





Adjustment of drill diameter

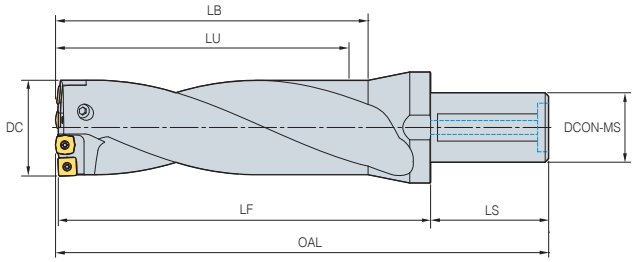


Adjustment Ø (inch)	Adjusting washer	
	Designation	Width (inch)
0.04	WA0305	0.020
0.08	WA0310	0.040
0.12	WA0305 + WA0310	0.059
0.16	WA0310 x 2	0.079
0.20	WA0305 + WA0310 x 2	0.098

※ Adjusting washer adjusts the drilling diameter with in 0.197 inch

KING Drill

For through coolant system with a lathe



(inch)

	Designation	Stock	DC	DCX	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert		Screw	Wrench
											Internal	External		
K2DA	240256200HP-11	◆	2.40	2.56	2.0	4.803	6.853	5.118	3.150	10.039	KDC240256C	KDC240256P	FTKA03508	TW15S
	256276200HP-13	◆	2.56	2.76	2.0	5.118	7.239	5.512	3.150	10.433	KDC256276C	KDC256276P	FTKA0410	TW15S
	276295200HP-13	◆	2.76	2.95	2.0	5.512	7.633	5.906	3.150	10.827	KDC276295C	KDC276295P	FTKA0410	TW15S
	295315200HP-13	◆	2.95	3.15	2.0	5.906	8.027	6.299	3.150	11.220	KDC295315C	KDC295315P	FTKA0410	TW15S
	315335200HP-15	◆	3.15	3.35	2.0	6.299	8.417	6.693	3.150	11.614	KDC315335C	KDC315335P	FTNC04511	TW20S
	335354200HP-15	◆	3.35	3.54	2.0	6.693	8.811	7.087	3.150	12.008	KDC335354C	KDC335354P	FTNC04511	TW20S
	354374200HP-15	◆	3.54	3.74	2.0	7.087	9.205	7.480	3.150	12.402	KDC354374C	KDC354374P	FTNC04511	TW20S
	374394200HP-18	◆	3.74	3.94	2.0	7.480	9.587	7.874	3.150	12.795	KDC374394C	KDC374394P	FTNA0511	TW20-100
K3DA	240256200HP-11	○	2.40	2.56	2.0	7.205	9.412	7.677	3.150	12.598	KDC240256C	KDC240256P	FTKA03508	TW15S
	256276200HP-13	○	2.56	2.76	2.0	7.677	9.995	8.268	3.150	13.189	KDC256276C	KDC256276P	FTKA0410	TW15S
	276295200HP-13	○	2.76	2.95	2.0	8.268	10.586	8.858	3.150	13.780	KDC276295C	KDC276295P	FTKA0410	TW15S
	295315200HP-13	○	2.95	3.15	2.0	8.858	11.176	9.449	3.150	14.370	KDC295315C	KDC295315P	FTKA0410	TW15S
	315335200HP-15	○	3.15	3.35	2.0	9.449	11.764	10.039	3.150	14.961	KDC315335C	KDC315335P	FTNC04511	TW20S
	335354200HP-15	○	3.35	3.54	2.0	10.039	12.354	10.630	3.150	15.551	KDC335354C	KDC335354P	FTNC04511	TW20S
	354374200HP-15	○	3.54	3.74	2.0	10.630	12.945	3.346	3.150	16.142	KDC354374C	KDC354374P	FTNC04511	TW20S
	374394200HP-18	○	3.74	3.94	2.0	11.220	13.524	11.811	3.150	16.732	KDC374394C	KDC374394P	FTNA0511	TW20-100
K4DA	240256200HP-11	○	2.40	2.56	2.0	9.606	11.971	10.236	3.150	15.157	KDC240256C	KDC240256P	FTKA03508	TW15S
	256276200HP-13	○	2.56	2.76	2.0	10.236	12.751	11.024	3.150	15.945	KDC256276C	KDC256276P	FTKA0410	TW15S
	276295200HP-13	○	2.76	2.95	2.0	11.024	13.539	11.811	3.150	16.732	KDC276295C	KDC276295P	FTKA0410	TW15S
	295315200HP-13	○	2.95	3.15	2.0	11.811	14.326	12.598	3.150	17.520	KDC295315C	KDC295315P	FTKA0410	TW15S
	315335200HP-15	○	3.15	3.35	2.0	12.598	15.110	13.386	3.150	18.307	KDC315335C	KDC315335P	FTNC04511	TW20S
	335354200-HP15	○	3.35	3.54	2.0	13.386	15.898	14.173	3.150	19.094	KDC335354C	KDC335354P	FTNC04511	TW20S
	354374200HP-15	○	3.54	3.74	2.0	14.173	16.685	14.961	3.150	19.882	KDC354374C	KDC354374P	FTNC04511	TW20S
	374394200HP-18		3.74	3.94	2.0	14.961	17.461	15.748	3.150	20.669	KDC374394C	KDC374394P	FTNA0511	TW20-100

Applicable inserts **D9 ~ 10**

◆: US Stock ○: Made to order

Parts

Cartridge		Range(Ø)	Insert				Screw	Wrench
Internal	External		Designation	Quantity	Designation	Quantity		
KDC240256C	KDC240256P	2.40~2.56	XOM□T11T306-□□	2	SPM□T11T308-□□	2	FTKA03508	TW15S
KDC256276C	KDC256276P	2.56~2.76	XOM□T130406-□□	2	SPM□T130410-□□	2	FTKA0410	TW15S
KDC276295C	KDC276295P	2.76~2.95	XOM□T130406-□□	2	SPM□T130410-□□	2	FTKA0410	TW15S
KDC295315C	KDC295315P	2.95~3.15	XOM□T130406-□□	2	SPM□T130410-□□	2	FTKA0410	TW15S
KDC315335C	KDC315335P	3.15~3.35	XOM□T15M508-□□	2	SPM□T15M510-□□	2	FTNC04511	TW20S
KDC335354C	KDC335354P	3.35~3.54	XOM□T15M508-□□	2	SPM□T15M510-□□	2	FTNC04511	TW20S
KDC354374C	KDC354374P	3.54~3.74	XOM□T15M508-□□	2	SPM□T15M510-□□	2	FTNC04511	TW20S
KDC374394C	KDC374394P	3.74~3.94	XOM□T180508-□□	2	SPM□T180510-□□	2	FTNA0511	TW20-100

High quality and high feed top solid indexable drill

TPDC Plus Drill

(XP, CP, CM, CN, CP-FC)

- The optimal tool shape for drilling realizing high precision and high feed machining as of carbide solid drill performance level
- Usable for various machining through enlarged line-up by workpieces, depth of cuts and workpiece shapes

Code system

• Insert

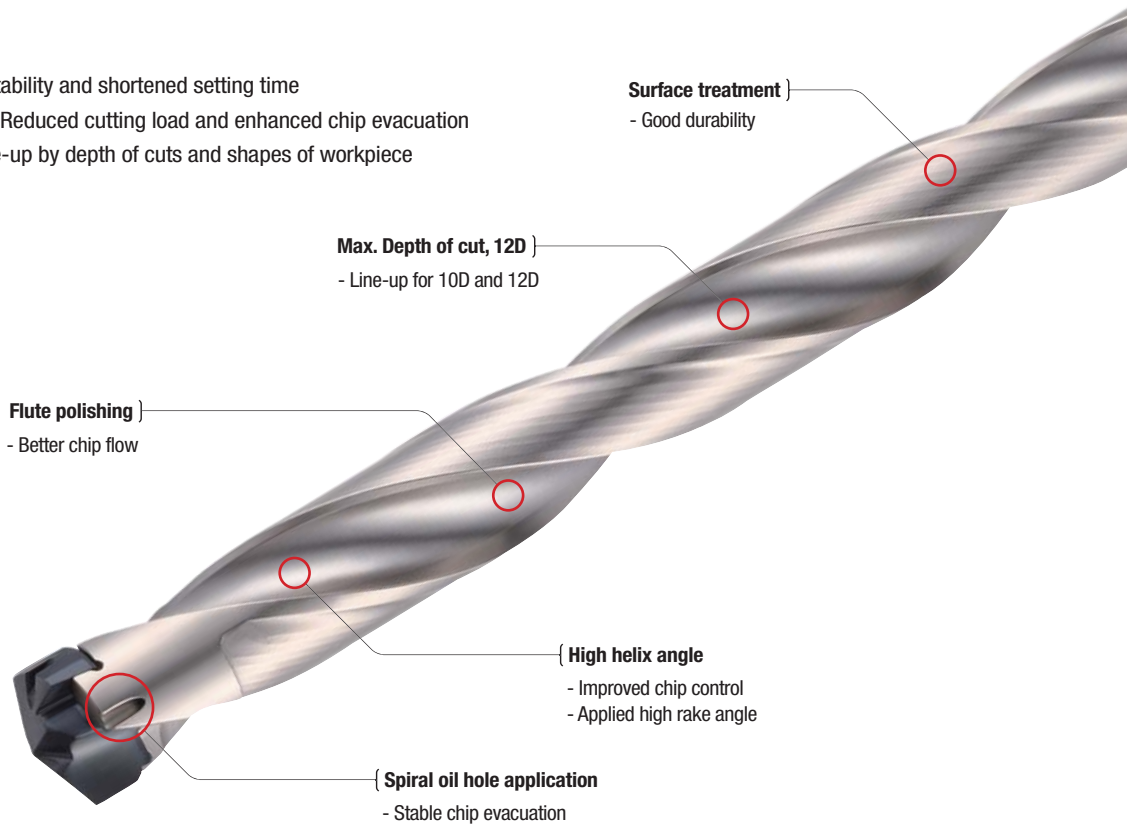
TPD	0591	C	A	P	-	□
Top solid Piercing Drill	**Drill diameter** 0591: Ø0.591 inch	**Insert type** X, C : Cone type	**Type** A: Inch type No code: Metric type	**Machining area** P : Steel and general M : Stainless steel K : Cast iron N : Non-ferrous metal		**Cutting edge** No code: Standard F: Flat FC: Flat Candle

• Holder

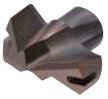
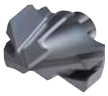
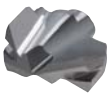
TPD	C	A	5D	-	0591	075	-	2953
Top solid Piercing Drill	**Insert type** X, C : Cone type	**Type** A: Inch type No code: Metric type	**Aspect ratio (L/D)** 1.5D, 3D, 5D 8D, 10D, 12D		**Drill diameter** 0591: Ø0.591 ~ Ø0.629 inch	**Shank diameter** 075: Ø0.75 inch		**Flute length** 2953: 2.953 inch

Features

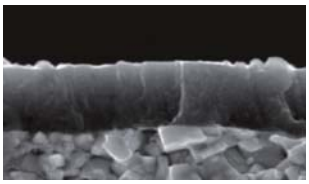
- **One step clamp system** - Increased stability and shortened setting time
- **High helix angle and flute polishing** - Reduced cutting load and enhanced chip evacuation
- Various applications from enlarged line-up by depth of cuts and shapes of workpiece



Insert features

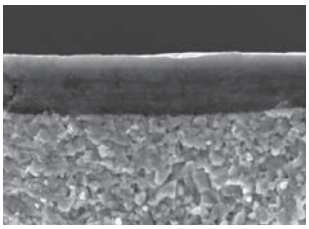
Shape		Application	Drill dia. (inch)	Features
	XP	P	Ø0.315 ~ Ø0.469	• High durability due to the strong clamping system • Excellent quality of machining and stable machining from high clamping force • Enhanced performance by high lubricated grade
	CP	P K	Ø0.472 ~ Ø1.220	• High quality machining due to excellent centering: Good roundness and surface finish • Excellent chip control from exclusive edge design: Stable machining by good chip forming and chip evacuation
	CM	M	Ø0.472 ~ Ø1.220	• Ensuring strength of point and cutting edge: Stable machinability • Increased stability of machining due to low cutting load • Applied grade with high built up edge resistance and chipping resistance
	CN	N	Ø0.472 ~ Ø1.220	• Cutting edge with low cutting load: Excellent chip evacuation from increased surface finish of insert by special after treatment • Long tool life due to ultra-fine substrate application
	FC	P	Ø0.472 ~ Ø1.220	• Cutting edge shape with excellent centering: Stable machinability from low cutting load • Available in various machining applications: Flat surface, angled surface, curved surface drilling, plunging and boring • Reduced cycle time by simplified tools: Endmill+drill machining → TPDC-CP-FC insert

Grade features



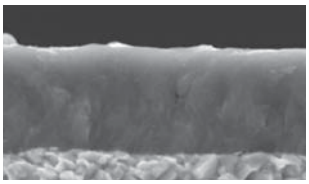
PC5335

- PVD coating technology with high toughness and excellent lubrication
- Coating with high adherence
- General grade for various kinds of workpiece machining



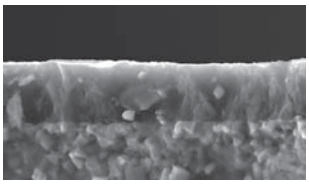
PC330P

- Improved wear resistance, built up edge resistance and heat resistance due to multi-coating layer with high hardness and lubrication
- Improved resistance against chipping and breakage due to alternating laminated structure which minimizes vertical crack
- Grade for carbon steel machining



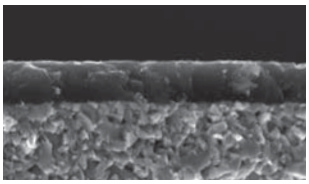
PC5300

- PVD coating layer with high hardness and stability at high temperature
- Stable hole-making from high strength of cutting edge and chipping resistance
- Grade for alloy steel and cast iron machining



PC330N

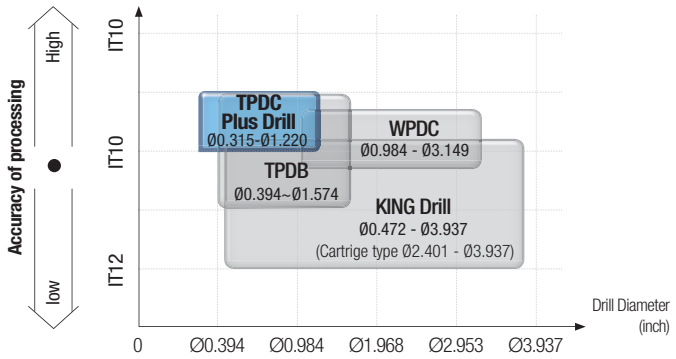
- PVD coating technology with hard and smooth surface
- Coating layer with stability of thermal shock and adherence
- Grade for stainless steel machining

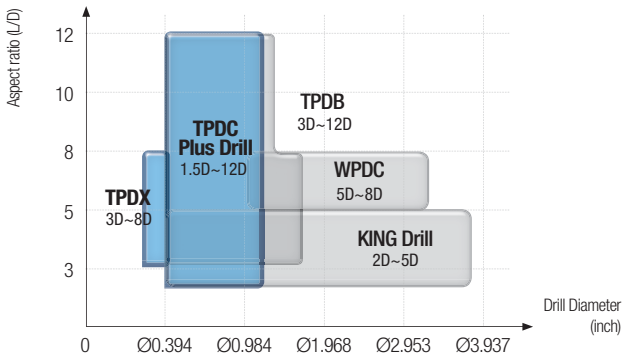


PC325U

- Enhanced lubrication of surface and reduced cutting load
- Long tool life from higher welding resistance
- Optimal grade for general workpice cutting such as carbon steel

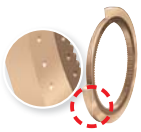
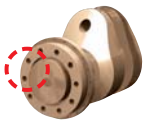
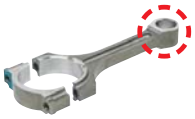
Application range





Tools		Application range					
		Drill Diameter(Ø)	Aspect ratio(L/D)	Tolerance of drill dia.	Tolerance of hole	Surface finish of hole (Ra)	Workpiece material
TPDC Plus Drill	TPDX	Ø0.315 ~ Ø0.469 inch	3, 5, 8	h7	IT10	≤ 3.0㎛	P, K
	TPDC	Ø0.472 ~ Ø1.217 inch	1.5, 3, 5, 8, 10, 12				P, M, K, N

Applicable industries

Generation of wind and nuclear power	Shipbuilding	Railway and construction	Aircraft	Automobile
				

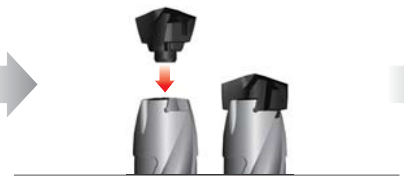
How to clamp insert

Using the improved wrench

• Using the insert with slot on the top (Use the improved inserts only)



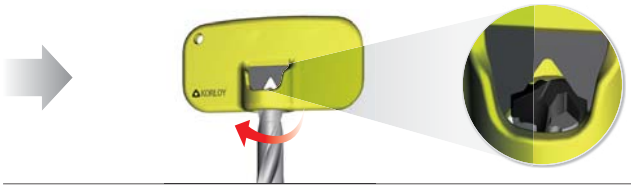
① Clean the mounting seat with air or cloth



② Put an insert on the holder



③ Put the wrench in the slot parallel



④ After fixing the wrench firmly, turn it clockwise and clamp the insert to the holder



Using the existing wrench

• Using any inserts (Use both existing inserts and improved inserts) ▶ Use only the improved wrench later



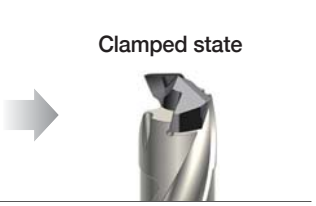
① Clean the mounting seat with air or cloth



② Put an insert on the holder



③ A part of wrench and B part of insert must be parallel to each other before clamp the insert Turn the wrench clockwise to finish clamping



Recommended cutting conditions (XP)

• 3D Drilling

Workpiece				Grade	vc (sfm)	Aspect ratio (L/D) = 3D	
						Feed rate (ipr) per drill dia. (inch)	
ISO		Workpiece	HB			Ø0.315 ~ Ø0.393	Ø0.394 ~ Ø0.472
P	Carbon steel	Low carbon steel	80~120	PC325U	360 (262~459)	0.005~0.009	0.006~0.011
		High carbon steel	180~280	PC325U	295 (229~360)		
P	Alloy steel	Low alloy steel	140~260	PC325U	295 (229~360)	0.005~0.008	0.006~0.010
		Low alloy heat-treated steel	200~400	PC325U	229 (164~295)		
		High alloy steel	260~320	PC325U	229 (164~295)	0.004~0.006	0.005~0.007
		High alloy heat-treated steel	300~450	PC325U	196 (131~262)		
K	Cast iron	Gray cast iron	150~230	PC325U	410 (295~525)	0.006~0.012	0.005~0.009
		Ductile cast iron	160~260	PC325U	360 (262~459)		

※ In interrupted machining, reduce the feed to 0.004~0.006 machining around the interrupted part

• 5D Drilling

Workpiece				Grade	vc (sfm)	Aspect ratio (L/D) = 5D	
						Feed rate (ipr) per drill dia. (inch)	
ISO		Workpiece	HB			Ø0.315 ~ Ø0.393	Ø0.394 ~ Ø0.472
P	Carbon steel	Low carbon steel	80~120	PC325U	360 (262~459)	0.005~0.009	0.006~0.011
		High carbon steel	180~280	PC325U	295 (229~360)		
P	Alloy steel	Low alloy steel	140~260	PC325U	295 (229~360)	0.005~0.008	0.006~0.010
		Low alloy heat-treated steel	200~400	PC325U	229 (164~295)		
		High alloy steel	260~320	PC325U	229 (164~295)	0.004~0.006	0.005~0.007
		High alloy heat-treated steel	300~450	PC325U	196 (131~262)		
K	Cast iron	Gray cast iron	150~230	PC325U	410 (295~525)	0.006~0.012	0.005~0.009
		Ductile cast iron	160~260	PC325U	360 (262~459)		

※ In interrupted machining, reduce the feed to 0.004~0.006 machining around the interrupted part

• 8D Drilling

Workpiece				Grade	vc (sfm)	Aspect ratio (L/D) = 8D	
						Feed rate (ipr) per drill dia. (inch)	
ISO		Workpiece	HB			Ø0.315 ~ Ø0.393	Ø0.394 ~ Ø0.472
P	Carbon steel	Low carbon steel	80~120	PC325U	328 (229~426)	0.004~0.008	0.005~0.010
		High carbon steel	180~280	PC325U	262 (196~328)		
P	Alloy steel	Low alloy steel	140~260	PC325U	262 (196~328)	0.004~0.007	0.005~0.008
		Low alloy heat-treated steel	200~400	PC325U	196 (131~262)		
		High alloy steel	260~320	PC325U	196 (131~262)	0.004~0.005	0.004~0.006
		High alloy heat-treated steel	300~450	PC325U	164 (98~229)		
K	Cast iron	Gray cast iron	150~230	PC325U	377 (262~492)	0.005~0.011	0.007~0.013
		Ductile cast iron	160~260	PC325U	328 (229~426)		

※ In interrupted machining, reduce the feed to 0.004~0.006 machining around the interrupted part
※ In case of 8D drilling, please use a Pilot Dirll

Recommended cutting conditions (CP/CM/CN)

• 1.5D/3D Drilling

Workpiece				Insert	Grade	vc (sfm)	Aspect ratio (L/D) = 1.5D, 3D		
							Feed rate (ipr) per drill dia. (inch)		
ISO		Workpiece	HB				Ø0.472~Ø0.705	Ø0.708~Ø1.023	Ø1.024~Ø1.220
P	Carbon steel	Low carbon steel	80~120	CP	PC5335 PC330P	393 (295~459)	0.010~0.014	0.012~0.016	0.014~0.018
		High carbon steel	180~280	CP	PC5335 PC330P	360 (262~426)	0.010~0.014	0.012~0.016	0.014~0.018
	Alloy steel	Low alloy steel	140~260	CP	PC5335 PC5300	393 (295~459)	0.011~0.016	0.013~0.017	0.015~0.019
		Low alloy heat-treated steel	200~400	CP	PC5335 PC5300	262 (197~328)	0.011~0.016	0.013~0.017	0.015~0.019
		High alloy steel	260~320	CP	PC5335 PC5300	246 (197~295)	0.008~0.014	0.009~0.016	0.010~0.018
		High alloy heat-treated steel	300~450	CP	PC5335 PC5300	213 (164~262)	0.008~0.014	0.009~0.016	0.010~0.018
M	Stainless steel	Austenitic	135~275	CM	PC330N	213 (164~262)	0.002~0.006	0.004~0.006	0.006~0.010
		Ferritic, martensitic	135~275	CM	PC330N	246 (197~295)	0.004~0.010	0.006~0.012	0.008~0.014
K	Cast iron	Gray cast iron	150~230	CP	PC5335 PC5300	426 (295~459)	0.014~0.018	0.016~0.020	0.018~0.022
		Ductile cast iron	160~260	CP	PC5335 PC5300	393 (262~426)	0.012~0.016	0.012~0.018	0.016~0.020
N	Non-ferrous metal	Aluminum	30~150	CN	H01	656 (293~721)	0.014~0.018	0.016~0.020	0.018~0.022
		Copper alloy	150~160	CN	H01	656 (293~721)	0.014~0.018	0.016~0.020	0.018~0.022

※ In interrupted machining, reduce the feed to 0.004~0.006 machining around the interrupted part

※ In stainless steel machining, start with low feed machining then, gradually get the cutting conditions higher and set the optimal cutting conditions

• 5D Drilling

Workpiece				Insert	Grade	vc (sfm)	Aspect ratio (L/D) = 5D		
							Feed rate (ipr) per drill dia. (inch)		
ISO		Workpiece	HB				Ø0.472~Ø0.705	Ø0.708~Ø1.023	Ø1.024~Ø1.220
P	Carbon steel	Low carbon steel	80 ~120	CP	PC5335 PC330P	360 (262~459)	0.006~0.012	0.008~0.014	0.010~0.016
		High carbon steel	180~280	CP	PC5335 PC330P	328 (229~426)	0.006~0.012	0.008~0.014	0.010~0.016
	Alloy steel	Low alloy steel	140~260	CP	PC5335 PC5300	360 (262~459)	0.007~0.014	0.009~0.015	0.011~0.017
		Low alloy heat-treated steel	200~400	CP	PC5335 PC5300	246 (164~328)	0.007~0.014	0.009~0.015	0.011~0.017
		High alloy steel	260~320	CP	PC5335 PC5300	229 (164~295)	0.007~0.012	0.008~0.014	0.010~0.016
		High alloy heat-treated steel	300~450	CP	PC5335 PC5300	196 (131~262)	0.007~0.012	0.008~0.014	0.010~0.016
M	Stainless steel	Austenitic	135~275	CM	PC330N	196 (131~262)	0.002~0.006	0.004~0.008	0.006~0.010
		Ferritic, martensitic	135~275	CM	PC330N	229 (164~295)	0.004~0.008	0.006~0.012	0.008~0.014
K	Cast iron	Gray cast iron	150~230	CP	PC5335 PC5300	393 (262~459)	0.010~0.016	0.012~0.018	0.014~0.020
		Ductile cast iron	160~260	CP	PC5335 PC5300	360 (229~426)	0.008~0.014	0.010~0.016	0.012~0.018
N	Non-ferrous metal	Aluminum	30 ~150	CN	H01	656 (295~721)	0.014~0.018	0.016~0.022	0.018~0.022
		Copper alloy	150 ~160	CN	H01	656 (295~721)	0.014~0.018	0.016~0.022	0.018~0.022

※ In interrupted machining, reduce the feed to 0.004~0.006 machining around the interrupted part

※ In stainless steel machining, start with low feed machining then, gradually get the cutting conditions higher and set the optimal cutting conditions

Recommended cutting conditions (CP/CM/CN)

• 8D Drilling

Workpiece				Insert	Grade	vc (sfm)	Aspect ratio (L/D) = 8D		
							Feed rate (ipr) per drill dia. (inch)		
ISO		Workpiece	HB				Ø0.472~Ø0.705	Ø0.708~Ø1.023	Ø1.024~Ø1.220
P	Carbon steel	Low carbon steel	80 ~120	CP	PC5335 PC330P	328 (229~426)	0.005~0.010	0.007~0.012	0.009~0.014
		High carbon steel	180~280	CP	PC5335 PC330P	295 (196~393)	0.005~0.010	0.007~0.012	0.009~0.014
	Alloy steel	Low alloy steel	140~260	CP	PC5335 PC5300	328 (229~426)	0.006~0.012	0.008~0.013	0.010~0.015
		Low alloy heat-treated steel	200~400	CP	PC5335 PC5300	213 (131~295)	0.006~0.012	0.008~0.013	0.010~0.015
		High alloy steel	260~320	CP	PC5335 PC5300	196 (131~262)	0.006~0.010	0.007~0.012	0.009~0.014
		High alloy heat-treated steel	300~450	CP	PC5335 PC5300	164 (98~229)	0.006~0.010	0.007~0.012	0.009~0.014
M	Stainless steel	Austenitic	135~275	CM	PC330N	164 (98~229)	0.002~0.004	0.002~0.006	0.004~0.008
		Ferritic, martensitic	135~275	CM	PC330N	196 (131~262)	0.002~0.006	0.004~0.010	0.006~0.012
K	Cast iron	Gray cast iron	150~230	CP	PC5335 PC5300	360 (229~426)	0.009~0.014	0.011~0.016	0.013~0.018
		Ductile cast iron	160~260	CP	PC5335 PC5300	328 (196~393)	0.007~0.012	0.009~0.014	0.011~0.016
N	Non~ferrous metal	Aluminum	30 ~150	CN	H01	623 (262~656)	0.012~0.016	0.014~0.018	0.016~0.020
		Copper alloy	150 ~160	CN	H01	623 (262~656)	0.012~0.016	0.014~0.018	0.016~0.020

※ In interrupted machining, reduce the feed to 0.004~0.006 machining around the interrupted part

※ In stainless steel machining, start with low feed machining then, gradually get the cutting conditions higher and set the optimal cutting conditions

• 10D/12D Drilling

Workpiece				Insert	Grade	vc (sfm)	Aspect ratio (L/D) = 10D, 12D		
							Feed rate (ipr) per drill dia. (inch)		
ISO		Workpiece	HB				Ø0.472~Ø0.705	Ø0.708~Ø1.023	Ø1.024~Ø1.220
P	Carbon steel	Low carbon steel	80 ~120	CP	PC5335 PC330P	295 (197~393)	0.004~0.008	0.006~0.010	0.008~0.012
		High carbon steel	180~280	CP	PC5335 PC330P	262 (164~360)	0.004~0.008	0.006~0.010	0.008~0.012
	Alloy steel	Low alloy steel	140~260	CP	PC5335 PC5300	295 (196~393)	0.005~0.010	0.007~0.011	0.009~0.013
		Low alloy heat-treated steel	200~400	CP	PC5335 PC5300	180 (131~262)	0.005~0.012	0.007~0.011	0.009~0.013
		High alloy steel	260~320	CP	PC5335 PC5300	164 (131~229)	0.005~0.010	0.006~0.010	0.008~0.012
		High alloy heat-treated steel	300~450	CP	PC5335 PC5300	131 (98~196)	0.005~0.010	0.006~0.010	0.008~0.012
M	Stainless steel	Austenitic	135~275	CM	PC330N	164 (98~196)	0.002~0.004	0.002~0.006	0.004~0.008
		Ferritic, martensitic	135~275	CM	PC330N	196 (131~229)	0.002~0.006	0.004~0.010	0.006~0.012
K	Cast iron	Gray cast iron	150~230	CP	PC5335 PC5300	328 (196~393)	0.008~0.012	0.010~0.014	0.012~0.016
		Ductile cast iron	160~260	CP	PC5335 PC5300	295 (164~360)	0.006~0.010	0.008~0.012	0.010~0.014
N	Non~ferrous metal	Aluminum	30 ~150	CN	H01	590 (229~623)	0.011~0.014	0.013~0.016	0.015~0.018
		Copper alloy	150 ~160	CN	H01	590 (229~623)	0.011~0.014	0.013~0.016	0.015~0.018

※ In interrupted machining, reduce the feed to 0.004~0.006 machining around the interrupted part

※ In case of 10D and 12D, apply the recommended cutting conditions in the other side

※ In stainless steel machining, start with low feed machining then, gradually get the cutting conditions higher and set the optimal cutting conditions

Using a pilot drill (10D/12D)

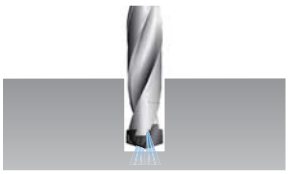
• Using a pilot drill (recommended)

1. Drilling a pilot hole (with a pilot drill)



• Drill a 0.5D pilot hole in 70% lower cutting speed with 1.5D drill or 3D drill

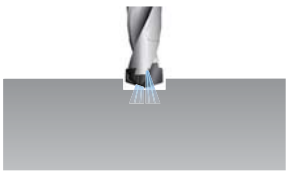
2. Start drilling



• Start drilling in recommended cutting conditions after replacing the drill

• Without pilot drill

1. Drilling a pilot hole (without a pilot drill)



• After drill 0.5D with 70% lower cutting speed, stop drilling for 2-3 seconds putting the drill in the hole

2. Stop drilling



• Stop supplying the coolant and take out the drill from the hole. Then, stop drilling for 2-3 seconds

3. Ready to drill



• After putting the drill in the hole to 2-3 mm upper than the bottom of the pilot hole, start supplying the coolant. Then, be ready to start drilling

4. Stop drilling



• Start drilling in recommended cutting conditions

Recommended cutting conditions (CP-FC)

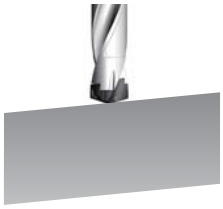
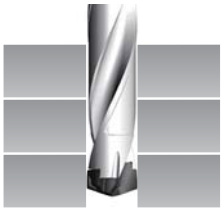
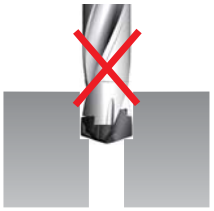
Workpiece				Graade	vc (sfm)	Aspect ratio (L/D) = 1.5D, 3D, 5D		
						Feed rate (ipr) per drill dia. (inch)		
ISO		Workpiece	HB			Ø0.472~Ø0.705	Ø0.708~Ø1.023	Ø1.024~Ø1.220
P	Carbon steel	Low carbon steel (1010, 1020 etc)	80 ~120	PC5335	395 (229~360)	0.007~ 0.011	0.008~0.012	0.009~0.013
		High carbon steel (1045, 1049 etc)	180~280		262 (196~328)	0.007~ 0.011	0.008~0.012	0.009~0.013
	Alloy steel	Low alloy steel (4140, 4142 etc)	140~260		295 (229~360)	0.007~ 0.011	0.008~0.012	0.009~0.013
		High alloy steel (4137, 4145 etc)	260~320		229 (164~295)	0.007~ 0.011	0.008~0.012	0.009~0.013

Machining	Flat surface drilling	Angled surface drilling	Curved surface drilling	Plunging	Boring
Pic.					
1.5D/3D	○	○	○	○	○
5D	○	×	×	×	×

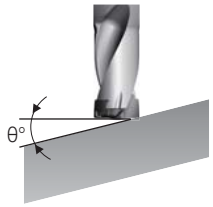
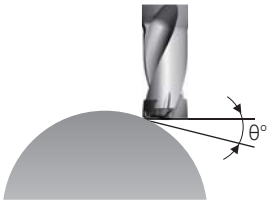
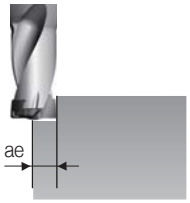
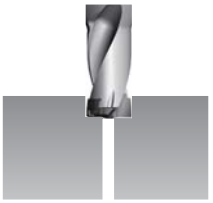
※Please refer to the precaution in drilling in case of angled surface drilling, curved surface drilling, plunging and boring

Precaution in drilling

• TPDC-CP/CM/CN

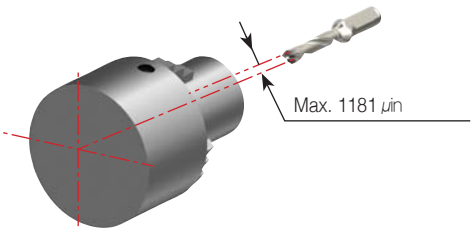
Angled surface drilling	Stacked plates drilling	Plunging	Boring
			
• The approach angle between drill and the workpiece at the beginning and the end should be less than 6° • Reduce the feed (fn) to 30-50% than general cutting conditions at the beginning and the end of angled surface	• Gap between the plates could make wrong chip evacuation causing fracture of the drill • Place stacked plates without any gap between each	• Irregular cutting resistance in plunging could cause fracture and deformation of the drill	• Boring is not recommended due to wear and chipping in the corner of the insert

• TPDC-CP-FC

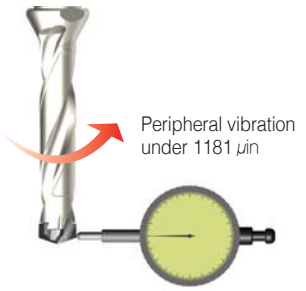
Angled surface drilling	Curved surface drilling	Plunging	Boring
			
• Reduce the feed (fn) to 30% than general cutting conditions at the beginning and the end of angled surface (Recommended only in case of θ is less than 10°)	• Reduce the feed (fn) to 30% than general cutting conditions at the beginning of curved surface (In case, θ is over 30°, reduce it to 50%)	• Reduce the depth of cut (ae) to shorter than 1/2 of drill diameter • In case, the depth of cut is longe than drill diameter, plunge with divided depth of cut	• Reduce the feed (fn) to 30% than general cutting conditions at the beginning of boring • Start with 2 mm stepping before boring to prevent long chip

Check point in drilling

- Condition of the clamped workpiece
- Revolution of the main axis of the machine
- Condition of the holder
- Run-out of the clamped drill (Max. 1181 μin)
- Condition of supplying coolant (pressure, flow, concentration)
- Chip evacuation



[Setting of the horizontal equipment]



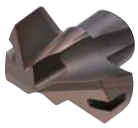
[Setting of the vertical equipment]

Supply of coolant

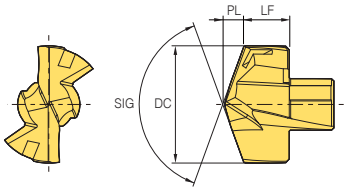
- Supply enough coolant to the beginning of the hole
- Minimum pressure of oil coolant : 5 bar
- Minimum flow of coolant : 1.321gal/min



Available insert (TPDX)



XP



(inch)

Designation		Coated PC325U	DC	LF	PL	SIG	Holder	Wrench
TPD	0315XAP	○	0.315	0.130	0.048	140	TPDXA□D-03150472-□	TPDC -W0811
	0319XAP	○	0.319	0.130	0.049	140		
	0323XAP	○	0.323	0.130	0.049	140		
	0327XAP	○	0.327	0.126	0.050	140		
	0331XAP	○	0.331	0.126	0.050	140		
	0335XAP	○	0.335	0.126	0.051	140	TPDXA□D-03350472-□	
	0339XAP	○	0.339	0.126	0.052	140		
	0343XAP	○	0.343	0.126	0.052	140		
	0346XAP	○	0.346	0.126	0.053	140		
	0350XAP	○	0.350	0.122	0.054	140		
	0354XAP	○	0.354	0.142	0.054	140	TPDXA□D-03540472-□	
	0358XAP	○	0.358	0.142	0.055	140		
	0362XAP	○	0.362	0.142	0.056	140		
	0366XAP	○	0.366	0.142	0.056	140		
	0370XAP	○	0.370	0.142	0.057	140		
	0374XAP	○	0.740	0.142	0.057	140	TPDXA□D-03740472-□	
	0378XAP	○	0.378	0.138	0.058	140		
	0382XAP	○	0.382	0.138	0.058	140		
	0386XAP	○	0.386	0.138	0.059	140		
	0390XAP	○	0.390	0.138	0.059	140		
	0394XAP	○	0.394	0.157	0.060	140	TPDXA□D-03940629-□	
	0398XAP	○	0.398	0.157	0.061	140		
	0402XAP	○	0.402	0.154	0.061	140		
	0406XAP	○	0.406	0.154	0.062	140		
	0409XAP	○	0.409	0.154	0.063	140		
	0413XAP	○	0.413	0.154	0.063	140	TPDXA□D-04130629-□	
	0417XAP	○	0.417	0.154	0.064	140		
	0421XAP	○	0.421	0.154	0.065	140		
	0425XAP	○	0.425	0.154	0.065	140		
	0429XAP	○	0.429	0.150	0.066	140		
	0433XAP	○	0.433	0.169	0.066	140	TPDXA□D-04330629-□	
	0437XAP	○	0.437	0.169	0.067	140		
	0441XAP	○	0.441	0.169	0.067	140		
	0445XAP	○	0.445	0.169	0.068	140		
	0449XAP	○	0.449	0.169	0.069	140		
	0453XAP	○	0.453	0.165	0.069	140	TPDXA□D-04530629-□	
	0457XAP	○	0.457	0.165	0.070	140		
	0461XAP	○	0.461	0.165	0.070	140		
	0465XAP	○	0.465	0.165	0.071	140		
	0469XAP	○	0.469	0.165	0.072	140		

Applicable holders **D26**

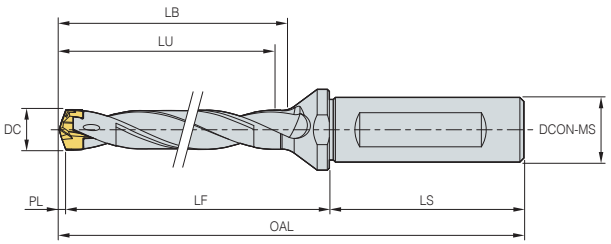
※ We can provide if you order exact machining specification ●: Korea Stock ◆: US Stock ○: Made to order

• Parts (applicable wrench)

Picture	Designation	Drill diameter ØD (inch)	Torque (ibf·ft)
	TPDC-W0811	Ø0.315-0.469	0.516-1.106

TPDXA (3D/5D/8D)





(inch)

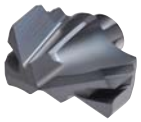
Designation		Stock	DC	DCX	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDXA3D	03150500-0945	○	0.315	0.334	0.500	0.99	1.42	1.15	1.772	3.236	0.048	TPD0315XAP ~ TPD0334XAP
	03350500-1024	○	0.335	0.354	0.500	1.06	1.49	1.22	1.772	3.311	0.051	TPD0334XAP ~ TPD0353XAP
	03540500-1063	○	0.354	0.374	0.500	1.12	1.56	1.29	1.772	3.382	0.054	TPD0354XAP ~ TPD0373XAP
	03740500-1142	○	0.374	0.393	0.500	1.18	1.62	1.37	1.772	3.453	0.057	TPD0374XAP ~ TPD0393XAP
	03940625-1181	○	0.394	0.413	0.625	1.24	1.77	1.44	1.890	3.724	0.060	TPD0393XAP ~ TPD0413XAP
	04130625-1260	○	0.413	0.433	0.625	1.30	1.85	1.51	1.890	3.799	0.063	TPD0413XAP ~ TPD0432XAP
	04330625-1299	○	0.433	0.452	0.625	1.37	1.91	1.58	1.890	3.866	0.066	TPD0433XAP ~ TPD0452XAP
	04530625-1378	○	0.453	0.472	0.625	1.43	1.98	1.65	1.890	3.941	0.069	TPD0452XAP ~ TPD0472XAP
TPDXA5D	03150500-1575	○	0.315	0.334	0.500	1.62	2.05	1.78	1.772	3.866	0.048	TPD0315XAP ~ TPD0334XAP
	03350500-1693	○	0.335	0.354	0.500	1.72	2.16	1.89	1.772	3.980	0.051	TPD0334XAP ~ TPD0353XAP
	03540500-1772	○	0.354	0.374	0.500	1.83	2.27	2.00	1.772	4.091	0.054	TPD0354XAP ~ TPD0373XAP
	03740500-1890	○	0.374	0.393	0.500	1.93	2.37	2.11	1.772	4.201	0.057	TPD0374XAP ~ TPD0393XAP
	03940625-1969	○	0.394	0.413	0.625	2.03	2.56	2.23	1.890	4.512	0.060	TPD0393XAP ~ TPD0413XAP
	04130625-2087	○	0.413	0.433	0.625	2.13	2.67	2.34	1.890	4.626	0.063	TPD0413XAP ~ TPD0432XAP
	04330625-2165	○	0.433	0.452	0.625	2.23	2.78	2.45	1.890	4.732	0.066	TPD0433XAP ~ TPD0452XAP
	04530625-2283	○	0.453	0.472	0.625	2.33	2.89	2.56	1.890	4.846	0.069	TPD0452XAP ~ TPD0472XAP
TPDXA8D	03150500-2520	○	0.315	0.334	0.500	2.57	2.99	2.73	1.772	4.811	0.048	TPD0315XAP ~ TPD0334XAP
	03350500-2677	○	0.335	0.354	0.500	2.73	3.16	2.90	1.772	4.984	0.051	TPD0334XAP ~ TPD0353XAP
	03540500-2835	○	0.354	0.374	0.500	2.89	3.33	3.07	1.772	5.154	0.054	TPD0354XAP ~ TPD0373XAP
	03740500-2992	○	0.374	0.393	0.500	3.05	3.49	3.24	1.772	5.323	0.057	TPD0374XAP ~ TPD0393XAP
	03940625-3150	○	0.394	0.413	0.625	3.21	3.74	3.41	1.890	5.693	0.060	TPD0393XAP ~ TPD0413XAP
	04130625-3307	○	0.413	0.433	0.625	3.37	3.91	3.58	1.890	5.866	0.063	TPD0413XAP ~ TPD0432XAP
	04330625-3465	○	0.433	0.452	0.625	3.53	4.08	3.75	1.890	6.031	0.066	TPD0433XAP ~ TPD0452XAP
	04530625-3622	○	0.453	0.472	0.625	3.69	4.25	3.92	1.890	6.205	0.069	TPD0452XAP ~ TPD0472XAP

Applicable holders **D25**

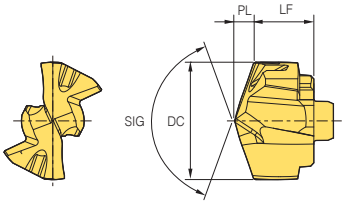
※ We can provide if you order exact machining specification. Ex) Ø0.394 and 2.364 inch depth of cut → TPDXA6D-03940625-2364

◆: US Stock ○: Made to order

Available insert (TPDC)



CP



(inch)

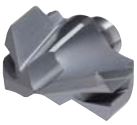
Designation		Coated PC5335	DC	LF	PL	SIG	Holder	Wrench
TPD	0472CAP	○	0.472	0.244	0.074	140	TPDCA□D-0472063-□	TPDC-W1216
	0480CAP	○	0.480	0.244	0.076	140		
	0492CAP	○	0.492	0.240	0.078	140	TPDCA□D-0492063-□	
	0496CAP	○	0.496	0.240	0.078	140		
	0512CAP	○	0.512	0.268	0.081	140	TPDCA□D-0512063-□	
	0531CAP	○	0.531	0.264	0.084	140	TPDCA□D-0532063-□	
	0551CAP	○	0.551	0.287	0.087	140	TPDCA□D-0551063-□	
	0559CAP	○	0.559	0.287	0.088	140		
	0563CAP	○	0.563	0.287	0.089	140		
	0571CAP	○	0.571	0.283	0.090	140	TPDCA□D-0571063-□	
	0591CAP	○	0.591	0.303	0.093	140	TPDCA□D-0591075-□	
	0610CAP	○	0.610	0.303	0.096	140		
	0630CAP	○	0.630	0.327	0.099	140	TPDCA□D-0630075-□	
	0642CAP	○	0.642	0.323	0.101	140		
	0650CAP	○	0.650	0.323	0.102	140		
	0657CAP	○	0.657	0.323	0.104	140		
	0669CAP	○	0.669	0.346	0.106	140	TPDCA□D-0669075-□	TPDC-W1721
	0689CAP	○	0.689	0.343	0.109	140		
	0697CAP	○	0.697	0.343	0.110	140		
	0709CAP	○	0.709	0.370	0.112	140	TPDCA□D-0709100-□	
	0713CAP	○	0.713	0.370	0.112	140		
	0728CAP	○	0.728	0.366	0.115	140		
	0732CAP	○	0.732	0.366	0.115	140		
	0736CAP	○	0.736	0.366	0.116	140		
	0748CAP	○	0.748	0.386	0.118	140	TPDCA□D-0748100-□	
	0756CAP	○	0.756	0.386	0.119	140		
	0768CAP	○	0.768	0.382	0.121	140		
	0776CAP	○	0.776	0.382	0.122	140		
	0787CAP	○	0.787	0.409	0.124	140	TPDCA□D-0787100-□	
	0807CAP	○	0.807	0.406	0.127	140		
	0827CAP	○	0.827	0.429	0.130	140	TPDCA□D-0827100-□	
	0846CAP	○	0.846	0.425	0.133	140		
	0866CAP	○	0.866	0.449	0.139	140	TPDCA□D-0866100-□	TPDC-W2225
	0886CAP	○	0.886	0.445	0.142	140		
	0890CAP	○	0.890	0.445	0.143	140		
	0894CAP	○	0.894	0.445	0.143	140		
	0906CAP	○	0.906	0.465	0.145	140	TPDCA□D-0906100-□	
	0925CAP	○	0.925	0.461	0.148	140		
	0945CAP	○	0.945	0.488	0.151	140	TPDCA□D-0945125-□	
	0965CAP	○	0.965	0.484	0.154	140		
	0984CAP	○	0.984	0.508	0.157	140	TPDCA□D-0984125-□	
	0996CAP	○	0.996	0.508	0.159	140		
	1004CAP	○	1.004	0.504	0.161	140		
	1016CAP	○	1.016	0.504	0.163	140		
	1020CAP	○	1.020	0.504	0.163	140		
	1024CAP	○	1.024	0.528	0.164	140	TPDCA□D-1024125-□	TPDC-W2630
	1043CAP	○	1.043	0.528	0.167	140		
	1063CAP	○	1.063	0.547	0.170	140	TPDCA□D-1063125-□	
	1083CAP	○	1.083	0.543	0.173	140		
	1102CAP	○	1.102	0.567	0.176	140	TPDCA□D-1102125-□	
	1122CAP	○	1.122	0.563	0.180	140		
	1142CAP	○	1.142	0.591	0.183	140	TPDCA□D-1142125-□	
	1161CAP	○	1.161	0.587	0.186	140		
	1181CAP	○	1.181	0.610	0.189	140	TPDCA□D-1181125-□	
	1201CAP	○	1.201	0.606	0.192	140		

Applicable holders **D31 ~ D33** ※ We can provide if you order exact machining specification Ex) Ø0.626 and carbon steel machining → TPDC0626CAP/PC330P ●: Korea Stock ◆: US Stock ○: Made to order

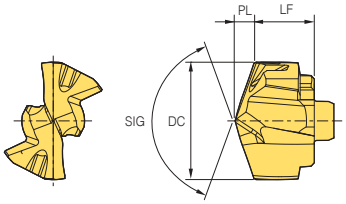
• Parts (applicable wrench)

Picture	Designation		Drill diameter ØD (inch)	Torque (ibf·ft)
	TPDC-	W1216	0.472 ~ 0.668	1.475 ~ 2.213
		W1721	0.669 ~ 0.862	1.475 ~ 2.950
		W2225	0.866 ~ 1.023	2.214 ~ 2.950
		W2630	1.024 ~ 1.220	2.950 ~ 3.688

Available insert (TPDC)



CM



(inch)

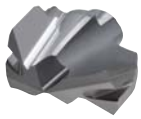
Designation		Coated PC330N	DC	LF	PL	SIG	Holder	Wrench
TPD	0472CAM	○	0.472	0.236	0.083	140	TPDCA□D-0472063-□	TPDC-W1216
	0480CAM	○	0.480	0.236	0.083	140		
	0492CAM	○	0.492	0.236	0.083	140	TPDCA□D-0492063-□	
	0496CAM	○	0.496	0.236	0.083	140		
	0512CAM	○	0.512	0.256	0.090	140	TPDCA□D-0512063-□	
	0531CAM	○	0.531	0.256	0.090	140	TPDCA□D-0532063-□	
	0551CAM	○	0.551	0.276	0.099	140	TPDCA□D-0551063-□	
	0559CAM	○	0.559	0.276	0.099	140		
	0563CAM	○	0.563	0.276	0.099	140		
	0571CAM	○	0.571	0.276	0.099	140	TPDCA□D-0571063-□	
	0591CAM	○	0.591	0.291	0.105	140	TPDCA□D-0591075-□	
	0610CAM	○	0.610	0.291	0.105	140		
	0630CAM	○	0.630	0.315	0.111	140	TPDCA□D-0630075-□	
	0642CAM	○	0.642	0.315	0.111	140		
	0650CAM	○	0.650	0.315	0.111	140		
	0657CAM	○	0.657	0.315	0.111	140		
	0669CAM	○	0.669	0.335	0.118	140	TPDCA□D-0669075-□	TPDC-W1721
	0689CAM	○	0.689	0.335	0.118	140		
	0697CAM	○	0.697	0.335	0.118	140		
	0709CAM	○	0.709	0.354	0.127	140	TPDCA□D-0709100-□	
	0713CAM	○	0.713	0.354	0.127	140		
	0728CAM	○	0.728	0.354	0.127	140		
	0732CAM	○	0.732	0.354	0.127	140		
	0736CAM	○	0.736	0.354	0.127	140		
	0748CAM	○	0.748	0.370	0.133	140	TPDCA□D-0748100-□	
	0756CAM	○	0.756	0.370	0.133	140		
	0768CAM	○	0.768	0.370	0.133	140		
	0776CAM	○	0.776	0.370	0.133	140		
	0787CAM	○	0.787	0.394	0.139	140	TPDCA□D-0787100-□	
	0807CAM	○	0.807	0.394	0.139	140		
	0827CAM	○	0.827	0.413	0.145	140	TPDCA□D-0827100-□	
	0846CAM	○	0.846	0.413	0.145	140		
	0866CAM	○	0.866	0.429	0.157	140	TPDCA□D-0866100-□	TPDC-W2225
	0886CAM	○	0.886	0.429	0.157	140		
	0890CAM	○	0.890	0.429	0.157	140		
	0894CAM	○	0.894	0.429	0.157	140		
	0906CAM	○	0.906	0.449	0.163	140	TPDCA□D-0906100-□	
	0925CAM	○	0.925	0.449	0.163	140		
	0945CAM	○	0.945	0.469	0.169	140	TPDCA□D-0945125-□	
	0965CAM	○	0.965	0.469	0.169	140		
	0984CAM	○	0.984	0.488	0.176	140	TPDCA□D-0984125-□	
	0996CAM	○	0.996	0.488	0.176	140		
	1004CAM	○	1.004	0.488	0.176	140		
	1016CAM	○	1.016	0.488	0.176	140		
	1020CAM	○	1.020	0.488	0.176	140		
	1024CAM	○	1.024	0.512	0.182	140	TPDCA□D-1024125-□	TPDC-W2630
	1043CAM	○	1.043	0.512	0.182	140		
	1063CAM	○	1.063	0.524	0.191	140	TPDCA□D-1063125-□	
	1083CAM	○	1.083	0.524	0.191	140		
	1102CAM	○	1.102	0.547	0.198	140	TPDCA□D-1102125-□	
	1122CAM	○	1.122	0.547	0.198	140		
	1142CAM	○	1.142	0.567	0.204	140	TPDCA□D-1142125-□	
	1161CAM	○	1.161	0.567	0.204	140		
	1181CAM	○	1.181	0.591	0.210	140	TPDCA□D-1181125-□	
	1201CAM	○	1.201	0.591	0.210	140		

Applicable holders **D31 ~ D33** ※ We can provide if you order exact machining specification Ex) Ø0.626 and carbon steel machining → TPDC0626CAP/PC330P ●: Korea Stock ◆: US Stock ○: Made to order

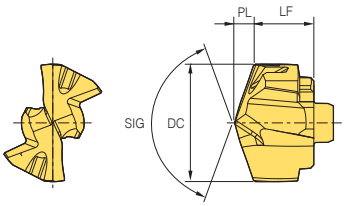
• Parts (applicable wrench)

Picture	Designation		Drill diameter ØD (inch)	Torque (ibf·ft)
	TPDC-	W1216	0.472 ~ 0.668	1.475 ~ 2.213
		W1721	0.669 ~ 0.862	1.475 ~ 2.950
		W2225	0.866 ~ 1.023	2.214 ~ 2.950
		W2630	1.024 ~ 1.220	2.950 ~ 3.688

Available insert (TPDC)



CN



(inch)

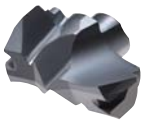
	Designation	Uncoated H01	DC	LF	PL	SIG	Holder	Wrench
TPD	TPD0472CAN	○	0.472	0.244	0.074	140	TPDCA□D-0472063-□	TPDC-W1216
	TPD0480CAN	○	0.480	0.244	0.076	140		
	TPD0492CAN	○	0.492	0.240	0.078	140	TPDCA□D-0492063-□	
	TPD0496CAN	○	0.496	0.240	0.078	140		
	TPD0512CAN	○	0.512	0.268	0.081	140	TPDCA□D-0512063-□	
	TPD0531CAN	○	0.531	0.264	0.084	140	TPDCA□D-0532063-□	
	TPD0551CAN	○	0.551	0.287	0.087	140	TPDCA□D-0551063-□	
	TPD0559CAN	○	0.559	0.287	0.088	140		
	TPD0563CAN	○	0.563	0.287	0.089	140		
	TPD0571CAN	○	0.571	0.283	0.090	140	TPDCA□D-0571063-□	
	TPD0591CAN	○	0.591	0.303	0.093	140	TPDCA□D-0591075-□	
	TPD0610CAN	○	0.610	0.303	0.096	140		
	TPD0630CAN	○	0.630	0.327	0.099	140	TPDCA□D-0630075-□	
	TPD0642CAN	○	0.642	0.323	0.101	140		
	TPD0650CAN	○	0.650	0.323	0.102	140		
	TPD0657CAN	○	0.657	0.323	0.104	140		
	TPD0669CAN	○	0.669	0.346	0.106	140	TPDCA□D-0669075-□	TPDC-W1721
	TPD0689CAN	○	0.689	0.343	0.109	140		
	TPD0697CAN	○	0.697	0.343	0.110	140		
	TPD0709CAN	○	0.709	0.370	0.112	140	TPDCA□D-0709100-□	
	TPD0713CAN	○	0.713	0.370	0.112	140		
	TPD0728CAN	○	0.728	0.366	0.115	140		
	TPD0732CAN	○	0.732	0.366	0.115	140		
	TPD0736CAN	○	0.736	0.366	0.116	140		
	TPD0748CAN	○	0.748	0.386	0.118	140	TPDCA□D-0748100-□	
	TPD0756CAN	○	0.756	0.386	0.119	140		
	TPD0768CAN	○	0.768	0.382	0.121	140		
	TPD0776CAN	○	0.776	0.382	0.122	140		
	TPD0787CAN	○	0.787	0.409	0.124	140	TPDCA□D-0787100-□	
	TPD0807CAN	○	0.807	0.406	0.127	140		
	TPD0827CAN	○	0.827	0.429	0.130	140	TPDCA□D-0827100-□	
	TPD0846CAN	○	0.846	0.425	0.133	140		
	TPD0866CAN	○	0.866	0.449	0.139	140	TPDCA□D-0866100-□	TPDC-W2225
	TPD0886CAN	○	0.886	0.445	0.142	140		
	TPD0890CAN	○	0.890	0.445	0.143	140		
	TPD0894CAN	○	0.894	0.445	0.143	140		
	TPD0906CAN	○	0.906	0.465	0.145	140	TPDCA□D-0906100-□	
	TPD0925CAN	○	0.925	0.461	0.148	140		
	TPD0945CAN	○	0.945	0.488	0.151	140	TPDCA□D-0945125-□	
	TPD0965CAN	○	0.965	0.484	0.154	140		
	TPD0984CAN	○	0.984	0.508	0.157	140	TPDCA□D-0984125-□	
	TPD0996CAN	○	0.996	0.508	0.159	140		
	TPD1004CAN	○	1.004	0.504	0.161	140		
	TPD1016CAN	○	1.016	0.504	0.163	140		
	TPD1020CAN	○	1.020	0.504	0.163	140		
	TPD1024CAN	○	1.024	0.528	0.164	140	TPDCA□D-1024125-□	TPDC-W2630
	TPD1043CAN	○	1.043	0.528	0.167	140		
	TPD1063CAN	○	1.063	0.547	0.170	140	TPDCA□D-1063125-□	
	TPD1083CAN	○	1.083	0.543	0.173	140		
	TPD1102CAN	○	1.102	0.567	0.176	140	TPDCA□D-1102125-□	
	TPD1122CAN	○	1.122	0.563	0.180	140		
	TPD1142CAN	○	1.142	0.591	0.183	140	TPDCA□D-1142125-□	
	TPD1161CAN	○	1.161	0.587	0.186	140		
	TPD1181CAN	○	1.181	0.610	0.189	140	TPDCA□D-1181125-□	
	TPD1201CAN	○	1.201	0.606	0.192	140		

Applicable holders **D31 ~ D33** ※ We can provide if you order exact machining specification Ex) Ø0.626 and carbon steel machining → TPDC0626CAP/PC330P ●: Korea Stock ◆: US Stock ○: Made to order

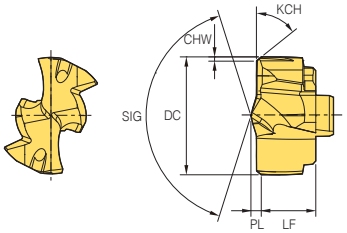
• Parts (applicable wrench)

Picture	Designation		Drill diameter ØD (inch)	Torque (ibf·ft)
	TPDC-	W1216	0.472 ~ 0.668	1.475 ~ 2.213
		W1721	0.669 ~ 0.862	1.475 ~ 2.950
		W2225	0.866 ~ 1.023	2.214 ~ 2.950
		W2630	1.024 ~ 1.220	2.950 ~ 3.688

Available insert (TPDC)



FC



(inch)

Designation		Coated PC5335	DC	LF	PL	SIG	KCH	CHW	Holder	Chamfer (inch) a	Chamfer (inch) a	Wrench
TPD	0472CAP-FC	●	0.472	0.224	0.041	145	40	0.015	TPDCA□D-0472063-□	0.015	0.017	TPDC-W1216
	0480CAP-FC	○	0.480	0.224	0.041	145	40	0.015				
	0492CAP-FC	○	0.492	0.224	0.041	145	40	0.015	TPDCA□D-0492063-□			
	0496CAP-FC	○	0.496	0.224	0.041	145	40	0.015				
	0512CAP-FC	●	0.512	0.252	0.041	145	40	0.015	TPDCA□D-0512063-□			
	0531CAP-FC	○	0.531	0.252	0.041	145	40	0.015	TPDCA□D-0532063-□			
	0551CAP-FC	●	0.551	0.272	0.045	145	40	0.015	TPDCA□D-0551063-□			
	0559CAP-FC	○	0.559	0.272	0.045	145	40	0.015				
	0563CAP-FC	○	0.563	0.272	0.045	145	40	0.015				
	0571CAP-FC	○	0.571	0.272	0.045	145	40	0.015	TPDCA□D-0571063-□			
	0591CAP-FC	●	0.591	0.287	0.045	145	40	0.015	TPDCA□D-0591075-□			
	0610CAP-FC	○	0.610	0.287	0.045	145	40	0.015				
	0630CAP-FC	●	0.630	0.315	0.049	145	40	0.015	TPDCA□D-0630075-□			
	0642CAP-FC	○	0.642	0.315	0.049	145	40	0.015				
	0650CAP-FC	○	0.650	0.315	0.049	145	40	0.015				
	0657CAP-FC	○	0.657	0.315	0.049	145	40	0.015				
	0669CAP-FC	●	0.669	0.323	0.053	145	40	0.018	TPDCA□D-0669075-□	0.018	0.021	TPDC-W1721
	0689CAP-FC	○	0.689	0.323	0.053	145	40	0.018				
	0697CAP-FC	○	0.697	0.323	0.053	145	40	0.018				
	0709CAP-FC	●	0.709	0.346	0.057	145	40	0.018	TPDCA□D-0709100-□			
	0713CAP-FC	○	0.713	0.346	0.057	145	40	0.018				
	0728CAP-FC	○	0.728	0.346	0.057	145	40	0.018				
	0732CAP-FC	○	0.732	0.346	0.057	145	40	0.018				
	0736CAP-FC	○	0.736	0.346	0.057	145	40	0.018				
	0748CAP-FC	●	0.748	0.362	0.057	145	40	0.018	TPDCA□D-0748100-□			
	0756CAP-FC	○	0.756	0.362	0.057	145	40	0.018				
	0768CAP-FC	○	0.768	0.362	0.057	145	40	0.018				
	0776CAP-FC	○	0.776	0.362	0.057	145	40	0.018				
	0787CAP-FC	●	0.787	0.386	0.057	145	40	0.018	TPDCA□D-0787100-□			
	0807CAP-FC	○	0.807	0.386	0.057	145	40	0.018				
	0827CAP-FC	●	0.827	0.394	0.061	145	40	0.018	TPDCA□D-0827100-□			
	0846CAP-FC	○	0.846	0.394	0.061	145	40	0.018				
	0866CAP-FC	●	0.866	0.433	0.061	145	40	0.018	TPDCA□D-0866100-□			TPDC-W2225
	0886CAP-FC	○	0.886	0.433	0.061	145	40	0.018				
	0890CAP-FC	○	0.890	0.433	0.061	145	40	0.018				
	0894CAP-FC	○	0.894	0.433	0.061	145	40	0.018				
	0906CAP-FC	●	0.906	0.449	0.065	145	40	0.018	TPDCA□D-0906100-□			
	0925CAP-FC	○	0.925	0.449	0.065	145	40	0.018				
	0945CAP-FC	●	0.945	0.48	0.065	145	40	0.018	TPDCA□D-0945125-□			
	0965CAP-FC	○	0.965	0.48	0.065	145	40	0.018				
	0984CAP-FC	●	0.984	0.492	0.069	145	40	0.018	TPDCA□D-0984125-□			
	0996CAP-FC	○	0.996	0.492	0.069	145	40	0.018				
	1004CAP-FC	○	1.004	0.492	0.069	145	40	0.018				
	1016CAP-FC	○	1.016	0.492	0.069	145	40	0.018				
	1020CAP-FC	○	1.020	0.492	0.069	145	40	0.018				
	1024CAP-FC	●	1.024	0.516	0.073	145	40	0.022	TPDCA□D-1024125-□	0.022	0.026	TPDC-W2630
	1043CAP-FC	○	1.043	0.516	0.073	145	40	0.022				
	1063CAP-FC	●	1.063	0.528	0.077	145	40	0.022	TPDCA□D-1063125-□			
	1083CAP-FC	○	1.083	0.528	0.077	145	40	0.022				
	1102CAP-FC	●	1.102	0.543	0.077	145	40	0.022	TPDCA□D-1102125-□			
	1122CAP-FC	○	1.122	0.543	0.077	145	40	0.022				
	1142CAP-FC	●	1.142	0.567	0.081	145	40	0.022	TPDCA□D-1142125-□			
	1161CAP-FC	○	1.161	0.567	0.081	145	40	0.022				
	1181CAP-FC	●	1.181	0.594	0.081	145	40	0.022	TPDCA□D-1181125-□			
	1201CAP-FC	○	1.201	0.594	0.081	145	40	0.022				

Applicable holders **D31 ~ D33** ※ We can provide if you order exact machining specification Ex) Ø0.626 and carbon steel machining → TPDC0626CAP-FC/PC5335 ●: Korea Stock ◆: US Stock ○: Made to order

※ TPDC-CP-FC insert: impossible to be reground

• Parts (applicable wrench)

Picture	Designation		Drill diameter ØD (inch)	Torque (ibf·ft)
	TPDC-	W1216	0.472 ~ 0.668	1.475 ~ 2.213
		W1721	0.669 ~ 0.862	1.475 ~ 2.950
		W2225	0.866 ~ 1.023	2.214 ~ 2.950
		W2630	1.024 ~ 1.220	2.950 ~ 3.688

TPDCA (1.5D/3D)



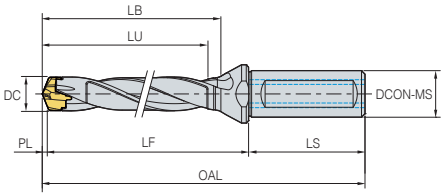


Fig. 1

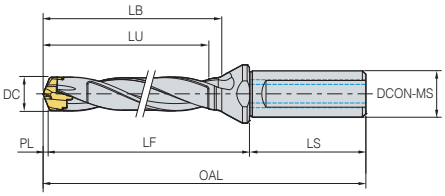


Fig. 2

(inch)

Designation		Stock	DC	DCX	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert	Fig.
TPDCA 1.5D-	0472063-709	○	0.472	0.492	0.625	0.783	1.378	1.020	1.890	3.343	0.074	TPD0472CA□-0491CA□	1
	0492063-738	○	0.492	0.511	0.625	0.816	1.415	1.059	1.890	3.382	0.078	TPD0492CA□-0511CA□	1
	0512063-768	○	0.512	0.531	0.625	0.848	1.459	1.106	1.890	3.429	0.081	TPD0512CA□-0531CA□	1
	0532063-797	○	0.532	0.551	0.625	0.881	1.495	1.146	1.890	3.469	0.084	TPD0532CA□-0550CA□	1
	0551063-827	○	0.551	0.570	0.625	0.914	1.614	1.268	1.890	3.669	0.087	TPD0551CA□-0570CA□	1
	0571063-856	○	0.571	0.590	0.625	0.946	1.650	1.307	1.890	3.709	0.090	TPD0571CA□-0590CA□	1
	0591075-886	○	0.591	0.610	0.750	0.979	1.694	1.272	1.969	3.756	0.093	TPD0591CA□-0629CA□	2
	0630075-945	○	0.630	0.649	0.750	1.044	1.775	1.358	1.969	3.843	0.099	TPD0630CA□-0668CA□	2
	0669075-1004	○	0.669	0.689	0.750	1.109	1.851	1.441	1.969	3.925	0.106	TPD0669CA□-0708CA□	2
	0709100-1063	○	0.709	0.728	1.000	1.175	2.010	1.528	2.205	4.327	0.112	TPD0709CA□-0747CA□	2
	0748100-1122	○	0.748	0.767	1.000	1.240	2.087	1.610	2.205	4.409	0.118	TPD0748CA□-0786CA□	2
	0787100-1181	○	0.787	0.807	1.000	1.305	2.167	1.697	2.205	4.496	0.124	TPD0787CA□-0826CA□	2
	0827100-1240	○	0.827	0.846	1.000	1.370	2.248	1.783	2.205	4.583	0.130	TPD0827CA□-0865CA□	2
	0866100-1299	○	0.866	0.885	1.000	1.411	2.349	1.866	2.205	4.665	0.112	TPD0866CA□-0905CA□	2
	0906100-1358	○	0.906	0.925	1.000	1.475	2.430	1.953	2.205	4.752	0.117	TPD0906CA□-0944CA□	2
	0945125-1417	○	0.945	0.964	1.250	1.539	2.626	2.035	2.362	5.110	0.122	TPD0945CA□-0983CA□	2
	0984125-1476	○	0.984	1.004	1.250	1.634	2.677	2.122	2.362	5.197	0.157	TPD0984CA□-1023CA□	2
	1024125-1535	○	1.024	1.043	1.250	1.699	2.757	2.209	2.362	5.283	0.164	TPD1024CA□-1062CA□	2
	1063125-1594	○	1.063	1.082	1.250	1.765	2.834	2.291	2.362	5.366	0.170	TPD1063CA□-1101CA□	2
	1102125-1654	○	1.102	1.122	1.250	1.830	2.910	2.374	2.362	5.449	0.176	TPD1102CA□-1141CA□	2
	1142125-1713	○	1.142	1.161	1.250	1.895	2.994	2.465	2.362	5.539	0.183	TPD1142CA□-1180CA□	2
	1181125-1772	○	1.181	1.200	1.250	1.961	3.071	2.547	2.362	5.622	0.189	TPD1181CA□-1220CA□	2
TPDCA 3D-	0472063-1417	○	0.472	0.492	0.625	1.492	1.929	1.571	1.890	3.898	0.074	TPD0472CA□-0491CA□	1
	0492063-1496	○	0.492	0.511	0.625	1.554	2.004	1.650	1.890	3.976	0.078	TPD0492CA□-0411CA□	1
	0512063-1535	○	0.512	0.531	0.625	1.616	2.091	1.736	1.890	4.055	0.081	TPD0512CA□-0531CA□	1
	0532063-1614	○	0.532	0.551	0.625	1.678	2.126	1.776	1.890	4.134	0.084	TPD0532CA□-0550CA□	1
	0551063-1654	○	0.551	0.570	0.625	1.741	2.205	1.858	1.890	4.173	0.087	TPD0551CA□-0570CA□	1
	0571063-1732	○	0.571	0.590	0.625	1.803	2.240	1.898	1.890	4.213	0.090	TPD0571CA□-0590CA□	1
	0591075-1772	○	0.591	0.610	0.750	1.865	2.402	1.984	1.969	4.449	0.093	TPD0591CA□-0629CA□	2
	0630075-1890	○	0.630	0.649	0.750	1.989	2.520	2.106	1.969	4.606	0.099	TPD0630CA□-0668CA□	2
	0669075-2008	○	0.669	0.689	0.750	2.113	2.638	2.232	1.969	4.724	0.106	TPD0669CA□-0708CA□	2
	0709100-2126	○	0.709	0.728	1.000	2.238	2.878	2.398	2.205	5.197	0.112	TPD0709CA□-0747CA□	2
	0748100-2244	○	0.748	0.767	1.000	2.362	2.992	2.520	2.205	5.322	0.118	TPD0748CA□-0786CA□	2
	0787100-2362	○	0.870	0.807	1.000	2.486	3.114	2.646	2.205	5.433	0.124	TPD0787CA□-0826CA□	2
	0827100-2480	○	0.827	0.846	1.000	2.611	3.232	2.772	2.205	5.551	0.130	TPD0827CA□-0865CA□	2
	0866100-2598	○	0.866	0.885	1.000	2.710	3.374	2.894	2.205	5.709	0.112	TPD0866CA□-0905CA□	2
	0906100-2717	○	0.906	0.925	1.000	2.833	3.531	3.059	2.205	5.866	0.117	TPD0906CA□-0944CA□	2
	0945125-2835	○	0.945	0.964	1.250	2.957	3.768	3.181	2.362	6.260	0.122	TPD0945CA□-0983CA□	2
	0984125-2953	○	0.984	1.004	1.250	3.110	3.858	3.307	2.362	6.378	0.157	TPD0984CA□-1023CA□	2
	1024125-3071	○	1.024	1.043	1.250	3.235	4.291	3.748	2.362	6.819	0.164	TPD1024CA□-1062CA□	2
	1063125-3189	○	1.063	1.082	1.250	3.359	4.409	3.870	2.362	6.941	0.170	TPD1063CA□-1101CA□	2
	1102125-3307	○	1.102	1.122	1.250	3.483	4.563	4.031	2.362	7.102	0.176	TPD1102CA□-1141CA□	2
	1142125-3425	○	1.142	1.161	1.250	3.608	4.728	4.201	2.362	7.270	0.183	TPD1142CA□-1180CA□	2
	1181125-3543	○	1.181	1.200	1.250	3.732	4.843	4.323	2.362	7.392	0.189	TPD1181CA□-1220CA□	2

Applicable holders **D27 ~ D30**

※ We can provide if you order exact machining specification. Ex) Ø0.591 and 2.36 inch of cut → TPDCA4D-0591075-236

◆: US Stock ○: Made to order

TPDCA (5D/8D)



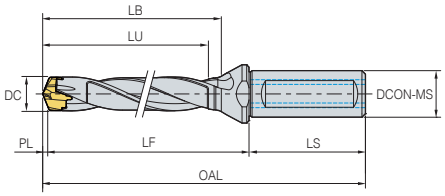


Fig. 1

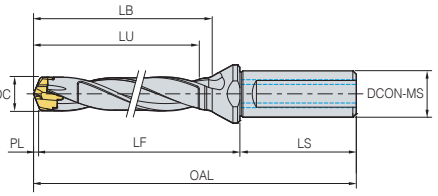


Fig. 2

(inch)

Designation		Stock	DC	DCX	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert	Fig.
TPDCA 5D-	0472063-2362	○	0.472	0.492	0.625	2.437	2.874	2.516	1.890	4.843	0.074	TPD0472CA□-0491CA□	1
	0492063-2480	○	0.492	0.511	0.625	2.538	2.988	2.634	1.890	4.961	0.078	TPD0492CA□-0511CA□	1
	0512063-2559	○	0.512	0.531	0.625	2.640	3.114	2.760	1.890	5.079	0.081	TPD0512CA□-0531CA□	1
	0532063-2677	○	0.532	0.551	0.625	2.741	3.189	2.839	1.890	5.197	0.084	TPD0532CA□-0550CA□	1
	0551063-2756	○	0.551	0.570	0.625	2.843	3.307	2.961	1.890	5.276	0.087	TPD0551CA□-0570CA□	1
	0571063-2874	○	0.571	0.590	0.625	2.944	3.382	3.039	1.890	5.354	0.090	TPD0571CA□-0590CA□	1
	0591075-2953	○	0.591	0.610	0.750	3.046	3.583	3.165	1.969	5.630	0.093	TPD0591CA□-0629CA□	2
	0630075-3150	○	0.630	0.649	0.750	3.249	3.780	3.366	1.969	5.866	0.099	TPD0630CA□-0668CA□	2
	0669075-3346	○	0.669	0.689	0.750	3.452	3.976	3.571	1.969	6.063	0.106	TPD0669CA□-0708CA□	2
	0709100-3543	○	0.709	0.728	1.000	3.655	4.295	3.815	2.205	6.614	0.112	TPD0709CA□-0747CA□	2
	0748100-3740	○	0.748	0.767	1.000	3.858	4.488	4.016	2.205	6.811	0.118	TPD0748CA□-0786CA□	2
	0787100-3937	○	0.787	0.807	1.000	4.061	4.689	4.220	2.205	7.008	0.124	TPD0787CA□-0826CA□	2
	0827100-4134	○	0.827	0.846	1.000	4.264	4.886	4.425	2.205	7.205	0.130	TPD0827CA□-0865CA□	2
	0866100-4331	○	0.866	0.885	1.000	4.443	5.106	4.626	2.205	7.441	0.112	TPD0866CA□-0905CA□	2
	0906100-4528	○	0.906	0.925	1.000	4.644	5.343	4.870	2.205	7.677	0.117	TPD0906CA□-0944CA□	2
	0945125-4724	○	0.945	0.964	1.250	4.846	5.657	5.071	2.362	8.150	0.122	TPD0945CA□-0983CA□	2
	0984125-4921	○	0.984	1.004	1.250	5.079	5.827	5.276	2.362	8.346	0.157	TPD0984CA□-1023CA□	2
	1024125-5118	○	1.024	1.043	1.250	5.282	6.339	5.795	2.362	8.866	0.164	TPD1024CA□-1062CA□	2
	1063125-5315	○	1.063	1.082	1.250	5.485	6.535	5.996	2.362	9.067	0.170	TPD1063CA□-1101CA□	2
	1102125-5512	○	1.102	1.122	1.250	5.688	6.768	6.236	2.362	9.307	0.176	TPD1102CA□-1141CA□	2
	1142125-5709	○	1.142	1.161	1.250	5.891	7.012	6.484	2.362	9.554	0.183	TPD1142CA□-1180CA□	2
	1181125-5906	○	1.181	1.200	1.250	6.094	7.205	6.685	2.362	9.754	0.189	TPD1181CA□-1220CA□	2
TPDCA 8D-	0472063-3780	○	0.472	0.492	0.625	3.854	4.291	3.933	1.890	6.260	0.074	TPD0472CA□-0491CA□	1
	0492063-3937	○	0.492	0.511	0.625	4.015	4.465	4.110	1.890	6.417	0.078	TPD0492CA□-0511CA□	1
	0512063-4094	○	0.512	0.531	0.625	4.175	4.650	4.295	1.890	6.614	0.081	TPD0512CA□-0531CA□	1
	0532063-4252	○	0.532	0.551	0.625	4.336	4.783	4.433	1.890	6.811	0.084	TPD0532CA□-0550CA□	1
	0551063-4409	○	0.551	0.570	0.625	4.496	4.961	4.614	1.890	6.929	0.087	TPD0551CA□-0570CA□	1
	0571063-4567	○	0.571	0.590	0.625	4.657	5.094	4.752	1.890	7.087	0.090	TPD0571CA□-0590CA□	1
	0591075-4724	○	0.591	0.610	0.750	4.817	5.354	4.937	1.969	7.402	0.093	TPD0591CA□-0629CA□	2
	0630075-5039	○	0.630	0.649	0.750	5.139	5.669	5.256	1.969	7.756	0.099	TPD0630CA□-0668CA□	2
	0669075-5354	○	0.669	0.689	0.750	5.460	5.984	5.579	1.969	8.071	0.106	TPD0669CA□-0708CA□	2
	0709100-5669	○	0.709	0.728	1.000	5.781	6.421	5.941	2.205	8.740	0.112	TPD0709CA□-0747CA□	2
	0748100-5984	○	0.748	0.767	1.000	6.102	6.732	6.260	2.205	9.055	0.118	TPD0748CA□-0786CA□	2
	0787100-6299	○	0.787	0.807	1.000	6.423	7.051	6.583	2.205	9.370	0.124	TPD0787CA□-0826CA□	2
	0827100-6614	○	0.827	0.846	1.000	6.744	7.366	6.906	2.205	9.685	0.130	TPD0827CA□-0865CA□	2
	0866100-6929	○	0.866	0.885	1.000	7.041	7.705	7.224	2.205	10.039	0.112	TPD0866CA□-0905CA□	2
	0906100-7244	○	0.906	0.925	1.000	7.361	8.059	7.587	2.205	10.394	0.117	TPD0906CA□-0944CA□	2
	0945125-7559	○	0.945	0.964	1.250	7.681	8.492	7.906	2.362	10.984	0.122	TPD0945CA□-0983CA□	2
	0984125-7874	○	0.984	1.004	1.250	8.031	8.780	8.228	2.362	11.299	0.157	TPD0984CA□-1023CA□	2
	1024125-8189	○	1.024	1.043	1.250	8.353	9.409	8.827	2.362	11.937	0.164	TPD1024CA□-1062CA□	2
	1063125-8504	○	1.063	1.082	1.250	8.674	9.724	9.106	2.362	12.256	0.170	TPD1063CA□-1101CA□	2
	1102125-8819	○	1.102	1.122	1.250	8.995	10.075	9.425	2.362	12.614	0.176	TPD1102CA□-1141CA□	2
	1142125-9134	○	1.142	1.161	1.250	9.317	10.437	9.752	2.362	12.979	0.183	TPD1142CA□-1180CA□	2
	1181125-9449	○	1.181	1.200	1.250	9.638	10.748	10.031	2.362	13.297	0.189	TPD1181CA□-1220CA□	2

Applicable holders **D27 ~ D30**

※ We can provide if you order exact machining specification. Ex) Ø0.591 and 2.36 inch of cut → TPDCA4D-0591075-236 ◆: US Stock ○: Made to order

TPDCA (10D/12D)



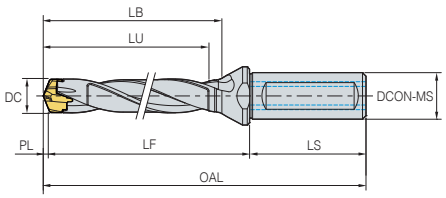


Fig. 1

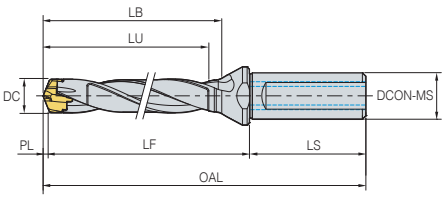


Fig. 2

(inch)

Designation		Stock	DC	DCX	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert	Fig.
TPDCA 10D-	0472063-4724	○	0.472	0.492	0.625	4.799	5.394	5.035	1.890	7.205	0.074	TPD0472CA□-0491CA□	1
	0492063-4921	○	0.492	0.511	0.625	4.999	5.587	5.232	1.890	7.441	0.078	TPD0492CA□-0411CA□	1
	0512063-5118	○	0.512	0.531	0.625	5.199	5.791	5.437	1.890	7.638	0.081	TPD0512CA□-0531CA□	1
	0532063-5315	○	0.532	0.551	0.625	5.399	6.024	5.673	1.890	7.835	0.084	TPD0532CA□-0550CA□	1
	0551063-5512	○	0.551	0.570	0.625	5.599	6.299	5.953	1.890	8.031	0.087	TPD0551CA□-0570CA□	1
	0571063-5709	○	0.571	0.590	0.625	5.799	6.492	6.150	1.890	8.228	0.090	TPD0571CA□-0590CA□	1
	0591075-5906	○	0.591	0.610	0.750	5.998	6.732	5.980	1.969	8.583	0.093	TPD0591CA□-0629CA□	1
	0630075-6299	○	0.630	0.649	0.750	6.398	7.130	6.177	1.969	9.016	0.099	TPD0630CA□-0668CA□	1
	0669075-6693	○	0.669	0.689	0.750	6.798	7.520	6.382	1.969	9.409	0.106	TPD0669CA□-0708CA□	1
	0709100-7087	○	0.709	0.728	1.000	7.198	8.035	6.618	2.205	10.157	0.112	TPD0709CA□-0747CA□	1
	0748100-7480	○	0.748	0.767	1.000	7.598	8.465	6.898	2.205	10.551	0.118	TPD0748CA□-0786CA□	1
	0787100-7874	○	0.787	0.807	1.000	7.998	8.862	7.094	2.205	10.945	0.124	TPD0787CA□-0826CA□	1
	0827100-8268	○	0.827	0.846	1.000	8.398	9.256	6.315	2.205	11.339	0.130	TPD0827CA□-0865CA□	1
	0866100-8661	○	0.866	0.885	1.000	8.773	9.713	6.717	2.205	11.772	0.112	TPD0866CA□-0905CA□	1
	0906100-9055	○	0.906	0.925	1.000	9.172	10.146	7.114	2.205	12.205	0.117	TPD0906CA□-0944CA□	1
	0945125-9449	○	0.945	0.964	1.250	9.571	10.657	7.555	2.362	12.874	0.122	TPD0945CA□-0983CA□	2
	0984125-9843	○	0.984	1.004	1.250	10.000	11.024	7.992	2.362	13.268	0.157	TPD0984CA□-1023CA□	2
	1024125-10236	○	1.024	1.043	1.250	10.400	11.457	8.394	2.362	13.984	0.164	TPD1024CA□-1062CA□	2
	1063125-10630	○	1.063	1.082	1.250	10.800	11.890	8.795	2.362	14.382	0.170	TPD1063CA□-1101CA□	2
	1102125-11024	○	1.102	1.122	1.250	11.200	12.280	9.232	2.362	14.819	0.176	TPD1102CA□-1141CA□	2
	1142125-11417	○	1.142	1.161	1.250	11.600	12.681	9.673	2.362	15.263	0.183	TPD1142CA□-1180CA□	2
	1181125-11811	○	1.181	1.200	1.250	12.000	13.110	10.071	2.362	15.659	0.189	TPD1181CA□-1220CA□	2
TPDCA 12D-	0472063-5669	○	0.472	0.492	0.625	5.744	6.339	10.472	1.890	8.150	0.074	TPD0472CA□-0491CA□	1
	0492063-5906	○	0.492	0.511	0.625	5.983	6.531	10.913	1.890	8.386	0.078	TPD0492CA□-0411CA□	1
	0512063-6142	○	0.512	0.531	0.625	6.222	6.736	11.350	1.890	8.661	0.081	TPD0512CA□-0531CA□	1
	0532063-6378	○	0.532	0.551	0.625	6.462	6.969	11.748	1.890	8.898	0.084	TPD0532CA□-0550CA□	1
	0551063-6614	○	0.551	0.570	0.625	6.701	7.244	12.154	1.890	9.134	0.087	TPD0551CA□-0570CA□	1
	0571063-6850	○	0.571	0.590	0.625	6.941	7.437	12.591	1.890	9.331	0.090	TPD0571CA□-0590CA□	1
	0591075-7087	○	0.591	0.610	0.750	7.180	7.717	7.299	1.969	9.764	0.093	TPD0591CA□-0629CA□	1
	0630075-7559	○	0.630	0.649	0.750	7.658	8.390	7.976	1.969	10.276	0.099	TPD0630CA□-0668CA□	1
	0669075-8031		0.669	0.689	0.750	8.137	8.858	8.453	1.969	10.748	0.106	TPD0669CA□-0708CA□	1
	0709100-8504	○	0.709	0.728	1.000	8.616	9.453	8.972	2.205	11.575	0.112	TPD0709CA□-0747CA□	1
	0748100-8976	○	0.748	0.767	1.000	9.094	9.961	9.488	2.205	12.047	0.118	TPD0748CA□-0786CA□	1
	0787100-9449	○	0.787	0.807	1.000	9.573	10.437	9.969	2.205	12.520	0.124	TPD0787CA□-0826CA□	1
	0827100-9921	○	0.827	0.846	1.000	10.052	10.909	10.449	2.205	12.992	0.130	TPD0827CA□-0865CA□	1
	0866100-10394	○	0.866	0.885	1.000	10.506	11.445	10.965	2.205	13.504	0.112	TPD0866CA□-0905CA□	1
	0906100-10866	○	0.906	0.925	1.000	10.983	11.957	11.484	2.205	14.016	0.117	TPD0906CA□-0944CA□	1
	0945125-11339	○	0.945	0.964	1.250	11.461	12.547	11.961	2.362	14.764	0.122	TPD0945CA□-0983CA□	2
	0984125-11811	○	0.984	1.004	1.250	11.969	12.992	12.441	2.362	15.236	0.157	TPD0984CA□-1023CA□	2
	1024125-12283	○	1.024	1.043	1.250	12.447	13.504	12.961	2.362	16.031	0.164	TPD1024CA□-1062CA□	2
	1063125-12756	○	1.063	1.082	1.250	12.926	14.016	13.476	2.362	16.508	0.170	TPD1063CA□-1101CA□	2
	1102125-13228	○	1.012	1.122	1.250	13.405	14.484	13.953	2.362	17.023	0.176	TPD1102CA□-1141CA□	2
	1142125-13701	○	1.142	1.161	1.250	13.883	14.965	14.437	2.362	17.546	0.183	TPD1142CA□-1180CA□	2
	1181125-14173	○	1.181	1.200	1.250	14.362	15.472	14.953	2.362	18.022	0.189	TPD1181CA□-1220CA□	2

Applicable holders **D27 ~ D30**

※ We can provide if you order exact machining specification. Ex) Ø0.591 and 5.315 inch depth of cut → TPDCA9D-0591075-532

◆: US Stock ○: Made to order

Highly precise and efficient top solid indexable drill

TPDB Plus Drill Series

(TPDB [Standard]**, TPDB-DS** [Medium/Large dia.]**, TPDB-H** [H-Beam]**, TPDB-F** [Flat]**)**

- **Highly precise clamping system** - Superior clamping precision with auto-centering system and highly precise grinding clamping parts
- **Screw on clamping system** - Easy to replace inserts
- **Sharp cutting edge** - Low cutting load and good chip control
- **Holder with excellent durability** - Holder with high rigidity and excellent wear resistance due to special surface treatment
- **Holder with excellent chip control** - Low cutting resistance and outstanding chip evaluation applying high helix angle

Code system

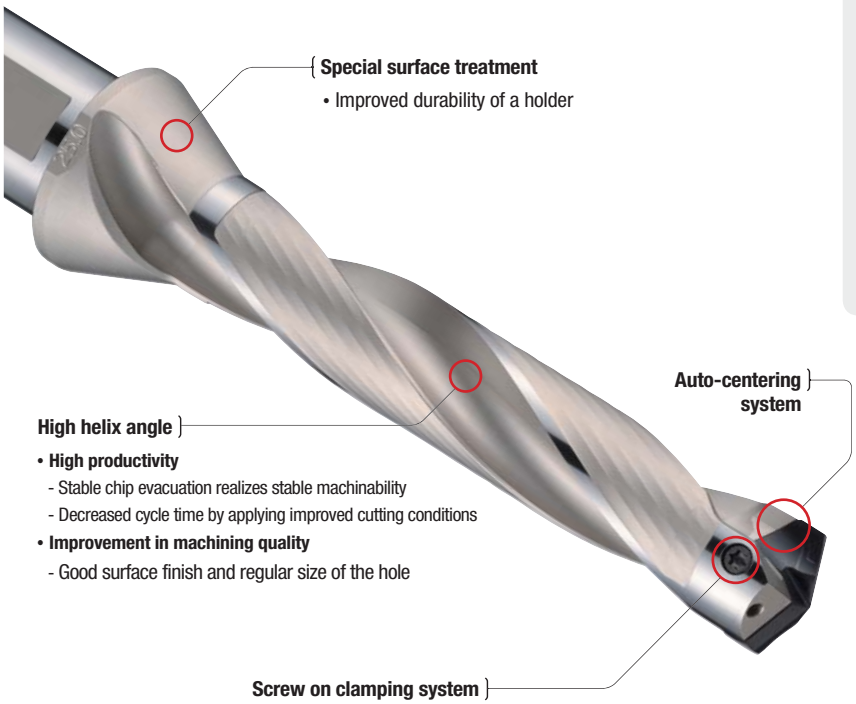
• Insert

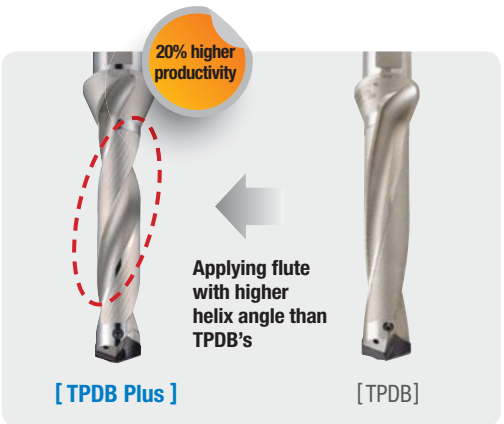
TPD	0610	B	A
Top solid Piercing Drill	**Drill diameter** 0610 : Ø0.610 inch	**Insert type** B : Blade type	**Type** A: Inch type No code: Metric type

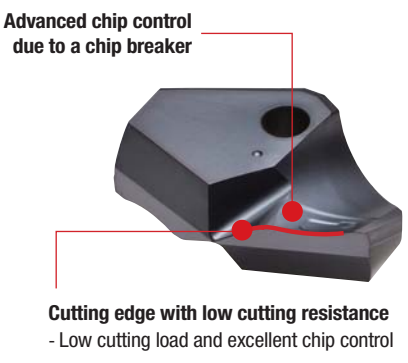
• Holder

TPD	B	A	0610	-	075	-	5	-	P
Top solid Piercing Drill	**Insert type** B : Blade type	**Type** A: Inch type No code: Metric type	**Drill diameter** 0610 : Ø0.610 inch		**Shank diameter** 0.75 : Ø0.75 inch		**Aspect ratio (L/D)** 3D, 5D, 8D, 10D, 12D		**Plus**

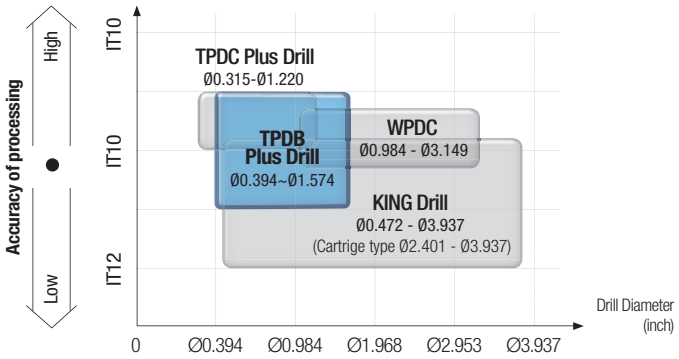
Features

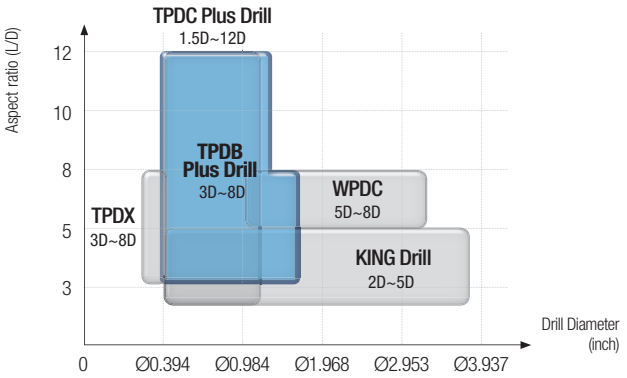






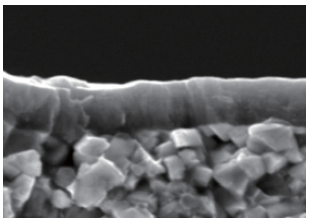
Application range





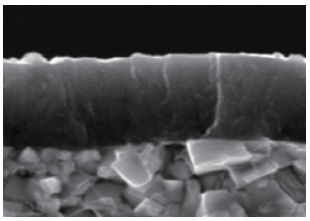
Tools		Application range			
		Drill Diameter (Ø)	Aspect ratio (L/D)	Tolerance of drill dia.	Workpiece
TPDB Plus Drill	TPDB	0.394 ~ 1.298 inch	3, 5, 8, 10, 12	h7	P, K
	TPDB-DS	1.299 ~ 1.574 inch	3, 5, 8		P, K
	TPDB-H	0.551~ 1.298 inch	3, 4, 5, 8		P
	TPDB-F	0.551 ~ 1.219 inch	1.5		P

Grade features



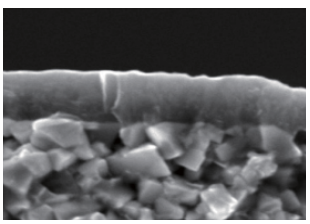
PC5300

- Applying PVD coating with high hardness and stability in machining at high temperature
- Stable Drilling due to high cutting edge strength and excellent chipping resistance
- Optimal grade for Drilling alloy Steel and Cast iron



PC5335

- Applying PVD coating with high toughness and excellent lubrication
- Coating layer highly adhering to substrate
- Optimal grade for general structural Carbon steel (FE360B, etc.) and machine structural Carbon steel (C45, etc.) machining



PC330P

- Applying PVD coating with high surface finish and excellent lubrication
- Coating layer with excellent hardness at high temperature and oxidation resistance
- Optimal grade for welding structural Carbon steel (E355DD, etc.)

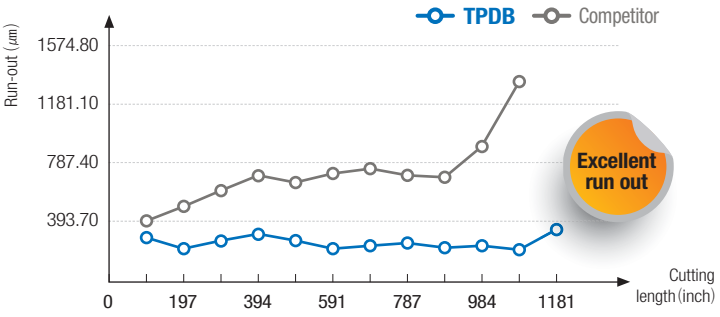
Run-out

Workpiece Alloy steel (4140, HRC22)

Cutting conditions vc(m/min)=295, fn(mm/rev)=0.0098, ap (mm) = 4.7244, wet (20 bar)

Tools **Insert :** T=TPD0984BA (PC5300)

Holder : TPDBA0984-125-5-P(Drill dia.= Ø0.984 inch)



How to clamp an insert

Clamping an insert to a holder



① Put an insert on the tip seat of the holder.
② As the **[Pic. 1]**, push the insert to the v-shaped groove of the holder.
③ Screw and clamp the insert.

Changing the used insert to a new one





① Unscrew and separate the used insert from the holder.
② As the **[Pic. 2]**, clean the insert seat.
③ Put a new insert on the tip seat.
④ As the **[Pic. 3]**, clamp the insert pushing it with a hand not to separate from the holder.

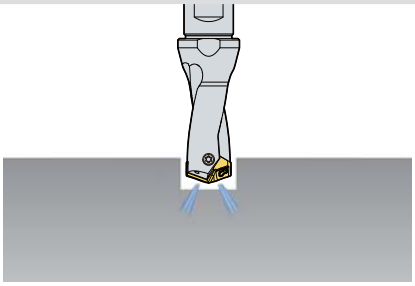
Recommended cutting conditions

Workpiece					N/mm²	HB	Grade	vc (sfm)	Feed rate (ipr)		
									Aspect ratio (L/D) = 3D, 5D		
ISO	Workpiece material		AISI	ISO					Ø0.3937~Ø0.6653	Ø0.6691~Ø1.0590	Ø1.0629~Ø1.2952
P	Carbon steel	C = 0.10~0.25%	1015 1025	C15 C25	1500	90 ~ 200	PC5335 PC330P	262 ~ 459	0.0118 ~ 0.0059	0.0137 ~ 0.0078	0.0157 ~ 0.0098
		C = 0.25~0.55%	1035 1045	C35 C45	1600	125 ~ 225	PC5335 PC330P	262 ~ 459	0.0118 ~ 0.0059	0.0137 ~ 0.0078	0.0157 ~ 0.0098
		C = 0.55~0.80%	1060	C60	1700	150 ~ 250	PC5335 PC330P	230 ~ 427	0.0118 ~ 0.0059	0.0137 ~ 0.0078	0.0157 ~ 0.0098
	Alloy steel ≤ 5%	Non-hardened	4140	42CrMo4	1700	180	PC5300	262 ~ 459	0.0137 ~ 0.007	0.0149 ~ 0.009	0.0169 ~ 0.011
		Hardened and Tempered	4145	-	2050	350	PC5300	164 ~ 328	0.0137 ~ 0.007	0.0149 ~ 0.009	0.0169 ~ 0.011
	Alloy steel > 5%	Annealed	D2	-	1950	200	PC5300	164 ~ 295	0.0118 ~ 0.007	0.0137 ~ 0.0078	0.0157 ~ 0.0098
		Hardened tool steel	H13	X40CrMoV5-1	3000	352	PC5300	131 ~ 262	0.0118 ~ 0.007	0.0137 ~ 0.0078	0.0157 ~ 0.0098
K	Gray cast iron		No 25 B No 35 B	250 350	900	150 ~ 230	PC5300	262 ~ 459	0.0137 ~ 0.007	0.0157 ~ 0.0078	0.0177 ~ 0.0098
	Ductile cast iron		60-40-18 65-45-12 80-55-06	400-15 150-10 600-3	870	160 ~ 260	PC5300	230 ~ 427	0.0137 ~ 0.007	0.0157 ~ 0.0078	0.0177 ~ 0.0098

※ In case of 8D, machine in 20% ~ 30% lower cutting conditions than the mentioned above, or machine the beginning of hole (1.5D) before Drilling.
※ In interrupted machining, reduce the feed to 0.0039~ 0.0059 machining around the interrupted part.
※ Refer to the 'Recommended Drilling method' on the page 12 for Drilling of 10D - 12D.

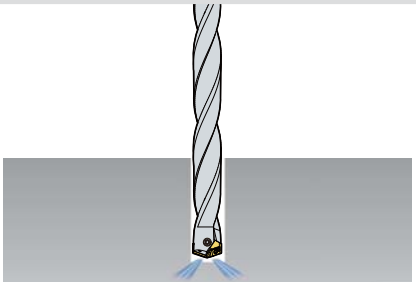
Recommended Drilling method (10D, 12D)

Machine a pilot hole (with a pilot Drill)

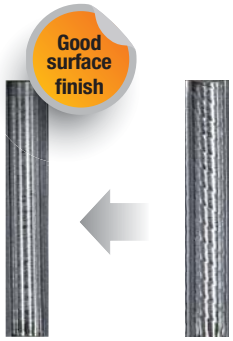


- Machine a pilot hole with the depth of cut as 0.5D and at 30% lower speed using a 1.5D or 3D Drill.

Start Drilling



- After machining the pilot hole, replace the pilot Drill to a Drill for further operation and machine in recommended cutting conditions.

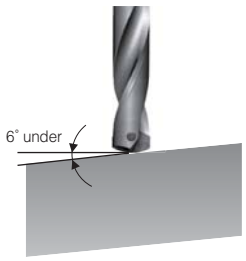


[Result of recommended Drilling]

[Result of general Drilling]

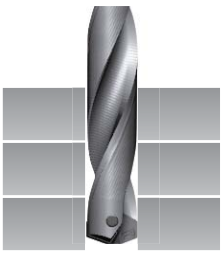
Precaution in Drilling

Angled surface drilling



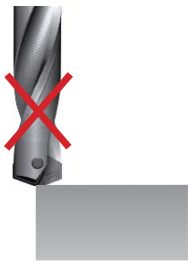
- The approach angle between Drill and the workpiece at the beginning and the end should be less than 6°.
- Reduce the feed (fn) to 30~50% than general cutting conditions at the beginning and the end of angled surface.

Stacked plates Drilling



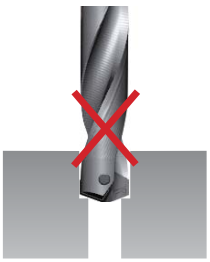
- Gap between the plates could make wrong chip evacuation causing fracture of the Drill.
- Strongly clamp the workpiece together to eliminate any gaps and then proceed with usage.

Plunging



- Irregular cutting resistance in plunging could cause fracture and deformation of the Drill.

Boring



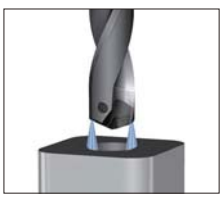
- Boring is not recommended as it can cause excessive wear and chipping at the insert's corner.
- In case of necessity, process it with a 0.078 inch stepping. (30% reduction in transfer during processing)

Basic checklist for the Drilling operations

- Workpiece clamping condition
- Rotational state of the main axial in the machining equipment
- Holder condition
- Clamped drill's Run-out : Max. 1181 μin
- Coolant supply condition (pressure, flow rate,concentration)
- Chip evacuation condition

Coolant application system

- Adequate supply of cutting fluid at the entrance of the hole
- Minimum cutting fluid pressure : 5 bar or above
- Minimum flow rate : 1.321 gal/min or avobe



[Internal coolant]

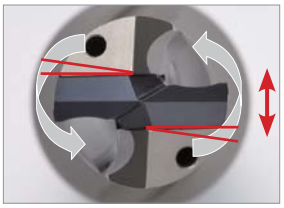
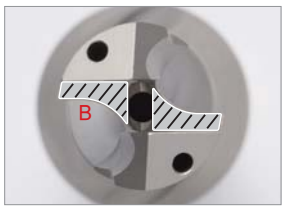
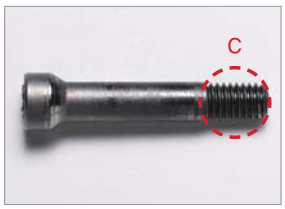
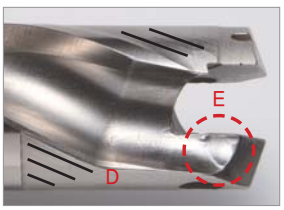


[External coolant]

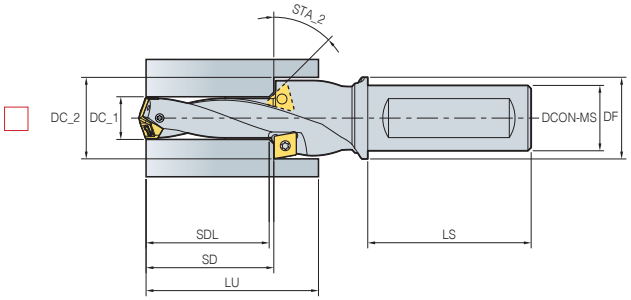


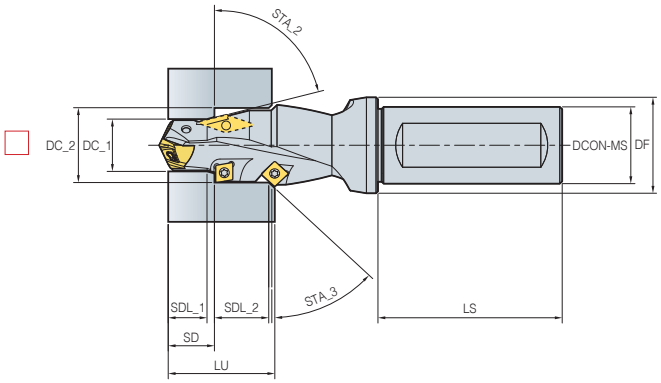
[Dry]

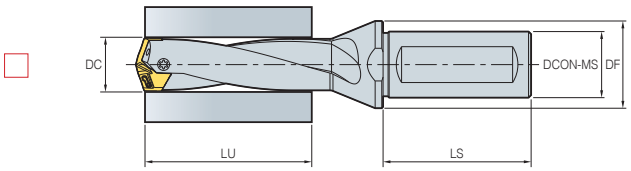
Replacement of holders and screws

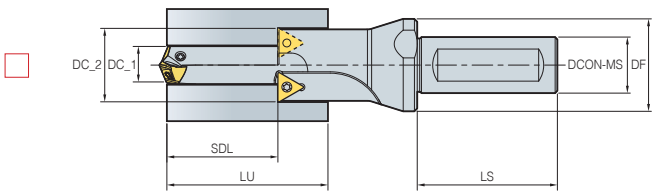
Worn part	How to check	Description
[Pic. 1] 	[Pic. 2] Check the gap 	• In case of Drilling for a long time as shown in the **[Pic. 1]** the 'A' part is torn and twisted due to torque. • As shown in the **[Pic. 2]** check the gap between the insert and the tip seat turning the clamped insert from side to side. If there is a gap between them, replace the used holder to a new one.
[Pic. 3] 	[Pic. 4] Check the moving 	• The insert could move up or down due to the load on the Z-axis in Drilling over an extended period of time which causes wear on the 'B' part as shown the **[Pic. 3]**. • After clamping an insert, if the insert is moving or there is a gap between the insert and the tip seat as shown in the **[Pic. 4]** replace the used holder to a new one.
[Pic. 5] 	Check the moving 	• After an extended period of use, the screw can be worn as shown in the 'C' part of **[Pic. 5]** which could decrease the clamping force of the insert. When the screw is worn, replace the old screw to a new one among the enclosed extras. • Spreading the grease on the screw makes it last longer
[Pic. 6] ① Check the 'D' and 'E' parts as shown in the **[Pic.6]** ② Check whether the chips are getting longer or not.		• Winding or jamming of long and tiny chips in Drilling causes wear or scratch on the 'D' part as shown in the **[Pic. 6]** due to chattering from machining in improper cutting conditions. In that case, reset the cutting conditions and check the Run-out before machining. • The excessive wear of the part 'E' as shown in the **[Pic. 6]** relating to chip curling might cause long chips.

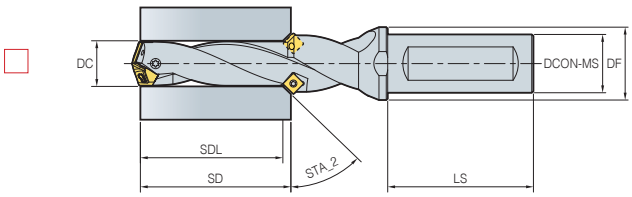
Special Drill Order Form











■ Hole type

☐ Plain type ☐ Plain type

■ Coolant type

☐ Internal ☐ External

■ Shank type

☐  Plain type

☐  Flat type

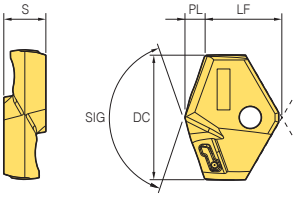
☐  Weldon type

☐  Whistle notch type

Special note		
	• Currently using tool: • Current cutting condition - n (rpm) or vc (sfm) : - vf (ipm) or fn (ipr) : - Depth of cut, ap (inch) :	• Standard of measuring tool life: • Currently using machine - Machining center: - General lathe: - CNC lathe:

Available insert (TPDB)





(inch)

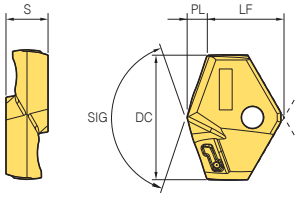
Designation		Coated			DC		S	LF	PL	SIG
		PC5300	PC5335	PC330P	Fraction	Decimal				
TPD	0394BA	◆			-	0.394	0.138	0.244	0.062	140°
	0398BA	◆			-	0.398	0.138	0.244	0.063	140°
	0402BA	◆			-	0.402	0.138	0.243	0.063	140°
	0406BA	◆			13/32	0.406	0.138	0.243	0.064	140°
	0413BA	◆			-	0.413	0.138	0.241	0.065	140°
	0425BA	◆			-	0.425	0.138	0.24	0.067	140°
	0433BA	◆			-	0.433	0.138	0.278	0.068	140°
	0437BA	◆			-	0.437	0.138	0.277	0.069	140°
	0453BA	◆			29/64	0.453	0.138	0.275	0.071	140°
	0465BA	◆			-	0.465	0.138	0.273	0.073	140°
	0472BA	◆			-	0.472	0.138	0.284	0.081	140°
	0476BA	◆			-	0.476	0.138	0.284	0.082	140°
	0480BA	◆			-	0.48	0.138	0.283	0.083	140°
	0484BA	◆			31/64	0.484	0.138	0.282	0.083	140°
	0488BA	◆			-	0.488	0.138	0.282	0.084	140°
	0492BA	◆			-	0.492	0.138	0.281	0.085	140°
	0496BA	◆			-	0.496	0.138	0.28	0.085	140°
	0512BA	◆			-	0.512	0.157	0.317	0.088	140°
	0520BA	◆			-	0.52	0.157	0.316	0.089	140°
	0532BA	●			-	0.531	0.157	0.314	0.091	140°
	0539BA	◆			-	0.539	0.157	0.312	0.093	140°
	0551BA	◆			-	0.551	0.157	0.33	0.095	140°
	0555BA	◆			-	0.555	0.157	0.329	0.096	140°
	0559BA	◆			-	0.559	0.157	0.329	0.096	140°
	0563BA	◆			9/16	0.563	0.157	0.328	0.097	140°
	0567BA	◆			-	0.567	0.157	0.327	0.098	140°
	0571BA	◆			-	0.571	0.157	0.326	0.098	140°
	0575BA	◆			-	0.575	0.157	0.326	0.099	140°
	0579BA	◆			-	0.579	0.157	0.325	0.1	140°
	0591BA	◆			-	0.591	0.157	0.343	0.102	140°
	0595BA	●			-	0.594	0.157	0.342	0.102	140°
	0598BA	◆			-	0.598	0.157	0.341	0.103	140°
	0606BA	◆			-	0.606	0.157	0.34	0.104	140°
	0610BA	◆			-	0.61	0.157	0.339	0.105	140°
	0618BA	◆			-	0.618	0.157	0.338	0.106	140°
	0622BA	◆			-	0.622	0.157	0.337	0.107	140°
	0626BA	◆			-	0.626	0.157	0.337	0.108	140°
	0630BA	◆			-	0.63	0.217	0.376	0.108	140°
	0634BA	◆			-	0.634	0.217	0.375	0.109	140°
	0638BA	◆			-	0.638	0.217	0.374	0.11	140°
	0642BA	◆			-	0.642	0.217	0.373	0.111	140°
	0646BA	◆			-	0.646	0.217	0.373	0.111	140°
	0650BA	◆			-	0.65	0.217	0.372	0.112	140°
	0654BA	◆			-	0.654	0.217	0.371	0.113	140°
	0657BA	◆			-	0.657	0.217	0.37	0.113	140°
	0669BA	◆			-	0.669	0.217	0.388	0.115	140°
	0673BA	◆			-	0.673	0.217	0.388	0.116	140°
	0677BA	◆			-	0.677	0.217	0.387	0.117	140°
	0681BA	◆			-	0.681	0.217	0.386	0.117	140°
	0685BA	◆			-	0.685	0.217	0.385	0.118	140°

Applicable holders **D43 ~ D47**

●: Korea Stock ◆: US Stock ○: Made to order

Available insert (TPDB)





(inch)

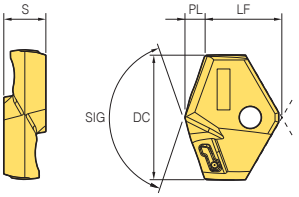
	Designation	Coated			DC		S	LF	PL	SIG
		PC5300	PC5335	PC330P	Fraction	Decimal				
TPD	0689BA	◆			-	0.689	0.217	0.385	0.119	140°
	0693BA	◆			-	0.693	0.217	0.384	0.119	140°
	0697BA	◆			-	0.697	0.217	0.383	0.12	140°
	0701BA	◆			-	0.701	0.217	0.383	0.12	140°
	0709BA	◆			-	0.709	0.236	0.421	0.122	140°
	0713BA	◆			-	0.713	0.236	0.42	0.123	140°
	0717BA	●			-	0.717	0.236	0.42	0.123	140°
	0728BA	◆			-	0.728	0.236	0.417	0.126	140°
	0732BA	◆			-	0.732	0.236	0.417	0.126	140°
	0736BA	◆			-	0.736	0.236	0.416	0.127	140°
	0748BA	◆			-	0.748	0.236	0.434	0.129	140°
	0752BA	◆			-	0.752	0.236	0.433	0.13	140°
	0756BA	◆			-	0.756	0.236	0.432	0.13	140°
	0760BA	◆			-	0.76	0.236	0.432	0.131	140°
	0768BA	◆			-	0.768	0.236	0.43	0.132	140°
	0772BA	◆			-	0.772	0.236	0.43	0.133	140°
	0776BA	◆			-	0.776	0.236	0.429	0.133	140°
	0780BA	◆			-	0.78	0.236	0.428	0.134	140°
	0787BA	◆			-	0.787	0.256	0.472	0.135	140°
	0791BA	◆			-	0.791	0.256	0.471	0.136	140°
	0795BA	◆			-	0.795	0.256	0.47	0.137	140°
	0803BA	◆			-	0.803	0.256	0.469	0.138	140°
	0807BA	◆			-	0.807	0.256	0.469	0.139	140°
	0811BA	◆			-	0.811	0.256	0.468	0.14	140°
	0827BA	◆			-	0.827	0.256	0.485	0.143	140°
	0831BA	◆			-	0.831	0.256	0.484	0.143	140°
	0835BA	◆			-	0.835	0.256	0.483	0.144	140°
	0839BA	◆			-	0.839	0.256	0.483	0.144	140°
	0846BA	◆			-	0.846	0.256	0.481	0.146	140°
	0854BA	◆			-	0.854	0.256	0.48	0.147	140°
	0862BA	◆			-	0.862	0.256	0.479	0.148	140°
	0866BA	◆	○		-	0.866	0.276	0.498	0.149	140°
	0874BA	◆			-	0.874	0.276	0.496	0.15	140°
	0878BA	◆			-	0.878	0.276	0.496	0.151	140°
	0886BA	◆			-	0.886	0.276	0.494	0.152	140°
	0894BA	◆			-	0.894	0.276	0.493	0.154	140°
	0906BA	◆			29/32	0.906	0.276	0.511	0.156	140°
	0925BA	◆			-	0.925	0.276	0.507	0.159	140°
	0933BA	◆			-	0.933	0.276	0.506	0.161	140°
	0945BA	◆			-	0.945	0.295	0.53	0.163	140°
	0953BA	◆			61/64	0.953	0.295	0.528	0.164	140°
	0961BA	◆			-	0.961	0.295	0.527	0.165	140°
	0965BA	◆			-	0.965	0.295	0.526	0.166	140°
	0972BA	◆			-	0.972	0.295	0.525	0.167	140°
	0984BA	◆			63/64	0.984	0.295	0.537	0.174	140°
	0988BA	◆			-	0.988	0.295	0.537	0.175	140°
	0992BA	◆			-	0.992	0.295	0.536	0.176	140°
	0996BA	◆			-	0.996	0.295	0.535	0.176	140°
	1004BA	◆			-	1.004	0.295	0.534	0.178	140°
	1008BA	◆			-	1.008	0.295	0.533	0.178	140°

Applicable holders **D43 ~ D47**

●: Korea Stock ◆: US Stock ○: Made to order

Available insert (TPDB)





(inch)

Designation		Coated			DC		S	LF	PL	SIG
		PC5300	PC5335	PC330P	Fraction	Decimal				
TPD	1016BA	◆			1 1/64	1.016	0.295	0.532	0.18	140˚
	1020BA	◆			-	1.02	0.295	0.531	0.181	140˚
	1024BA	◆			-	1.024	0.335	0.55	0.181	140˚
	1032BA	●			-	1.031	0.335	0.549	0.183	140˚
	1043BA	◆			-	1.043	0.335	0.547	0.185	140˚
	1063BA	◆			1 1/16	1.063	0.335	0.583	0.188	140˚
	1083BA	◆			-	1.083	0.335	0.579	0.192	140˚
	1102BA	◆			-	1.102	0.374	0.62	0.195	140˚
	1122BA	◆			-	1.122	0.374	0.617	0.199	140˚
	1142BA	◆			-	1.142	0.374	0.633	0.202	140˚
	1161BA	◆			-	1.161	0.374	0.63	0.206	140˚
	1181BA	◆			-	1.181	0.394	0.64	0.215	140˚
	1221BA	●			-	1.22	0.394	0.653	0.222	140˚
	1260BA	◆			-	1.26	0.394	0.665	0.229	140˚
	1295BA	◆			-	1.295	0.394	0.659	0.236	140˚

Applicable holders **D43 ~ D47**

※ TPD Inserts not list above within the range of Ø0.394 ~ Ø1.298 can be made to order

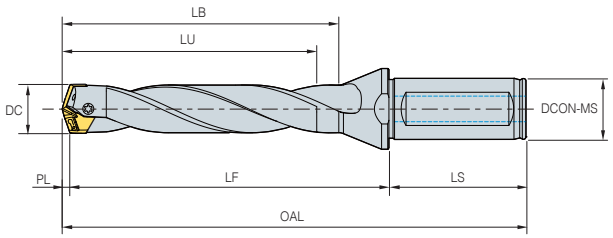
●: Korea Stock ◆: US Stock ○: Made to order

Parts

Designation		Drill dia. DC (inch)	Screw	Wrench	Torque (ibf · ft)
TPD	0394BA ~ 0511BA	0.394 ~ 0.511	FTNB0209	TW06P	0.595
	0512BA ~ 0590BA	0.512 ~ 0.590	FTNB02512	TW07S	1.191
	0591BA ~ 0708BA	0.591 ~ 0.708	FTNB02514	TW07S	1.191
	0709BA ~ 0786BA	0.709 ~ 0.786	FTNB0316	TW09S	1.786
	0787BA ~ 0944BA	0.787 ~ 0.944	FTNB0319	TW09S	1.786
	0945BA ~ 1023BA	0.945 ~ 1.023	FTNB03522	TW15S	4.464
	1024BA ~ 1101BA	1.024 ~ 1.101	FTNB03524	TW15S	4.464
	1102BA ~ 1180BA	1.102 ~ 1.180	FTNB0426	TW15S	4.464
	1181BA ~ 1298BA	1.181 ~ 1.298	FTNB0528	TW20-100	5.952

TPDBA (3D)





(inch)

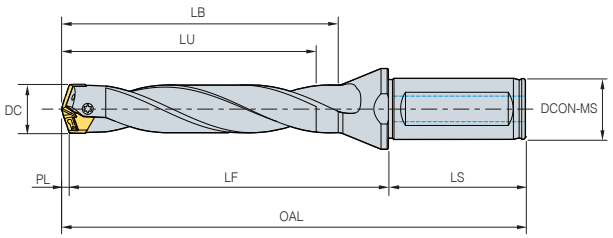
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBA	0394-063-3-P	◆	0.394 ~ 0.412	0.625	1.243	1.851	1.46	1.89	3.803	0.062	TPD0394BA ~ 0412BA
	0413-063-3-P	◆	0.413 ~ 0.432	0.625	1.306	1.887	1.532	1.89	3.843	0.065	TPD0413BA ~ 0432BA
	0433-063-3-P	◆	0.433 ~ 0.452	0.625	1.367	1.967	1.604	1.89	3.925	0.068	TPD0433BA ~ 0452BA
	0453-063-3-P	◆	0.453 ~ 0.471	0.625	1.43	2.004	1.676	1.89	3.965	0.071	TPD0453BA ~ 0471BA
	0472-063-3-P	◆	0.472 ~ 0.491	0.625	1.499	2.119	1.755	1.89	4.091	0.081	TPD0472BA ~ 0491BA
	0492-063-3-P	◆	0.492 ~ 0.511	0.625	1.561	2.195	1.827	1.89	4.169	0.085	TPD0492BA ~ 0511BA
	0512-063-3-P	◆	0.512 ~ 0.530	0.625	1.624	2.325	1.899	1.89	4.303	0.088	TPD0512BA ~ 0530BA
	0531-063-3-P	◆	0.531 ~ 0.550	0.625	1.686	2.401	1.971	1.89	4.382	0.091	TPD0531BA ~ 0550BA
	0551-063-3-P	◆	0.551 ~ 0.570	0.625	1.748	2.484	2.044	1.89	4.469	0.095	TPD0551BA ~ 0570BA
	0571-063-3-P	◆	0.571 ~ 0.590	0.625	1.811	2.598	2.116	1.89	4.587	0.098	TPD0571BA ~ 0590BA
	0591-075-3-P	◆	0.591 ~ 0.609	0.75	1.873	2.682	2.188	1.969	4.752	0.102	TPD0591BA ~ 0609BA
	0610-075-3-P	◆	0.610 ~ 0.629	0.75	1.936	2.757	2.261	1.969	4.831	0.105	TPD0610BA ~ 0629BA
	0630-075-3-P	◆	0.630 ~ 0.649	0.75	1.998	2.841	2.333	1.969	4.917	0.108	TPD0630BA ~ 0649BA
	0650-075-3-P	◆	0.650 ~ 0.668	0.75	2.061	2.916	2.405	1.969	4.996	0.112	TPD0650BA ~ 0668BA
	0669-075-3-P	◆	0.669~ 0.688	0.75	2.123	3.038	2.478	1.969	5.122	0.115	TPD0669BA ~ 0688BA
	0689-075-3-P	◆	0.689 ~ 0.708	0.75	2.185	3.114	2.55	1.969	5.201	0.119	TPD0689BA ~ 0708BA
	0709-100-3-P	◆	0.709 ~ 0.727	1	2.248	3.193	2.622	2.205	5.52	0.122	TPD0709BA ~ 0727BA
	0728-100-3-P	○	0.728 ~ 0.747	1	2.311	3.268	2.694	2.205	5.598	0.126	TPD0728BA ~ 0747BA
	0748-100-3-P	◆	0.768 ~ 0.786	1	2.373	3.387	2.767	2.205	5.72	0.129	TPD0748BA ~ 0767BA
	0768-100-3-P	◆	0.768 ~ 0.786	1	2.435	3.462	2.839	2.205	5.799	0.132	TPD0768BA ~ 0786BA
	0787-100-3-P	◆	0.787 ~ 0.806	1	2.498	3.546	2.911	2.205	5.886	0.135	TPD0787BA ~ 0806BA
	0807-100-3-P	◆	0.807 ~ 0.826	1	2.56	3.621	2.983	2.205	5.965	0.139	TPD0807BA ~ 0826BA
	0827-100-3-P	◆	0.827 ~ 0.845	1	2.623	3.586	3.056	2.362	6.091	0.143	TPD0827BA ~ 0845BA
	0846-100-3-P	◆	0.846 ~ 0.865	1	2.685	3.661	3.128	2.362	6.169	0.146	TPD0846BA ~ 0865BA
	0866-100-3-P	◆	0.866 ~ 0.885	1	2.748	3.744	3.2	2.362	6.256	0.149	TPD0866BA ~ 0885BA
	0886-100-3-P	○	0.886 ~ 0.905	1	2.81	3.82	3.272	2.362	6.335	0.152	TPD0886BA ~ 0905BA
	0906-100-3-P	◆	0.906 ~ 0.924	1	2.872	3.943	3.345	2.362	6.461	0.156	TPD0906BA ~ 0924BA
	0925-100-3-P	◆	0.925 ~ 0.944	1	2.935	4.018	3.417	2.362	6.539	0.159	TPD0925BA ~ 0944BA
	0945-125-3-P	○	0.945 ~ 0.964	1.25	2.997	4.259	3.489	2.362	6.783	0.163	TPD0945BA ~ 0964BA
	0965-125-3-P	◆	0.965 ~ 0.983	1.25	3.06	4.334	3.562	2.362	6.862	0.166	TPD0965BA ~ 0983BA
	0984-125-3-P	◆	0.984 ~ 1.003	1.25	3.127	4.452	3.639	2.362	6.988	0.174	TPD0984BA ~ 1003BA
	1004-125-3-P	◆	1.004 ~ 1.023	1.25	3.19	4.527	3.711	2.362	7.067	0.178	TPD1004BA ~ 1023BA
	1024-125-3-P	◆	1.024 ~ 1.062	1.25	3.252	4.61	3.783	2.362	7.154	0.181	TPD1024BA ~ 1062BA
	1063-125-3-P	◆	1.063 ~ 1.101	1.25	3.377	4.808	3.928	2.362	7.358	0.188	TPD1063BA ~ 1101BA
	1102-125-3-P	◆	1.102 ~ 1.141	1.25	3.502	4.962	4.073	2.362	7.52	0.195	TPD1102BA ~ 1141BA
	1142-125-3-P	○	1.142 ~ 1.180	1.25	3.627	5.16	4.218	2.362	7.724	0.202	TPD1142BA ~ 1180BA
	1181-125-3-P	◆	1.181 ~ 1.219	1.25	3.758	5.273	4.369	2.362	7.85	0.215	TPD1181BA ~ 1219BA
	1220-125-3-P	◆	1.220 ~ 1.259	1.25	3.883	5.471	4.513	2.362	8.055	0.222	TPD1220BA ~ 1259BA
	1260-125-3-P	○	1.260 ~ 1.298	1.25	4.009	5.55	4.658	2.362	8.142	0.229	TPD1260BA ~ 1299BA

Applicable holders **D40 ~ D42**

◆: US Stock ○: Made to order

TPDBA (5D)





(inch)

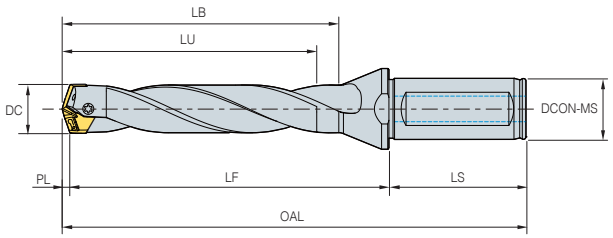
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBA	0394-063-5-P	◆	0.394 ~ 0.412	0.625	2.031	2.639	2.247	1.89	4.591	0.062	TPD0394BA ~ 0412BA
	0413-063-5-P	◆	0.413 ~ 0.432	0.625	2.132	2.714	2.359	1.89	4.669	0.065	TPD0413BA ~ 0432BA
	0433-063-5-P	◆	0.433 ~ 0.452	0.625	2.233	2.833	2.47	1.89	4.791	0.068	TPD0433BA ~ 0452BA
	0453-063-5-P	◆	0.453 ~ 0.471	0.625	2.335	2.948	2.581	1.89	4.909	0.071	TPD0453BA ~ 0471BA
	0472-063-5-P	◆	0.472 ~ 0.491	0.625	2.444	3.072	2.7	1.89	5.043	0.081	TPD0472BA ~ 0491BA
	0492-063-5-P	◆	0.492 ~ 0.511	0.625	2.545	3.191	2.811	1.89	5.165	0.085	TPD0492BA ~ 0511BA
	0512-063-5-P	◆	0.512 ~ 0.530	0.625	2.647	3.349	2.923	1.89	5.327	0.088	TPD0512BA ~ 0530BA
	0531-063-5-P	◆	0.531 ~ 0.550	0.625	2.749	3.468	3.034	1.89	5.449	0.091	TPD0531BA ~ 0550BA
	0551-063-5-P	◆	0.551 ~ 0.570	0.625	2.851	3.586	3.146	1.89	5.571	0.095	TPD0551BA ~ 0570BA
	0571-063-5-P	◆	0.571 ~ 0.590	0.625	2.953	3.744	3.258	1.89	5.732	0.098	TPD0571BA ~ 0590BA
	0591-075-5-P	◆	0.591 ~ 0.609	0.75	3.054	3.863	3.369	1.969	5.933	0.102	TPD0591BA ~ 0609BA
	0610-075-5-P	◆	0.610 ~ 0.629	0.75	3.156	3.978	3.481	1.969	6.051	0.105	TPD0610BA ~ 0629BA
	0630-075-5-P	◆	0.630 ~ 0.649	0.75	3.258	4.1	3.593	1.969	6.177	0.108	TPD0630BA ~ 0649BA
	0650-075-5-P	◆	0.650 ~ 0.668	0.75	3.36	4.215	3.704	1.969	6.295	0.112	TPD0650BA ~ 0668BA
	0669-075-5-P	◆	0.669 ~ 0.688	0.75	3.462	4.377	3.816	1.969	6.461	0.115	TPD0669BA ~ 0688BA
	0689-075-5-P	◆	0.689 ~ 0.708	0.75	3.563	4.492	3.928	1.969	6.579	0.119	TPD0689BA ~ 0708BA
	0709-100-5-P	◆	0.709 ~ 0.727	1	3.665	4.61	4.039	2.205	6.937	0.122	TPD0709BA ~ 0727BA
	0728-100-5-P	◆	0.728 ~ 0.747	1	3.767	4.725	4.151	2.205	7.055	0.126	TPD0728BA ~ 0747BA
	0748-100-5-P	◆	0.768 ~ 0.786	1	3.869	4.883	4.263	2.205	7.217	0.129	TPD0748BA ~ 0767BA
	0768-100-5-P	◆	0.768 ~ 0.786	1	3.971	4.998	4.374	2.205	7.335	0.132	TPD0768BA ~ 0786BA
	0787-100-5-P	◆	0.787 ~ 0.806	1	4.072	5.12	4.486	2.205	7.461	0.135	TPD0787BA ~ 0806BA
	0807-100-5-P	◆	0.807 ~ 0.826	1	4.174	5.235	4.598	2.205	7.579	0.139	TPD0807BA ~ 0826BA
	0827-100-5-P	◆	0.827 ~ 0.845	1	4.276	5.239	4.709	2.362	7.744	0.143	TPD0827BA ~ 0845BA
	0846-100-5-P	○	0.846 ~ 0.865	1	4.378	5.354	4.821	2.362	7.862	0.146	TPD0846BA ~ 0865BA
	0866-100-5-P	◆	0.866 ~ 0.885	1	4.48	5.477	4.933	2.362	7.988	0.149	TPD0866BA ~ 0885BA
	0886-100-5-P	◆	0.886 ~ 0.905	1	4.581	5.592	5.044	2.362	8.106	0.152	TPD0886BA ~ 0905BA
	0906-100-5-P	◆	0.906 ~ 0.924	1	4.683	5.754	5.156	2.362	8.272	0.156	TPD0906BA ~ 0924BA
	0925-100-5-P	◆	0.925 ~ 0.944	1	4.785	5.868	5.268	2.362	8.39	0.159	TPD0925BA ~ 0944BA
	0945-125-5-P	◆	0.945 ~ 0.964	1.25	4.887	6.148	5.379	2.362	8.673	0.163	TPD0945BA ~ 0964BA
	0965-125-5-P	◆	0.965 ~ 0.983	1.25	4.989	6.263	5.491	2.362	8.791	0.166	TPD0965BA ~ 0983BA
	0984-125-5-P	◆	0.984 ~ 1.003	1.25	5.096	6.42	5.607	2.362	8.957	0.174	TPD0984BA ~ 1003BA
	1004-125-5-P	○	1.004 ~ 1.023	1.25	5.198	6.535	5.719	2.362	9.075	0.178	TPD1004BA ~ 1023BA
	1024-125-5-P	◆	1.024 ~ 1.062	1.25	5.299	6.657	5.831	2.362	9.201	0.181	TPD1024BA ~ 1062BA
	1063-125-5-P	◆	1.063 ~ 1.101	1.25	5.503	6.934	6.054	2.362	9.484	0.188	TPD1063BA ~ 1101BA
	1102-125-5-P	◆	1.102 ~ 1.141	1.25	5.707	7.167	6.278	2.362	9.724	0.195	TPD1102BA ~ 1141BA
	1142-125-5-P	◆	1.142 ~ 1.180	1.25	5.911	7.444	6.501	2.362	10.008	0.202	TPD1142BA ~ 1180BA
	1181-125-5-P	◆	1.181 ~ 1.219	1.25	6.12	7.635	6.731	2.362	10.213	0.215	TPD1181BA ~ 1219BA
	1220-125-5-P	◆	1.220 ~ 1.259	1.25	6.324	7.912	6.954	2.362	10.496	0.222	TPD1220BA ~ 1259BA
	1260-125-5-P	◆	1.260 ~ 1.298	1.25	6.528	8.07	7.178	2.362	10.661	0.229	TPD1260BA ~ 1299BA

Applicable holders **D40 ~ D42**

◆: US Stock ○: Made to order

TPDBA (8D)





(inch)

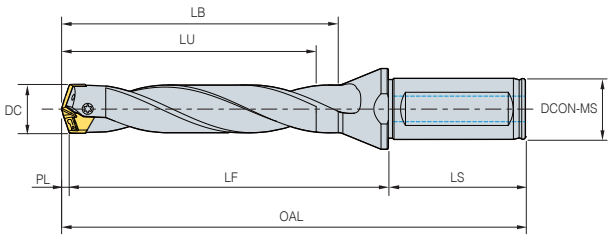
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBA	0394-063-8-P	◆	0.394 ~ 0.412	0.625	3.212	3.82	3.428	1.89	5.772	0.062	TPD0394BA ~ 0412BA
	0413-063-8-P	◆	0.413 ~ 0.432	0.625	3.372	3.974	3.599	1.89	5.929	0.065	TPD0413BA ~ 0432BA
	0433-063-8-P	◆	0.433 ~ 0.452	0.625	3.533	4.133	3.769	1.89	6.091	0.068	TPD0433BA ~ 0452BA
	0453-063-8-P	◆	0.453 ~ 0.471	0.625	3.693	4.287	3.939	1.89	6.248	0.071	TPD0453BA ~ 0471BA
	0472-063-8-P	◆	0.472 ~ 0.491	0.625	3.861	4.489	4.117	1.89	6.461	0.081	TPD0472BA ~ 0491BA
	0492-063-8-P	◆	0.492 ~ 0.511	0.625	4.022	4.667	4.287	1.89	6.642	0.085	TPD0492BA ~ 0511BA
	0512-063-8-P	◆	0.512 ~ 0.530	0.625	4.183	4.884	4.458	1.89	6.862	0.088	TPD0512BA ~ 0530BA
	0531-063-8-P	◆	0.531 ~ 0.550	0.625	4.343	5.062	4.629	1.89	7.043	0.091	TPD0531BA ~ 0550BA
	0551-063-8-P	◆	0.551 ~ 0.570	0.625	4.504	5.24	4.8	1.89	7.224	0.095	TPD0551BA ~ 0570BA
	0571-063-8-P	◆	0.571 ~ 0.590	0.625	4.665	5.457	4.97	1.89	7.445	0.098	TPD0571BA ~ 0590BA
	0591-075-8-P	◆	0.591 ~ 0.609	0.75	4.826	5.635	5.141	1.969	7.705	0.102	TPD0591BA ~ 0609BA
	0610-075-8-P	◆	0.610 ~ 0.629	0.75	4.987	5.808	5.312	1.969	7.882	0.105	TPD0610BA ~ 0629BA
	0630-075-8-P	◆	0.630 ~ 0.649	0.75	5.148	5.99	5.482	1.969	8.067	0.108	TPD0630BA ~ 0649BA
	0650-075-8-P	◆	0.650 ~ 0.668	0.75	5.309	6.164	5.653	1.969	8.244	0.112	TPD0650BA ~ 0668BA
	0669-075-8-P	◆	0.669 ~ 0.688	0.75	5.47	6.385	5.824	1.969	8.469	0.115	TPD0669BA ~ 0688BA
	0689-075-8-P	◆	0.689 ~ 0.708	0.75	5.63	6.559	5.994	1.969	8.646	0.119	TPD0689BA ~ 0708BA
	0709-100-8-P	◆	0.709 ~ 0.727	1	5.791	6.736	6.165	2.205	9.063	0.122	TPD0709BA ~ 0727BA
	0728-100-8-P	◆	0.728 ~ 0.747	1	5.952	6.91	6.336	2.205	9.24	0.126	TPD0728BA ~ 0747BA
	0748-100-8-P	◆	0.768 ~ 0.786	1	6.113	7.127	6.507	2.205	9.461	0.129	TPD0748BA ~ 0767BA
	0768-100-8-P	◆	0.768 ~ 0.786	1	6.274	7.301	6.678	2.205	9.638	0.132	TPD0768BA ~ 0786BA
	0787-100-8-P	○	0.787 ~ 0.806	1	6.435	7.483	6.848	2.205	9.823	0.135	TPD0787BA ~ 0806BA
	0807-100-8-P	◆	0.807 ~ 0.826	1	6.596	7.656	7.019	2.205	10	0.139	TPD0807BA ~ 0826BA
	0827-100-8-P	◆	0.827 ~ 0.845	1	6.757	7.72	7.19	2.362	10.224	0.143	TPD0827BA ~ 0845BA
	0846-100-8-P	○	0.846 ~ 0.865	1	6.917	7.894	7.36	2.362	10.402	0.146	TPD0846BA ~ 0865BA
	0866-100-8-P	◆	0.866 ~ 0.885	1	7.078	8.075	7.531	2.362	10.587	0.149	TPD0866BA ~ 0885BA
	0886-100-8-P	○	0.886 ~ 0.905	1	7.239	8.257	7.702	2.362	10.772	0.152	TPD0886BA ~ 0905BA
	0906-100-8-P	○	0.906 ~ 0.924	1	7.4	8.47	7.872	2.362	10.988	0.156	TPD0906BA ~ 0924BA
	0925-100-8-P	◆	0.925 ~ 0.944	1	7.561	8.644	8.043	2.362	11.165	0.159	TPD0925BA ~ 0944BA
	0945-125-8-P	○	0.945 ~ 0.964	1.25	7.722	8.983	8.214	2.362	11.508	0.163	TPD0945BA ~ 0964BA
	0965-125-8-P	○	0.965 ~ 0.983	1.25	7.883	9.157	8.385	2.362	11.685	0.166	TPD0965BA ~ 0983BA
	0984-125-8-P	◆	0.984 ~ 1.003	1.25	8.048	9.373	8.56	2.362	11.909	0.174	TPD0984BA ~ 1003BA
	1004-125-8-P	○	1.004 ~ 1.023	1.25	8.209	9.546	8.731	2.362	12.087	0.178	TPD1004BA ~ 1023BA
	1024-125-8-P	◆	1.024 ~ 1.062	1.25	8.37	9.728	8.902	2.362	12.272	0.181	TPD1024BA ~ 1062BA
	1063-125-8-P	◆	1.063 ~ 1.101	1.25	8.692	10.123	9.243	2.362	12.673	0.188	TPD1063BA ~ 1101BA
	1102-125-8-P	◆	1.102 ~ 1.141	1.25	9.014	10.474	9.585	2.362	13.031	0.195	TPD1102BA ~ 1141BA
	1142-125-8-P	○	1.142 ~ 1.180	1.25	9.336	10.869	9.926	2.362	13.433	0.202	TPD1142BA ~ 1180BA
	1181-125-8-P	◆	1.181 ~ 1.219	1.25	9.664	11.179	10.274	2.362	13.756	0.215	TPD1181BA ~ 1219BA
	1220-125-8-P	○	1.220 ~ 1.259	1.25	9.986	11.573	10.616	2.362	14.157	0.222	TPD1220BA ~ 1259BA
	1260-125-8-P	○	1.260 ~ 1.298	1.25	10.308	11.85	10.957	2.362	14.441	0.229	TPD1260BA ~ 1299BA

Applicable holders **D40 ~ D42**

◆: US Stock ○: Made to order

TPDBA (10D)





(inch)

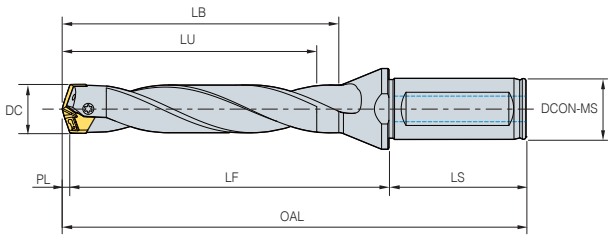
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBA	0394-063-10-P	○	0.394 ~ 0.412	0.625	3.999	4.607	4.216	1.89	6.559	0.062	TPD0394BA ~ 0412BA
	0413-063-10-P	○	0.413 ~ 0.432	0.625	4.199	4.801	4.426	1.89	6.756	0.065	TPD0413BA ~ 0432BA
	0433-063-10-P	○	0.433 ~ 0.452	0.625	4.399	4.999	4.635	1.89	6.957	0.068	TPD0433BA ~ 0452BA
	0453-063-10-P	○	0.453 ~ 0.471	0.625	4.599	5.193	4.845	1.89	7.154	0.071	TPD0453BA ~ 0471BA
	0472-063-10-P	○	0.472 ~ 0.491	0.625	4.806	5.434	5.062	1.89	7.406	0.081	TPD0472BA ~ 0491BA
	0492-063-10-P	○	0.492 ~ 0.511	0.625	5.006	5.652	5.272	1.89	7.626	0.085	TPD0492BA ~ 0511BA
	0512-063-10-P	○	0.512 ~ 0.530	0.625	5.206	5.908	5.482	1.89	7.886	0.088	TPD0512BA ~ 0530BA
	0531-063-10-P	○	0.531 ~ 0.550	0.625	5.406	6.125	5.692	1.89	8.106	0.091	TPD0531BA ~ 0550BA
	0551-063-10-P	○	0.551 ~ 0.570	0.625	5.607	6.342	5.902	1.89	8.327	0.095	TPD0551BA ~ 0570BA
	0571-063-10-P	○	0.571 ~ 0.590	0.625	5.807	6.598	6.112	1.89	8.587	0.098	TPD0571BA ~ 0590BA
	0591-075-10-P	○	0.591 ~ 0.609	0.75	6.007	6.816	6.322	1.969	8.886	0.102	TPD0591BA ~ 0609BA
	0610-075-10-P	○	0.610 ~ 0.629	0.75	6.207	7.029	6.532	1.969	9.102	0.105	TPD0610BA ~ 0629BA
	0630-075-10-P	○	0.630 ~ 0.649	0.75	6.407	7.25	6.742	1.969	9.327	0.108	TPD0630BA ~ 0649BA
	0650-075-10-P		0.650 ~ 0.668	0.75	6.608	7.463	6.952	1.969	9.543	0.112	TPD0650BA ~ 0668BA
	0669-075-10-P	○	0.669 ~ 0.688	0.75	6.808	7.723	7.163	1.969	9.807	0.115	TPD0669BA ~ 0688BA
	0689-075-10-P	○	0.689 ~ 0.708	0.75	7.008	7.937	7.372	1.969	10.024	0.119	TPD0689BA ~ 0708BA
	0709-100-10-P	○	0.709 ~ 0.727	1	7.209	8.154	7.583	2.205	10.48	0.122	TPD0709BA ~ 0727BA
	0728-100-10-P	○	0.728 ~ 0.747	1	7.409	8.367	7.793	2.205	10.697	0.126	TPD0728BA ~ 0747BA
	0748-100-10-P	○	0.768 ~ 0.786	1	7.609	8.623	8.003	2.205	10.957	0.129	TPD0748BA ~ 0767BA
	0768-100-10-P	○	0.768 ~ 0.786	1	7.809	8.836	8.213	2.205	11.173	0.132	TPD0768BA ~ 0786BA
	0787-100-10-P	○	0.787 ~ 0.806	1	8.009	9.057	8.423	2.205	11.398	0.135	TPD0787BA ~ 0806BA
	0807-100-10-P	○	0.807 ~ 0.826	1	8.21	9.27	8.633	2.205	11.614	0.139	TPD0807BA ~ 0826BA
	0827-100-10-P	○	0.827 ~ 0.845	1	8.41	9.373	8.843	2.362	11.878	0.143	TPD0827BA ~ 0845BA
	0846-100-10-P	○	0.846 ~ 0.865	1	8.61	9.587	9.053	2.362	12.094	0.146	TPD0846BA ~ 0865BA
	0866-100-10-P	○	0.866 ~ 0.885	1	8.811	9.807	9.263	2.362	12.319	0.149	TPD0866BA ~ 0885BA
	0886-100-10-P	○	0.886 ~ 0.905	1	9.011	10.029	9.473	2.362	12.543	0.152	TPD0886BA ~ 0905BA
	0906-100-10-P	○	0.906 ~ 0.924	1	9.211	10.281	9.683	2.362	12.799	0.156	TPD0906BA ~ 0924BA
	0925-100-10-P	○	0.925 ~ 0.944	1	9.411	10.494	9.894	2.362	13.016	0.159	TPD0925BA ~ 0944BA
	0945-125-10-P	○	0.945 ~ 0.964	1.25	9.611	10.873	10.104	2.362	13.398	0.163	TPD0945BA ~ 0964BA
	0965-125-10-P	○	0.965 ~ 0.983	1.25	9.812	11.086	10.314	2.362	13.614	0.166	TPD0965BA ~ 0983BA
	0984-125-10-P	○	0.984 ~ 1.003	1.25	10.017	11.341	10.529	2.362	13.878	0.174	TPD0984BA ~ 1003BA
	1004-125-10-P	○	1.004 ~ 1.023	1.25	10.217	11.554	10.739	2.362	14.094	0.178	TPD1004BA ~ 1023BA
	1024-125-10-P	○	1.024 ~ 1.062	1.25	10.417	11.776	10.949	2.362	14.319	0.181	TPD1024BA ~ 1062BA
	1063-125-10-P	○	1.063 ~ 1.101	1.25	10.818	12.249	11.369	2.362	14.799	0.188	TPD1063BA ~ 1101BA
	1102-125-10-P	○	1.102 ~ 1.141	1.25	11.219	12.679	11.79	2.362	15.236	0.195	TPD1102BA ~ 1141BA
	1142-125-10-P	○	1.142 ~ 1.180	1.25	11.619	13.152	12.21	2.362	15.717	0.202	TPD1142BA ~ 1180BA
	1181-125-10-P	○	1.181 ~ 1.219	1.25	12.026	13.541	12.636	2.362	16.118	0.215	TPD1181BA ~ 1219BA
	1220-125-10-P	○	1.220 ~ 1.259	1.25	12.427	14.014	13.057	2.362	16.598	0.222	TPD1220BA ~ 1259BA
	1260-125-10-P	○	1.260 ~ 1.298	1.25	12.828	14.369	13.477	2.362	16.961	0.229	TPD1260BA ~ 1299BA

Applicable holders **D40 ~ D42**

◆: US Stock ○: Made to order

TPDBA (12D)





(inch)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBA	0394-063-12-P	○	0.394 ~ 0.412	0.625	4.787	5.394	5.003	1.89	7.346	0.062	TPD0394BA ~ 0412BA
	0413-063-12-P	○	0.413 ~ 0.432	0.625	5.026	5.628	5.252	1.89	7.583	0.065	TPD0413BA ~ 0432BA
	0433-063-12-P	○	0.433 ~ 0.452	0.625	5.265	5.865	5.501	1.89	7.823	0.068	TPD0433BA ~ 0452BA
	0453-063-12-P	○	0.453 ~ 0.471	0.625	5.504	6.098	5.75	1.89	8.059	0.071	TPD0453BA ~ 0471BA
	0472-063-12-P	○	0.472 ~ 0.491	0.625	5.751	6.379	6.007	1.89	8.35	0.081	TPD0472BA ~ 0491BA
	0492-063-12-P	○	0.492 ~ 0.511	0.625	5.99	6.636	6.256	1.89	8.61	0.085	TPD0492BA ~ 0511BA
	0512-063-12-P	○	0.512 ~ 0.530	0.625	6.23	6.931	6.506	1.89	8.909	0.088	TPD0512BA ~ 0530BA
	0531-063-12-P	○	0.531 ~ 0.550	0.625	6.469	7.188	6.755	1.89	9.169	0.091	TPD0531BA ~ 0550BA
	0551-063-12-P	○	0.551 ~ 0.570	0.625	6.709	7.444	7.004	1.89	9.429	0.095	TPD0551BA ~ 0570BA
	0571-063-12-P	○	0.571 ~ 0.590	0.625	6.949	7.74	7.254	1.89	9.728	0.098	TPD0571BA ~ 0590BA
	0591-075-12-P	○	0.591 ~ 0.609	0.75	7.188	7.997	7.503	1.969	10.067	0.102	TPD0591BA ~ 0609BA
	0610-075-12-P	○	0.610 ~ 0.629	0.75	7.428	8.249	7.753	1.969	10.323	0.105	TPD0610BA ~ 0629BA
	0630-075-12-P	○	0.630 ~ 0.649	0.75	7.667	8.51	8.002	1.969	10.587	0.108	TPD0630BA ~ 0649BA
	0650-075-12-P		0.650 ~ 0.668	0.75	7.907	8.762	8.252	1.969	10.843	0.112	TPD0650BA ~ 0668BA
	0669-075-12-P	○	0.669 ~ 0.688	0.75	8.147	9.062	8.501	1.969	11.146	0.115	TPD0669BA ~ 0688BA
	0689-075-12-P	○	0.689 ~ 0.708	0.75	8.386	9.315	8.75	1.969	11.402	0.119	TPD0689BA ~ 0708BA
	0709-100-12-P	○	0.709 ~ 0.727	1	8.626	9.571	9	2.205	11.898	0.122	TPD0709BA ~ 0727BA
	0728-100-12-P	○	0.728 ~ 0.747	1	8.866	9.823	9.25	2.205	12.154	0.126	TPD0728BA ~ 0747BA
	0748-100-12-P	○	0.768 ~ 0.786	1	9.105	10.119	9.499	2.205	12.453	0.129	TPD0748BA ~ 0767BA
	0768-100-12-P	○	0.768 ~ 0.786	1	9.345	10.372	9.748	2.205	12.709	0.132	TPD0768BA ~ 0786BA
	0787-100-12-P	○	0.787 ~ 0.806	1	9.584	10.632	9.998	2.205	12.972	0.135	TPD0787BA ~ 0806BA
	0807-100-12-P	○	0.807 ~ 0.826	1	9.824	10.885	10.247	2.205	13.228	0.139	TPD0807BA ~ 0826BA
	0827-100-12-P	○	0.827 ~ 0.845	1	10.064	11.027	10.497	2.362	13.531	0.143	TPD0827BA ~ 0845BA
	0846-100-12-P	○	0.846 ~ 0.865	1	10.303	11.28	10.746	2.362	13.787	0.146	TPD0846BA ~ 0865BA
	0866-100-12-P	○	0.866 ~ 0.885	1	10.543	11.54	10.996	2.362	14.051	0.149	TPD0866BA ~ 0885BA
	0886-100-12-P	○	0.886 ~ 0.905	1	10.782	11.8	11.245	2.362	14.315	0.152	TPD0886BA ~ 0905BA
	0906-100-12-P	○	0.906 ~ 0.924	1	11.022	12.092	11.494	2.362	14.61	0.156	TPD0906BA ~ 0924BA
	0925-100-12-P	○	0.925 ~ 0.944	1	11.262	12.344	11.744	2.362	14.866	0.159	TPD0925BA ~ 0944BA
	0945-125-12-P	○	0.945 ~ 0.964	1.25	11.501	12.763	11.993	2.362	15.287	0.163	TPD0945BA ~ 0964BA
	0965-125-12-P	○	0.965 ~ 0.983	1.25	11.741	13.015	12.243	2.362	15.543	0.166	TPD0965BA ~ 0983BA
	0984-125-12-P	○	0.984 ~ 1.003	1.25	11.985	13.31	12.497	2.362	15.846	0.174	TPD0984BA ~ 1003BA
	1004-125-12-P	○	1.004 ~ 1.023	1.25	12.225	13.562	12.747	2.362	16.102	0.178	TPD1004BA ~ 1023BA
	1024-125-12-P	○	1.024 ~ 1.062	1.25	12.465	13.823	12.996	2.362	16.366	0.181	TPD1024BA ~ 1062BA
	1063-125-12-P	○	1.063 ~ 1.101	1.25	12.944	14.375	13.495	2.362	16.925	0.188	TPD1063BA ~ 1101BA
	1102-125-12-P	○	1.102 ~ 1.141	1.25	13.424	14.883	13.994	2.362	17.441	0.195	TPD1102BA ~ 1141BA
	1142-125-12-P	○	1.142 ~ 1.180	1.25	13.903	15.436	14.493	2.362	18	0.202	TPD1142BA ~ 1180BA
	1181-125-12-P	○	1.181 ~ 1.219	1.25	14.388	15.903	14.998	2.362	18.48	0.215	TPD1181BA ~ 1219BA
	1220-125-12-P	○	1.220 ~ 1.259	1.25	14.868	16.455	15.498	2.362	19.039	0.222	TPD1220BA ~ 1259BA
	1260-125-12-P	○	1.260 ~ 1.298	1.25	15.347	16.889	15.997	2.362	19.48	0.229	TPD1260BA ~ 1299BA

Applicable holders **D40 ~ D42**

◆: US Stock ○: Made to order

TPDB-DS

- A curved linear insert with high helix angle applied holder, which has low cutting load and excellent chip handling performance.
- Excellent clamping stability with a specially designed clamping section and 2 screws-on clamping methods.
- Improved wear resistance and durability through special surface treatment.

Code system

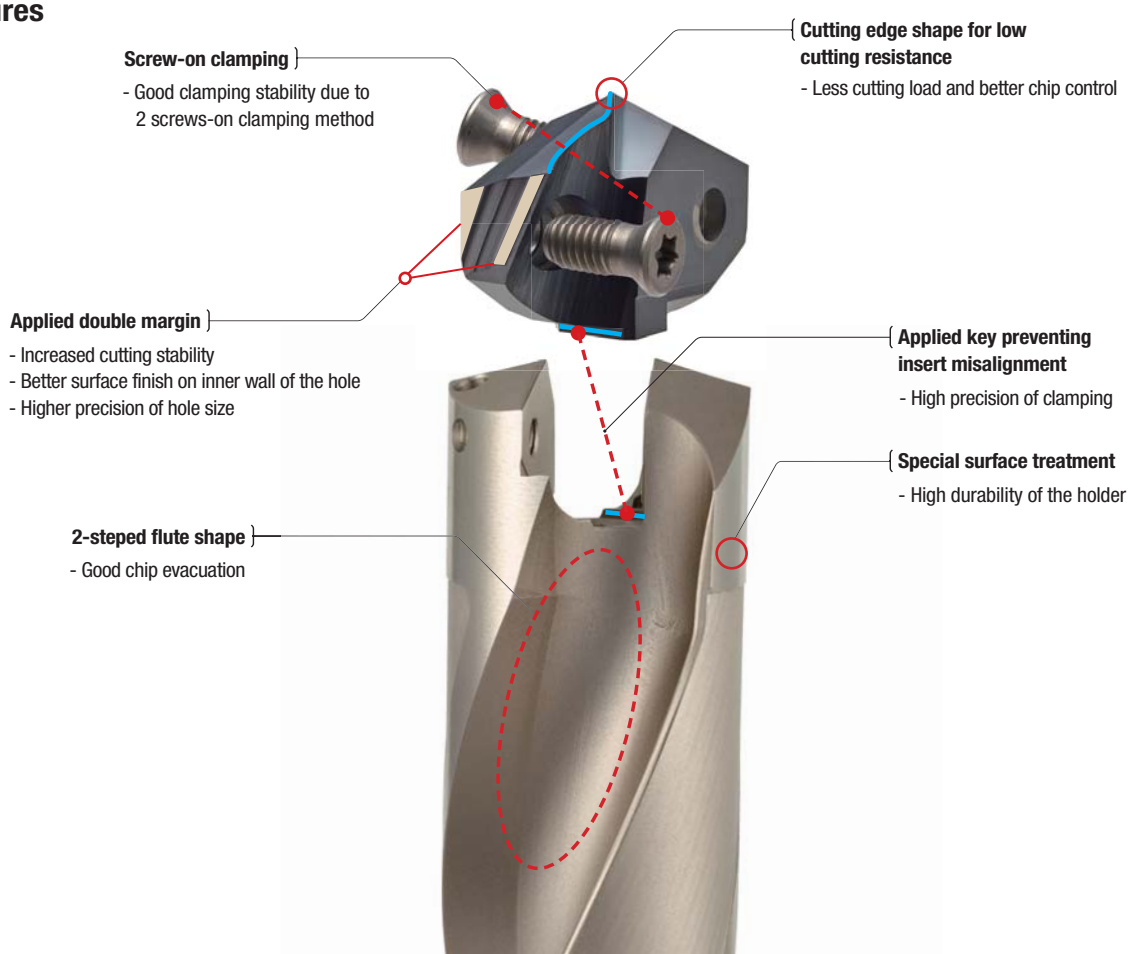
• Insert

TPD	1417	B	A	-	DS
Top solid Piercing Drill	**Drill diameter** 1417 : Ø1.417 inch	**Insert type** B : Blade type	**Insert type** A : Inch type No code : Metric type		**Margin shape** DS : Double margin Shape

• Holder

TPD	B	A	1417	-	150	-	5	-	P
Top solid Piercing Drill	**Insert type** B : Blade type	**Insert type** A : Inch type No code : Metric type	**Drill diameter** 1417 : Ø1.417 inch		**Shank diameter** 150 : Ø1.5 inch		**Aspect ratio(L/D)** 3D, 5D, 8D		**Plus**

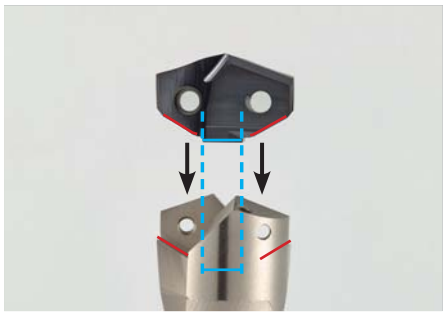
Features



How to clamp an insert



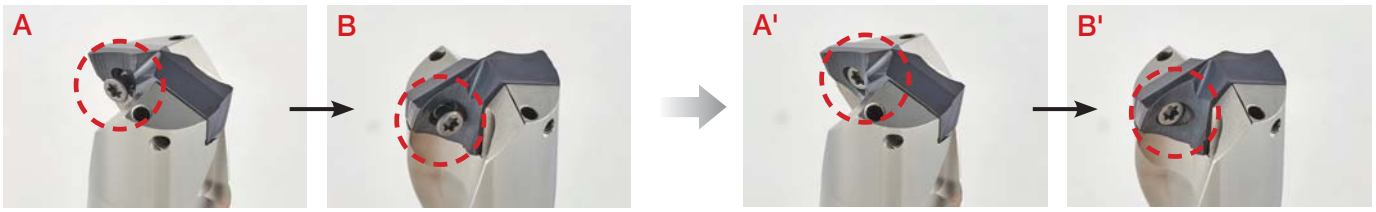
① Clean the tip seat.



② Put an insert in



③ Lightly press the insert while screwing to prevent it from rotating.



④ Clamp a screw partially just like in the case of A and B to prevent laterality

⑤ Clamp the screws completely in the order of A', B'.

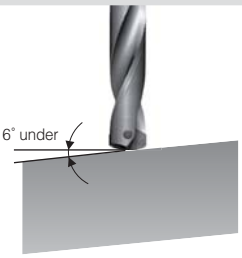
Recommended cutting conditions

Workpiece					N/mm²	HB	Grade	vc (sfm)	Feed rate (ipr)
ISO	Workpiece material		AISI	ISO					Aspect ratio (L/D) = 3D, 5D
P	Carbon steel	C = 0.10 ~ 0.25%	1015 1025	C15 C25	1500	90 ~ 200	PC5300	262 ~ 459	0.0157 ~ 0.0098
		C = 0.25 ~ 0.55%	1035 1045	C35 C45	1600	125 ~ 225	PC5300	262 ~ 459	0.0157 ~ 0.0098
		C = 0.55 ~ 0.80%	1060	C60	1700	150 ~ 250	PC5300	230 ~ 427	0.0157 ~ 0.0098
	Alloy steel ≤ 5%	Non-hardened	4140	42CrMo4	1700	180	PC5300	262 ~ 427	0.0177 ~ 0.0098
		Hardened and Tempered	4145v	-	2050	350	PC5300	197 ~ 361	0.0177 ~ 0.0098
	Alloy steel > 5%	Annealed	D2	-	1950	200	PC5300	197 ~ 328	0.0157 ~ 0.0098
		Hardened tool steel	H13	X40CrMoV5-1	3000	352	PC5300	164 ~ 295	0.0137 ~ 0.0078
K	Gray cast iron		No 25 B No 35 B	250 350	900	150 ~ 230	PC5300	262 ~ 459	0.0177 ~ 0.0098
	Ductile cast iron		60-40-18 65-45-12 80-55-06	400-15 150-10 600-3	870	160 ~ 260	PC5300	230 ~ 427	0.0177 ~ 0.0098

※ For 8D, reduce the recommended cutting conditions by 20% to 30% at the machining depth from its entry to 0.5D depth then proceed with the above-mentioned cutting conditions.
※ In interrupted machining, reduce the feed to 0.0039-0.0059 machining around the interrupted part.

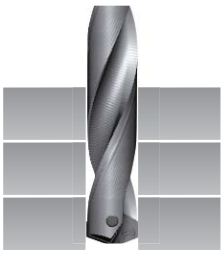
Precaution in Drilling

Angled surface drilling



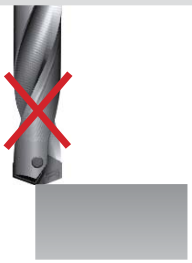
- The approach angle between Drill and the workpiece at the beginning and the end should be less than 6°.
- Reduce the feed (fn) to 30~50% than general cutting conditions at the beginning and the end of angled surface.

Stacked plates Drilling



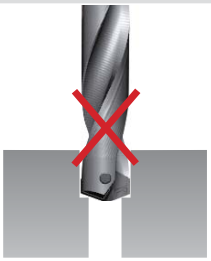
- Gap between the plates could make wrong chip evacuation causing fracture of the Drill.
- Strongly clamp the workpiece together to eliminate any gaps and then proceed with usage.

Plunging



- Irregular cutting resistance in plunging could cause fracture and deformation of the Drill.

Boring



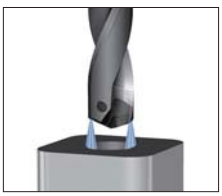
- Boring is not recommended as it can cause excessive wear and chipping at the insert's corner.
- In case of necessity, process it with a 0.078 inch stepping. (30% reduction in transfer during processing)

Basic checklist for the Drilling operations

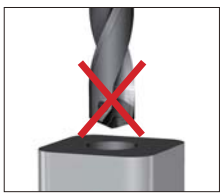
- Workpiece clamping condition
- Rotational state of the main axial in the machining equipment
- Holder condition
- Clamped drill's Run-out : Max. 1181㎛in
- Coolant supply condition (pressure, flow rate,concentration)
- Chip evacuation condition

Coolant application system

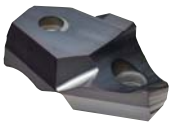
- Adequate supply of cutting fluid at the entrance of the hole
- Minimum cutting fluid pressure : 5 bar or above
- Minimum flow rate : 1.321 gal/min or avobe

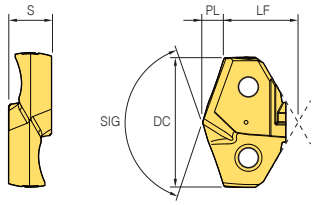

[Internal coolant]


[External coolant]


[Dry]

Available insert (TPDB-DS)





(inch)

Designation		Coated	DC		S	LF	PL	SIG
		PC5300	Fraction	Decimal				
TPD	1299BA-DS	○	-	1.299	0.413	0.715	0.212	140°
	1313BA-DS		1 5/16	1.313	0.413	0.712	0.215	140°
	1319BA-DS	○	-	1.319	0.413	0.712	0.215	140°
	1328BA-DS		1 21/64	1.328	0.413	0.709	0.217	140°
	1339BA-DS	○	-	1.339	0.433	0.73	0.218	140°
	1344BA-DS		1 11/32	1.344	0.433	0.729	0.219	140°
	1358BA-DS	○	-	1.358	0.433	0.727	0.221	140°
	1359BA-DS		1 23/64	1.359	0.433	0.726	0.222	140°
	1375BA-DS		1 3/8	1.375	0.433	0.723	0.225	140°
	1378BA-DS	○	-	1.378	0.453	0.767	0.224	140°
	1391BA-DS		1 25/64	1.391	0.453	0.764	0.227	140°
	1398BA-DS	○	-	1.398	0.453	0.764	0.228	140°
	1406BA-DS		1 13/32	1.406	0.453	0.761	0.23	140°
	1417BA-DS	○	-	1.417	0.453	0.804	0.231	140°
	1422BA-DS		1 27/64	1.422	0.453	0.803	0.232	140°
	1437BA-DS	○	-	1.437	0.453	0.8	0.234	140°
	1438BA-DS		1 7/16	1.438	0.453	0.8	0.235	140°
	1453BA-DS		1 29/64	1.453	0.453	0.797	0.238	140°
	1456BA-DS	○	-	1.456	0.472	0.819	0.237	140°
	1469BA-DS		1 15/32	1.469	0.472	0.816	0.241	140°
	1476BA-DS	○	-	1.476	0.472	0.816	0.241	140°
	1484BA-DS		1 31/64	1.484	0.472	0.813	0.244	140°
	1496BA-DS	○	-	1.496	0.472	0.852	0.244	140°
	1500BA-DS		1 1/2	1.5	0.472	0.851	0.245	140°
	1516BA-DS	○	1 33/64	1.516	0.472	0.848	0.248	140°
	1531BA-DS		1 17/32	1.531	0.472	0.845	0.251	140°
	1535BA-DS	○	-	1.535	0.492	0.867	0.25	140°
	1547BA-DS		1 35/64	1.547	0.492	0.864	0.253	140°
	1555BA-DS	○	-	1.555	0.492	0.863	0.254	140°
	1563BA-DS		1 9/16	1.563	0.492	0.861	0.256	140°

Applicable holders **D52**

※ TPD Inserts not list above within the range of Ø1.299 ~ Ø1.574 can be made to order

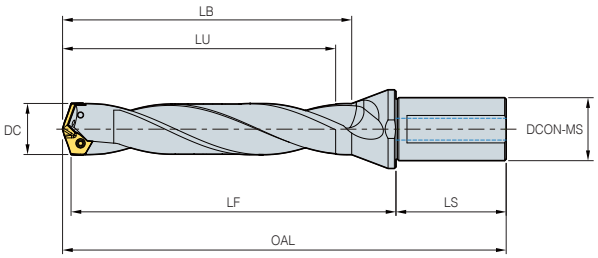
●: Korea Stock ◆: US Stock ○: Made to order

Parts

Designation		Drill dia. DC (inch)	Screw	Wrench
TPD	1299BA-DS ~ 1338BA-DS	1.299 ~ 1.338	FTKA0410	TW15S
	1339BA-DS ~ 1377BA-DS	1.339 ~ 1.377	FTKA0410	TW15S
	1378BA-DS ~ 1416BA-DS	1.378 ~ 1.416	FTKA0410	TW15S
	1417BA-DS ~ 1455BA-DS	1.417 ~ 1.455	FTNC04511	TW20S
	1456BA-DS ~ 1495BA-DS	1.456 ~ 1.495	FTNC04511	TW20S
	1496BA-DS ~ 1535BA-DS	1.496 ~ 1.535	FTNA0511	TW20S
	1535BA-DS ~ 1574BA-DS	1.535 ~ 1.574	FTNA0511	TW20S

TPDB-DS (3D/5D/8D)





(inch)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBA	1299-150-3-P	○	1.299 ~ 1.338	1.5	4.109	5.524	4.629	2.756	8.492	0.212	TPD1299BA-DS ~ 1338BA-DS
	1339-150-3-P		1.339 ~ 1.377	1.5	4.234	5.685	4.77	2.756	8.657	0.218	TPD1339BA-DS ~ 1377BA-DS
	1378-150-3-P	○	1.378 ~ 1.416	1.5	4.358	5.847	4.91	2.756	8.827	0.224	TPD1378BA-DS ~ 1416BA-DS
	1417-150-3-P	○	1.417 ~ 1.455	1.5	4.483	6.008	5.05	2.756	8.996	0.231	TPD1417BA-DS ~ 1455BA-DS
	1456-150-3-P	○	1.456 ~ 1.495	1.5	4.608	6.169	5.19	2.756	9.161	0.237	TPD1456BA-DS ~ 1495BA-DS
	1496-150-3-P	○	1.496 ~ 1.535	1.5	4.732	6.331	5.331	2.756	9.331	0.244	TPD1496BA-DS ~ 1535BA-DS
	1535-150-3-P	○	1.535 ~ 1.574	1.5	4.856	6.493	5.471	2.756	9.5	0.25	TPD1535BA-DS ~ 1574BA-DS
	1299-150-5-P	○	1.299 ~ 1.338	1.5	6.708	8.122	7.228	2.756	11.091	0.212	TPD1299BA-DS ~ 1338BA-DS
	1339-150-5-P		1.339 ~ 1.377	1.5	6.911	8.363	7.447	2.756	11.335	0.218	TPD1339BA-DS ~ 1377BA-DS
	1378-150-5-P	○	1.378 ~ 1.416	1.5	7.114	8.603	7.666	2.756	11.583	0.224	TPD1378BA-DS ~ 1416BA-DS
	1417-150-5-P	○	1.417 ~ 1.455	1.5	7.318	8.843	7.885	2.756	11.831	0.231	TPD1417BA-DS ~ 1455BA-DS
	1456-150-5-P	○	1.456 ~ 1.495	1.5	7.521	9.083	8.104	2.756	12.075	0.237	TPD1456BA-DS ~ 1495BA-DS
	1496-150-5-P	○	1.496 ~ 1.535	1.5	7.724	9.323	8.323	2.756	12.323	0.244	TPD1496BA-DS ~ 1535BA-DS
	1535-150-5-P	○	1.535 ~ 1.574	1.5	7.927	9.563	8.542	2.756	12.571	0.25	TPD1535BA-DS ~ 1574BA-DS
	1299-150-8-P	○	1.299 ~ 1.338	1.5	10.606	12.02	11.125	2.756	14.988	0.212	TPD1299BA-DS ~ 1338BA-DS
	1339-150-8-P		1.339 ~ 1.377	1.5	10.927	12.378	11.463	2.756	15.35	0.218	TPD1339BA-DS ~ 1377BA-DS
	1378-150-8-P	○	1.378 ~ 1.416	1.5	11.248	12.737	11.8	2.756	15.717	0.224	TPD1378BA-DS ~ 1416BA-DS
	1417-150-8-P	○	1.417 ~ 1.455	1.5	11.57	13.095	12.137	2.756	16.083	0.231	TPD1417BA-DS ~ 1455BA-DS
	1456-150-8-P	○	1.456 ~ 1.495	1.5	11.891	13.453	12.474	2.756	16.445	0.237	TPD1456BA-DS ~ 1495BA-DS
	1496-150-8-P	○	1.496 ~ 1.534	1.5	12.212	13.811	12.811	2.756	16.811	0.244	TPD1496BA-DS ~ 1534BA-DS
	1535-150-8-P	○	1.535 ~ 1.574	1.5	12.534	14.17	13.148	2.756	17.177	0.25	TPD1535BA-DS ~ 1574BA-DS

Applicable holders D51

※ We can provide if you order exact machining specification ◆: US Stock ○: Made to order

TPDB-H

- **High precision clamping system** - High precision clamping due highly precise grinding and auto-centering
- **Screw on clamping system** - Enhanced clamping force and clamping stability from applying a main screw and a sub screw
- **Edge design with excellent centering** - Low cutting load and good chip control
- **Applying shape for better chip breaking** - Increasing chip breaking due to applying web taper
- **High durability holder** - Improved wear resistance and durability with special surface treatment implementation
- **Optimally designed oil hole** - Long tool life

Code system

• **Insert**

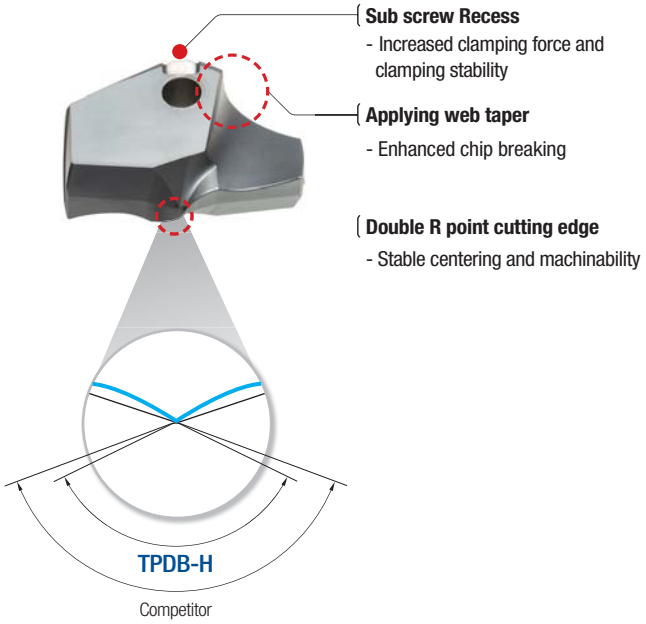
TPD	0945	B	A	P	-	H
Top solid Piercing Drill	**Drill diameter** 0945 : Ø0.945 inch	**Insert type** B : Blade type	**Insert type** A : Inch type No code : Metric type	**Cutting range** P : Steel		**H-Beam**

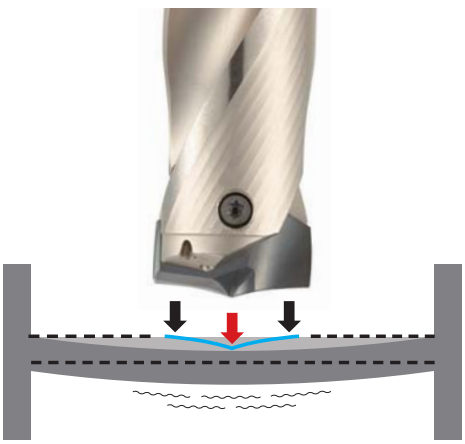
• **Holder**

SPECIAL TYPE

TPD	B	P	A	0945	-	32	S	-	23425	-	3	-	H
Top solid Piercing Drill	**Insert type** B : Blade type	**Power clamping**	**Insert type** A : Inch type No code : Metric type	**Drill diameter** 0945 : Ø0.945		**Shank diameter** 0610 : Ø0.610 inch	**Shank type** None : Flange Shank, Weldone S : Straight Shank, Weldone		**Effective depth** 23425 : 23.425 inch		**Aspect ratio(L/D)** 3D, 4D, 5D, 8D		**H-Beam**

Insert Features

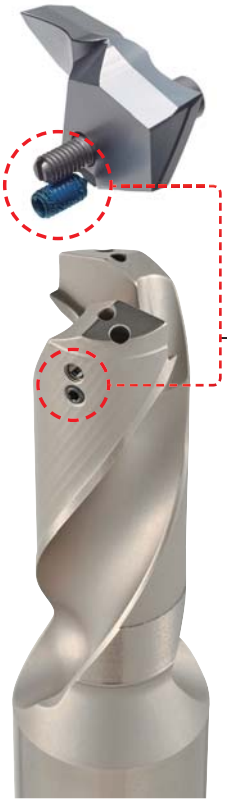




Applied Double R point edge design optimized for excellent centering and stable machinability.

Machinability and productivity are improved by minimizing both workpiece's bending and chipping at edge corner section.

Holder features



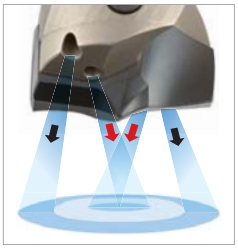
High helix angle
- Good chip evacuation and machinability

Special surface treatment
- Good holder durability

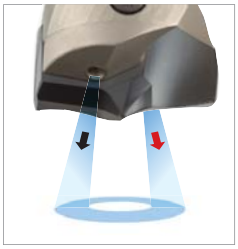
4 hole cooling system
- Long tool life



Additional sub screw
- Increased clamping force and clamping stability



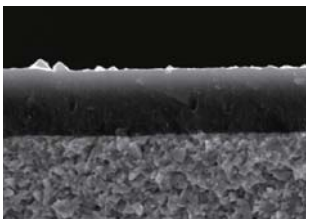
[TPDB-H]



[Competitor]

Concentrated coolant injection on delicate cutting edge increases tool life

Grade features



PC340UL

- Applying high toughness substrate with good fracture resistance
- Applying PVD coating technology enhancing lubrication and welding resistance
- Increasing chipping resistance and cutting stability due to good surface finish

Workpiece and recommended cutting conditions

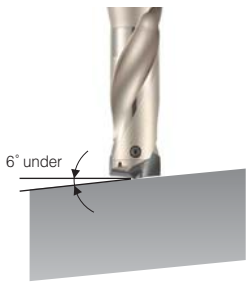
Workpiece					N/mm²	HB	Grade	vc (sfm)	Feed rate (ipr)	
									Aspect ratio (L/D) = 3D, 4D, 5D, 8D	
ISO	Workpiece material		AISI	ISO					Ø0.551 ~ Ø0.865	Ø0.394 ~ Ø1.298
P	H-Beam		A36 A572	SS275 (SS400*) SM355 (SM490*) SHN355 (SHN490*)	275 355 355 (t≤16)	-	PC340UL	197 ~ 246	0.0098 ~ 0.0078	0.0118 ~ 0.0078
	Angle						PC340UL	197 ~ 246	0.0098 ~ 0.0078	0.0118 ~ 0.0078
	Plate						PC340UL	197 ~ 246	0.0098 ~ 0.0078	0.0118 ~ 0.0078
	Plate (Stacked)						PC340UL	180 ~ 213	0.0098 ~ 0.0059	0.0098 ~ 0.0059

※ In case of 5D over, machine in 30% lower cutting conditions or use under the above conditions

* : Old symbol

Precaution in Drilling

Angled surface drilling



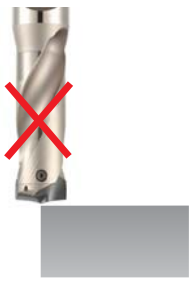
- The approach angle between Drill and the workpiece at the beginning and the end should be less than 6°.
- Reduce the feed (fn) to 30~50% than general cutting conditions at the beginning and the end of angled surface.

Stacked plates Drilling



- Gap between the plates could make wrong chip evacuation causing fracture of the Drill.
- Strongly clamp the workpiece together to eliminate any gaps and then proceed with usage.

Plunging



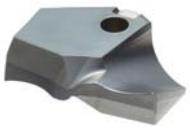
- Irregular cutting resistance in plunging could cause fracture and deformation of the Drill.

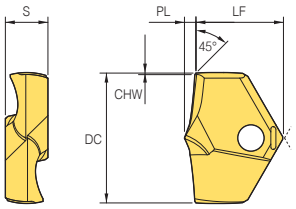
Boring



- Boring is not recommended as it can cause excessive wear and chipping at the insert's corner.
- In case of necessity, process it with a 0.078 inch stepping. (30% reduction in transfer during processing)

Available insert (TPDB-H)





(inch)

Designation		Coated	DC		S	LF	CHW	PL
		PC340UL	Fraction	Decimal				
TPD	0563BAP-H	◆	9/16	0.563	0.157	0.371	0.002	0.047
	0625BAP-H	◆	5/8	0.625	0.157	0.383	0.002	0.054
	0688BAP-H	◆	11/16	0.688	0.217	0.438	0.003	0.059
	0750BAP-H	◆	3/4	0.75	0.236	0.494	0.003	0.063
	0813BAP-H	◆	13/16	0.813	0.256	0.528	0.003	0.068
	0875BAP-H	◆	7/8	0.875	0.276	0.572	0.004	0.074
	0938BAP-H	◆	15/16	0.938	0.276	0.576	0.004	0.079
	1000BAP-H	◆	1	1	0.295	0.628	0.004	0.084
	1063BAP-H	◆	1 1/16	1.063	0.335	0.686	0.005	0.09
	1125BAP-H	◆	1 1/8	1.125	0.374	0.716	0.005	0.094
	1188BAP-H	◆	1 3/16	1.188	0.394	0.749	0.005	0.103
	1250BAP-H	◆	1 1/4	1.25	0.394	0.762	0.005	0.109

Applicable holders **D57 ~ D58**

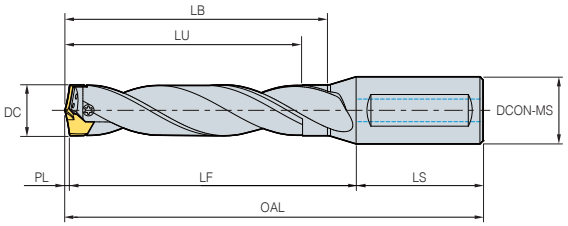
●: Korea Stock ◆: US Stock ○: Made to order

Parts

Designation		Drill dia. DC (inch)	Screw	Wrench	Sub screw	Wrench for sub screw
TPD	0551BAP-H~0629BAP-H	Ø0.551 ~ Ø0.629	FTNB02512-P	TW07S	-	-
	0630BAP-H~0708BAP-H	Ø0.630 ~ Ø0.708	FTNB02514-P	TW07S	KHMA02505	HW13LB
	0709BAP-H~0786BAP-H	Ø0.709 ~ Ø0.786	FTNB0316-P	TW09S	KHMA02505	HW13LB
	0787BAP-H~0944BAP-H	Ø0.787 ~ Ø0.944	FTNB0319	TW09S	KHMA0306	HW15L
	0945BAP-H~1023BAP-H	Ø0.945 ~ Ø1.023	FTNB03522	TW15S	KHMA0308	HW15L
	1024BAP-H~1101BAP-H	Ø1.024 ~ Ø1.101	FTNB03524	TW15S	KHMA0308	HW15L
	1102BAP-H~1180BAP-H	Ø1.102 ~ Ø1.180	FTNB0426	TW15S	KHMA0410	HW20L
	1181BAP-H~1298BAP-H	Ø1.181~ Ø1.298	FTNB0528	TW20-100	KHMA0410	HW20L

TPDB-H (3D/4D)





(inch)

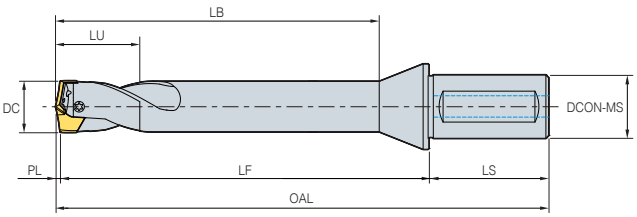
Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBPA	0551-063S-3-H	◆	0.551~0.590	0.625	1.404	1.922	1.7	1.89	3.858	0.046	TPD0551BAP-H-0590BAP-H
	0591-075S-3-H	◆	0.591~0.629	0.75	1.507	2.056	1.822	1.969	4.075	0.051	TPD0591BAP-H-0629BAP-H
	0630-075S-3-H	○	0.630~0.668	0.75	1.61	2.17	1.944	1.969	4.193	0.055	TPD0630BAP-H-0668BAP-H
	0669-075S-3-H	◆	0.669~0.708	0.75	1.712	2.284	2.066	1.969	4.311	0.058	TPD0669BAP-H-0708BAP-H
	0709-075S-3-H	○	0.709~0.747	0.75	1.811	2.46	2.185	1.969	4.488	0.059	TPD0709BAP-H-0747BAP-H
	0748-075S-3-H	◆	0.748~0.786	0.75	1.913	2.654	2.307	1.969	4.685	0.063	TPD0748BAP-H-0786BAP-H
	0787-100S-3-H	◆	0.787~0.826	1	2.015	3.005	2.428	2.205	5.039	0.066	TPD0787BAP-H-0826BAP-H
	0827-100S-3-H	○	0.827~0.865	1	2.117	2.883	2.55	2.205	5.157	0.069	TPD0827BAP-H-0865BAP-H
	0866-100S-3-H	◆	0.866~0.905	1	2.22	2.996	2.673	2.205	5.276	0.074	TPD0866BAP-H-0905BAP-H
	0906-100S-3-H	◆	0.906~0.944	1	2.32	3.113	2.793	2.205	5.394	0.076	TPD0906BAP-H-0944BAP-H
	0945-125S-3-H	○	0.945~0.983	1.25	2.422	3.338	2.914	2.362	5.78	0.08	TPD0945BAP-H-0983BAP-H
	0984-125S-3-H	◆	0.984~1.023	1.25	2.524	3.343	3.035	2.362	5.787	0.083	TPD0984BAP-H-1023BAP-H
	1024-125S-3-H	○	1.024~1.062	1.25	2.627	3.456	3.159	2.362	5.906	0.088	TPD1024BAP-H-1062BAP-H
	1063-125S-3-H	◆	1.063~1.101	1.25	2.728	3.572	3.279	2.362	6.024	0.09	TPD1063BAP-H-1101BAP-H
	1102-125S-3-H	◆	1.102~1.141	1.25	2.828	3.688	3.398	2.362	6.142	0.091	TPD1102BAP-H-1141BAP-H
	1142-125S-3-H	○	1.142~1.180	1.25	2.935	3.797	3.526	2.362	6.26	0.1	TPD1142BAP-H-1180BAP-H
	1181-125S-3-H	◆	1.181~1.219	1.25	3.036	3.913	3.646	2.362	6.378	0.103	TPD1181BAP-H-1219BAP-H
	1220-125S-3-H	◆	1.220~1.259	1.25	3.138	4.028	3.768	2.362	6.496	0.106	TPD1220BAP-H-1259BAP-H
	1260-125S-3-H	○	1.260~1.298	1.25	3.24	4.142	3.889	2.362	6.614	0.11	TPD1260BAP-H-1298BAP-H
	0551-063S-4-H	○	0.551~0.590	0.625	1.956	2.474	2.251	1.89	4.409	0.046	TPD0551BAP-H-0590BAP-H
	0591-075S-4-H	○	0.591~0.629	0.75	2.098	2.646	2.413	1.969	4.665	0.051	TPD0591BAP-H-0629BAP-H
	0630-075S-4-H	○	0.630~0.668	0.75	2.24	2.8	2.574	1.969	4.823	0.055	TPD0630BAP-H-0668BAP-H
	0669-075S-4-H	○	0.669~0.708	0.75	2.381	2.954	2.735	1.969	4.98	0.058	TPD0669BAP-H-0708BAP-H
	0709-075S-4-H	○	0.709~0.747	0.75	2.52	3.169	2.894	1.969	5.197	0.059	TPD0709BAP-H-0747BAP-H
	0748-075S-4-H	○	0.748~0.786	0.75	2.661	3.402	3.055	1.969	5.433	0.063	TPD0748BAP-H-0786BAP-H
	0787-100S-4-H	○	0.787~0.826	1	2.802	3.793	3.215	2.205	5.827	0.066	TPD0787BAP-H-0826BAP-H
	0827-100S-4-H	○	0.827~0.865	1	2.943	3.71	3.376	2.205	5.984	0.069	TPD0827BAP-H-0865BAP-H
	0866-100S-4-H	○	0.866~0.905	1	3.086	3.863	3.539	2.205	6.142	0.074	TPD0866BAP-H-0905BAP-H
	0906-100S-4-H	○	0.906~0.944	1	3.226	4.018	3.698	2.205	6.299	0.076	TPD0906BAP-H-0944BAP-H
	0945-125S-4-H	○	0.945~0.983	1.25	3.367	4.283	3.859	2.362	6.724	0.08	TPD0945BAP-H-0983BAP-H
	0984-125S-4-H	○	0.984~1.023	1.25	3.508	4.327	4.02	2.362	6.772	0.083	TPD0984BAP-H-1023BAP-H
	1024-125S-4-H	○	1.024~1.062	1.25	3.651	4.479	4.182	2.362	6.929	0.088	TPD1024BAP-H-1062BAP-H
	1063-125S-4-H	○	1.063~1.101	1.25	3.791	4.635	4.342	2.362	7.087	0.09	TPD1063BAP-H-1101BAP-H
	1102-125S-4-H	○	1.102~1.141	1.25	3.93	4.791	4.501	2.362	7.244	0.091	TPD1102BAP-H-1141BAP-H
	1142-125S-4-H	○	1.142~1.180	1.25	4.077	4.939	4.667	2.362	7.402	0.1	TPD1142BAP-H-1180BAP-H
	1181-125S-4-H	○	1.181~1.219	1.25	4.217	5.094	4.827	2.362	7.559	0.103	TPD1181BAP-H-1219BAP-H
	1220-125S-4-H	○	1.220~1.259	1.25	4.358	5.248	4.988	2.362	7.717	0.106	TPD1220BAP-H-1259BAP-H
	1260-125S-4-H	○	1.260~1.298	1.25	4.5	5.402	5.149	2.362	7.874	0.11	TPD1260BAP-H-1298BAP-H

Applicable holders D56

◆: US Stock ○: Made to order

TPDB-H (5D/8D)





(inch)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	PL	Applicable insert
TPDBPA	0551-063-1358-5-H	○	0.551-0.590	0.625	1.404	3.3	2.802	1.89	5.236	0.046	TPD0551BAP-H-0590BAP-H
	0591-075-1456-5-H	○	0.591-0.629	0.75	1.507	3.552	3.004	1.969	5.571	0.051	TPD0591BAP-H-0629BAP-H
	0630-075-1555-5-H	○	0.630-0.668	0.75	1.61	3.744	3.204	1.969	5.768	0.055	TPD0630BAP-H-0668BAP-H
	0669-075-1654-5-H	○	0.669-0.708	0.75	1.712	3.938	3.405	1.969	5.965	0.058	TPD0669BAP-H-0708BAP-H
	0709-075-1752-5-H	○	0.709-0.747	0.75	1.811	4.193	3.603	1.969	6.22	0.059	TPD0709BAP-H-0747BAP-H
	0748-075-1850-5-H	○	0.748-0.786	0.75	1.913	4.465	3.803	1.969	6.496	0.063	TPD0748BAP-H-0786BAP-H
	0787-100-1949-5-H	○	0.787-0.826	1	2.015	4.856	4.003	2.205	6.89	0.066	TPD0787BAP-H-0826BAP-H
	0827-100-2048-5-H	○	0.827-0.865	1	2.117	4.813	4.203	2.205	7.087	0.069	TPD0827BAP-H-0865BAP-H
	0866-100-2146-5-H	○	0.866-0.905	1	2.22	5.004	4.405	2.205	7.283	0.074	TPD0866BAP-H-0905BAP-H
	0906-100-2244-5-H	○	0.906-0.944	1	2.32	5.199	4.604	2.205	7.48	0.076	TPD0906BAP-H-0944BAP-H
	0945-125-2342-5-H	○	0.945-0.983	1.25	2.422	5.7	4.804	2.362	8.142	0.08	TPD0945BAP-H-0983BAP-H
	0984-125-2441-5-H	○	0.984-1.023	1.25	2.524	5.783	5.004	2.362	8.228	0.083	TPD0984BAP-H-1023BAP-H
	1024-125-2539-5-H	○	1.024-1.062	1.25	2.627	5.975	5.206	2.362	8.425	0.088	TPD1024BAP-H-1062BAP-H
	1063-125-2638-5-H	○	1.063-1.101	1.25	2.728	6.17	5.405	2.362	8.622	0.09	TPD1063BAP-H-1101BAP-H
	1102-125-2737-5-H	○	1.102-1.141	1.25	2.828	6.365	5.603	2.362	8.819	0.091	TPD1102BAP-H-1141BAP-H
	1142-125-2835-5-H	○	1.142-1.180	1.25	2.935	6.553	5.809	2.362	9.016	0.1	TPD1142BAP-H-1180BAP-H
	1181-125-2933-5-H	○	1.181-1.219	1.25	3.036	6.748	6.008	2.362	9.213	0.103	TPD1181BAP-H-1219BAP-H
	1220-125-3032-5-H	○	1.220-1.259	1.25	3.138	6.941	6.209	2.362	9.409	0.106	TPD1220BAP-H-1259BAP-H
	1260-125-3130-5-H	○	1.260-1.298	1.25	3.24	7.134	6.409	2.362	9.606	0.11	TPD1260BAP-H-1298BAP-H
	0551-063-1358-8-H	◆	0.551-0.590	0.625	1.404	4.954	4.456	1.89	6.89	0.046	TPD0551BAP-H-0590BAP-H
	0591-075-1456-8-H	◆	0.591-0.629	0.75	1.507	5.323	4.775	1.969	7.343	0.051	TPD0591BAP-H-0629BAP-H
	0630-075-1555-8-H	○	0.630-0.668	0.75	1.61	5.634	5.094	1.969	7.657	0.055	TPD0630BAP-H-0668BAP-H
	0669-075-1654-8-H	◆	0.669-0.708	0.75	1.712	5.946	5.413	1.969	7.972	0.058	TPD0669BAP-H-0708BAP-H
	0709-075-1752-8-H	○	0.709-0.747	0.75	1.811	6.319	5.729	1.969	8.346	0.059	TPD0709BAP-H-0747BAP-H
	0748-075-1850-8-H	◆	0.748-0.786	0.75	1.913	6.709	6.047	1.969	8.74	0.063	TPD0748BAP-H-0786BAP-H
	0787-100-1949-8-H	◆	0.787-0.826	1	2.015	7.218	6.365	2.205	9.252	0.066	TPD0787BAP-H-0826BAP-H
	0827-100-2048-8-H	○	0.827-0.865	1	2.117	7.293	6.683	2.205	9.567	0.069	TPD0827BAP-H-0865BAP-H
	0866-100-2146-8-H	◆	0.866-0.905	1	2.22	7.603	7.004	2.205	9.882	0.074	TPD0866BAP-H-0905BAP-H
	0906-100-2244-8-H	◆	0.906-0.944	1	2.32	7.916	7.32	2.205	10.197	0.076	TPD0906BAP-H-0944BAP-H
	0945-125-2342-8-H	○	0.945-0.983	1.25	2.422	8.535	7.639	2.362	10.976	0.08	TPD0945BAP-H-0983BAP-H
	0984-125-2441-8-H	◆	0.984-1.023	1.25	2.524	8.736	7.957	2.362	11.181	0.083	TPD0984BAP-H-1023BAP-H
	1024-125-2539-8-H	○	1.024-1.062	1.25	2.627	9.046	8.277	2.362	11.496	0.088	TPD1024BAP-H-1062BAP-H
	1063-125-2638-8-H	◆	1.063-1.101	1.25	2.728	9.359	8.594	2.362	11.811	0.09	TPD1063BAP-H-1101BAP-H
	1102-125-2737-8-H	◆	1.102-1.141	1.25	2.828	9.672	8.91	2.362	12.126	0.091	TPD1102BAP-H-1141BAP-H
	1142-125-2835-8-H	○	1.142-1.180	1.25	2.935	9.978	9.234	2.362	12.441	0.1	TPD1142BAP-H-1180BAP-H
	1181-125-2933-8-H	◆	1.181-1.219	1.25	3.036	10.291	9.552	2.362	12.756	0.103	TPD1181BAP-H-1219BAP-H
	1220-125-3032-8-H	◆	1.220-1.259	1.25	3.138	10.602	9.87	2.362	13.071	0.106	TPD1220BAP-H-1259BAP-H
	1260-125-3130-8-H	○	1.260-1.298	1.25	3.24	10.914	10.189	2.362	13.386	0.11	TPD1260BAP-H-1298BAP-H

Applicable holders **D56**

◆: US Stock ○: Made to order

TPDB-F

- **High precision clamping system** - High precision clamping due to high precise grinding and auto-centering
- **Screw on clamping system** - Easy to replace insert
- **Cutting edge with 180º point angle** - Flat bottom machining
- **Low cutting load cutting edge** - Low cutting load and excellent chip control
- **High durability holder** - Improved wear resistance and durability with special surface treatment implementation
- **Holder with good chip evacuation** - Good chip evacuation and reduced cutting load with high helix angle

Code system

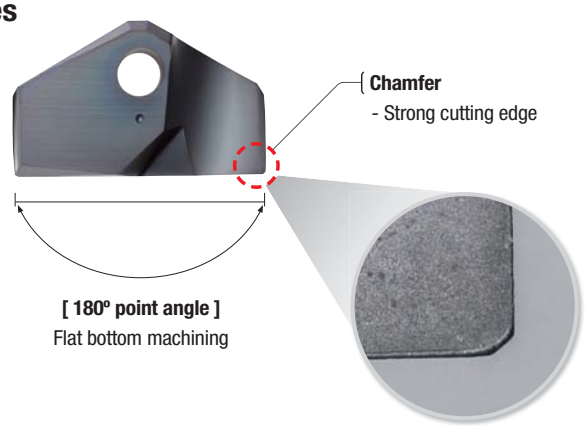
• **Insert**

TPD	0866	B	A	-	F
Top solid Piercing Drill	**Drill diameter** 0866 : Ø0.866 inch	**Insert type** B: Blade type	**Type** A : Inch type No code : Metric type		**Cutting edge** F: Flat FC: Flat Candle

• **Holder**

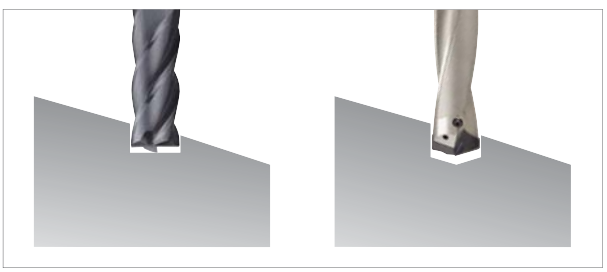
TPD	B	A	0866	-	100	-	1.5	-	F
Top solid Piercing Drill	**Insert type** B : Blade type	**Type** A : Inch type No code : Metric type	**Drill diameter** 0866 : Ø0.866 inch		**Shank diameter** 100 : Ø1.00 inch		**Aspect ratio(L/D)** 1.5D		**Flat**

Features

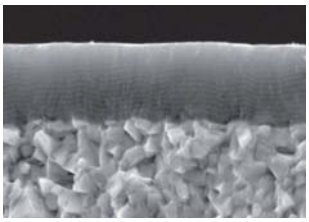





[Endmill + Drill]


[Endmill] [Drill]

Grade features

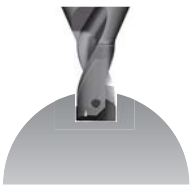


PC5400

- PVD coating technology with high lubrication, built up edge resistance and chipping resistance
- Excellent chipping resistance due to high toughness coating with high adhesive strength
- Enhanced fracture resistance and stable machinability due to ultra-fine substrate with high toughness substrate

Recommended cutting conditions

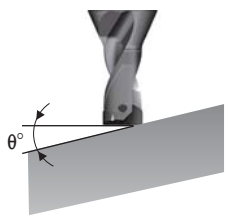
Workpiece					N/mm²	HB	Grade	vc (sfm)	Feed rate (ipr)	
									Aspect ratio (L/D) = 1.5D	
ISO	Workpiece material		AISI	ISO					Ø0.551 ~ Ø0.865	Ø0.866 ~ Ø1.219
P	Carbon steel	C = 0.10~0.25%	1015 1025	C15 C25	1500	90 ~ 200	PC5335 PC330P	197 ~ 361	0.0118 ~ 0.0078	0.0125 ~ 0.0086
		C = 0.25~0.55%	1035 1045	C35 C45	1600	125 ~ 225	PC5335 PC330P	197 ~ 361	0.0118 ~ 0.0078	0.0125 ~ 0.0086
		C = 0.55~0.80%	1060	C60	1700	150 ~ 250	PC5335 PC330P	164 ~ 295	0.0118 ~ 0.0078	0.0125 ~ 0.0086
	Alloy steel ≤ 5%	Non-hardened	4140	42CrMo4	1700	180	PC5300	164 ~ 295	0.0118 ~ 0.0078	0.0125 ~ 0.0086
		Hardened and Tempered	4145	-	2050	350	PC5300	131 ~ 262	0.0118 ~ 0.0078	0.0125 ~ 0.0086
	Alloy steel > 5%	Annealed	D2	-	1950	200	PC5300	131 ~ 262	0.0110 ~ 0.0070	0.0118 ~ 0.0078
		Hardened tool steel	H13	X40CrMoV5-1	3000	352	PC5300	98 ~ 230	0.0110 ~ 0.0070	0.0118 ~ 0.0078

Type	Flat surface Drilling	Angled surface Drilling	Curved surface Drilling	Plunging	Boring
Fig.					
1.5D	○	○	○	○	○

※Please refer to the precaution in Drilling in case of angled surface, curved surface Drilling, plunging and boring.

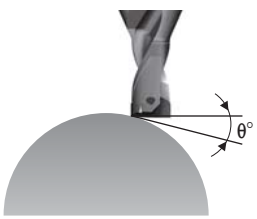
Precaution in Drilling

Angled surface drilling



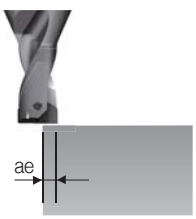
- Reduce the feed (fn) to 30% than general cutting conditions at the beginning and the end of angled surface. (In case, θ is over 30°, reduce it to 50%.)

Curved surface drilling



- Reduce the feed (fn) to 30% than general cutting conditions at the beginning of curved surface. (In case, θ is over 30°, reduce it to 50%.)

Plunging



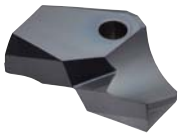
- Reduce the depth of cut (ae) to shorter than 1/2 of Drill diameter.
- In case, the depth of cut is longer than Drill diameter, plunge with divided depth of cut.

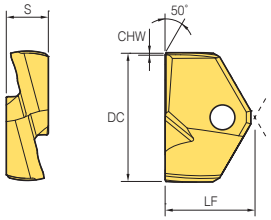
Boring



- Reduce the feed (fn) to 30% than general cutting conditions at the beginning of boring.
- Start with 0.078 inch stepping before boring to prevent long chip.

Available insert (TPDB-F)





(inch)

	Designation	Coated	DC		S	LF	CHW
		PC5400	Fraction	Decimal			
TPD	0551BA-F	○	-	0.551	0.157	0.356	0.002
	0571BA-F		-	0.571	0.157	0.356	0.002
	0591BA-F	○	-	0.591	0.157	0.376	0.002
	0610BA-F		-	0.61	0.157	0.376	0.002
	0630BA-F	○	-	0.63	0.217	0.415	0.002
	0650BA-F		-	0.65	0.217	0.415	0.002
	0669BA-F	○	-	0.669	0.217	0.435	0.002
	0689BA-F		-	0.689	0.217	0.435	0.002
	0709BA-F	○	-	0.709	0.236	0.48	0.002
	0728BA-F		-	0.728	0.236	0.48	0.002
	0748BA-F	○	-	0.748	0.236	0.503	0.002
	0768BA-F		-	0.768	0.236	0.503	0.002
	0787BA-F	○	-	0.787	0.256	0.519	0.003
	0807BA-F		-	0.807	0.256	0.519	0.003
	0827BA-F	○	-	0.827	0.256	0.539	0.003
	0846BA-F		-	0.846	0.256	0.539	0.003
	0866BA-F	○	-	0.866	0.276	0.558	0.003
	0886BA-F		-	0.886	0.276	0.558	0.003
	0906BA-F	○	29/32	0.906	0.276	0.578	0.003
	0925BA-F		-	0.925	0.276	0.578	0.003
	0945BA-F	○	-	0.945	0.295	0.604	0.003
	0965BA-F		-	0.965	0.295	0.604	0.003
	0984BA-F	○	63/64	0.984	0.295	0.623	0.003
	1004BA-F		-	1.004	0.295	0.623	0.003
	1024BA-F	○	-	1.024	0.335	0.643	0.003
	1043BA-F		-	1.043	0.335	0.643	0.003
	1063BA-F	○	1 1/16	1.063	0.335	0.682	0.003
	1083BA-F		-	1.083	0.335	0.682	0.003
	1102BA-F	○	-	1.102	0.374	0.722	0.003
	1122BA-F		-	1.122	0.374	0.722	0.003
	1142BA-F	○	-	1.142	0.374	0.747	0.003
	1161BA-F		-	1.161	0.374	0.747	0.003
	1181BA-F	○	-	1.181	0.394	0.767	0.003
	1201BA-F		-	1.201	0.394	0.767	0.003

Applicable holders **D62**

※ TPD Inserts not list above within the range of Ø14.00 ~ Ø30.99 can be made to order

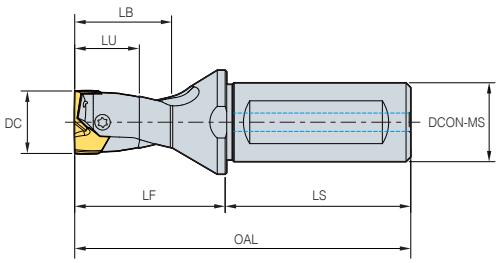
●: Korea Stock ◆: US Stock ○: Made to order

Parts

	Designation	Drill dia. DC (inch)	Screw	Wrench	Torque (ibf · ft)
TPD	0551BA-F ~ 0590BA-F	0.551 ~ 0.590	FTNB02512-P	TW07S	0.59
	0591BA-F ~ 0708BA-F	0.591 ~ 0.708	FTNB02514-P	TW07S	0.59
	0709BA-F ~ 0786BA-F	0.709 ~ 0.786	FTNB0316-P	TW09S	0.886
	0787BA-F ~ 0944BA-F	0.787 ~ 0.944	FTNB0319	TW09S	0.886
	0945BA-F ~ 1023BA-F	0.945 ~ 1.023	FTNB03522	TW15S	2.214
	1024BA-F ~ 1101BA-F	1.024 ~ 1.101	FTNB03524	TW15S	2.214
	1102BA-F ~ 1180BA-F	1.102 ~ 1.180	FTNB0426	TW15S	2.214
	1181BA-F ~ 1219BA-F	1.181 ~ 1.219	FTNB0528	TW20 - 100	2.952

TPDB-F (1.5D)





(inch)

Designation		Stock	DC	DCON-MS	LU	LF	LB	LS	OAL	Applicable insert
TPDBA	0551-063-1.5-F	○	0.551 ~ 0.570	0.625	0.827	1.496	1.102	1.89	3.386	TPD0551BA-F ~ 0570BA-F
	0571-063-1.5-F	○	0.571 ~ 0.590	0.625	0.856	1.535	1.142	1.89	3.425	TPD0571BA-F ~ 0590BA-F
	0591-075-1.5-F	○	0.591 ~ 0.609	0.75	0.886	1.693	1.181	1.969	3.661	TPD0591BA-F ~ 0609BA-F
	0610-075-1.5-F	○	0.610 ~ 0.629	0.75	0.915	1.732	1.22	1.969	3.701	TPD0610BA-F ~ 0629BA-F
	0630-075-1.5-F	○	0.630 ~ 0.649	0.75	0.945	1.772	1.26	1.969	3.74	TPD0630BA-F ~ 0649BA-F
	0650-075-1.5-F	○	0.650 ~ 0.668	0.75	0.974	1.811	1.299	1.969	3.78	TPD0650BA-F ~ 0668BA-F
	0669-075-1.5-F	○	0.669 ~ 0.688	0.75	1.004	1.85	1.339	1.969	3.819	TPD0669BA-F ~ 0688BA-F
	0689-075-1.5-F	○	0.689 ~ 0.708	0.75	1.033	1.89	1.378	1.969	3.858	TPD0689BA-F ~ 0708BA-F
	0709-075-1.5-F	○	0.709 ~ 0.727	0.75	1.063	1.929	1.417	1.969	3.898	TPD0709BA-F ~ 0727BA-F
	0728-075-1.5-F	○	0.728 ~ 0.747	0.75	1.093	1.969	1.457	1.969	3.937	TPD0728BA-F ~ 0747BA-F
	0748-100-1.5-F	○	0.748 ~ 0.767	1	1.122	1.772	1.496	2.205	3.976	TPD0748BA-F ~ 0767BA-F
	0768-100-1.5-F	○	0.768 ~ 0.786	1	1.152	1.811	1.535	2.205	4.016	TPD0768BA-F ~ 0786BA-F
	0787-100-1.5-F	○	0.787 ~ 0.806	1	1.181	2.362	1.575	2.205	4.567	TPD0787BA-F ~ 0806BA-F
	0807-100-1.5-F	○	0.807 ~ 0.826	1	1.211	2.402	1.614	2.205	4.606	TPD0807BA-F ~ 0826BA-F
	0827-100-1.5-F	○	0.827 ~ 0.845	1	1.24	2.441	1.654	2.205	4.646	TPD0827BA-F ~ 0845BA-F
	0846-100-1.5-F	○	0.846 ~ 0.865	1	1.27	2.48	1.693	2.205	4.685	TPD0846BA-F ~ 0865BA-F
	0866-100-1.5-F	○	0.866 ~ 0.885	1	1.299	2.52	1.732	2.205	4.724	TPD0866BA-F ~ 0885BA-F
	0886-100-1.5-F	○	0.886 ~ 0.905	1	1.329	2.559	1.772	2.205	4.764	TPD0886BA-F ~ 0905BA-F
	0906-100-1.5-F	○	0.906 ~ 0.924	1	1.358	2.598	1.811	2.205	4.803	TPD0906BA-F ~ 0924BA-F
	0925-100-1.5-F	○	0.925 ~ 0.944	1	1.388	2.638	1.85	2.205	4.843	TPD0925BA-F ~ 0944BA-F
	0945-125-1.5-F	○	0.945 ~ 0.964	1.25	1.417	2.697	1.89	2.362	5.059	TPD0945BA-F ~ 0964BA-F
	0965-125-1.5-F	○	0.965 ~ 0.983	1.25	1.447	2.736	1.929	2.362	5.098	TPD0965BA-F ~ 0983BA-F
	0984-125-1.5-F	○	0.984 ~ 1.003	1.25	1.476	2.776	1.969	2.362	5.138	TPD0984BA-F ~ 1003BA-F
	1004-125-1.5-F	○	1.004 ~ 1.023	1.25	1.506	2.815	2.008	2.362	5.177	TPD1004BA-F ~ 1023BA-F
	1024-125-1.5-F	○	1.024 ~ 1.042	1.25	1.535	2.854	2.047	2.362	5.217	TPD1024BA-F ~ 1042BA-F
	1043-125-1.5-F	○	1.043 ~ 1.062	1.25	1.565	2.894	2.087	2.362	5.256	TPD1043BA-F ~ 1062BA-F
	1063-125-1.5-F	○	1.063 ~ 1.082	1.25	1.594	2.933	2.126	2.362	5.295	TPD1063BA-F ~ 1082BA-F
	1083-125-1.5-F	○	1.083 ~ 1.101	1.25	1.624	2.972	2.165	2.362	5.335	TPD1083BA-F ~ 1101BA-F
	1102-125-1.5-F	○	1.102 ~ 1.121	1.25	1.654	3.012	2.205	2.362	5.374	TPD1102BA-F ~ 1121BA-F
	1122-125-1.5-F	○	1.122 ~ 1.141	1.25	1.683	3.051	2.244	2.362	5.413	TPD1122BA-F ~ 1141BA-F
	1142-125-1.5-F	○	1.142 ~ 1.160	1.25	1.713	3.091	2.283	2.362	5.453	TPD1142BA-F ~ 1160BA-F
	1161-125-1.5-F	○	1.161 ~ 1.180	1.25	1.742	3.13	2.323	2.362	5.492	TPD1161BA-F ~ 1180BA-F
	1181-125-1.5-F	○	1.181 ~ 1.200	1.25	1.772	3.169	2.362	2.362	5.531	TPD1181BA-F ~ 1200BA-F
	1201-125-1.5-F	○	1.201 ~ 1.219	1.25	1.801	3.209	2.402	2.362	5.571	TPD1201BA-F ~ 1219BA-F

Applicable holders **D61**

◆: US Stock ○: Made to order

Convenient and quickly adjustable drill height

WPDC

Indexable drill clamped with center drill

Code system

• Holder

WPDCA	1250	125	8
Type	**Drill diameter**	**Shank diameter**	**Aspect ratio(L/D)**
WPDC : Using W-type I/S center drill NPDC : Using N-type I/S center drill	1250: Ø1.250 inch 238256: Ø2.38~2.56 inch	125: Ø1.25 inch 150: Ø1.50 inch	5 : 5D 6.5 : 6.5D 8 : 8D

• Cartridge

CWP	2125	C
Type	**Drill diameter**	**Classification**
CWP : Cartridge-WPDC	2125: Ø2.125 inch 238256 : Ø2.38~2.56 inch	C : Central P : Peripheral

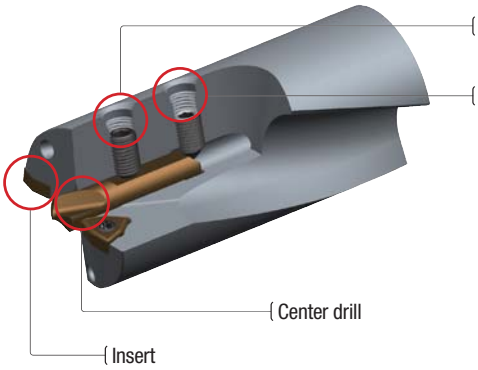
• Center drill

CD(A)	H(A)	23612
Type	**Coolant**	**Diameter × length of tool**
Center Dril	H : Coolant Unmarked : None	23612: Ø0.236 × 1.2 inch 31514: Ø0.315 × 1.4 inch 39414: Ø0.394 × 1.4 inch 47215: Ø0.472 × 1.5 inch 63018: Ø0.630 × 1.8 inch

• Grade

PC	40H
Product name	**Coating layer**
PVD coating	40H : TiN coating

How to clamp the drills



Feature of corn-point system

- Convenient and quick adjustable heights when inserting the center drill
- In case the center drill brakes while in usage, it can be replaced with the bolt for adjusting cone point
- The bolt for adjusting cone point prevents chattering on the center drill

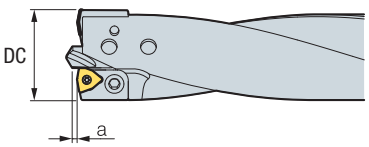
Clamping

❶	❷	❸	❹	❺
				
Place a center drill	Clamp insert and cartridge	Adjust the center drill with the bolt for adjusting cone point	Clamp the center drill firmly with fixing bolt	Reassure the clamp with bolt for adjusting cone point

※ Use safety covers for your safety when clamping the center drill and insert
※ When machining, be careful of the drill disk

Length of the 'a' part of center drill

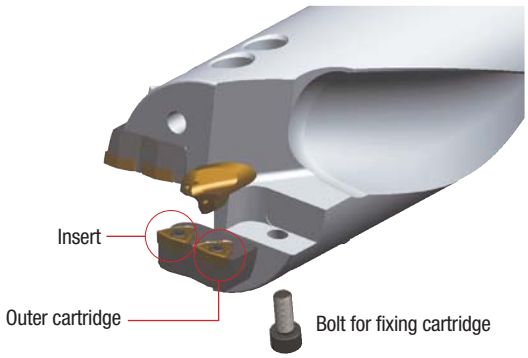
- The length of 'a' being too short can cause bad surface finish or high cutting load
- On the other hand, the length of 'a' being too long can make tool failure and chattering while drilling



Diameter (ØD)	Length of the 'a' part of center drill		
	Steel	Alloy steel	Non-ferrous metal
1.000~1.188	0.05	0.04	0.06
1.189~1.567	0.06	0.05	0.07
1.567~2.000	0.07	0.06	0.09
2.001~2.313	0.09	0.07	0.10
2.314~2.940	0.10	0.08	0.11
2.941~3.130	0.12	0.10	0.14

Adjusting diameter of cartridge type drill

1) Disassemble a cartridge from the holder by loosening the bolt fixed for outer cartridge
2) Machine after calculating the hole size on the side of the outer cartridge
3) Trim the sharp part after machining
4) Clamp the bolt for fixing cartridge without any gap in between the holder and the machined outer cartridge



- **Range of adjustable drill diameter**
  ① Single cartridge type (Drill diameter Ø1.625~Ø2.313) ···› 0.039 inch
  ② Dual cartridge type (Drill diameter Ø2.380~Ø3.310) ···› 0.197 inch

- **Diameter of the standard drills is provided with maximum size of standards**
  Ex) WPDCA256275-150-8 ···› Drill diameter 2.75 inch

Ex) How to adjust drill diameter to Ø2.60 machining with WPDCA256275-150-8
···› To make the drill diameter of outer cartridge to Ø2.60, machine 0.075 inch. (Ø2.75-Ø2.56 = 0.15 ···› 0.15 ÷ 2 = 0.075 (radius)

Recommended cutting conditions

Workpiece				Chip breaker	Grade	vc (sfm)	Aspect ratio (L/D) = 5D, 6.5D, 8D					
							Feed rate (ipr) per drill dia.(inch)					
ISO		Workpiece	HB				~Ø1.188	Ø1.250~Ø1.563	Ø1.625~Ø1.938	Ø2.000~Ø2.313	Ø2.38~Ø2.94	Ø2.94~Ø3.13
P	Carbon steel	Low carbon steel (~0.25%)	80~180	C21N	PC5335	623 (524~722)	0.0028~0.0043	0.0031~0.0047	0.0039~0.0055	0.0047~0.0063	0.0047~0.0063	0.0047~0.0063
		High carbon steel (0.25%~)	180~280	C21N	PC5335	459 (361~558)	0.0028~0.0043	0.0031~0.0047	0.0039~0.0055	0.0047~0.0063	0.0047~0.0063	0.0047~0.0063
	Alloy steel	Low alloy steel	140~260	C21N	PC5335	426 (328~525)	0.0031~0.0047	0.0031~0.0047	0.0039~0.0055	0.0047~0.0071	0.0047~0.0071	0.0047~0.0071
		High alloy steel	50~260	C21N	PC5335	328 (230~426)	0.0024~0.0039	0.0031~0.0047	0.0031~0.0047	0.0039~0.0063	0.0039~0.0063	0.0039~0.0063
M	Stainless steel	Stainless steel	135~275	C21N	PC5335	328 (230~426)	0.0024~0.0039	0.0031~0.0047	0.0039~0.0047	0.0047~0.0055	0.0047~0.0055	0.0047~0.0055
K	Cast iron	Gray cast iron	150~220	C21N	PC5335	525 (426~623)	0.0035~0.0059	0.0039~0.0063	0.0047~0.0079	0.0055~0.0087	0.0055~0.0087	0.0055~0.0087
		Ductile cast iron	200~300	C21N	PC5335	459 (558~361)	0.0035~0.0059	0.0039~0.0063	0.0047~0.0079	0.0055~0.0087	0.0055~0.0087	0.0055~0.0087
		Malleable cast iron	130~230	C21N	PC5335	492 (591~394)	0.0035~0.0059	0.0039~0.0063	0.0047~0.0079	0.0055~0.0087	0.0055~0.0087	0.0055~0.0087
N	Aluminum	Aluminum	30~150	C21N	PC5335	984 (820~1148)	0.0031~0.0047	0.0039~0.0055	0.0047~0.0063	0.0055~0.0071	0.0055~0.0071	0.0055~0.0071
	Alloyed copper	Alloyed copper	150~160	C21N	PC5335	820 (656~984)	0.0031~0.0047	0.0039~0.0055	0.0047~0.0063	0.0055~0.0071	0.0055~0.0071	0.0055~0.0071
S	Heat resistant alloy	Heat resistant alloy	130~400	C21N	PC5335	164 (98~230)	0.0020~0.0031	0.0020~0.0031	0.0024~0.0039	0.0024~0.0039	0.0024~0.0039	0.0024~0.0039

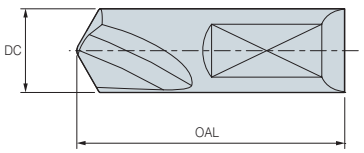
Parts of WPDC type indexable drills

Deaignation		Machining hole	Insert			Center drill			Catridge		
			Insert	Screw	Wrench	Center drill	fixed bolt	cone point bolt	Inner	Outer	Fixed bolt
WPDCA	1000-125-□	1.000	WC□T030204-C21N	FTKA02206	TW06P	CDA23612	KHA0508	KHC0510			
	1063-125-□	1.063	WC□T040204-C21N	FTKA02565	TW07S						
	1125-125-□	1.125									
	1188-125-□	1.188					KHA0510				
	1250-125-□	1.250	WC□T050308-C21N	FTKA0307	TW09S	CDA31514	KHA0610	KHC0610			
	1313-125-□	1.313									
	1375-125-□	1.375									
	1438-125-□	1.438					KHA0612				
	1500-125-□	1.500									
	1563-125-□	1.563									
	1625-150-□	1.625	WC□T06T308-C21N	FTKA03508	TW15S	CDHA39414	KHA0812	KHC0812	CWP16251750C	CWP1625P	BHA0510
	1688-150-□	1.688								CWP1688P	
	1750-150-□	1.750								CWP1750P	
	1813-150-□	1.813					KHA0815		CWP18131938C	CWP1813P	BHA0512
	1875-150-□	1.875								CWP1875P	
	1938-150-□	1.938								CWP1938P	
	2000-150-□	2.000	WC□T080408-C21N	FTKA0411K	TW15S	CDHA47215	KHA1015	KHC1016	CWP20002125C	CWP2000P	BHA0612
	2063-150-□	2.063								CWP2063P	
	2125-150-□	2.125								CWP2125P	
	2188-150-□	2.188							CWP21882313C	CWP2188P	BHA0614
	2250-150-□	2.250								CWP2250P	
	2313-150-□	2.313								CWP2313P	
	238256-150-□	2.38~2.56	WC□T050308-C21N	FTKA0307	TW09S		KHA1020	KHC1020	CWP238256C	CWP238256P	BHA0510
	256275-150-□	2.56~2.75							CWP256275C	CWP256275P	
	275294-150-□	2.75~2.94							CWP275294C	CWP275294P	
	294313-150-□	2.94~3.13	WC□T06T308-C21N	FTKA03508	TW15S	CDHA63018			CWP294313C	CWP294313P	BHA0612

Applicable inserts **D83**

Center Drill



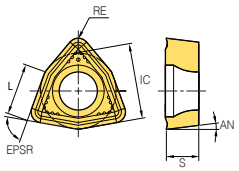
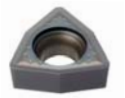
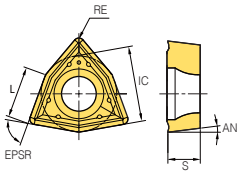


(inch)

Designation	DC	OAL	Oil-hole
CDA23612	0.236	1.2	X
CDA31514	0.315	1.4	X
CDHA39414	0.394	1.4	○
CDHA47215	0.472	1.5	○
CDHA63018	0.630	1.8	○

• This is HSS with Tin coating

Applicable insert

Picture	Designation	Coated							Uncoated	Dimension (inch)						Configuration
		NC5330	NCM535	PC3700	PC6100	PC9530	PC9540	PC5335	PC5300	H01	IC	S	RE	CBMD	AN	CEDC	
WCMT-C20N 	**030208-C20N**		○					●			0.150	0.094	0.031	C20N	7	3	
	040208-C20N		○					●			0.169	0.094	0.031	C20N	7	3	
	050308-C20N		●					●	○		0.213	0.025	0.031	C20N	7	3	
	06T308-C20N		●	○				●			0.256	0.156	0.031	C20N	7	3	
	080408-C20N		○					●			0.343	0.188	0.031	C20N	7	3	
	080412-C20N		●	○				●	○		0.343	0.188	0.047	C20N	7	3	
WCMT-C21N 	**030204-C21N**		○	○				●	○		0.150	0.094	0.016	C21N	7	3	
	040204-C21N		○	○				●	○		0.169	0.094	0.016	C21N	7	3	
	040208-C21N		○					●			0.169	0.094	0.031	C21N	7	3	
	050308-C21N		○	○				●	○		0.213	0.125	0.031	C21N	7	3	
	06T308-C21N		○					●	○		0.256	0.156	0.031	C21N	7	3	
	080408-C21N		○	○				●	○		0.343	0.188	0.031	C21N	7	3	

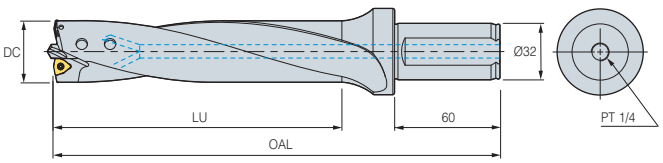
Applicable holders **D67 ~ D68**

●: Korea Stock ◆: US Stock ○: Made to order

WPDCA (5D/6.5D/8D)

Standard type





(inch)

	Designation	DC	5D		6.5D		8D		Applicable insert	Center drill
			LU	OAL	LU	OAL	LU	OAL		
WPDCA	**1000-125-□**	1.000	5.91	9.45	7.28	10.83	8.66	12.20	WC□T030204-C21N	CDA23612
	1063-125-□	1.063	5.91	9.45	7.28	10.83	8.66	12.20	WC□T040204-C21N	
	1125-125-□	1.125	5.91	9.45	7.28	10.83	8.66	12.20		
	1188-125-□	1.188	5.91	9.45	7.28	10.83	8.66	12.20		
	1250-125-□	1.250	6.89	10.43	8.58	12.13	10.24	13.78	WC□T050308-C21N	CDA31514
	1313-125-□	1.313	6.89	10.43	8.58	12.13	10.24	13.78		
	1375-125-□	1.375	6.89	10.43	8.58	12.13	10.24	13.78		
	1438-125-□	1.438	7.87	11.42	9.84	13.39	11.81	15.38		
	1500-125-□	1.500	7.87	11.42	9.84	13.39	11.81	15.38		
	1563-125-□	1.563	7.87	11.42	9.84	13.39	11.81	15.38		

Applicable inserts **D67**

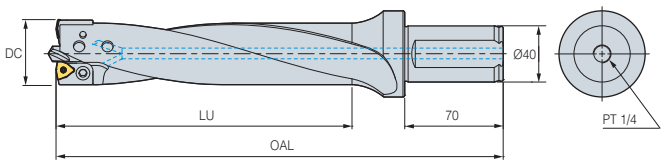
* We can provide if you order exact diameter

Ex) Machining hole 1.225 inch * 6.5D ⋯› WPDCA1225-125-6.5

WPDCA (5D/6.5D/8D)

Single insert catridge type





(inch)

Designation		DC	5D		6.5D		8D		Applicable insert	Center drill	Cartridge	
			LU	OAL	LU	OAL	LU	OAL			Inner	Outer
WPDCA	1625-150-□	1.625	8.86	12.99	11.14	15.28	13.39	17.52	WC□T06T308-C21N	CDHA39414	CWP16251750C	CWP1625P
	1688-150-□	1.688	8.86	12.99	11.14	15.28	13.39	17.52				CWP1688P
	1750-150-□	1.750	8.86	12.99	11.14	15.28	13.39	17.52				CWP1750P
	1813-150-□	1.813	9.84	13.98	12.4	16.54	14.96	19.09			CWP18131938C	CWP1813P
	1875-150-□	1.875	9.84	13.98	12.4	16.54	14.96	19.09				CWP1875P
	1938-150-□	1.938	9.84	13.98	12.4	16.54	14.96	19.09				CWP1938P
	2000-150-□	2.000	10.83	14.96	17.83	17.83	16.54	20.67	WC□T080408-C21N	CDHA7215	CWP20002125C	CWP2000P
	2063-150-□	2.063	10.83	14.96	17.83	17.83	16.54	20.67				CWP2063P
	2125-150-□	2.125	10.83	14.96	17.83	17.83	16.54	20.67				CWP2125P
	2188-150-□	2.188	11.81	15.94	14.96	19.09	18.11	22.24			CWP21882313C	CWP2188P
	2250-150-□	2.250	11.81	15.94	14.96	19.09	18.11	22.24				CWP2250P
	2313-150-□	2.313	11.81	15.94	14.96	19.09	18.11	22.24				CWP2313P

Applicable inserts D67

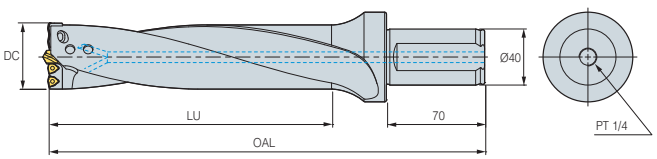
* We can provide if you order exact diameter

Ex) Machining hole 1.800 inch * 5D ⋯› WPDCA1800-150-5

WPDCA (5D/6.5D/8D)

Dual insert cartridge type





(inch)

Designation		DC	DCX	5D		6.5D		8D		Applicable insert	Center drill	Cartridge	
				LU	OAL	LU	OAL	LU	OAL			Inner	Outer
WPDCA	238256-150-□	2.38	2.56	12.80	16.93	16.55	20.79	20.47	24.61	WC□T050308-C21N	CDH1238	CWP6065C	CWP6065P
	256275-150-□	2.56	2.75	13.78	17.91	17.91	22.05	22.05	26.18			CWP6570C	CWP6570P
	275294-150-□	2.75	2.94	14.76	18.90	19.21	23.35	23.62	27.76			CWP7075C	CWP7075P
	294313-150-□	2.94	3.13	15.75	19.88	20.47	24.61	25.20	29.33	WC□T06T308-C21N	CDH1645	CWP7580C	CWP7580P

Applicable inserts D67

* We can provide if you order exact diameter

Ex) Machining hole 2.850 inch × 6.5D ⋯› WPDCA2850-150-6.5

Multi Turn

Code system

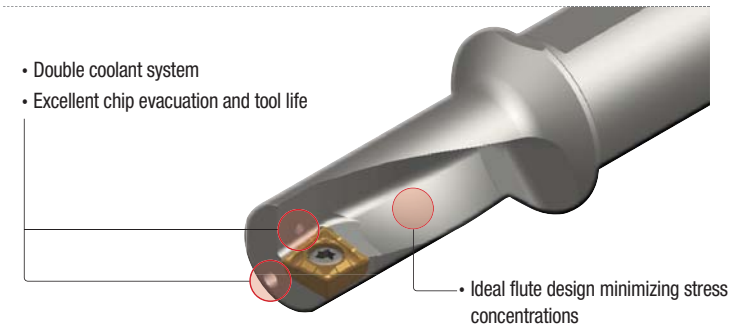
• Insert

Q	C	M	T	08	03	04	-	CM
Insert shape	Relief angle	Tolerance	Cross section type	Cutting edge length	Height of cutting edge	Nose radius		Chip breaker

• Holder

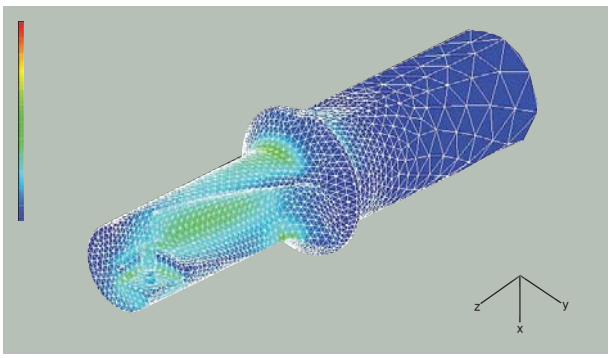
MT	20	R	-	2.25D
Brand Name	Tool diameter	Hand		Aspect ratio(L/D)

Tool design by FEM analysis



※ Notice: Clamp an insert shown as in the picture



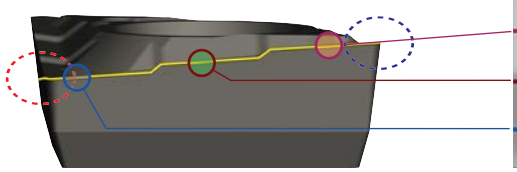


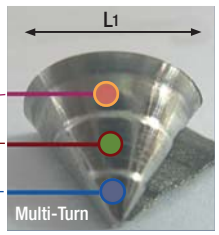
• Minimized stress during cutting, prevented damage from vibration and longer tool life **Optimized design**

Creative stepping cutting edge

Drilling edge (Drilling)

Turning edge (Internal, external and face turning)

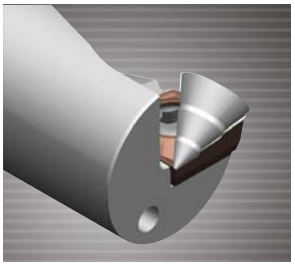






• Special chip formed by edge geometry better chip

• Evacuation due to small radius width of chip curl

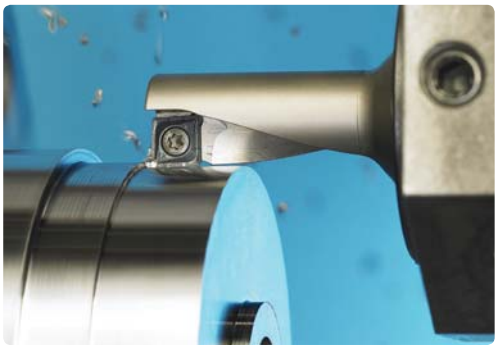




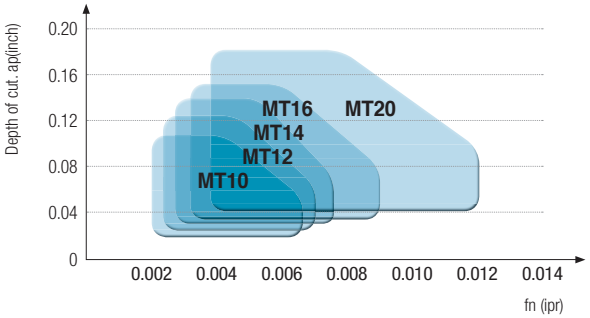
Comparison	Multi turn	Competitor A	Competitor B
Feed fn (ipr) = 0.003			
Feed fn (ipr) = 0.004			
Chip width (rate)	80%	100%	120%

User's guide

» External / Internal turning



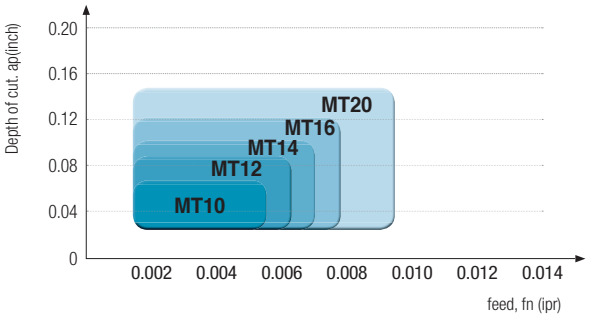
● Application range



» Facing



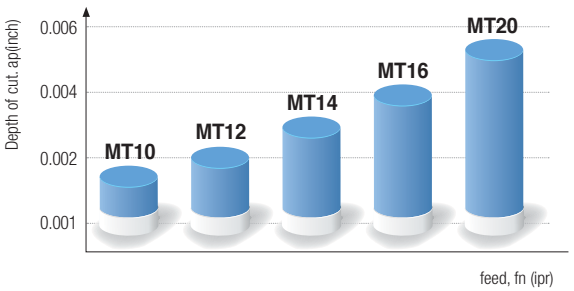
● Appication ranges of facing



» Drilling

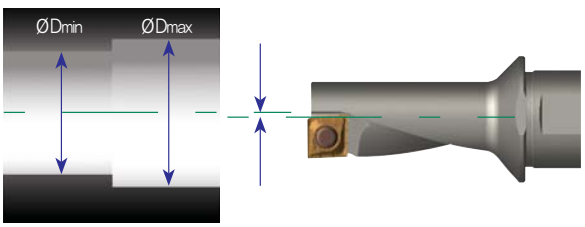


● Drilling feed range by designation



» Offset (Diameter compensation)

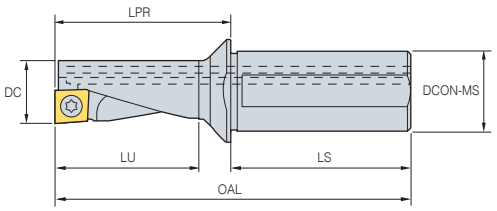
Disignation	Machined diameter (inch)	ØDmin (inch)	ØDmax (inch)
MT10R/L-2.25D	0.394	0.388	0.407
MT12R/L-2.25D	0.472	0.467	0.486
MT14R/L-2.25D	0.551	0.545	0.565
MT16R/L-2.25D	0.630	0.624	0.644
MT20R/L-2.25D	0.787	0.781	0.801
MT25R/L-2.25D	0.984	0.978	0.998
MT32R/L-2.25D	1.260	1.254	1.274



Drill diameter is adjustable by the offset compensation

MT (Multi-Turn)





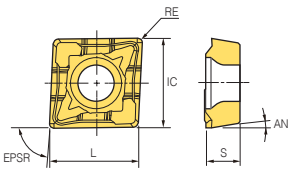
(inch)

Designation		Stock R	Stock L	DC	DCON-MS	LU	OAL	LPR	LS	Applicable insert	Screw	Wrench
MT	10R/L-2.25D			0.394	0.472	0.886	2.736	1.083	1.654	QC□T050204	FTNA0204S	TW06P
	12R/L-2.25D			0.472	0.630	1.063	3.071	1.299	1.772	QC□T060204	FTNA02205S	TW06P
	14R/L-2.25D		○	0.551	0.630	1.240	3.287	1.516	1.772	QC□T070304	FTKA02555	TW07P
	16R/L-2.25D			0.630	0.787	1.417	3.701	1.732	1.969	QC□T080304	FTNA0306	TW09P
	20R/L-2.25D			0.787	0.984	1.772	4.370	2.165	2.205	QC□T10T304	FTNA03508	TW15P
	25R/L-2.25D		○	0.984	1.260	2.224	5.118	2.717	2.402	QC□T130408	FTNC04509	TW20S
	32R/L-2.25D		○	1.260	1.575	2.835	6.229	3.386	2.913	QC□T170508	FTNC04511	TW20S

Applicable holders D71

◆: US Stock ○: Made to order

Applicable insert

Picture	Designation		Coated NC3120	Coated NC3225	Coated NC6315	Coated PC5300	Uncoated H01	Uncoated H05	Dimension (inch) IC	L	S	RE	EPSR	Configuration
	QCMT	050204-CM	○	●	●	●			0.213	0.197	0.038	0.016	87	
		060204-CM	○	●	●	●			0.252	0.236	0.094	0.016	87	
		070304-CM	○	●	●	●			0.291	0.276	0.125	0.016	87	
		080304-CM	○	●	●	●			0.331	0.315	0.125	0.016	87	
		10T304-CM	○	●	○	●			0.409	0.394	0.156	0.016	87	
		130408-CM		●	○	●			0.531	0.500	0.187	0.031	87	
		170508-CM		●	●	●			0.689	0.657	0.219	0.031	87	
	QCGT	050204-CA					●		0.213	0.197	0.038	0.016	87	
		060204-CA					●		0.252	0.236	0.094	0.016	87	
		070304-CA					●		0.291	0.276	0.125	0.016	87	
		080304-CA					●		0.331	0.315	0.125	0.016	87	
		10T304-CA					●		0.409	0.394	0.156	0.016	87	
		130408-CA					●		0.531	0.500	0.187	0.031	87	
		170508-CA					●		0.689	0.657	0.219	0.031	87	

Applicable holders D71

●: Korea Stock ◆: US Stock ○: Made to order

Mass production and High performance

Indexable Reamers

- Suitable for mass production and high performance
- Using PCD or coated insert for high speed machining
- Excellent high accuracy and adjustable machining hole
- Using accuracy chucking system (Hydraulic, rotating type arbor)
- Using inner coolant type machine to evacuate chips
- Using suitable holder and insert
- As insert setting, using setting fixture (KIRSD-210)

Code system

• Insert

RI	16	-	B	06

Reamer Insert

Insert size
15 : 15.0×3.0
16 : 16.0×3.5
17 : 17.0×4.5
22 : 22.0×6.5

Insert lead type
A : Excellent surface finish, low cutting condition
B : General surface finish, high cutting condition
C : Aluminum and copper alloy
D : Blind hole, low feed

Angle of C/B
00 : 0°, Cast iron
06 : 6°, General steel
12 : 12°, Stainless, Al

• Holder

IR	TA	0625	-	0750	60	-	16

Indexable Reamer

Application
T : Through hole machining
B : Blind hole machining

Reamer diameter
0625: Ø0.625 inch

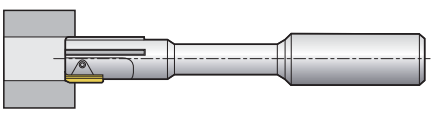
Shank diameter
0750: Ø0.750 inch

length
60 : 6.0

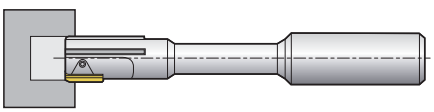
Insert size
15 : 15.0×3.0
16 : 16.0×3.5
17 : 17.0×4.5
22 : 22.0×6.5

Application

Through hole machining (IRT type)



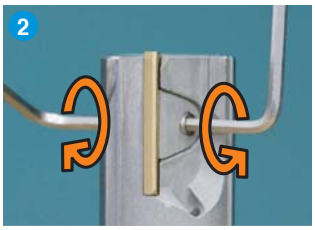
Blind hole machining (IRB type)



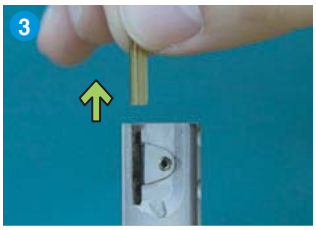
How to set an insert



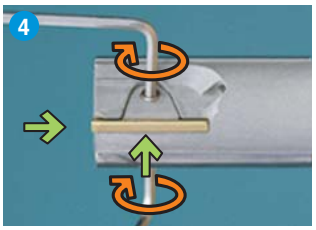
1. Screw the wedge screw counter clockwise with the exclusive wrench



2. Screw the clamp screw
   ① Top side: counter clockwise
   ② Lower side: clockwise



3. Remove the insert and clean the pocket



4. Put the insert up to the edge stopper and clamp the insert
   ① Top side: clockwise
   ② Lower side: counterclockwise

Exclusive fixture

- Designation: KIRSD-210
- Maximum diameter of reamer: Ø2.36 × 8.27 inch
- The fixture is also available for setting special reamer and mono tool
- Special reamers (out of maximum setting range) are available quotation



How to set an insert with fixture



1. Adjust the gauge to '0'



2. Rotate the reamer for the insert to touch the gauge



3. Set the back taper and adjust the insert height with screw the wedge screw
   ① Top side of insert: +0.0059~+0.0078 inch
   ② Bottom side of insert: +0.0019~+0.0039 inch
   ③ Back taper: 0.0039~0.0059 inch

Back taper

- Ensures low cutting load and excellent surface finish with good chip evacuation
- Inaccurate back taper could cause unstable machining with wear of insert
- The size of back taper of insert down side should be less to 0.0039~0.0059 inch than one of insert upper side

Insert setting with a micrometer





- Lathe with both centers or bench center are also available

Notice: The setting with a micrometer is not recommended due to chipping on the cutting edge

Recommended cutting condition

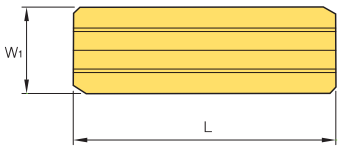
Workpiece	Insert type		Feed rate (ipr) per drill dia. (inch)	Cutting speed vc (sfm)		
	Rake angle	Lead type		Coated	Uncoated	Cermet
Carbon steel General steel	6	A	0.004~0.016	197~262	131~197	361~525
		B	0.004~0.012	262~394	197~262	
		D	0.002~0.008			
Mild steel Alloy steel	6	A	0.004~0.016	131~197	66~131	361~525
		B	0.004~0.012	262~394	197~262	
		D	0.002~0.008			
High alloy steel Tool steel	6	A	0.004~0.016	66~197	66~131	66~197
		B	0.004~0.012	131~262	131~197	131~262
		D	0.002~0.008			
Stainless steel	12	A	0.004~0.012	131~197	66~131	131~197
		B	0.004~0.008	197~262	66~131	197~262
		D	0.002~0.008			
Cast iron	0.6	A	0.004~0.012	197~328	131~197	-
		B	0.004~0.010	262~394	197~262	
		D	0.002~0.008			
Alloyed aluminum	12	B	0.004~0.012	-	525~626	-
		C	0.006~0.012		492~820	
		D	0.002~0.008		361~656	
Alloyed copper	0	B	0.004~0.008	-	262~328	-
		D	0.002~0.008			
Non-ferrous alloy	0	B	0.004~0.012	-	33~230	-

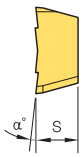
Parts

Reamer size	Clamp 	Wedge 	Clamp Screw 	Wedge Screw  (NYLOK)	Clamp Wrench 	Wedge Wrench 
0.375	CV15	AW2430	DHA0308	HS0306	HW15L	HW15L
0.500~0.625	CV16	AW2435				
0.750~1.000	CV17	AW3240	DHA0409	HS0406	HW20L	HW20L
1.125~1.250	CV22	AW3260				

Available insert





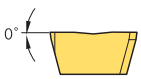
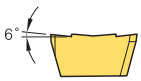
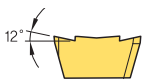


	Designation	Grade			Dimensions			Lead type	Rake angle (α°)
		K10 (Uncoated)	BPK110 (TiAlN)	BPK210 (TiN)	L	W1	S		
RI	15-A06			○	0.591	0.118	0.059	A	6°
	15-A12	○			0.591	0.118	0.059	A	12°
	15-B06		○	○	0.591	0.118	0.059	B	6°
	15-B12		○		0.591	0.118	0.059	B	12°
	16-A06			○	0.630	0.138	0.059	A	6°
	16-A12	○			0.630	0.138	0.059	A	12°
	16-B06		○	○	0.630	0.138	0.059	B	6°
	16-B12		○		0.630	0.138	0.059	B	12°
	17-A06			○	0.669	0.177	0.079	A	6°
	17-A12	○			0.669	0.177	0.079	A	12°
	17-B06		○	○	0.669	0.177	0.079	B	6°
	17-B12		○		0.669	0.177	0.079	B	12°
	22-A06			○	0.866	0.256	0.118	A	6°
	22-A12	○			0.866	0.256	0.118	A	12°
	22-B06		○	○	0.866	0.256	0.118	B	6°
	22-B12		○		0.866	0.256	0.118	B	12°

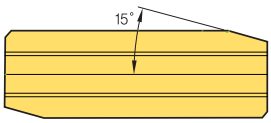
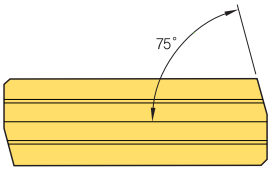
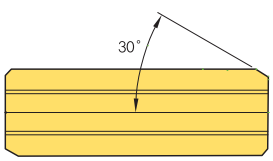
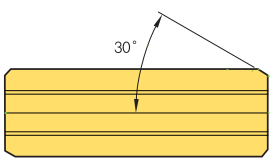
Applicable holders **D76 ~ D77**

※ ○ This is recommended grade as for insert type

Angle of chip breaker

Division	00	06	12
Shape			
Application	For cast iron machining	For general machining	For stainless and aluminum machining

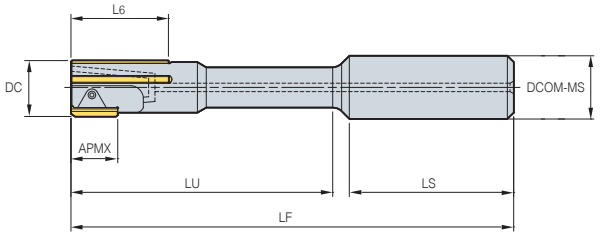
Insert lead type

Type	Shape	Working condition	Type	Shape	Working condition
A		For excellent surface, low cutting condition	C		For aluminum and copper alloy machining
B		For general application, high cutting condition	D		For blind hole machining, low feed

IRTA

Throughout hole





(inch)

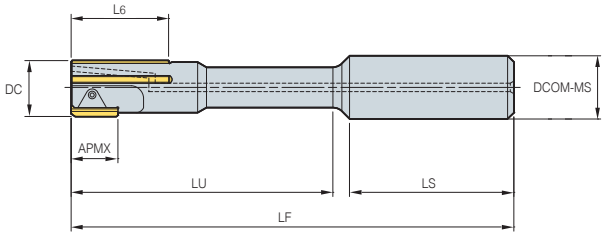
	Designation	DC	APMX	L6	LU	LS	LF	DCOM-MS	Applicable insert
IRTA	0375-062550-15	0.375	0.591	1.2	3.0	1.8	5.0	0.625	RI 15
	0500-062553-16	0.500	0.630	1.2	3.3	1.8	5.5	0.625	RI 16
	0625-075061-16	0.625	0.630	1.2	4.0	4.0	6.0	0.750	RI 16
	0750-075061-17	0.750	0.669	1.2	4.0	4.0	6.0	0.750	RI 17
	0875-100065-17	0.875	0.669	1.2	4.3	4.3	6.5	1.000	RI 17
	1000-100065-17	1.000	0.669	1.2	4.3	4.3	6.5	1.000	RI 17
	1125-125065-22	1.125	0.816	1.2	4.3	4.3	6.5	1.250	RI 22
	1250-125065-22	1.250	0.816	1.2	4.3	4.3	6.5	1.250	RI 22

Applicable inserts **D75**

IRBA

Stuffed hole





(inch)

	Designation	DC	APMX	L6	LU	LS	LF	DCOM-MS	Applicable insert
IRBA	**0375-062550-15**	0.375	0.591	1.2	3.0	1.8	5.0	0.625	RI 15
	0500-062553-16	0.500	0.630	1.2	3.3	1.8	5.5	0.625	RI 16
	0625-075061-16	0.625	0.630	1.2	4.0	4.0	6.0	0.750	RI 16
	0750-075061-17	0.750	0.669	1.2	4.0	4.0	6.0	0.750	RI 17
	0875-100065-17	0.875	0.669	1.2	4.3	4.3	6.5	1.000	RI 17
	1000-100065-17	1.000	0.669	1.2	4.3	4.3	6.5	1.000	RI 17
	1125-125065-22	1.125	0.816	1.2	4.3	4.3	6.5	1.250	RI 22
	1250-125065-22	1.250	0.816	1.2	4.3	4.3	6.5	1.250	RI 22

Applicable inserts **D75**

PART

TOOLING SYSTEM

We will strive to contribute to the development of the automotive, aerospace, electronics, machinery, and plant industries by supplying high-quality products to our customers, and we will make every effort to promote the excellence of Korean tools worldwide through exports to various countries.



Technical information for TOOLING SYSTEM

E2	Tooling System Index
E4	DINOX MAP
E8	DHE
E16	DHE/S
E20	DHE/G
E22	DHC
E24	DZC
E26	DSC
E35	CAT Milling Chuck
E38	NPM
E44	DCL
E45	DCJ
E49	ER Collet Chuck
E53	SDC/P
E62	SDC/PL
E65	GERC
E69	ER
E73	ER/L
E74	RTJW
E76	DSK
E79	GSK
E83	HC
E85	NPU
E87	DTN
E90	TCA
E91	DST
E94	TER
E95	THE
E97	STER PAT.
E98	OFH
E99	SLA
E103	MTA
E104	FMA
E107	FMC
E110	MD
E116	EXT
E117	RDC
E118	FBH/B
E124	FBH
E125	FBH/D
E129	DBCA
E133	DBC
E135	SMB
E137	KMB
E139	SMH
E141	BKA
E143	FZ UNIT
E144	Angular head
E146	KAH
E148	KHU
E150	KAG
E152	HRAG
E154	MAH
E156	KAC
E158	SAH
E160	POSITIONING BLOCK
E162	ATM
E165	ATM(U) SPARE PART
E166	ATU
E168	Damping Pro
E176	Pull Stud Bolt
E177	HT

E Tooling System Index

DHE

E8

DHE/S

E16

DHE/G

E20

DHC

E22

DZC

E24

DSC

E26

CAT Milling Chuck

E35

NPM

E35

DCL

E44

DCJ

E45

ER Collet Chuck

E49

SDC/P

E53

SDC/PL

E44

GERC

E45

ER

E49

ER/L

E73

RTJW

E74

DSK

E76

GSK

E79

HC

E83

NPU

E85

DTN

E87

TCA

E90

DST

E91

TER

E94

TEH

E95

STER PAT.

E97

OFH

E98

SLA

E99

MTA

E103

FMA

E104

FMC

E107

MD

E110

EXT

E116

RDC

E117

FBH/B

E118

FBH

E124

FBH/D

E125

DBCA

E129

DBC

E133

SMB

E135

KMB

E137

SMH

E139

BKA

E141

FZ UNIT

E143

ANGULAR HEAD

E144

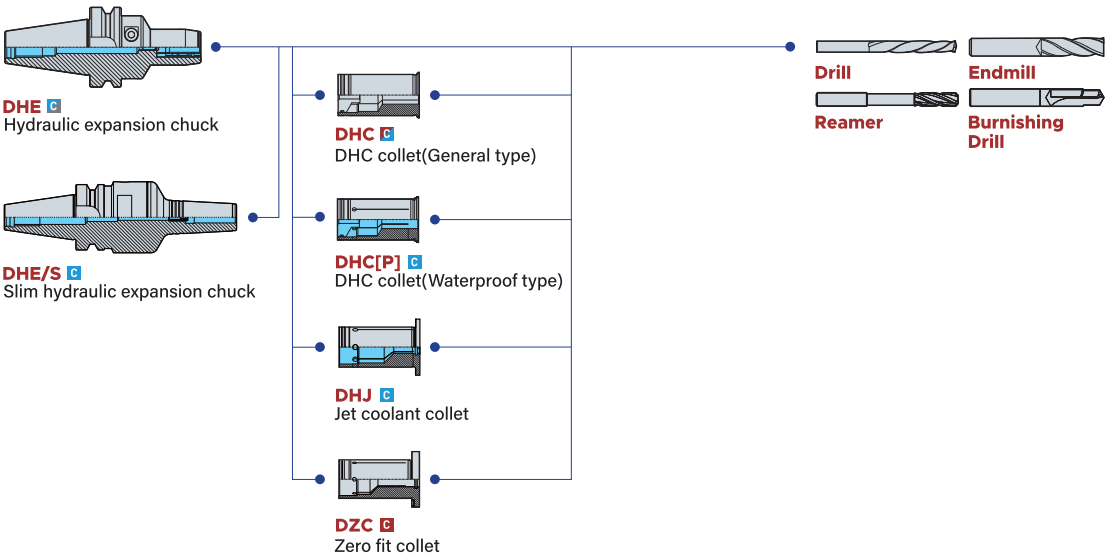
DAMPING PRO

E168

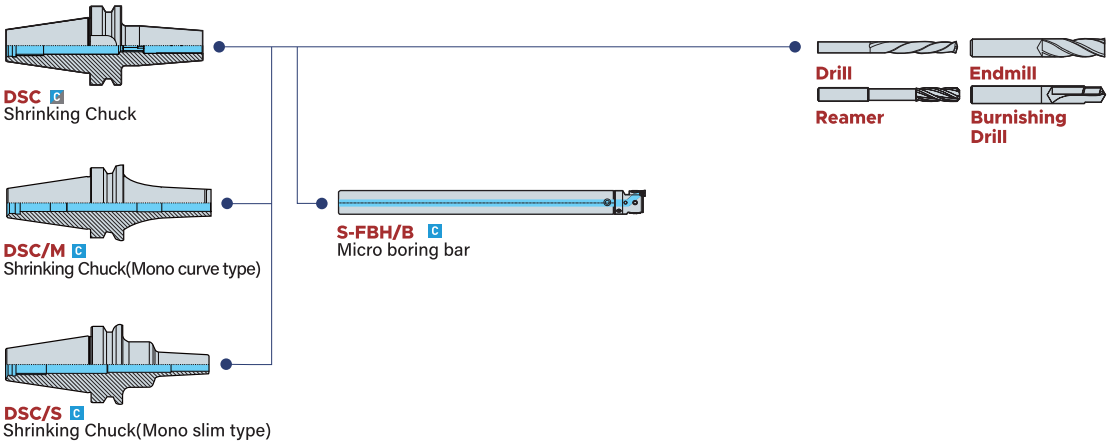
PULL STURD BOLT

E176

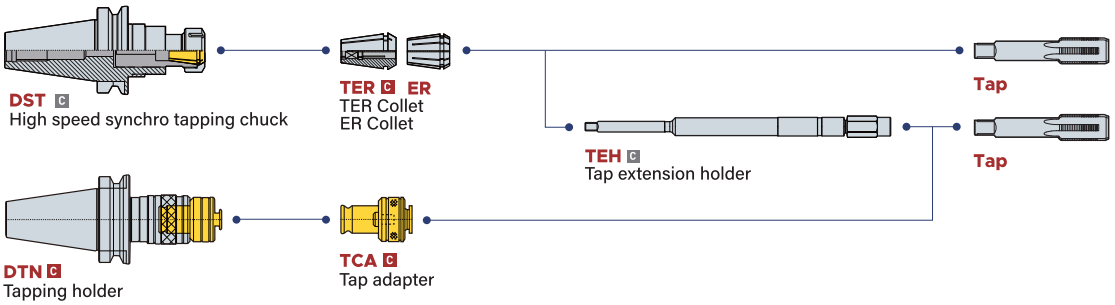
1. Hydraulic Expansion Chuck



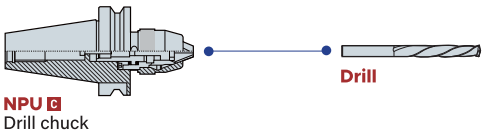
2. Shrinking Chuck



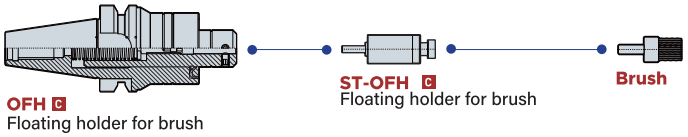
3. Tapping Holder



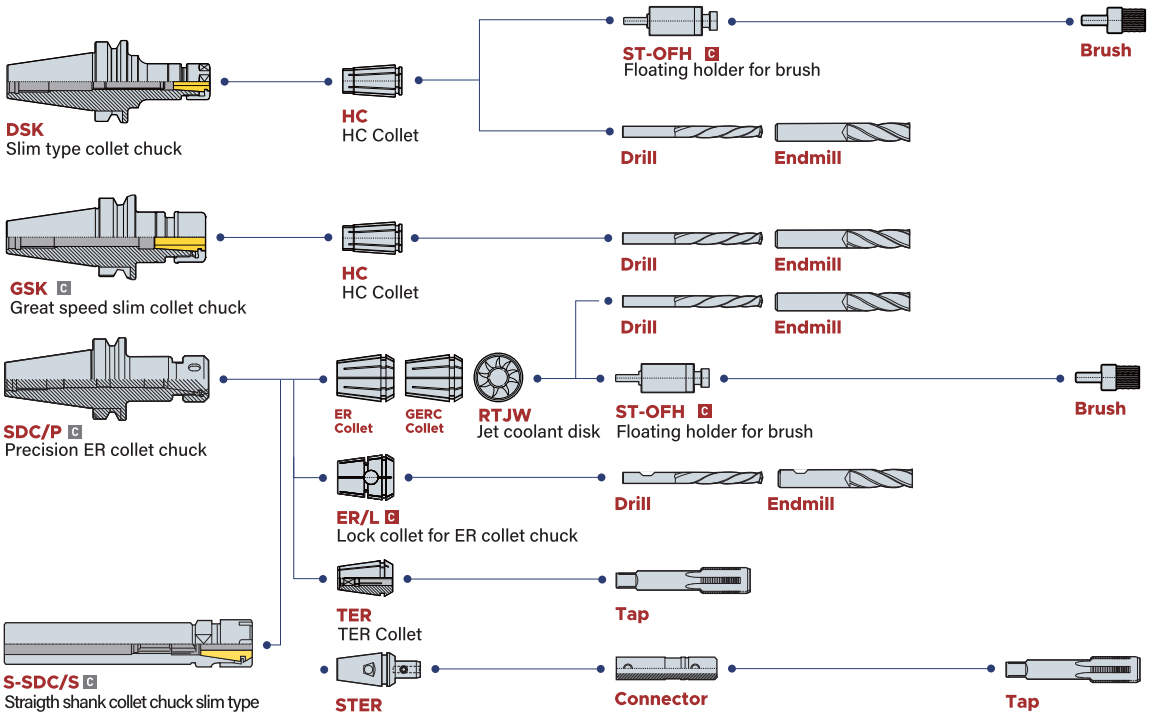
4. Drill Chuck



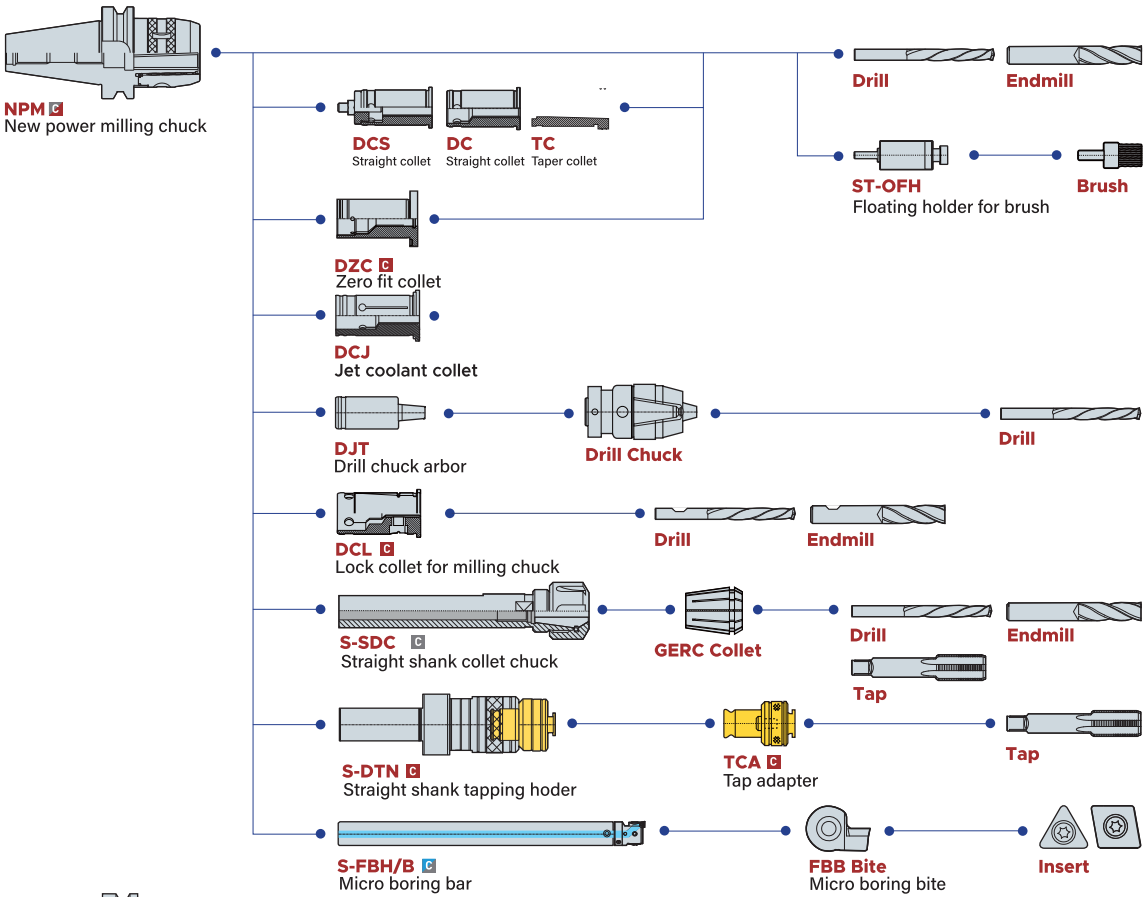
5. Floating Holder for Brush



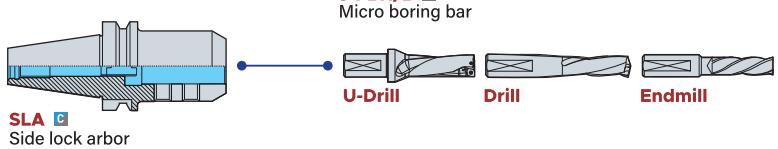
6. Collet Chuck



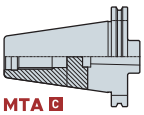
7. Milling Chuck



8. Side Lock Arbor



9. Morse Taper Arbor

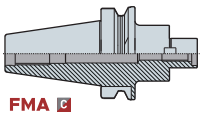


MTA C
Morse taper arbor

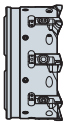
Drill

Reamer

10. Face mill Arbor

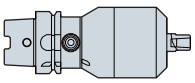


FMA C
Face mill arbor



Cutter

11. Air Spindle



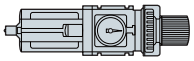
ATM C
Air turbine machine



HC
HC Collet

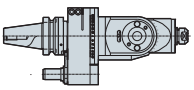
Drill

Endmill



Air regulator

12. Angular Head



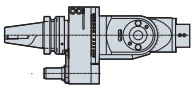
KHU C
0~90° Tilting type



GERC
GERC Collet

Drill

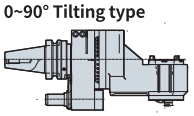
Endmill



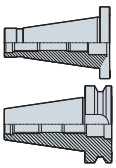
MAH C
0~90° Tilting type

Drill

Endmill



HRAG / KAG C
Attachment type



NT Shank

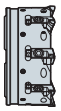
BT Shank

Drill

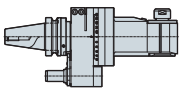
Endmill

Reamer

Tap



Cutter



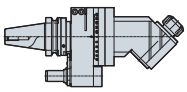
KAH C
90° Angle type



GERC
GERC Collet

Drill

Endmill

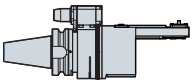


KAC C
45° Angle type



GERC
GERC Collet

Endmill



SAH C
Slim type

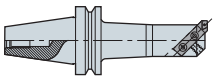


SAH
SAH Collet

Drill

Endmill

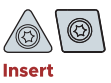
13. Boring Series



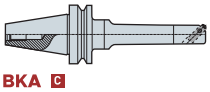
BSA C
Square boring bar



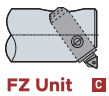
BH
Square boring bite for BSA



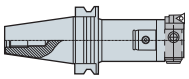
Insert



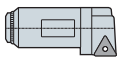
BKA C
FZ Micro boring bar



FZ Unit C
Inclined mounting type

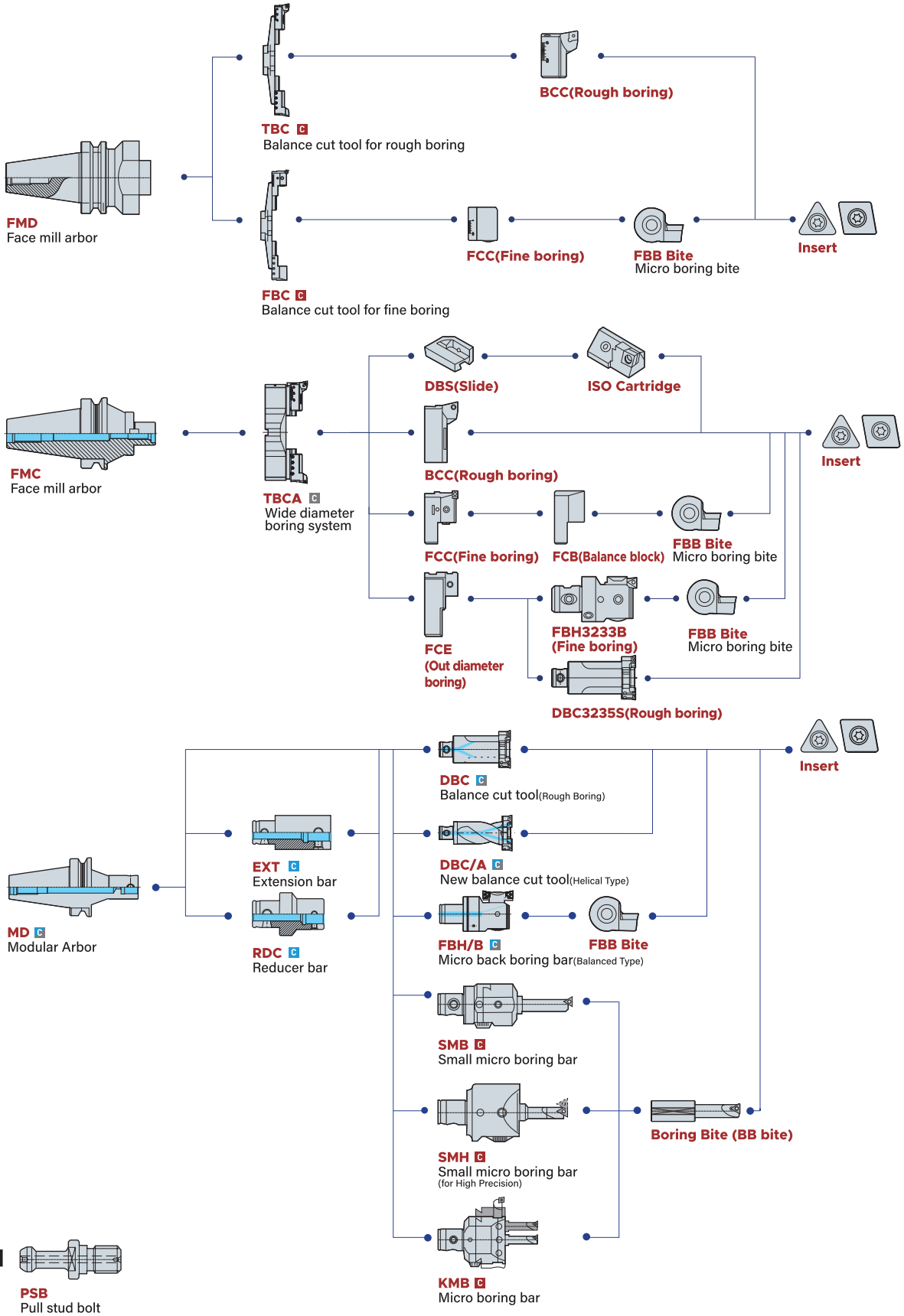


BCF C
Micro boring bar



FF Unit C
Micro boring Bar

13. Boring Series



14. Pull Stud Bolt

PSB
Pull stud bolt

Hydraulic expansion chuck

DHE



- Ideal for mold making and machining automobile components & precise parts due to high precision machining
- Improved surface roughness due to vibration proof by hydraulic chamber
- Reduced replacement time and tiredness of worker with the use of T wrench for removal
- Applicable shank diameter: Ø4~32

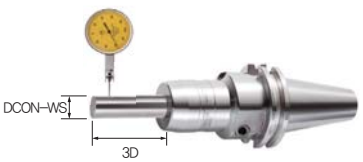
Code system

CAT40B	-	DHE	-	3/4	-	3.5
Spindle B = AD/B Coolant		**Hydraulic expansion chuck**		**Tool Dia**		**Length**

Features

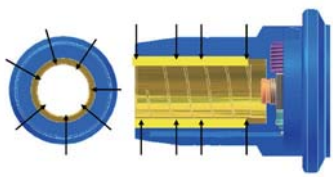
High accuracy provides long tool life due to reduced wear and hydraulic room enhances a surface roughness by lessening vibrations

- Run-out: under 5 μm
- L = 3 x ØD
- Shank: Tolerance of ØD: h6



Internal sealing structure (Durability)

- Internal sealing system protects the chuck against dust, cutting oil, lubricant and chips getting into it
  - Maintaining clamping force and accuracy for a long time

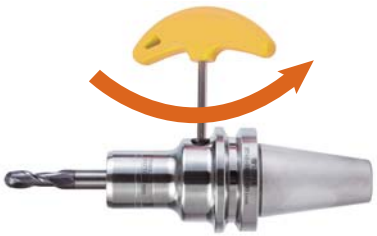


Shank	Grade	RPMX
BT50, HSK100A	G6.3	15,000
BT40, HSK63A		20,000
BT30, HSK50A		25,000



With simple T-wrench, very easy to change a tool

- Clamping structure for easy operation (Convenience)
  - Decrease of worker's fatigue
  - Improving machine capacity



Stable clamping

- The clearance between holder and tool is fixed by hydraulic pressure



CAT-DHE



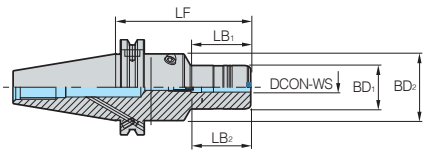


Fig. 1

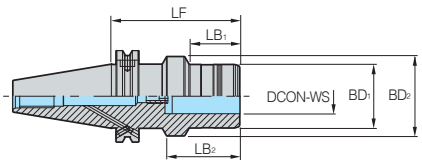


Fig. 2

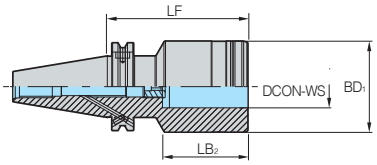


Fig. 3

inch

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	ADJ (Metric)	RPMX	Fig.
CAT40B	DHE1/4-3.50	1/4	3.5	1.14	1.75	1.57	1.57	M5	20,000	1
	DHE3/8-3.50	3/8	3.5	1.3	1.75	1.57	1.76	M5	20,000	1
	DHE1/2-3.50	1/2	3.5	1.38	1.97	1.34	2	M10	20,000	2
	DHE1/2-6.00	1/2	6	1.38	1.97	1.57	2	M10	20,000	2
	DHE5/8-3.50	5/8	3.5	1.57	1.75	1.77	2.2	M10	20,000	1
	DHE5/8-6.00	5/8	6	1.57	1.97	1.77	2.2	M10	20,000	2
	DHE3/4-3.50	3/4	3.5	1.73	2.17	1.38	2.31	M10	20,000	2
	DHE3/4-6.00	3/4	6	1.73	2.17	1.97	2.31	M10	20,000	2
	DHE1-4.00	1	4	2.6	-	-	2.67	M16	20,000	3
	DHE1 1/4-4.00	1 1/4	4	2.83	-	-	2.67	M16	20,000	3
CAT50B	DHE1/4-3.50	1/4	3.5	1.14	1.97	1.57	1.57	M5	15,000	1
	DHE3/8-3.50	3/8	3.5	1.3	1.97	1.57	1.76	M5	15,000	1
	DHE1/2-3.50	1/2	3.5	1.38	1.97	1.57	2	M10	15,000	1
	DHE1/2-6.00	1/2	6	1.38	1.97	1.57	2	M10	15,000	1
	DHE5/8-3.50	5/8	3.5	1.57	1.97	1.57	2.2	M10	15,000	1
	DHE5/8-6.00	5/8	6	1.57	2.36	1.77	2.2	M10	15,000	1
	DHE3/4-3.50	3/4	3.5	1.73	1.97	1.57	2.31	M10	15,000	1
	DHE3/4-6.00	3/4	6	1.73	2.36	1.77	2.31	M10	15,000	1
	DHE1-3.50	1	3.5	2.6	-	-	2.67	M16	15,000	3
	DHE1 1/4-3.50	1 1/4	3.5	2.83	-	-	2.67	M16	15,000	3

Spare Part **E9**

Parts

Basic			
Division		Clamp bolt	Wrench
Parts / Designation			
CAT 40		BTF1010	DHETW-5
CAT 50	DHE1/4, 3/8, 1/2, 5/8, 3/4	BTF1010	DHETW-5
	DHE1, 1 1/4	BTF1212-1.5	DHETW-6

DBT-DHE



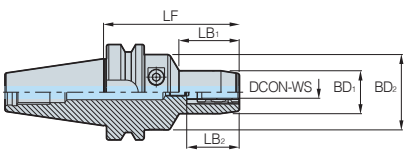


Fig. 1

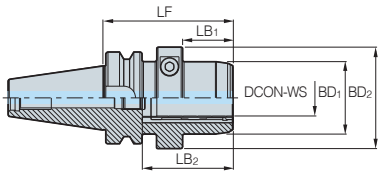


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	ADJ	RPMX	Fig.	lbs
DBT30-	DHE6-65	6	65	29	46	33	30~40	M5	25,000	1	0.7
	DHE8-65	8	65	31	46	33	30~40	M5	25,000	1	0.7
	DHE10-65	10	65	32	46	34	35~45	M5	25,000	1	0.7
	DHE12-70	12	70	35	46	34	41~51	M5	25,000	1	0.8
	DHE14-90	14	90	36	46	40	43~53	M5	25,000	1	1
	DHE16-90	16	90	40	46	45	46~56	M5	25,000	1	1
	DHE18-90	18	90	42	46	40	49~59	M5	25,000	1	1.1
	DHE20-90	20	90	44	46	45	49~59	M5	25,000	1	1.1
DBT40-	DHE6-90	6	90	29	50	40	30~40	M5	20,000	1	1.4
	DHE6-140	6	140	29	50	40	30~40	M5	20,000	1	2.2
	DHE8-90	8	90	31	50	40	30~40	M5	20,000	1	1.4
	DHE8-140	8	140	31	50	40	30~40	M5	20,000	1	2.2
	DHE10-90	10	90	33	50	40	35~45	M5	20,000	1	1.5
	DHE10-140	10	140	33	50	40	35~45	M5	20,000	1	2.2
	DHE12-90	12	90	35	50	40	41~51	M10	20,000	1	1.5
	DHE12-140	12	140	35	50	40	41~51	M10	20,000	1	2.3
	DHE14-90	14	90	36	50	40	43~53	M10	20,000	1	1.5
	DHE14-140	14	140	36	50	40	43~53	M10	20,000	1	2.2
	DHE16-90	16	90	40	50	45	46~56	M10	20,000	1	1.5
	DHE16-140	16	140	40	50	45	46~56	M10	20,000	1	2.2
	DHE18-90	18	90	42	50	45	49~59	M10	20,000	1	1.5
	DHE18-140	18	140	42	50	45	49~59	M10	20,000	1	2.2
	DHE20-90	20	90	44	50	47	49~59	M10	20,000	1	1.5
	DHE20-140	20	140	44	50	50	49~59	M10	20,000	1	2.3
	DHE25-90	25	90	50	50	35	58~68	M16	20,000	2	2
	DHE32-90	32	90	63	50	35	58~68	M16	20,000	2	2.3
DBT50-	DHE6-90	6	90	29	50	34	30~40	M5	15,000	1	3.9
	DHE6-140	6	140	29	50	40	30~40	M5	15,000	1	4.5
	DHE8-90	8	90	31	50	34	30~40	M5	15,000	1	4.2
	DHE8-140	8	140	31	50	40	30~40	M5	15,000	1	4.6
	DHE10-90	10	90	33	50	34	35~45	M5	15,000	1	3.9
	DHE10-140	10	140	33	50	34	35~45	M5	15,000	1	4.5
	DHE12-90	12	90	35	50	34	41~51	M10	15,000	1	4
	DHE12-140	12	140	35	50	34	41~51	M10	15,000	1	4.6
	DHE14-90	14	90	36	50	34	43~53	M10	15,000	1	3.9
	DHE14-140	14	140	36	50	34	43~53	M10	15,000	1	4.5
	DHE16-90	16	90	40	50	34	46~56	M10	15,000	1	4.1
	DHE16-140	16	140	40	50	34	46~56	M10	15,000	1	4.7
	DHE18-90	18	90	42	50	40	49~59	M10	15,000	1	4
	DHE18-140	18	140	42	50	45	49~59	M10	15,000	1	4.5
	DHE20-90	20	90	44	50	34	49~59	M10	15,000	1	4.2
	DHE20-140	20	140	44	50	47	49~59	M10	15,000	1	4.5
	DHE25-90	25	90	66	-	52	58~68	M16	15,000	2	4.7
	DHE32-90	32	90	72	-	52	58~68	M16	15,000	2	4.8

Spare Part **E14**

• LB2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

M This is metric size. We can also provide in inch type

BT-DHE



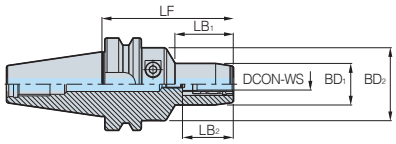


Fig. 1

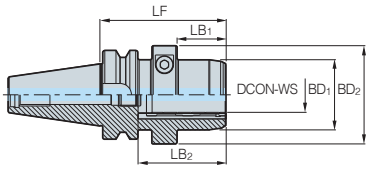


Fig. 2

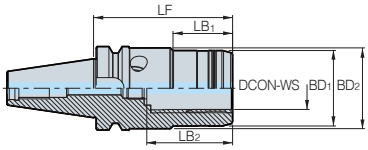


Fig. 3

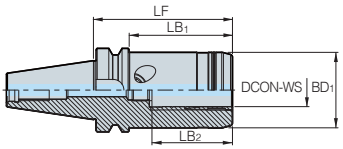


Fig. 4

(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	ADJ	RPMX	Fig.	lbs
BT30-	DHE4-65	4	65	29	46	33	40	-	25,000	1	0.7
	DHE5-65	5	65	29	46	33	40	-	25,000	1	0.7
	DHE6-65	6	65	29	46	33	30~40	M5	25,000	1	0.7
	DHE8-65	8	65	31	46	33	30~40	M5	25,000	1	0.7
	DHE10-65	10	65	32	46	34	35~45	M5	25,000	1	0.7
	DHE12-70	12	70	35	46	34	36~46	M5	25,000	1	0.8
	DHE14-90	14	90	36	46	40	43~53	M5	25,000	1	1
	DHE16-90	16	90	40	46	45	46~56	M5	25,000	1	1
	DHE18-90	18	90	42	46	40	49~59	M5	25,000	1	1.1
	DHE20-90	20	90	44	46	45	49~59	M5	25,000	1	1.1
BT40-	DHE4-90	4	90	29	50	40	40	-	20,000	1	1.4
	DHE5-90	5	90	29	50	40	40	-	20,000	1	1.4
	DHE6-90	6	90	29	50	40	30~40	M5	20,000	1	1.4
	DHE6-140	6	140	29	50	40	30~40	M5	20,000	1	2.2
	DHE8-90	8	90	31	50	40	30~40	M5	20,000	1	1.4
	DHE8-140	8	140	31	50	40	30~40	M5	20,000	1	2.2
	DHE10-90	10	90	33	50	40	35~45	M5	20,000	1	1.5
	DHE10-140	10	140	33	50	40	35~45	M5	20,000	1	2.2
	DHE12-90	12	90	35	50	40	41~51	M10	20,000	1	1.5
	DHE12-140	12	140	35	50	40	41~51	M10	20,000	1	2.3
	DHE14-90	14	90	36	50	40	43~53	M10	20,000	1	1.5
	DHE14-140	14	140	36	50	40	43~53	M10	20,000	1	2.2
	DHE16-90	16	90	40	50	45	46~56	M10	20,000	1	1.5
	DHE16-140	16	140	40	50	45	46~56	M10	20,000	1	2.2
	DHE18-90	18	90	42	50	45	49~59	M10	20,000	1	1.5
	DHE18-140	18	140	42	50	45	49~59	M10	20,000	1	2.2
	DHE20-90	20	90	44	50	47	49~59	M10	20,000	1	1.5
	DHE20-140	20	140	44	50	50	49~59	M10	20,000	1	2.3
	DHE25-90	25	90	50	70	35	58~68	M16	20,000	2	2
	DHE25-105	25	105	57	-	78	51~61	M16	20,000	4	2
	DHE25-140	25	140	57	-	113	51~61	M16	20,000	4	2.6
	DHE32-90	32	90	63	75	35	58~68	M16	20,000	2	2.3
	DHE32-105	32	105	57	61	45	55~65	M16	20,000	3	2.4
	DHE32-140	32	140	57	61	45	55~65	M16	20,000	3	3

Spare Part **E14**

• LB2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

M This is metric size. We can also provide in inch type

BT-DHE



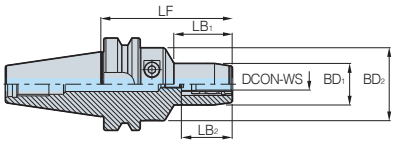


Fig. 1

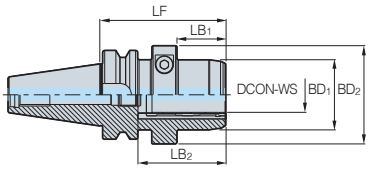


Fig. 2

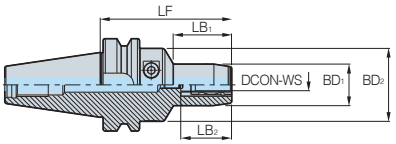


Fig. 3

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LB_2	ADJ	RPMX	Fig.	lbs
BT50-	DHE4-90	4	90	29	50	34	40	-	15,000	1	3.9
	DHE5-90	5	90	29	50	34	40	-	15,000	1	3.9
	DHE6-90	6	90	29	50	34	30~40	M5	15,000	1	3.9
	DHE6-140	6	140	29	50	40	30~40	M5	15,000	1	4.4
	DHE8-90	8	90	31	50	34	30~40	M5	15,000	1	4.2
	DHE8-140	8	140	31	50	40	30~40	M5	15,000	1	4.6
	DHE10-90	10	90	33	50	34	35~45	M5	15,000	1	3.9
	DHE10-140	10	140	33	50	34	35~45	M5	15,000	1	4.5
	DHE12-90	12	90	35	50	34	41~51	M10	15,000	1	4
	DHE12-140	12	140	35	50	34	41~51	M10	15,000	1	4.6
	DHE14-90	14	90	36	50	34	43~53	M10	15,000	1	3.9
	DHE14-140	14	140	36	50	34	43~53	M10	15,000	1	4.5
	DHE16-90	16	90	40	50	34	46~56	M10	15,000	1	4.1
	DHE16-140	16	140	40	50	34	46~56	M10	15,000	1	4.7
	DHE18-90	18	90	42	50	40	49~59	M10	15,000	1	4
	DHE18-140	18	140	42	50	45	49~59	M10	15,000	1	4.5
	DHE20-90	20	90	44	50	34	49~59	M10	15,000	1	4
	DHE20-140	20	140	44	50	47	49~59	M10	15,000	1	4.5
	DHE25-90	25	90	66	-	52	58~68	M16	15,000	2	4.7
	DHE25-150	25	150	57	-	112	51~61	M16	15,000	3	4.5
	DHE32-90	32	90	72	-	52	58~68	M16	15,000	2	5.8

Spare Part **E14**

• LB_2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

M This is metric size. We can also provide in inch type

HSK-DHE



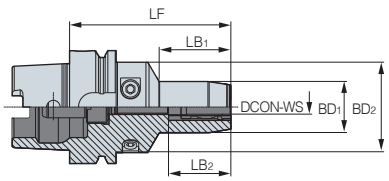


Fig. 1

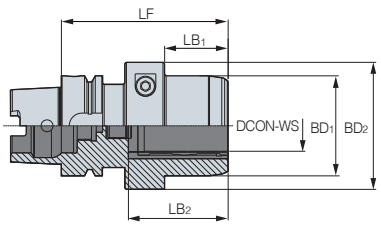


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	ADJ	RPMX	Fig.	lbs
HSK50A-	DHE6-70	6	70	29	40	28	30~40	M5	20,000	1	0.7
	DHE8-70	8	70	31	40	28	30~40	M5	20,000	1	0.7
	DHE10-80	10	80	33	40	35	35~45	M5	20,000	1	0.8
	DHE12-90	12	90	35	40	40	41~51	M5	20,000	1	0.8
	DHE14-95	14	95	36	53	28	43~53	M10	20,000	2	0.8
	DHE16-95	16	95	40	53	28	46~56	M10	20,000	2	0.9
	DHE18-100	18	100	42	60	28	49~59	M10	20,000	2	0.9
	DHE20-100	20	100	44	60	28	49~59	M10	20,000	2	0.9
HSK63A-	DHE4-75	4	75	29	50	34	40	-	20,000	1	1
	DHE5-75	5	75	29	50	34	40	-	20,000	1	1
	DHE6-75	6	75	29	50	34	30~40	M5	20,000	1	1
	DHE6-150	6	150	29	50	34	30~40	M5	20,000	1	2.2
	DHE8-75	8	75	31	50	34	30~40	M5	20,000	1	1
	DHE8-150	8	150	31	50	34	30~40	M5	20,000	1	2.2
	DHE10-85	10	85	33	50	34	35~45	M5	20,000	1	1.2
	DHE10-150	10	150	33	51	34	35~45	M5	20,000	1	2.2
	DHE12-90	12	90	35	51	40	41~51	M10	20,000	1	1.2
	DHE12-150	12	150	35	51	40	41~51	M10	20,000	1	2.2
	DHE14-95	14	95	36	52	40	42~53	M10	20,000	1	1.3
	DHE14-150	14	150	36	52	40	43~53	M10	20,000	1	2.2
	DHE16-95	16	95	40	52	45	46~56	M10	20,000	1	1.3
	DHE16-150	16	150	40	53	45	46~56	M10	20,000	1	2.2
	DHE18-100	18	100	42	53	45	49~59	M10	20,000	1	1.4
	DHE18-150	18	150	42	53	45	49~59	M10	20,000	1	2.2
	DHE20-100	20	100	44	50	50	49~59	M10	20,000	1	1.4
	DHE20-150	20	150	44	50	50	49~59	M10	20,000	1	2.2
	DHE25-110	25	110	50	70	48	56~68	M16	20,000	2	1.9
	DHE32-110	32	110	63	80	48	56~68	M16	20,000	2	2.3

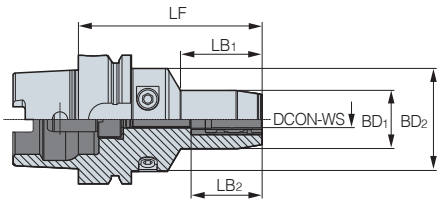
Spare Part **E14**

• LB2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

M This is metric size. We can also provide in inch type

HSK-DHE





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	ADJ	RPMX	lbs
HSK100A-	DHE6-80	6	80	29	50	34	30~40	M5	15,000	2.4
	DHE6-150	6	150	29	50	34	30~40	M5	15,000	2.8
	DHE8-80	8	80	31	50	34	30~40	M5	15,000	2.4
	DHE8-150	8	150	31	50	34	30~40	M5	15,000	2.8
	DHE10-90	10	90	33	50	34	35~45	M5	15,000	2.5
	DHE10-150	10	150	33	50	34	35~45	M5	15,000	3
	DHE12-95	12	95	35	50	34	41~51	M10	15,000	2.5
	DHE12-150	12	150	35	50	34	41~52	M10	15,000	3
	DHE14-100	14	100	36	50	40	43~53	M10	15,000	2.6
	DHE14-150	14	150	36	50	40	43~54	M10	15,000	3.1
	DHE16-100	16	100	40	50	45	46~56	M10	15,000	2.6
	DHE16-150	16	150	40	50	45	46~56	M10	15,000	3.1
	DHE18-100	18	100	42	50	45	49~59	M10	15,000	2.7
	DHE18-150	18	150	42	50	45	49~59	M10	15,000	3.2
	DHE20-105	20	105	44	50	50	49~59	M10	15,000	2.8
	DHE20-150	20	150	44	50	50	49~59	M10	15,000	3.4
	DHE25-115	25	115	50	63	62	58~68	M16	15,000	3.3
	DHE32-115	32	115	63	75	62	58~68	M16	15,000	3.8

Spare Part **E14**

• LB_2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

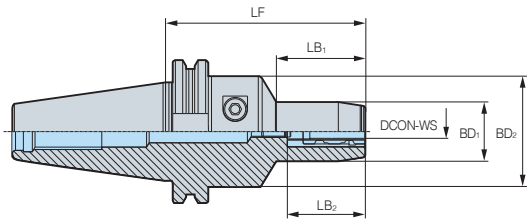
M This is metric size. We can also provide in inch type

Parts

Basic					
Division / Parts / Designation		Clamp bolt	Wrench	Division / Parts / Designation	Adjust screw
					
BT30/SK30/HSK50A	DHE4.5, 6, 8, 10, 12, 14, 16, 18, 20	BTF1010	DHETW-5	DHE 6, 8, 10	DHE-M5 (ADJ)
BT40/BT50/SK40/ SK50/HSK63A/HSK100A	DHE4.5, 6, 8, 10, 12, 14, 16, 18, 20	BTF1010	DHETW-5	DHE 12, 14, 16, 18, 20	DHE-M10 (ADJ)
	DHE 25, 32	BTF1212-1.5	DHETW-6	DHE 25, 32	DHE-M16 (ADJ)

SK-DHE





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	ADJ	RPMX	lbs
SK40-	DHE6-90	6	90	29	50	40	30-40	M5	20,000	1.4
	DHE8-90	8	90	31	50	40	30-40	M5	20,000	1.4
	DHE10-90	10	90	33	50	40	35-45	M5	20,000	1.5
	DHE12-90	12	90	35	50	40	41~51	M10	20,000	1.5
	DHE12-140	12	140	35	50	40	41~51	M10	20,000	2.1
	DHE14-90	14	90	36	50	40	43~53	M10	20,000	1.4
	DHE16-90	16	90	40	50	45	46~56	M5	20,000	1.5
	DHE18-90	18	90	42	50	45	49~59	M5	20,000	1.5
	DHE20-90	20	90	44	50	50	49~59	M10	20,000	1.5
	DHE20-140	20	140	44	50	50	49~59	M10	20,000	2.1
SK50-	DHE12-90	12	90	35	50	40	41~51	M10	15,000	3.2
	DHE14-90	14	90	36	50	40	43~53	M10	15,000	3.2
	DHE16-90	16	90	40	50	45	46~56	M10	15,000	3.3
	DHE18-90	18	90	42	50	40	49~59	M10	15,000	3.2
	DHE20-90	20	90	44	50	47	49~59	M10	15,000	3.2

Spare Part **E15**

• LB2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

M This is metric size. We can also provide in inch type

Parts

Basic					
Division		Clamp bolt	Wrench	Division	Adjust screw
Parts / Designation				Parts / Designation	
BT30/SK30/HSK50A	DHE4.5, 6, 8, 10, 12, 14, 16, 18, 20	BTF1010	DHETW-5	DHE 6, 8, 10	DHE-M5 (ADJ)
BT40/BT50/SK40/ SK50/HSK63A/HSK100A	DHE4.5, 6, 8, 10, 12, 14, 16, 18, 20	BTF1010	DHETW-5	DHE 12, 14, 16, 18, 20	DHE-M10 (ADJ)
	DHE 25, 32	BTF1212-1.5	DHETW-6	DHE 25, 32	DHE-M16 (ADJ)

※ DBT30, BT30, HSK50A is Exception

Slim hydraulic expansion chuck

DHE/S

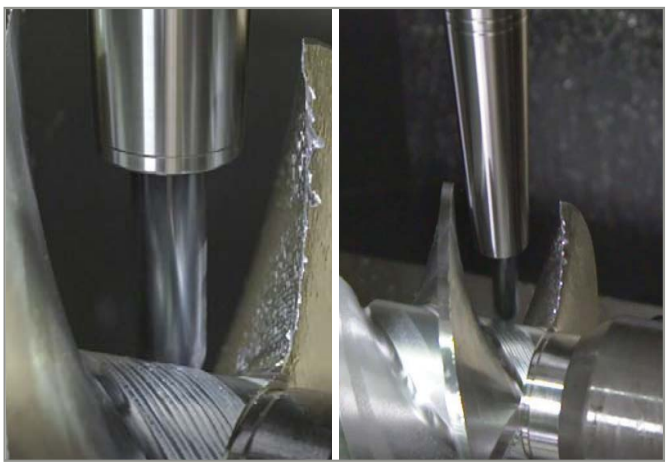


- Optimized chuck for machining that requires high-quality surface roughness and accuracy
- Suitable for challenging mold and automotive parts machining that involves complicated shapes and a lot of interferences
- Ideal for metal impeller machining, which requires deep penetration
- Enables easy tool connection without any additional connecting device
- Easy to perform fine boring operations (0.02-0.2 mm)
- Application scope: milling, drilling, reaming

Code system

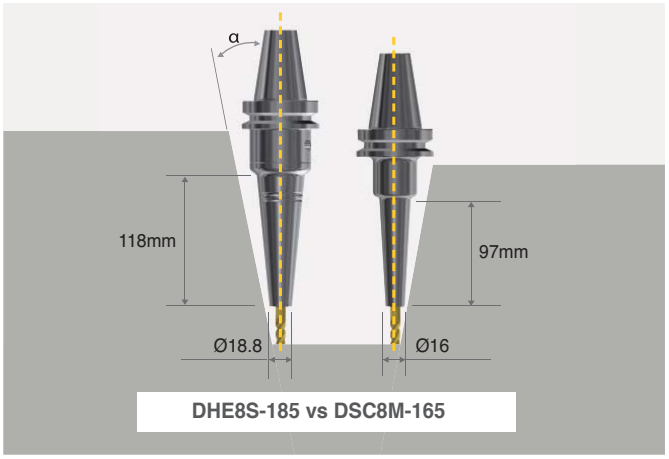
CAT40B	-	DHE	3/8	S	-	7.5
Spindle B = AD/B Coolant		**Hydraulic expansion chuck**	**Tool diameter**	**Type** S: Slim		**Length**

Recommended Machining Works



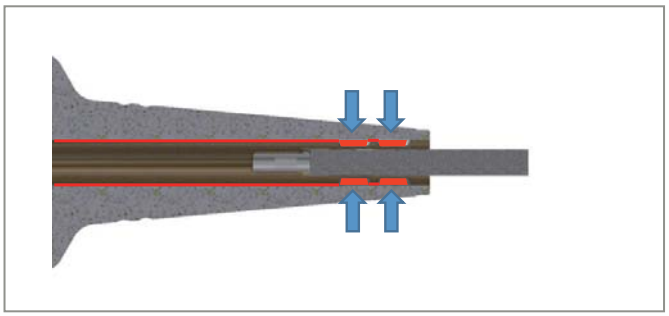
- Optimized for machining that requires high precision
- Enables challenging narrow and deep machining
- Products that require fine boring operations

Product Comparison



- Length and thickness are the same as those of DSC/M Type (if the tool projection length is 40 mm, difference of α= around 2°)
- Longer gauge line and higher rigidity (versus the DSC/M Type)
- Ideal for mold machining due to its 3-degree taper shape

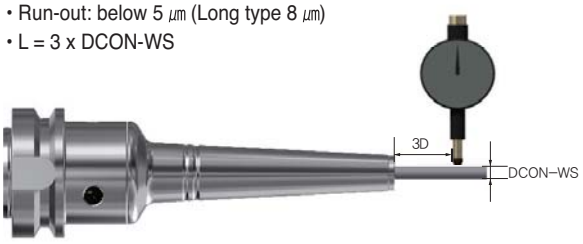
Stable Clamping Force



- Maintains high clamping force and good accuracy by holding the tool at two points

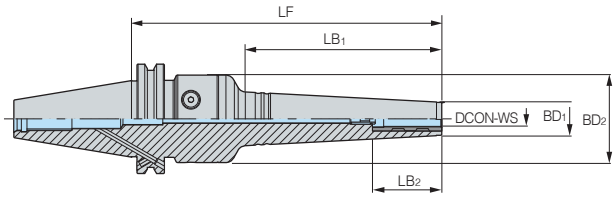
High-Precision

- Run-out: below 5 ㎛ (Long type 8 ㎛)
- L = 3 x DCON-WS



CAT-DHE/S





inch

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	RPMX	Run-out
CAT40B	DHE1/4S-4.75	1/4	4.75	0.66	1.969	1.97	1.095	20,000	5μm
	DHE1/4S-7.25	1/4	7.25	0.66	1.969	4.53	1.095	20,000	8μm
	DHE3/8S-5	3/8	5	0.819	1.969	2.165	1.567	20,000	5μm
	DHE3/8S-7.25	3/8	7.25	0.819	1.969	4.53	1.567	20,000	8μm
	DHE1/2S-5.25	1/2	5.25	0.898	1.969	2.559	1.882	20,000	5μm
	DHE1/2S-7.25	1/2	7.25	0.898	1.969	4.53	1.882	20,000	8μm
	DHE5/8S-7.5	5/8	7.5	1.055	1.969	4.53	2.04	20,000	8μm
	DHE3/4S-7.5	3/4	7.5	1.213	1.969	4.53	2.157	20,000	8μm
CAT50B	DHE1/4S-8	1/4	8	0.66	1.969	4.53	1.095	15,000	8μm
	DHE3/8S-8	3/8	8	0.819	1.969	4.53	1.567	15,000	8μm
	DHE1/2S-8	1/2	8	0.898	1.969	4.53	1.882	15,000	8μm
	DHE5/8S-8	5/8	8	1.055	1.969	4.53	2.04	15,000	8μm
	DHE3/4S-8	3/4	8	1.213	1.969	4.53	2.157	15,000	8μm

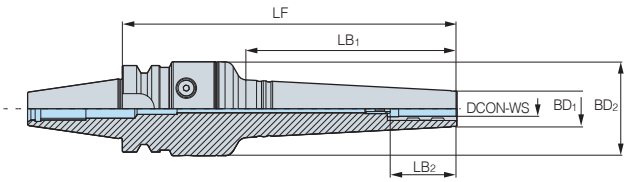
Spare Part **E17**

Parts

Basic		
Division	Clamp bolt	Wrench
Parts / Designation		
DHE1/4, 3/8, 1/2	BTF1010	DHETW-5
DHE5/8, 3/4	BTF1012	DHETW-5

BT-DHE/S





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	RPMX	Run-out	lbs
BT30-	DHE4S-115	4	115	16.8	50	50	19	25,000	5μm	1.1
	DHE5S-115	5	115	16.8	50	50	19	25,000	5μm	1.1
	DHE6S-115	6	115	17	50	50	23	25,000	5μm	1.1
	DHE6S-180	6	180	17	50	115	23	25,000	8μm	1.4
	DHE8S-115	8	115	19	50	50	31	25,000	5μm	1.1
	DHE8S-180	8	180	19	50	115	31	25,000	8μm	1.4
	DHE10S-120	10	120	21	50	55	36	25,000	5μm	1.4
	DHE10S-180	10	180	21	50	115	36	25,000	8μm	1.9
	DHE12S-130	12	130	23	50	65	38	25,000	5μm	1.2
	DHE12S-180	12	180	23	50	115	38	25,000	8μm	1.6
BT40-	DHE4S-120	4	120	16.8	50	50	19	20,000	5μm	1.7
	DHE5S-120	5	120	16.8	50	50	19	20,000	5μm	1.7
	DHE6S-120	6	120	17	50	50	23	20,000	5μm	1.7
	DHE6S-185	6	185	17	50	115	23	20,000	8μm	2.0
	DHE8S-120	8	120	19	50	50	31	20,000	5μm	2.0
	DHE8S-185	8	185	19	50	115	31	20,000	8μm	2.0
	DHE10S-125	10	125	21	50	55	36	20,000	5μm	1.6
	DHE10S-185	10	185	21	50	115	36	20,000	8μm	2.0
	DHE12S-135	12	135	23	50	65	38	20,000	5μm	1.8
	DHE12S-185	12	185	23	50	115	38	20,000	8μm	2.2
	DHE16S-190	16	190	26.8	50	115	41	20,000	8μm	2.3
	DHE20S-190	20	190	30.8	50	115	44	20,000	8μm	2.4
BT50-	DHE6S-200	6	200	16.8	50	115	22	15,000	8μm	4.6
	DHE8S-200	8	200	18.8	50	115	30	15,000	8μm	4.6
	DHE10S-200	10	200	20.8	50	115	35	15,000	8μm	4.8
	DHE12S-200	12	200	22.8	50	115	37	15,000	8μm	4.9
	DHE16S-200	16	200	26.8	50	115	41	15,000	8μm	5.0
	DHE20S-200	20	200	30.8	50	115	44	15,000	8μm	5.0

Spare Part **E18**

• LB2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

M This is metric size. We can also provide in inch type

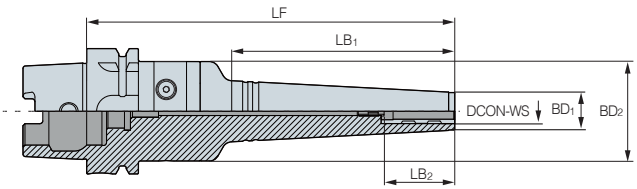
Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK63A	HSK63A-CNS
HSK100A	HSK100A-CNS

HSK-DHE/S





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	RPMX	Run-out	lbs
HSK63A-	DHE4S-120	4	120	16.8	50	50	19	20,000	5μm	1.4
	DHE5S-120	5	120	16.8	50	50	19	20,000	5μm	1.4
	DHE6S-120	6	120	17	50	50	23	20,000	5μm	1.4
	DHE6S-185	6	185	17	50	115	23	20,000	8μm	1.7
	DHE8S-120	8	120	19	50	50	31	20,000	5μm	1.4
	DHE8S-185	8	185	19	50	115	31	20,000	8μm	1.8
	DHE10S-125	10	125	21	50	55	36	20,000	5μm	1.5
	DHE10S-185	10	185	21	50	115	36	20,000	8μm	1.8
	DHE12S-135	12	135	23	50	65	38	20,000	5μm	1.8
	DHE12S-185	12	185	23	50	115	38	20,000	8μm	1.8
	DHE16S-190	16	190	26.8	50	115	41	20,000	8μm	2.2
	DHE20S-190	20	190	30.8	50	115	44	20,000	8μm	2.3
HSK100A-	DHE16S-190	16	190	26.8	50	115	41	15,000	8μm	3.1
	DHE20S-190	20	190	30.8	50	115	44	15,000	8μm	3.3

Spare Part **E19**

• LB2: Insertion depth of tool (Min.~Max.) Through coolant system is installed

M This is metric size. We can also provide in inch type

Parts

Basic					
Division / Parts / Designation		Clamp bolt	Wrench	Division / Parts / Designation	Adjust screw
					
BT30	DHE/S 4, 5, 6, 8, 10, 12	BTF1010	DHETW-5	DHE/S 6, 8, 10, 12	DHE-M5 (ADJ)
BT40	DHE/S 4, 5, 6, 8, 10, 12, 16, 20	BTF1010	DHETW-5	DHE/S 16, 20	DHE-M10 (ADJ)
BT50	DHE/S 6, 8, 10, 12, 16, 20	BTF1010	DHETW-5		
HSK63A	DHE/S 4, 5, 6, 8, 10, 12, 16, 20	BTF1010	DHETW-5		
HSK100A	DHE/S 16, 20	BTF1010	DHETW-5		

Hydraulic expansion chuck for tool grinding

DHE/G

- Minimized wheel interference thanks to the application of 25 degrees to the entrance unit
- Stable run-out within 3μm in 3xØD
- Stable clamping force with 2-point clamping

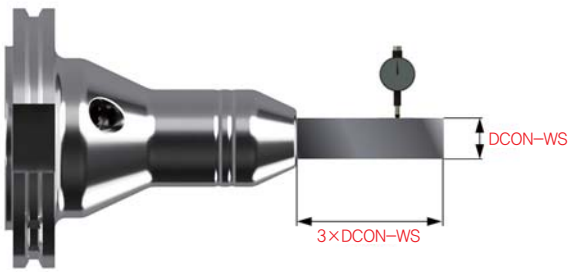


Code system

SK50	DHE	12	G	-	110
Spindle	Hydraulic Expansion Chuck	Tool diameter	Grinding		Length

High Precision

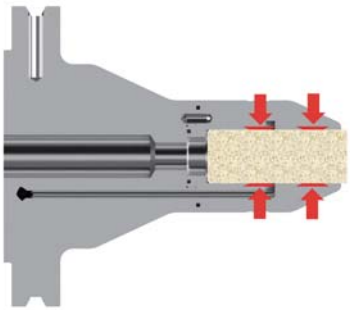
- Run-out within 3μm in 3xDCON-WS achieved by the application of high-precision.





Stable Clamping

- Achieve high-precision due to the stable clamping of 2 points on the upper side and the lower side.application of high-precision.



Minimized Wheel Interference

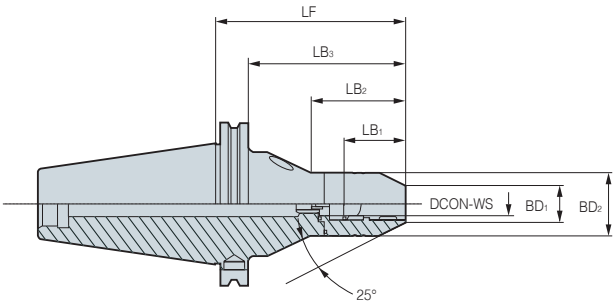
- The front-end unit employs 25° of angle and minimizes wheel interference during machining.

Hydraulic Chuck for Grinding Tools

- Used as a jig for fixing an end tool when grinding the tools.

SK-DHE/G





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	LB3	ADJ	lbs
SK50-	DHE6G-110	6	110	15	32	25	55	90.9	M5	3.2
	DHE8G-110	8	110	17	33.5	25	55	90.9	M5	3.4
	DHE10G-110	10	110	19	35	30	55	90.9	M5	3.4
	DHE12G-110	12	110	21.5	36.5	36	55	90.9	M10	3.6
	DHE14G-110	14	110	23.5	38	38	60	90.9	M10	3.6
	DHE16G-110	16	110	25.5	39.5	41	60	90.9	M10	3.7
	DHE18G-110	18	110	27.5	41	44	60	90.9	M10	3.8
	DHE20G-110	20	110	28	42	44	47	90.9	M10	3.8
	DHE25G-110	25	110	33	47	53	49	90.9	M16	4
	DHE32G-110	32	110	40	54	53	63	90.9	M16	4.2

Spare Part **E21**

M This is metric size. We can also provide in inch type

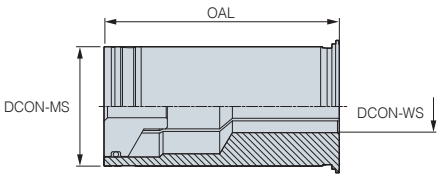
Parts

Basic					
Division		Clamp bolt	Wrench	Division	Adjust screw
Designation \ Parts				Designation \ Parts	
SK50	DHE6,8,10,12,14,16,18,20	BTF1010	DHETW-5	DHE 6,8,10	DHE-M5 (ADJ)
	DHE25,32	BTF1212-1.5	DHETW-6	DHE 12,14,16,18,20	DHE-M10 (ADJ)
				DHE 25,32	DHE-M16 (ADJ)

DHC Collet

General type





inch

Designation		DCON-WS	OAL	DCON-MS	lbs
DHC1/2	1/8	1/8	1.85	1/2	0.06~0.08
	1/4	1/4	1.85	1/2	0.06~0.08
	3/8	3/8	1.85	1/2	0.06~0.08
DHC3/4	1/8	1/8	2.05	3/4	0.04~0.06
	3/16	3/16	2.05	3/4	0.04~0.06
	1/4	1/4	2.05	3/4	0.04~0.06
	5/16	5/16	2.05	3/4	0.04~0.06
	3/8	3/8	2.05	3/4	0.04~0.06
	1/2	1/2	2.05	3/4	0.04~0.06
	5/8	5/8	2.05	3/4	0.04~0.06
DHC1 1/4	1/2	1/2	2.48	1 1/4	0.2~0.5
	3/4	3/4	2.48	1 1/4	0.2~0.5
	1	1	2.48	1 1/4	0.2~0.5

• Through coolant system is not available

(mm)

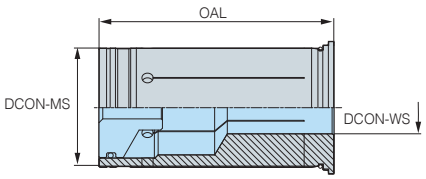
Designation		DCON-WS	OAL	DCON-MS	lbs
DHC12-	3	3	47	12	0.06~0.08
	4	4	47	12	0.06~0.08
	5	5	47	12	0.06~0.08
	6	6	47	12	0.06~0.08
	8	8	47	12	0.06~0.08
DHC20-	3	3	52	20	0.04~0.06
	4	4	52	20	0.04~0.06
	5	5	52	20	0.04~0.06
	6	6	52	20	0.04~0.06
	7	7	52	20	0.04~0.06
	8	8	52	20	0.04~0.06
	9	9	52	20	0.04~0.06
	10	10	52	20	0.04~0.06
	11	11	52	20	0.04~0.06
	12	12	52	20	0.04~0.06
	14	14	52	20	0.04~0.06
	16	16	52	20	0.04~0.06
DHC32-	6	6	63	32	0.2~0.5
	8	8	63	32	0.2~0.5
	10	10	63	32	0.2~0.5
	12	12	63	32	0.2~0.5
	14	14	63	32	0.2~0.5
	16	16	63	32	0.2~0.5
	18	18	63	32	0.2~0.5
	19	19	63	32	0.2~0.5
	20	20	63	32	0.2~0.5
	25	25	63	32	0.2~0.5

• Through coolant system is not available

DHC-(P) Collet

Sealed type





(mm)

Designation		DCON-WS	OAL	DCON-MS	lbs
DHC12-	3(P)	3	47	12	0.04
	4(P)	4	47	12	0.04
	5(P)	5	47	12	0.04
	6(P)	6	47	12	0.04
	8(P)	8	47	12	0.04
DHC20-	3(P)	3	52	20	0.06~0.1
	4(P)	4	52	20	0.06~0.1
	5(P)	5	52	20	0.06~0.1
	6(P)	6	52	20	0.06~0.1
	7(P)	7	52	20	0.06~0.1
	8(P)	8	52	20	0.06~0.1
	9(P)	9	52	20	0.06~0.1
	10(P)	10	52	20	0.06~0.1
	11(P)	11	52	20	0.06~0.1
	12(P)	12	52	20	0.06~0.1
	14(P)	14	52	20	0.06~0.1
	16(P)	16	52	20	0.06~0.1
DHC32-	6(P)	6	63	32	0.2~0.3
	8(P)	8	63	32	0.2~0.3
	10(P)	10	63	32	0.2~0.3
	12(P)	12	63	32	0.2~0.3
	14(P)	14	63	32	0.2~0.3
	16(P)	16	63	32	0.2~0.3
	18(P)	18	63	32	0.2~0.3
	19(P)	19	63	32	0.2~0.3
	20(P)	20	63	32	0.2~0.3
	25(P)	25	63	32	0.2~0.3

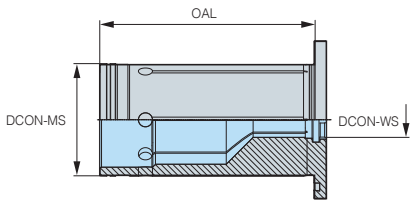
• Through coolant system is not available

M This is metric size. We can also provide in inch type

DHJ Collet

Jet coolant





(mm)

Designation		DCON-WS	OAL	DCON-MS	lbs
DHJ20-	6	6	50	20	0.1
	8	8	50	20	0.1
	10	10	50	20	0.1
	12	12	50	20	0.1
	14	14	50	20	0.08
	16	16	50	20	0.08

• Through coolant system is not available

M This is metric size. We can also provide in inch type

Zero fit collet

DZC



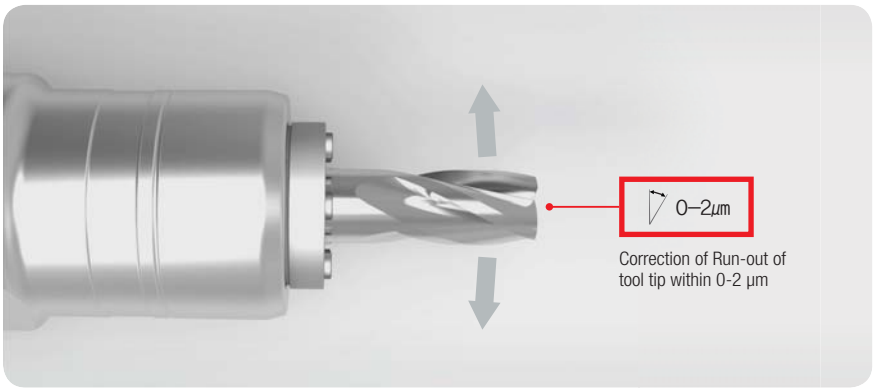
Correcting 10~20 μm Run-out generated at tool tip to 0-2 μm

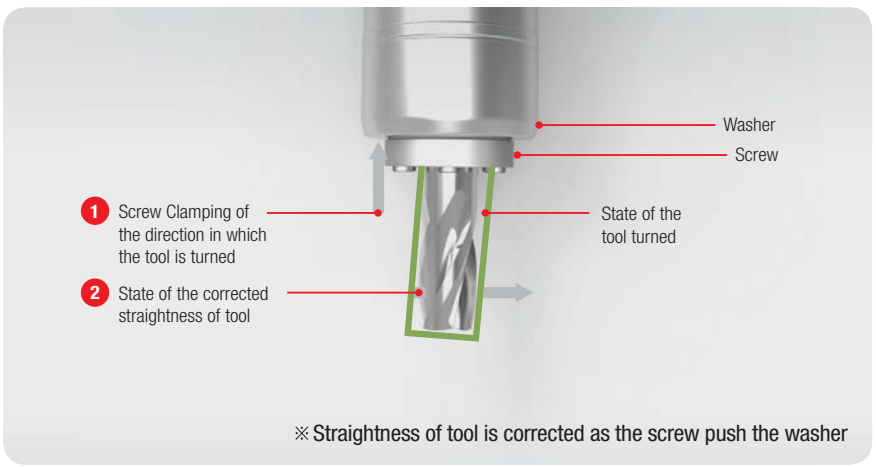
- Improves the Run-out and straightness of end tools
- Improves the surface roughness and quality of the machining area
- Improves the accuracy of boring hole dimension
- Improves the tool life of end tools

Code system

DZC	20	-	10
Zero fit collet	Collet size		Tool diameter

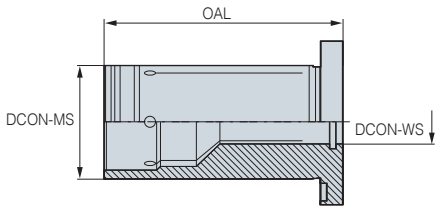
Features





DZC Collet





(mm)

Designation		DCON-WS	OAL	DCON-MS
DZC20-	6	6	57	20
	8	8	57	20
	10	10	57	20
	12	12	57	20
	14	14	57	20
	16	16	57	20
DZC32-	6	6	68	32
	8	8	68	32
	10	10	68	32
	12	12	68	32
	16	16	68	32
	20	20	68	32
	25	25	68	32

• Through coolant system is not available

M This is metric size. We can also provide in inch type

Precautions

- Run-out can be adjusted with small force.
- Excessive clamping of the adjustment screw may result in deformation of the product.
  (suggested clamping torque : less than 600cN·M)
- If the run-out adjustment screw is clamped using excessive force, all six screws must be completely unclamped and adjusted again.

Shrinking Chuck

DSC

- Use of specially heat-treated steel
- High precision machining and clamping
- Increased precision and longer tool life due to minimized overhang when machining deep grooves
- Applicable shank diameter: Ø3~20



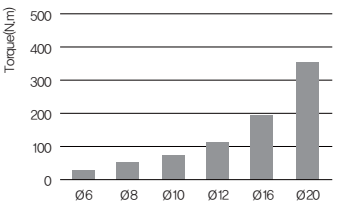
Code system

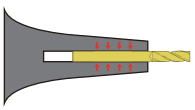
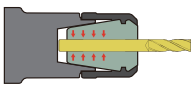
BT50 - DSC 6 - S - 16S - S

Shank type	Holder type	Tool diameter	Type	Length	Special
	DSC : Shrinking chuck SLK : 2-piece holder Collet		S : Silm M : Middle None : General		S : Curve type None : General

High Clamping Force

- Increase of 30% clamping force versus hydraulic expansion chuck
- Definite power transmission
- Run-out(≤0.003mm)



Symmetric design	Shrinking chuck	Collet chuck
	Fix the clearance between holder and tool by heat shrinking 	Fix the tool by elasticity of collet 
	Thermal expansion ▶ Thermal shrinking	Elastic deformation
	Highly strong clamping	Strong clamping

Slim type series

Straight type

Used by combining with various holders such as hydraulic expansion chuck, milling chuck, and collet chuck etc.



Mono type

Used with high precision as integral types



Tool tightening tolerance

(mm)

Tool Shank	Tool Shank Tolerance(h6)	Tool Shank	Tool Shank Tolerance(h6)	Tool Shank	Tool Shank Tolerance(h6)	Tool Shank	Tool Shank Tolerance(h6)
Ø3	0~-0.008	Ø6	0~-0.008	Ø12	0~-0.011	Ø25	0~-0.013
Ø4	0~-0.009	Ø8	0~-0.009	Ø16	0~-0.011	Ø32	0~-0.016
Ø5	0~-0.011	Ø10	0~-0.011	Ø20	0~-0.013		

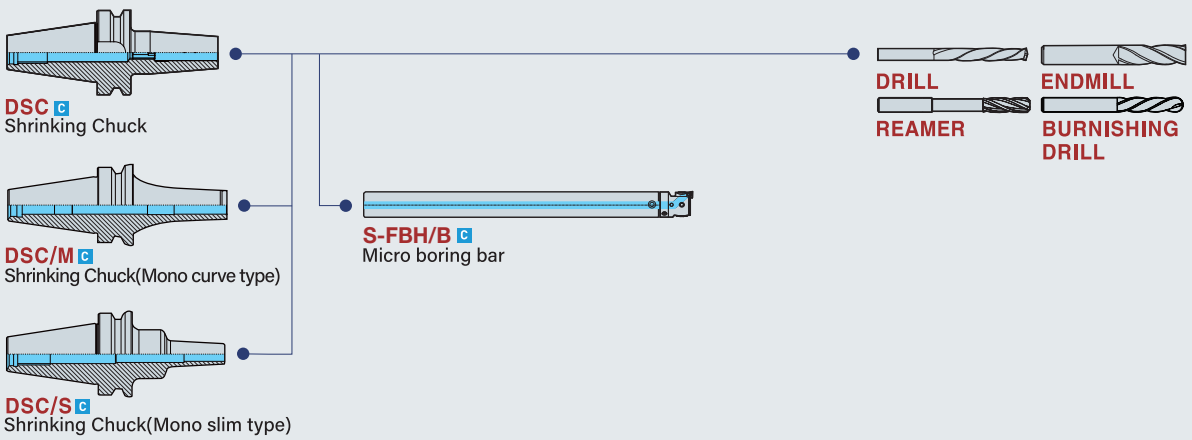
Min. tool insertion depth

(mm)

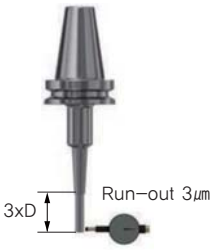
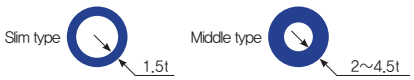
Inner Diameter	Type	Ø6	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
Min. tool insertion depth	Slim	18	24	30	30	-	-	-	-
	Medium	18	24	30	30	32	40	-	-
	General	26	26	32	37	37	40	42	52

DSC MAP

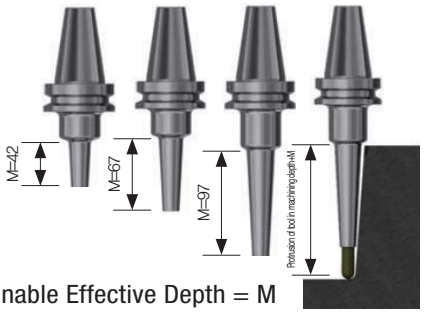
Shrinking Chuck



Mono type

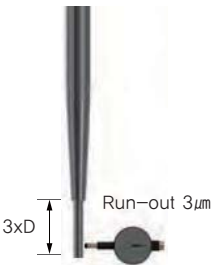
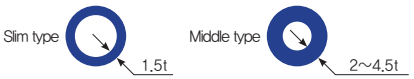
Figure	Accuracy	Type
		

- Ensures good rigidity by using special steel instead of general steel and maintains high-precision due to its excellent thermal resistance even when it is used moer than 5,000 times
- Enables stable cutting and good surface roughness due to its high rigidity
- Provides a long tool life due to its high-precision



Machinable Effective Depth = M

Straight Type

Figure	Accuracy	Type
		

Used by combining with various holders such as hydraulic expansion chuck, milling chuck, and collet chuck, etc.

- Straight types used by combining with various holders such as hydraulic expansion chuck and collet chuck, etc. maintain high-precision and help enable various machining operations at an affordable price
- There are more than 20 types of shanks that can be used according to work situations

Examples



Ø6~Ø12 tools can be tightened
Various lengths and shank sizes

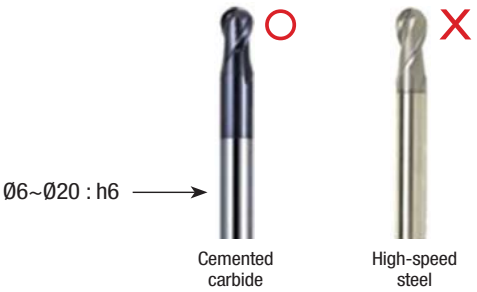


Lengths can be adjusted and used according to machining situations

Precautions in Use

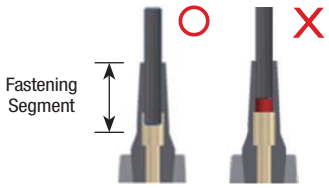
Tools to Use

- Use cemented carbide tools
- High-speed steel may not be disassembled
- Using an excessive tolerance tool affects clamping force, causing an accident



Precautions for Fastening Tools

- Maintain clean state by removing rust, dust, cutting oil, etc. generated by corrosion of the inner diameter of the chuck before tool tightening
- When tightening a tool, tighten it under the tightening section
- Tool tightening in the middle of the tightening section affects accuracy and durability
- When tightening a tool, touching the bottom surface affects accuracy



High-frequency Heating-related Precautions

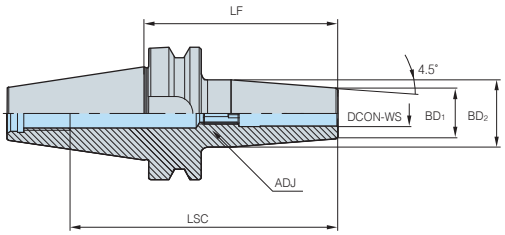
- When tightening/disassembling a tool, it is recommended that slim-type programmed shrink fit devices be used
- Using devices with no slim-type program may cause overheating. (Overheating may affect the product durability, service life, and accuracy.)

Storage Method

- When the shrink fit chuck is not used, the tool should be separated from the chuck. (Long-time connection may affect the service life of the product.)
- After using the shrink fit chuck, be sure to remove moisture and use inhibited oil and rust-preventing spray to prevent rust from occurring. (Less rust occurs compared to general steel as special steel is used; however, long-time non-use may cause rust occurrence.)

BT-DSC





(mm)

Designation		DCON-WS	LF	BD1	BD2	LSC	ADJ	RPMX	lbs
BT30-	DSC3-60	3	60	11	18.5	82	-	25,000	0.4
	DSC4-60	4	60	13	20.5	82	-	25,000	0.4
BT40-	DSC6-90	6	90	21	27	36	M5	20,000	1.1
	DSC6-120	6	120	21	27	36	M5	20,000	1.2
	DSC6-160	6	160	21	27	36	M5	20,000	1.4
	DSC8-90	8	90	21	27	36	M5	20,000	1.1
	DSC8-120	8	120	21	27	36	M5	20,000	1.2
	DSC8-160	8	160	21	27	36	M5	20,000	1.4
	DSC10-90	10	90	24	32	42	M8	20,000	1.1
	DSC10-120	10	120	24	32	42	M8	20,000	1.3
	DSC10-160	10	160	24	32	42	M8	20,000	1.6
	DSC12-90	12	90	24	32	47	M8	20,000	1.1
	DSC12-120	12	120	24	32	47	M8	20,000	1.3
	DSC12-160	12	160	24	32	47	M8	20,000	1.6
	DSC16-90	16	90	27	34	50	M12	20,000	1.2
	DSC16-120	16	120	27	34	50	M12	20,000	1.3
	DSC16-160	16	160	27	34	50	M12	20,000	1.7
	DSC20-90	20	90	33	42	52	M12	20,000	1.3
	DSC20-120	20	120	33	42	52	M12	20,000	1.5
	DSC20-160	20	160	33	42	52	M12	20,000	2.0

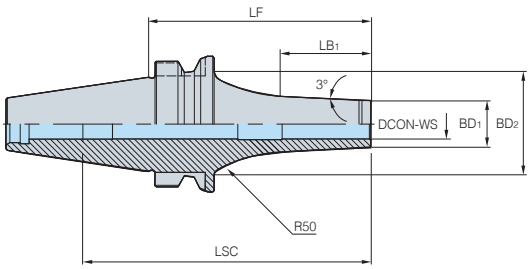
• LSC : Insertion depth of tool • Through coolant system is installed

M This is metric size. We can also provide in inch type

BT-DSC/M

Mono Curve type





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LSC	RPMX	lbs
BT30-	DSC3M-75S	3	75	8	25	30	97	25,000	0.4
	DSC4M-75S	4	75	10	25	32	97	25,000	0.4
	DSC6M-75S	6	75	12	30	29	97	25,000	0.5
	DSC8M-75S	8	75	14	32	29	97	25,000	0.5
	DSC10M-75S	10	75	16	32	31	45	25,000	0.5
	DSC12M-75S	12	75	19	32	34	45	25,000	0.5

• LSC : Insertion depth of tool • Through coolant system is installed

M This is metric size. We can also provide in inch type

BT-DSC/M

Mono type



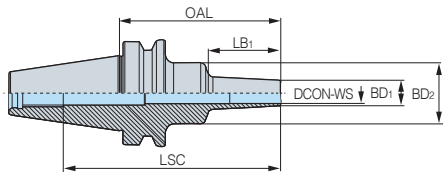


Fig. 1

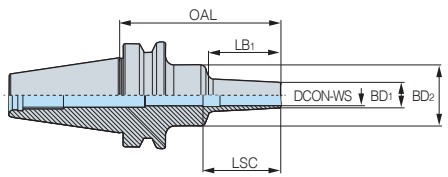


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LSC	RPMX	Fig.	lbs
BT40-	DSC3M-95	3	95	8	26	42	128	20,000	1	1.1
	DSC4M-95	4	95	8	26	42	128	20,000	1	1.1
	DSC6M-95	6	95	10	26	42	128	20,000	1	1.0
	DSC6M-120	6	120	10	26	67	153	20,000	1	1.0
	DSC6M-160	6	160	10	36	97	193	20,000	1	1.2
	DSC8M-95	8	95	13	36	42	128	20,000	1	1.3
	DSC8M-120	8	120	13	36	67	153	20,000	1	1.3
	DSC8M-160	8	160	13	36	97	193	20,000	1	1.3
	DSC10M-95	10	95	16	36	42	128	20,000	1	1.1
	DSC10M-120	10	120	16	36	67	153	20,000	1	1.1
	DSC10M-160	10	160	16	36	97	193	20,000	1	1.3
	DSC12M-95	12	95	19	36	42	128	20,000	1	1.1
	DSC12M-120	12	120	19	36	67	153	20,000	1	1.2
	DSC12M-160	12	160	19	36	97	193	20,000	1	1.4
	DSC16M-95	16	95	24	50	42	47	20,000	2	1.3
	DSC16M-120	16	120	24	50	67	47	20,000	2	1.4
	DSC16M-160	16	160	24	50	97	47	20,000	2	1.7
	DSC20M-95	20	95	29	50	42	55	20,000	2	1.3
	DSC20M-120	20	120	29	50	67	55	20,000	2	1.5
	DSC20M-160	20	160	29	50	97	55	20,000	2	1.9
BT50-	DSC6M-110	6	110	10	26	42	163	15,000	1	3.5
	DSC6M-160	6	160	10	36	97	213	15,000	1	3.6
	DSC8M-110	8	110	13	36	42	163	15,000	1	3.7
	DSC8M-160	8	160	13	36	97	213	15,000	1	3.7
	DSC10M-110	10	110	16	36	42	163	15,000	1	3.7
	DSC10M-160	10	160	16	36	97	213	15,000	1	3.7
	DSC12M-110	12	110	19	36	42	163	15,000	1	3.7
	DSC12M-160	12	160	19	50	97	213	15,000	1	4.0
	DSC16M-110	16	110	24	50	42	163	15,000	1	3.9
	DSC16M-160	16	160	24	50	97	213	15,000	1	4.1
	DSC20M-110	20	110	29	50	42	55	15,000	2	3.9
	DSC20M-160	20	160	29	50	97	55	15,000	2	4.2

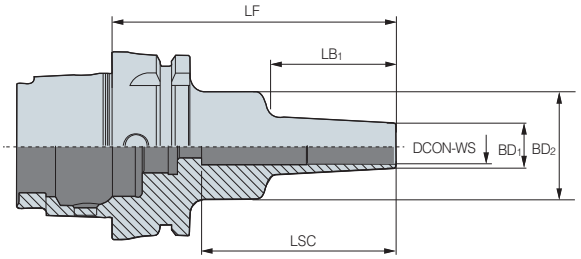
• LSC : Insertion depth of tool • Through coolant system is installed

M This is metric size. We can also provide in inch type

HSK-DSC/M

Mono type





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LSC	RPMX	lbs
HSK63A-	DSC6M-95	6	95	10	26	42	73	20,000	0.7
	DSC8M-95	8	95	13	36	42	39	20,000	0.8
	DSC10M-120	10	120	16	36	67	45	20,000	0.8
	DSC12M-120	12	120	19	36	67	45	20,000	0.9
	DSC16M-120	16	120	24	50	67	47	20,000	1.1

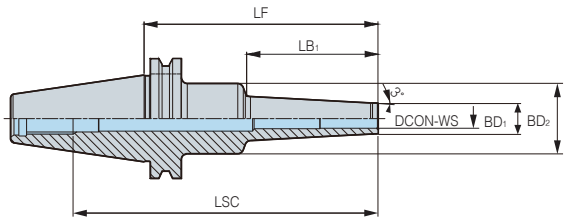
• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

M This is metric size. We can also provide in inch type

SK-DSC/M

Mono type





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LSC	RPMX	lbs
SK40-	DSC6M-95	6	95	10	26	42	131	20,000	0.8
	DSC6M-120	6	120	10	26	67	156	20,000	1.0
	DSC8M-95	8	95	13	36	42	131	20,000	1.4
	DSC8M-120	8	120	13	36	67	156	20,000	1.0
	DSC10M-95	10	95	16	36	42	131	20,000	1.0
	DSC10M-120	10	120	16	36	67	156	20,000	1.0
	DSC12M-95	12	95	19	36	42	131	20,000	1.0
	DSC12M-120	12	120	19	36	67	156	20,000	1.1
	DSC16M-95	16	95	24	50	42	47	20,000	1.3
	DSC16M-120	16	120	24	50	67	47	20,000	1.4
	DSC20M-95	20	95	29	50	42	55	20,000	1.3
	DSC20M-120	20	120	29	50	67	55	20,000	1.4

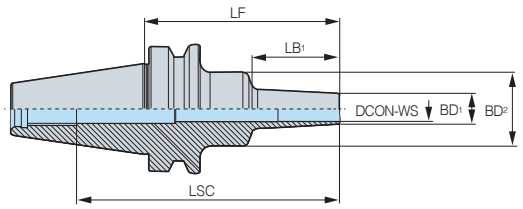
• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

M This is metric size. We can also provide in inch type

BT-DSC/S

Mono Slim type





(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LB_1	LSC	RPMX	lbs
BT30-	DSC6S-60	6	60	9	20	22	82	25,000	0.4
	DSC6S-80	6	80	9	20	42	102	25,000	0.5
	DSC6S-120	6	120	9	25	67	142	25,000	0.5
BT40-	DSC6S-95	6	95	9	26	42	128	20,000	1.0
	DSC6S-120	6	120	9	26	67	153	20,000	1.0
	DSC6S-160	6	160	9	36	97	193	20,000	1.2
	DSC8S-95	8	95	11	36	42	128	20,000	1.1
	DSC8S-120	8	120	11	36	67	153	20,000	1.1
	DSC8S-160	8	160	11	36	97	193	20,000	1.2
	DSC10S-95	10	95	13	36	42	128	20,000	1.0
	DSC10S-120	10	120	13	36	67	153	20,000	1.1
	DSC10S-160	10	160	13	36	97	193	20,000	1.2
	DSC12S-95	12	95	15	36	42	128	20,000	1.1
	DSC12S-120	12	120	15	36	67	153	20,000	1.1
	DSC12S-160	12	160	15	36	97	193	20,000	1.2
BT50-	DSC6S-110	6	110	9	26	42	166	15,000	3.5
	DSC6S-160	6	160	9	36	97	216	15,000	3.6
	DSC8S-110	8	110	11	36	42	166	15,000	3.6
	DSC8S-160	8	160	11	36	97	216	15,000	3.6
	DSC10S-110	10	110	13	36	42	166	15,000	3.6
	DSC10S-160	10	160	13	36	97	216	15,000	3.6
	DSC12S-110	12	110	15	36	42	166	15,000	3.6
	DSC12S-160	12	160	15	36	97	216	15,000	3.7

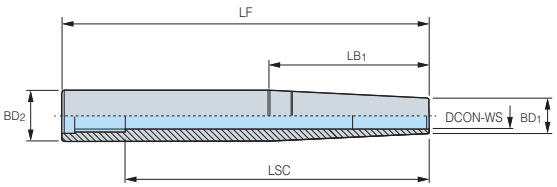
• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

M This is metric size. We can also provide in inch type

ST-DSC/M

Straight Shank Shrinking Chuck





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LSC	lbs
ST16-	DSC6M-115	6	115	10	16	50	95	0.1
	DSC6M-140	6	140	10	16	60	120	0.1
ST20-	DSC6M-175	6	175	10	20	95	155	0.2
	DSC8M-145	8	145	13	20	70	125	0.2
	DSC10M-120	10	120	16	20	50	45	0.2
ST25-	DSC8M-175	8	175	13	25	105	155	0.4
	DSC10M-145	10	145	16	25	75	45	0.4
	DSC10M-175	10	175	16	25	105	45	0.4
	DSC12M-120	12	120	19	25	50	45	0.3
	DSC12M-150	12	150	19	25	80	45	0.4
	DSC16M-175	16	175	24	25	50	47	0.5
ST32-	DSC20M-175	20	175	29	32	50	55	0.8

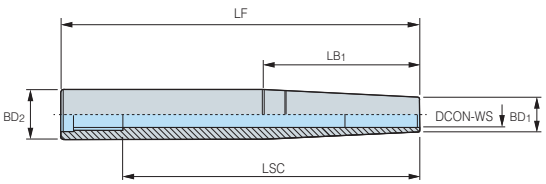
• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

M This is metric size. We can also provide in inch type

ST-DSC/S

Straight Shank Shrinking Chuck





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LSC	lbs
ST16-	DSC6S-115	6	115	9	16	55	95	0.1
	DSC6S-140	6	140	9	16	70	120	0.1
	DSC8S-115	8	115	11	16	50	95	0.1
ST20-	DSC6S-175	6	175	9	20	105	155	0.2
	DSC8S-175	8	175	11	20	85	155	0.2
	DSC10S-145	10	145	13	20	75	77	0.2
	DSC12S-120	12	120	15	20	50	52	0.2
ST32-	DSC12S-315	12	315	15	32	185	295	1.2

• LSC : Insertion depth of tool • Adjustment screw not available • Through coolant system is installed

M This is metric size. We can also provide in inch type

Parts

Basic											
Type		DSC6	DSC8	DSC10	DSC12	DSC14	DSC16	DSC18	DSC20	DSC25	DSC32
Adjust screw		M520C		M820C		M1230C					

CAT Milling Chuck

CAT Milling Chuck

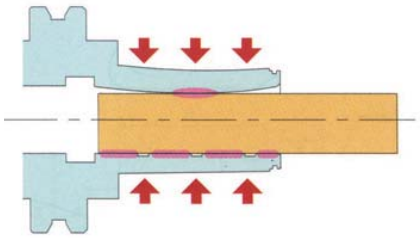


Code system

CAT40B	C	1 1/4	4.72
Spindle B = AD/B Coolant	**Milling Chuck**	**Tool Dia.**	**Length**

Radial Groove

- Guarantees even clamping force and minimizes vibration/noise by applying a slot groove in the radial direction



Axial Groove

- Axial slot grooves prevent tool slippage by discharging chips during machining
- Clamping Range : Ø3/4 ~ Ø1 1/4

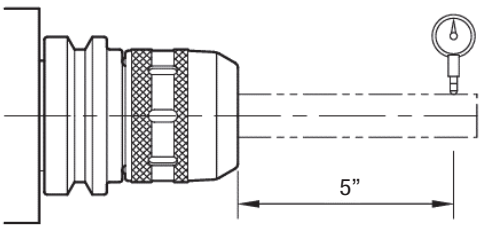


Strong Clamping Force

- X-SLOT system provides strong clamping force from the entrance
  - CAT40B-C1 1/4 : Min. 260kgf·m
  - CAT50B-C1 1/4 : Min. 360kgf·m

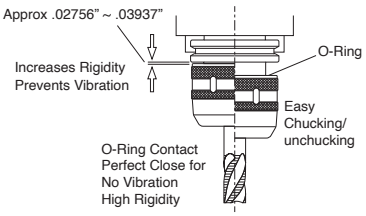
High Precision

- Within 10㎛ at 5” pitch
- T.I.R : Under 10㎛
- L : 5”



Using O-ring for reduced cutting vibration and increased tool life

[High rigidty maximize flexibility]



- By applying an O-ring to the nut, cutting vibration is reduced and tool life is increased
- It also plays an important role in increasing the durability of the milling chuck by preventing the inflow of chips and cutting oil

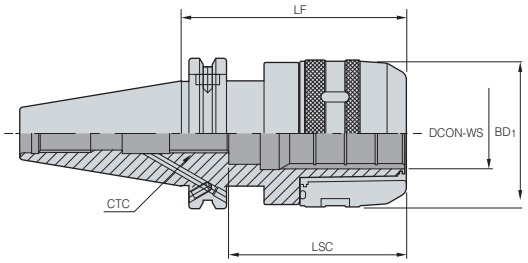
Sub-zero treatment after carburizing



- Remaining austenite of the DINE Milling Chuck is removed through ultra-low temperature treatment below -148° after carburizing heat treatment
- This improves hardness and wear resistance and prevents shape deformation

Milling Chuck





inch

Designation		DCON-WS	LF	BD1	LSC	ADJ	COLLET
CAT40B-	C3/4-5.91	3/4	5.91	2.09	2.68	M16*P2.0	C3/4
	C3/4-3.35	3/4	3.35	2.09	2.68	M16*P2.0	C3/4
	C1-5.91	1	5.91	2.44	2.95	M16*P2.0	C1
	C1-3.74	1	3.74	2.44	2.95	M16*P2.0	C1
	C11/4-4.72	11/4	4.72	2.76	3.07	M16*P2.0	C1 1/4
	C11/4-5.91	11/4	5.91	2.76	3.07	M16*P2.0	C1 1/4
CAT50B-	C3/4-5.31	3/4	5.31	2.09	2.76	M16*P2.0	C3/4
	C3/4-6.50	3/4	6.5	2.09	2.72	M16*P2.0	C3/4
	C3/4-3.54	3/4	3.54	2.09	2.72	M16*P2.0	C3/4
	C1-5.31	1	5.31	2.44	2.95	M16*P2.0	C1
	C1-6.50	1	6.5	2.44	2.95	M16*P2.0	C1
	C1-3.54	1	3.54	2.44	2.95	M16*P2.0	C1
	C11/4-5.31	11/4	5.31	2.91	3.74	M16*P2.0	C1 1/4
	C11/4-6.50	11/4	6.5	2.91	3.74	M16*P2.0	C1 1/4
	C11/4-3.54	11/4	3.54	2.76	3.07	M16*P2.0	C1 1/4

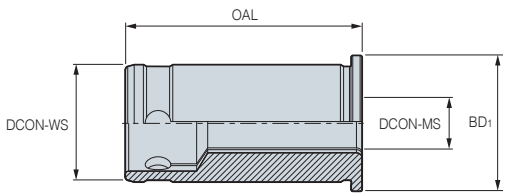
Parts

Basic		
Division	Collet	Spanner
Parts / Designation		
C3/4	C3/4	57-60
C1	C1	61-65
C1 1/4	C1 1/4	75-79

CAT-C

Straight Collet





inch

Designation		DCON-WS	OAL	DCON-MS	BD1
C3/4-	1/4	3/4	2.09	1/4	0.98
	3/8	3/4	2.09	3/8	0.98
	1/2	3/4	2.09	1/2	0.98
	5/16	3/4	2.09	5/16	0.98
	5/8	3/4	2.09	5/8	0.98
	7/16	3/4	2.09	7/16	0.98
C1-	1/2	1	2.42	1/2	1.14
	1/4	1	2.42	1/4	1.14
	3/4	1	2.42	3/4	1.14
	3/8	1	2.42	3/8	1.14
	5/16	1	2.42	5/16	1.14
	5/8	1	2.42	5/8	1.14
	7/16	1	2.42	7/16	1.14
C1 1/4-	1/4	1 1/4	2.54	1/4	1.46
	5/16	1 1/4	2.54	5/16	1.46
	3/8	1 1/4	2.54	3/8	1.46
	7/16	1 1/4	2.54	7/16	1.46
	1/2	1 1/4	2.54	1/2	1.46
	5/8	1 1/4	2.54	5/8	1.46
	3/4	1 1/4	2.54	3/4	1.46
	13/16	1 1/4	2.54	13/16	1.46
	1	1 1/4	2.54	1	1.46
C3/4-	6	3/4	2.09	6	0.98
	8	3/4	2.09	8	0.98
	10	3/4	2.09	10	0.98
	12	3/4	2.09	12	0.98
	16	3/4	2.09	16	0.98
C1-	6	1	2.42	6	1.14
	8	1	2.42	8	1.14
	10	1	2.42	10	1.14
	12	1	2.42	12	1.14
	16	1	2.42	16	1.14
	20	1	2.42	20	1.14
C1 1/4-	6	1 1/4	2.54	6	1.46
	8	1 1/4	2.54	8	1.46
	10	1 1/4	2.54	10	1.46
	12	1 1/4	2.54	12	1.46
	16	1 1/4	2.54	16	1.46
	20	1 1/4	2.54	20	1.46
	25	1 1/4	2.54	25	1.46

New power milling chuck

NPM

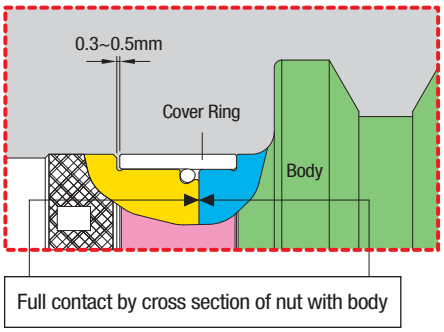


- Strong clamping over 500kgf·m (on NPM42 basis)
- DUST BLOCK functions for blocking foreign substance
- Jet coolant available
- High precision within 15 at L/D = 3
- Boring range: Ø20~42

Code system

BT40	-	NPM	32	-	110
Spindle		New Power Milling Chuck	Tool diameter		Length

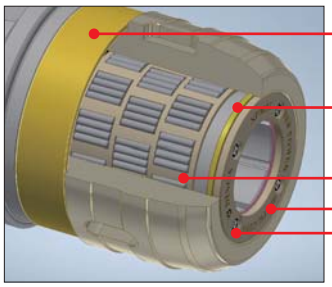
Improvement of durability by preventing minute dust, chips and coolant



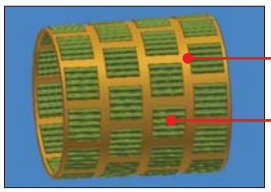
Full contact by cross section of nut with body

Adopted Stop Ring on Head parts
- Preventing minute dust by Shim & O-Ring

NPM Structural Features



· Needle Roller Bearing <NPM20>



- Specially designed Steel Bearing for prevention of damage
- Strong clamping by spreading the force

Stable machining from heavy to fine

- Perfect face contact and Powerful clamping force strengthen both Cutting force and Absorption of vibration.

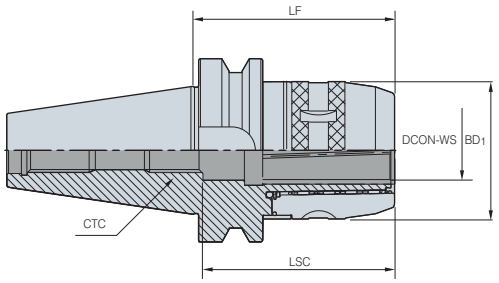


Depth of cut (Rd) = 1.0mm	Depth of cut (Rd) = 2.5mm	Depth of cut (Rd) = 3.5mm	Depth of cut (Rd) = 5.0mm	Depth of cut (Rd) = 8.0mm
				

Possible machining from heavy milling to fine finishing

DBT-NPM





(mm)

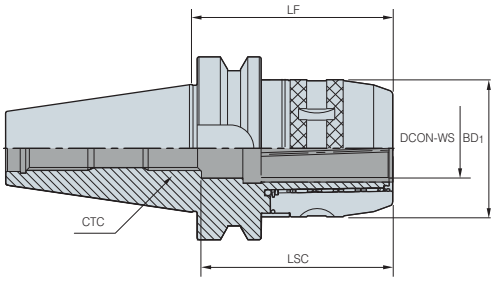
Designation		DCON-WS	LF	BD1	LSC	CTC	COLLET	lbs
DBT30-	NPM20-85	20	85	54	85	M16	DC20, DSC20, DCJ20	1.1
DBT40-	NPM20-85	20	85	54	85	M16	DC20, DSC20, DCJ20	2.3
	NPM20-100	20	100	54	85	M16	DC20, DSC20, DCJ20	2.4
	NPM20-135	20	135	54	85	M16	DC20, DSC20, DCJ20	2.5
	NPM25-85	25	85	61	83	M16	DC25,DCS25	1.8
	NPM32-90	32	90	75	85	M16	DC32, DCS32, DCJ32	2.4
	NPM32-110	32	110	75	95	M16	DC32, DCS32, DCJ32	2.9
	NPM32-120	32	120	75	95	M16	DC32, DCS32, DCJ32	3.1
	NPM32-135	32	135	75	95	M16	DC32, DCS32, DCJ32	3.4
DBT50-	NPM20-95	20	95	54	85	M16	DC20, DCS20, DCJ20	4.3
	NPM20-105	20	105	54	85	M16	DC20, DCS20, DCJ20	4.5
	NPM20-125	20	125	54	85	M16	DC20, DCS20, DCJ20	4.8
	NPM20-165	20	165	54	85	M16	DC20, DCS20, DCJ20	5.3
	NPM25-95	25	95	61	83	M16	DC25,DCS25	4.6
	NPM32-90	32	90	75	93	M24	DC32, DCS32, DCJ32	4.9
	NPM32-110	32	110	75	93	M24	DC32, DCS32, DCJ32	5
	NPM32-135	32	135	75	105	M24	DC32, DCS32, DCJ32	5.8
	NPM32-165	32	165	75	105	M24	DC32, DCS32, DCJ32	6.9
	NPM42-110	42	110	90	125	M24	DC42, DCS42	5.6
	NPM42-135	42	135	90	125	M24	DC42, DCS42	6.6
	NPM42-165	42	165	90	125	M24	DC42, DCS42	8

Spare Part **E40** Application Collet **E45**

• LSC: Insertion depth of tool • Through coolant system is optional
• In case of L ≤ 90, chucks with over 90mm are recommended for roughing by short cap
M This is metric size. We can also provide in inch type

BT-NPM





(mm)

Designation		DCON-WS	LF	BD1	LSC	CTC	COLLET	lbs
BT30-	NPM20-85	20	85	54	85	M16	DC20, DSC20, DCJ20	1.2
BT40-	NPM20-85	20	85	54	85	M16	DC20, DSC20, DCJ20	2.3
	NPM20-100	20	100	54	85	M16	DC20, DSC20, DCJ20	2.3
	NPM20-135	20	135	54	83	M16	DC20, DSC20, DCJ20	2.4
	NPM25-85	25	85	61	85	M16	DC25, DCS25	1.7
	NPM32-90	32	90	75	87	M16	DC32, DCS32, DCJ32	2.3
	NPM32-110	32	110	75	95	M16	DC32, DCS32, DCJ32	2.8
	NPM32-120	32	120	75	95	M16	DC32, DCS32, DCJ32	3
	NPM32-135	32	135	75	95	M16	DC32, DCS32, DCJ32	3.5
BT50-	NPM20-95	20	95	54	85	M16	DC20, DCS20, DCJ20	4.3
	NPM20-125	20	125	54	85	M16	DC20, DCS20, DCJ20	4.7
	NPM20-165	20	165	54	85	M16	DC20, DCS20, DCJ20	5.2
	NPM25-95	25	95	61	83	M16	DC25,DCS25	4.6
	NPM32-90	32	90	75	93	M24	DC32, DCS32, DCJ32	4.9
	NPM32-110	32	110	75	105	M24	DC32, DCS32, DCJ32	5.0
	NPM32-135	32	135	75	105	M24	DC32, DCS32, DCJ32	5.7
	NPM32-165	32	165	75	105	M24	DC32, DCS32, DCJ32	6.9
	NPM42-110	42	110	90	125	M24	DC42, DCS42	5.4
	NPM42-135	42	135	90	125	M24	DC42, DCS42	6.5
	NPM42-165	42	165	90	125	M24	DC42, DCS42	7.9

Spare Part **E40** Application Collet **E45**

• LSC: Insertion depth of tool • Through coolant system is optional
• In case of L ≤ 90, chucks with over 90mm are recommended for roughing by short cap

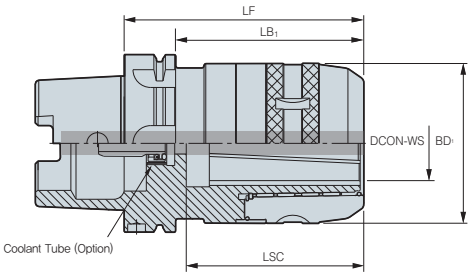
M This is metric size. We can also provide in inch type

Parts

For separate purchase			
Division	Collet	Spanner	Through coolant system
Parts / Designation			
NPM20	DC20, DCS20, DCJ20	57~60	CTC20-□□
NPM32	DC32, DCS32, DCJ32	75~79	CTC32-□□
NPM42	DC42, DCS42	92~96	CTC42-□□

HSK-NPM





(mm)

Designation		DCON-WS	LF	BD1	LB1	LSC	COLLET	lbs
HSK63A-	NPM20-100	20	100	54	74	75	DC20, DCS20, DCJ20	1.0
	NPM20-100	20	100	54	74	75	DC20, DCS20, DCJ20	1.6
	NPM25-100	25	100	61	74	75	DC25,DCS25	1.9
	NPM32-110	32	110	75	84	82	DC32, DCS32, DCJ32	2.5
	NPM32-120	32	120	75	84	90	DC32, DCS32, DCJ32	2.9
HSK100A-	NPM20-110	20	110	54	81	75	DC20,DCS20,DCJ20	3.0
	NPM25-110	25	110	61	81	75	DC25,DCS25,DCJ25	3.2
	NPM32-115	32	115	75	86	82	DC32,DCS32,DCJ32	4.1
	NPM32-130	32	130	75	101	90	DC32,DCS32,DCJ32	4.0
	NPM42-135	42	135	90	106	100	DC42,DCS42	5.7

Spare Part **E41** Application Collet **E45**

• LSC: Insertion depth of tool • Through coolant system is optional

M This is metric size. We can also provide in inch type

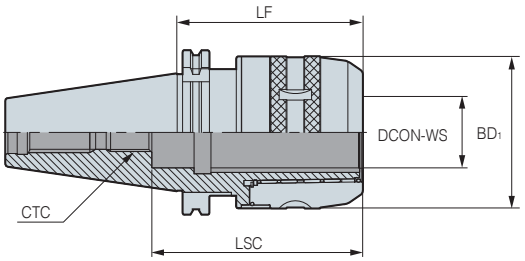
Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK50	HSK50A-CNS
HSK63	HSK63A-CNS
HSK100	HSK100A-CNS

SK-NPM





(mm)

Designation		DCON-WS	LF	BD1	LSC	CTC	COLLET	lbs
SK40-	NPM20-95	20	95	54	85	M16	DC20, DCS20, DCJ20	2.4
	NPM32-95	32	95	75	85	M16	DC32, DCS32, DCJ32	2.4
	NPM32-110	32	110	75	95	M16	DC32, DCS32, DCJ32	2.8
	NPM32-135	32	135	75	95	M16	DC32, DCS32, DCJ32	3.2
SK50-	NPM20-100	20	100	54	85	M16	DC20, DCS20, DCJ20	3.6
	NPM32-100	32	100	75	105	M24	DC32, DCS32, DCJ32	4.3
	NPM32-130	32	130	75	105	M24	DC32, DCS32, DCJ32	5.2
	NPM42-110	42	110	90	125	M24	DC42, DCS42	5.2
	NPM42-135	42	135	90	125	M24	DC42, DCS42	6.1

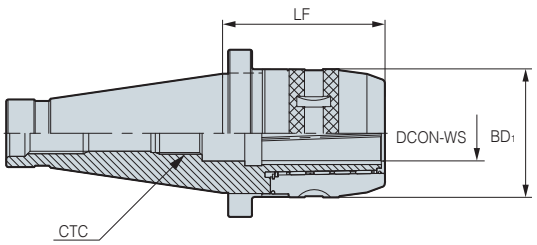
Spare Part **E40** Application Collet **E45**

• LSC: Insertion depth of tool • Through coolant system is optional

M This is metric size. We can also provide in inch type

NT-NPM





(mm)

Designation		DCON-WS	LF	BD1	CTC	COLLET	lbs
NT40-	NPM32-95	32	95	75	M16	DC32, DCS32, DCJ32	2.7
NT50-	NPM32-95	32	95	75	M24	DC32, DCS32, DCJ32	4.3
	NPM42-95	42	95	90	M24	DC42, DCS42	4.8
NT50M-	NPM32-95	32	95	75	M24	DC32, DCS32, DCJ32	4.4
	NPM42-95	42	95	90	M24	DC42, DCS42	4.9

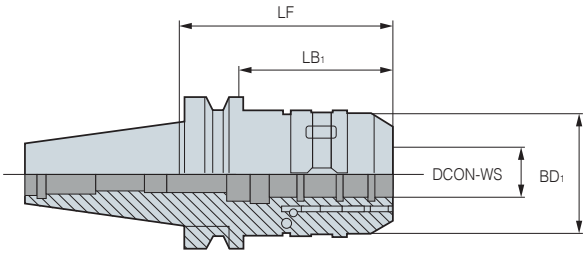
Spare Part **E40** Application Collet **E45**

• Through coolant system is optional

M This is metric size. We can also provide in inch type

BT-DMC





(mm)

Designation		DCON-WS	LF	BD1	LB1	COLLET	lbs
BT30-	DMC20-80	20	80	54	80	DC20, DCS20	1
BT40-	DMC20-90	20	90	54	80	DC20, DCS20	2.3
	DMC32-105	32	105	75	95	DC32, DCS32	2.9
BT50-	DMC32-105	32	105	75	95	DC32, DCS32	4.9
	DMC32-165	32	165	75	95	DC32, DCS32	6.7
	DMC42-105	42	105	90	125	DC42, DCS42	5.2
	DMC42-165	42	165	90	125	DC42, DCS42	8

Spare Part **E43** Application Collet **E45**

• Through coolant system is optional

M This is metric size. We can also provide in inch type

Parts

Division	For separate purchase
Spanner	

Classification by shank	
DMC 20	57-60
DMC 32	75-79
DMC 42	92-96

Lock collet for milling chuck

DCL



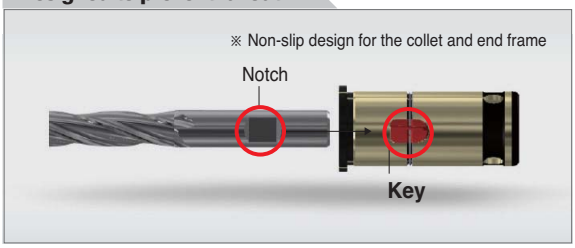
- The mechanical fastening method enables the prevention of tool deviation
- Stable tool fastening force even under extreme machining conditions

Code system

DCL	32	-	20
DINE lock-collet	Collet size		Tool diameter

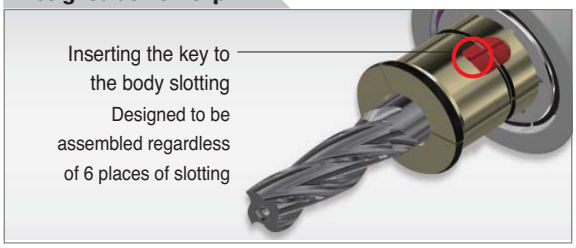
Features

Designed to prevent fallout



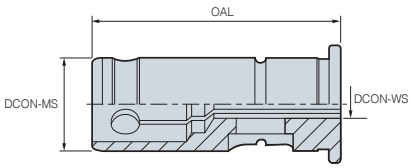
- Designed especially for extreme machining with a lot of mechanical actions, prevents the tool from deviating or falling out
- Weldon flat (DIN 6535HB) end mill used

Designed as non-slip



- Closely adhered to the grooves of the milling chuck - No slip occurring even under high torque

Detailed Specifications



(mm)

Designation	DCON-WS	OAL	DCON-MS
DCL20-6	6	53	20
DCL20-8	8	53	20
DCL20-10	10	53	20
DCL20-12	12	53	20
DCL20-14	14	53	20
DCL20-16	16	53	20
DCL32-6	6	65	32
DCL32-8	8	65	32

Designation	DCON-WS	OAL	DCON-MS
DCL32-10	10	65	32
DCL32-12	12	65	32
DCL32-14	14	65	32
DCL32-16	16	65	32
DCL32-18	18	65	32
DCL32-20	20	65	32
DCL32-25	25	65	32

M This is metric size. We can also provide in inch type

Parts

Basic			Basic		
Division	Key	C-Grip	Division	Key	C-Grip
Parts / Designation			Parts / Designation		
DCL20-6	DCL20-6K	DCL-CG20	**DCL32-10**	DCL32-10K	DCL-CG32
DCL20-8	DCL20-8K	DCL-CG20	**DCL32-12**	DCL32-12K	DCL-CG32
DCL20-10	DCL20-10K	DCL-CG20	**DCL32-14**	DCL32-14K	DCL-CG32
DCL20-12	DCL20-12K	DCL-CG20	**DCL32-16**	DCL32-16K	DCL-CG32
DCL20-14	DCL20-14K	DCL-CG20	**DCL32-18**	DCL32-18K	DCL-CG32
DCL20-16	DCL20-16K	DCL-CG20	**DCL32-20**	DCL32-20K	DCL-CG32
DCL32-6	DCL32-6K	DCL-CG32	**DCL32-25**	DCL32-25K	DCL-CG32
DCL32-8	DCL32-8K	DCL-CG32			

Jetcoolant collet (for milling chuck)

DCJ

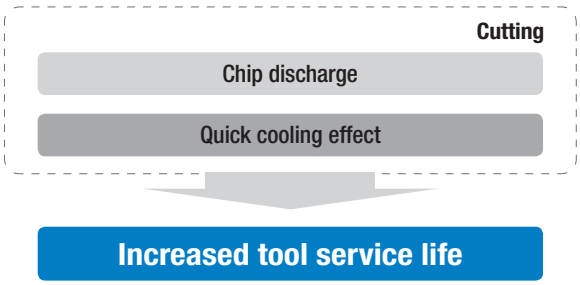
- Ensures a longer tool life of cutting tools by preventing chips from adhering to tools
- Improveds chip breakability/breaking strong jet injection
- Maintains the performance of the conventional milling chuck
- Enables a fast change of the inside jet coolant by collet replacement
- Available an ultrahigh-pressure inside coolant



Designation		Ø6	Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
NPM	20	●	●	●	●	●			
	32	●	●	●	●	●	●	●	
	42	●	●	●	●	●	●	●	●

• Can be used for an ultrahigh-pressure inside coolant

NPM + Jet coolant Collet



Easy assembly



※ Can be used by only combining a collet with the conventional chuck (NPM)

Coolant type



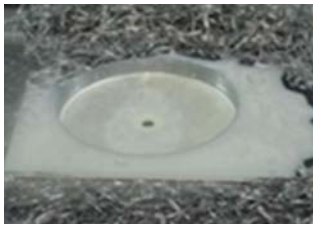
• Jet coolant



• Inside coolant

Chip evacuation





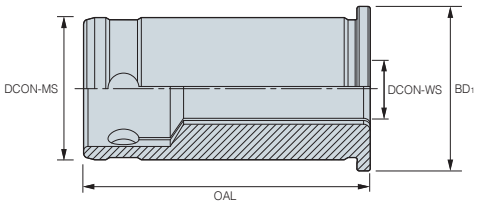
Coolant type

Designation	
DCJ20	DCJ20-6
	DCJ20-8
	DCJ20-10
	DCJ20-12
	DCJ20-16
DCJ32	DCJ32-6
	DCJ32-8
	DCJ32-10
	DCJ32-12
	DCJ32-16
	DCJ32-20
	DCJ32-25

DC Collet

Straight Collet





(mm)

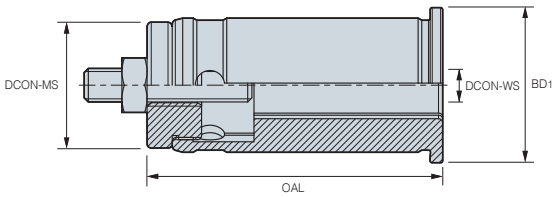
Designation		DCON-WS	OAL	DCON-MS	BD1	lbs
DC	20-6	6	53	20	25	0.1
	20-8	8	53	20	25	0.1
	20-10	10	53	20	25	0.1
	20-12	12	53	20	25	0.1
	20-14	14	53	20	25	0.1
	20-16	16	53	20	25	0.1
	25-6	6	62	25	29	0.2
	25-8	8	62	25	29	0.2
	25-10	10	62	25	29	0.2
	25-12	12	62	25	29	0.2
	25-16	16	62	25	29	0.2
	32-6	6	65	32	37	0.2
	32-8	8	65	32	37	0.2
	32-10	10	65	32	37	0.2
	32-12	12	65	32	37	0.2
	32-14	14	65	32	37	0.2
	32-16	16	65	32	37	0.2
	32-19	19	65	32	37	0.2
	32-20	20	65	32	37	0.2
	32-25	25	65	32	37	0.2
	42-6	6	73	42	47	0.5
	42-8	8	73	42	47	0.5
	42-10	10	73	42	47	0.5
	42-12	12	73	42	47	0.5
	42-16	16	73	42	47	0.5
	42-20	20	73	42	47	0.5
	42-25	25	73	42	47	0.5
	42-32	32	73	42	47	0.5

M This is metric size. We can also provide in inch type

DCS Collet

Straight Collet





(mm)

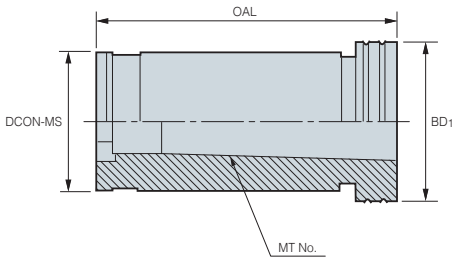
Designation		DCON-WS	OAL	DCON-MS	BD1	lbs
DCS	20-6	6	57	20	25	0.1
	20-8	8	57	20	25	0.1
	20-10	10	57	20	25	0.1
	20-12	12	57	20	25	0.1
	20-16	16	57	20	25	0.1
	32-6	6	70.5	32	37	0.2
	32-8	8	70.5	32	37	0.2
	32-10	10	70.5	32	37	0.2
	32-12	12	70.5	32	37	0.2
	32-14	14	70.5	32	37	0.2
	32-16	16	70.5	32	37	0.2
	32-19	19	70.5	32	37	0.2
	32-20	20	70.5	32	37	0.2
	32-25	25	70.5	32	37	0.2
	42-6	6	80	42	47	0.5
	42-8	8	80	42	47	0.5
	42-10	10	80	42	47	0.5
	42-12	12	80	42	47	0.5
	42-16	16	80	42	47	0.5
	42-20	20	80	42	47	0.5
	42-25	25	80	42	47	0.5
	42-32	32	80	42	47	0.5

M This is metric size. We can also provide in inch type

TC Collet

Taper Collet





(mm)

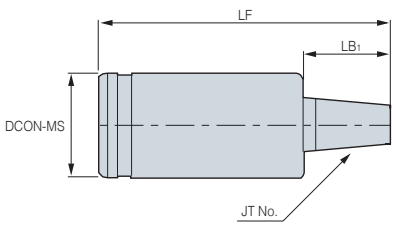
Designation		MT No.	OAL	BD1	DCON-MS	lbs
TC	20-1	MT1	60	26	20	0.1
	20-2	MT2	72	26	20	0.1
	25-1	MT1	60	32	25	0.2
	25-2	MT2	72	32	25	0.2
	32-1	MT1	60	38	32	0.4
	32-2	MT2	72	38	32	0.4
	32-3	MT3	90	38	32	0.4
	42-1	MT1	60	48	42	0.6
	42-2	MT2	72	48	42	0.7
	42-3	MT3	90	48	42	0.8
	42-4	MT4	113	48	42	0.9

M This is metric size. We can also provide in inch type

DJT

Drill Chuck Arbor





(mm)

Designation		JT No.	LF	DCON-MS	LB1	lbs
DJT	20-6	JT6	83	20	28	0.2
	32-6	JT6	93	32	28	0.5
	42-6	JT6	103	42	28	0.9

M This is metric size. We can also provide in inch type

Jetcoolant collet (for milling chuck)

ER Collet Chuck

- Superior efficiency for general machining due to affordable pricing and stable performance
- The sleeve nuts allows stable run-out when compared to other companies
- Wide fastening range applicable
- Various machining available just by replacing the collet
- Clamping Range : Ø1/16" ~ Ø13/16", Ø1 ~ Ø20mm

Code system

CAT40B	-	ER	-	16	-	3
Spindle B = AD/B Coolant		**Collet Chuck**		**ER Size**		**Length**

Bearing Nuts Designed for Improved Precision

- Soft Sleeve Bearing RN Nut



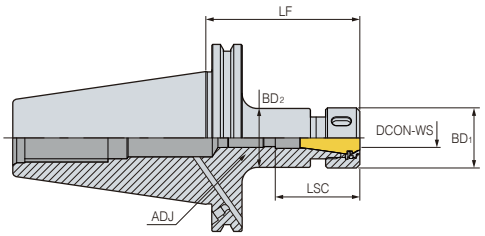
Jet Coolant Disk Applicable

- After replacing with RT/RUT nut, connect RTJW to use jet coolant - internal coolant



ER Collet Chuck





inch

Designation		DCON-WS	LF	BD1	BD2	LSC	Collet	ADJ
CAT40B-	ER11-3.00	0.0625~0.250	3	0.71	0.67	1.3	ER11	M7
	ER16-3.00	0.0625~0.406	3	1.26	1.22	1.77	ER16	M10
	ER16-5.00	0.0625~0.406	5	1.26	1.22	1.77	ER16	M10
	ER20-3.00	0.125~0.500	3	1.38	1.34	1.93	ER20	M13
	ER20-5.00	0.125~0.500	5	1.38	1.34	1.93	ER20	M13
	ER25-3.00	0.125~0.625	3	1.65	1.61	1.97	ER25	M10
	ER25-6.00	0.125~0.625	6	1.65	1.61	1.97	ER25	M18
	ER32-3.00	0.125~0.8125	3	1.97	1.93	2.36	ER32	M10
	ER32-6.00	0.125~0.8125	6	1.97	1.93	2.36	ER32	M22
CAT50B-	ER16-4.00	0.0625~0.406	4	1.26	1.22	1.77	ER16	M10
	ER16-6.00	0.0625~0.406	6	1.26	1.22	1.77	ER16	M10
	ER20-4.00	0.125~0.500	4	1.38	1.34	1.93	ER20	M13
	ER20-6.00	0.125~0.500	6	1.38	1.34	1.93	ER20	M13
	ER25-4.00	0.125~0.625	4	1.65	1.61	1.97	ER25	M18
	ER25-6.00	0.125~0.625	6	1.65	1.61	1.97	ER25	M18
	ER32-4.00	0.125~0.8125	4	1.97	1.93	2.36	ER32	M22
	ER32-6.00	0.125~0.8125	6	1.97	1.93	2.36	ER32	M22

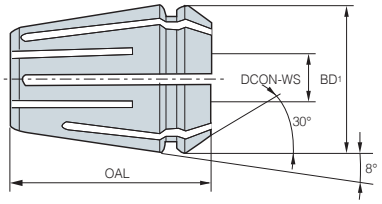
Spare Part **E50**

Parts

	Basic		For separate purchase	
Division	Nut	Adjust screw	Spanner	Collet
Parts / Designation				
ER11	RN11	BN0716F	20-22	ER11-ØD
ER16	RN16	BN1025F	32-35	ER16-ØD
ER20	RN20	BN1325F	35-38	ER20-ØD
ER25	RN25	BN1830F	42-46	ER25-ØD
ER32	RN32	BN2230F	48-52	ER32-ØD

CAT-ER





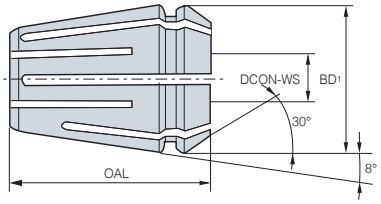
inch

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER16-	1/16	16	1/16	1.083	0.669	10μm
	3/32	16	3/32	1.083	0.669	10μm
	1/8	16	1/8	1.083	0.669	10μm
	5/32	16	5/32	1.083	0.669	10μm
	3/16	16	3/16	1.083	0.669	10μm
	7/32	16	7/32	1.083	0.669	10μm
	1/4	16	1/4	1.083	0.669	10μm
	9/32	16	9/32	1.083	0.669	10μm
	5/16	16	5/16	1.083	0.669	10μm
	11/32	16	11/32	1.083	0.669	10μm
	3/8	16	3/8	1.083	0.669	10μm
	13/32	16	13/32	1.083	0.669	10μm
ER20-	1/16	20	1/16	1.24	0.827	10μm
	3/32	20	3/32	1.24	0.827	10μm
	1/8	20	1/8	1.24	0.827	10μm
	5/32	20	5/32	1.24	0.827	10μm
	3/16	20	3/16	1.24	0.827	10μm
	7/32	20	7/32	1.24	0.827	10μm
	1/4	20	1/4	1.24	0.827	10μm
	9/32	20	9/32	1.24	0.827	10μm
	5/16	20	5/16	1.24	0.827	10μm
	11/32	20	11/32	1.24	0.827	10μm
	3/8	20	3/8	1.24	0.827	10μm
	13/32	20	13/32	1.24	0.827	10μm
	7/16	20	7/16	1.24	0.827	10μm
	15/32	20	15/32	1.24	0.827	10μm
	1/2	20	1/2	1.24	0.827	10μm

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER25-	1/16	25	1/16	1.339	1.024	10μm
	3/32	25	3/32	1.339	1.024	10μm
	1/8	25	1/8	1.339	1.024	10μm
	5/32	25	5/32	1.339	1.024	10μm
	3/16	25	3/16	1.339	1.024	10μm
	7/32	25	7/32	1.339	1.024	10μm
	1/4	25	1/4	1.339	1.024	10μm
	9/32	25	9/32	1.339	1.024	10μm
	5/16	25	5/16	1.339	1.024	10μm
	11/32	25	11/32	1.339	1.024	10μm
	3/8	25	3/8	1.339	1.024	10μm
	13/32	25	13/32	1.339	1.024	10μm
	7/16	25	7/16	1.339	1.024	10μm
	15/32	25	15/32	1.339	1.024	10μm
	1/2	25	1/2	1.339	1.024	10μm
	17/32	25	17/32	1.339	1.024	10μm
	9/16	25	9/16	1.339	1.024	10μm
	19/32	25	19/32	1.339	1.024	10μm
	5/8	25	5/8	1.339	1.024	10μm
ER32-	1/16	32	1/16	1.575	1.299	10μm
	3/32	32	3/32	1.575	1.299	10μm
	1/8	32	1/8	1.575	1.299	10μm
	5/32	32	5/32	1.575	1.299	10μm
	3/16	32	3/16	1.575	1.299	10μm
	7/32	32	7/32	1.575	1.299	10μm
	1/4	32	1/4	1.575	1.299	10μm
	9/32	32	9/32	1.575	1.299	10μm
	5/16	32	5/16	1.575	1.299	10μm
	11/32	32	11/32	1.575	1.299	10μm
	3/8	32	3/8	1.575	1.299	10μm
	13/32	32	13/32	1.575	1.299	10μm
	7/16	32	7/16	1.575	1.299	10μm
	15/32	32	15/32	1.575	1.299	10μm
	1/2	32	1/2	1.575	1.299	10μm
	17/32	32	17/32	1.575	1.299	10μm
	9/16	32	9/16	1.575	1.299	10μm
	19/32	32	19/32	1.575	1.299	10μm
	5/8	32	5/8	1.575	1.299	10μm
	21/32	32	21/32	1.575	1.299	10μm
	11/16	32	11/16	1.575	1.299	10μm
	23/32	32	23/32	1.575	1.299	10μm
	3/4	32	3/4	1.575	1.299	10μm
	25/32	32	25/32	1.575	1.299	10μm
	13/16	32	13/16	1.575	1.299	10μm

CAT-ER





(mm)

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER11-	1.0	11	1	18	11.5	10μm
	1.5	11	1.5	18	11.5	10μm
	2.0	11	2	18	11.5	10μm
	2.5	11	2.5	18	11.5	10μm
	3.0	11	3	18	11.5	10μm
	3.5	11	3.5	18	11.5	10μm
	4.0	11	4	18	11.5	10μm
	4.5	11	4.5	18	11.5	10μm
	5.0	11	5	18	11.5	10μm
	5.5	11	5.5	18	11.5	10μm
	6.0	11	6	18	11.5	10μm
	6.5	11	6.5	18	11.5	10μm
	7.0	11	7	18	11.5	10μm
ER16-	1.0	16	1	27.5	17	10μm
	2.0	16	2	27.5	17	10μm
	3.0	16	3	27.5	17	10μm
	4.0	16	4	27.5	17	10μm
	5.0	16	5	27.5	17	10μm
	6.0	16	6	27.5	17	10μm
	7.0	16	7	27.5	17	10μm
	8.0	16	8	27.5	17	10μm
	9.0	16	9	27.5	17	10μm
	10.0	16	10	27.5	17	10μm
ER20-	1.0	20	1	31.5	21	10μm
	2.0	20	2	31.5	21	10μm
	3.0	20	3	31.5	21	10μm
	4.0	20	4	31.5	21	10μm
	5.0	20	5	31.5	21	10μm
	6.0	20	6	31.5	21	10μm
	7.0	20	7	31.5	21	10μm
	8.0	20	8	31.5	21	10μm
	9.0	20	9	31.5	21	10μm
	10.0	20	10	31.5	21	10μm
	11.0	20	10	31.5	21	10μm
	12.0	20	12	31.5	21	10μm
	13.0	20	13	31.5	21	10μm

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER25-	2.0	25	2	34	26	10μm
	3.0	25	3	34	26	10μm
	4.0	25	4	34	26	10μm
	5.0	25	5	34	26	10μm
	6.0	25	6	34	26	10μm
	7.0	25	7	34	26	10μm
	8.0	25	8	34	26	10μm
	9.0	25	9	34	26	10μm
	10.0	25	10	34	26	10μm
	11.0	25	11	34	26	10μm
	12.0	25	12	34	26	10μm
	13.0	25	13	34	26	10μm
	14.0	25	14	34	26	10μm
	15.0	25	15	34	26	10μm
	16.0	25	16	34	26	10μm
ER32-	2.0	32	2	40	33	10μm
	3.0	32	3	40	33	10μm
	4.0	32	4	40	33	10μm
	5.0	32	5	40	33	10μm
	6.0	32	6	40	33	10μm
	7.0	32	7	40	33	10μm
	8.0	32	8	40	33	10μm
	9.0	32	9	40	33	10μm
	10.0	32	10	40	33	10μm
	11.0	32	11	40	33	10μm
	12.0	32	12	40	33	10μm
	13.0	32	13	40	33	10μm
	14.0	32	14	40	33	10μm
	15.0	32	15	40	33	10μm
	16.0	32	16	40	33	10μm
	17.0	32	17	40	33	10μm
	18.0	32	18	40	33	10μm
	19.0	32	19	40	33	10μm
	20.0	32	20	40	33	10μm

Precision collet chuck for multi purpose machining

SDC/P

- Superior efficiency for general machining due to affordable pricing and stable performance
- The sleeve nuts allows stable run-out when compared to other companies
- Wide fastening range applicable
- Various machining available just by replacing the collet
- Chucking range : Ø1~Ø26



Code system

BT30	-	SDC	10	-	P	100
Spindle		Collet chuck	Tool diameter		Precision	Length

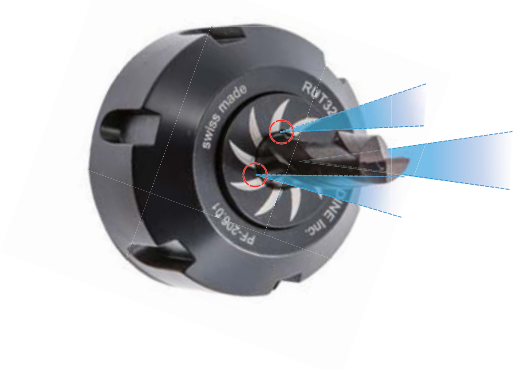
Bearing nuts designed for improved precision (SWISS Made +)

- Soft sleeve bearing RN Nut

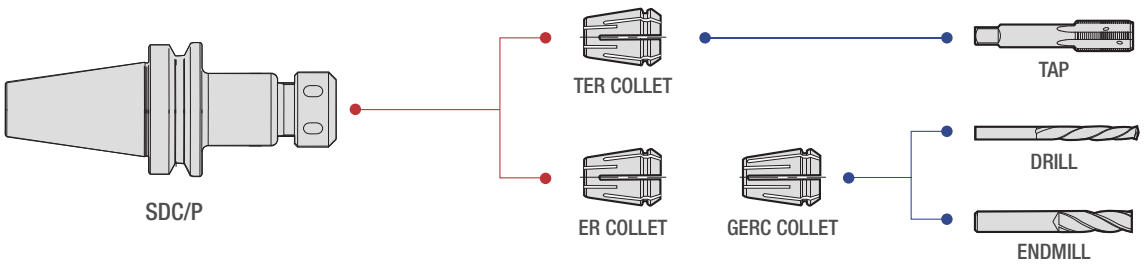


Jet coolant disk Applicable

- After replacing with RT/RUT nut, connect RTJW to use jet coolant - internal coolant



SDC/P Application



DBT-SDC/P



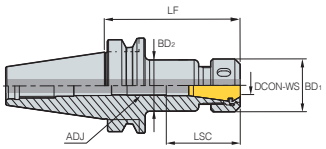


Fig. 1

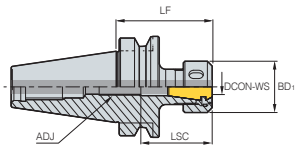


Fig. 2

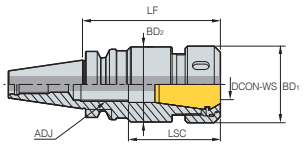


Fig. 3

(mm)

Designation		DCON-WS	LF	BD1	BD2	LSC	Collet/STEP	ADJ	Fig.	lbs
DBT30-	SDC7P-70	1.0~7.0	70	18	17	33	GERC11/0.5	M7	1	0.5
	SDC7P-100	1.0~7.0	100	18	17	33	GERC11/0.5	M7	1	0.5
	SDC10P-50	1.0~10.0	50	32	-	44.5	GERC16/1.0	M10	2	0.5
	SDC10P-70	1.0~10.0	70	32	31	44.5	GERC16/1.0	M10	1	0.6
	SDC10P-100	1.0~10.0	100	32	31	44.5	GERC16/1.0	M10	1	0.7
	SDC13P-50	1.0~13.0	50	35	-	49	GERC20/1.0	M13	2	0.5
	SDC13P-70	1.0~13.0	70	35	34	49	GERC20/1.0	M13	1	0.6
	SDC13P-100	1.0~13.0	100	35	34	49	GERC20/1.0	M13	1	0.8
	SDC16P-50	2.0~16.0	50	42	-	50	GERC25/1.0	M18	2	0.5
	SDC16P-70	2.0~16.0	70	42	41	50	GERC25/1.0	M18	1	0.7
	SDC16P-100	2.0~16.0	100	42	41	50	GERC25/1.0	M18	1	1.0
	SDC20P-60	2.0~20.0	60	50	-	60	GERC32/1.0	M22	2	0.6
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M22	3	1.0
	SDC20P-120	2.0~20.0	120	50	49	60	GERC32/1.0	M22	3	1.4
DBT40-	SDC7P-70	1.0~7.0	70	18	17	33	GERC11/0.5	M7	1	0.9
	SDC7P-90	1.0~7.0	90	18	17	33	GERC11/0.5	M7	1	0.9
	SDC7P-130	1.0~7.0	130	18	17	33	GERC11/0.5	M7	1	1.0
	SDC10P-70	1.0~10.0	70	32	31	44.5	GERC16/1.0	M10	1	1.0
	SDC10P-90	1.0~10.0	90	32	31	44.5	GERC16/1.0	M10	1	1.2
	SDC10P-130	1.0~10.0	130	32	31	44.5	GERC16/1.0	M10	2	1.4
	SDC13P-70	1.0~13.0	70	35	34	49	GERC20/1.0	M13	1	1.1
	SDC13P-90	1.0~13.0	90	35	34	49	GERC20/1.0	M13	1	1.2
	SDC13P-130	1.0~13.0	130	35	34	49	GERC20/1.0	M13	1	1.4
	SDC13P-150	1.0~13.0	150	35	34	49	GERC20/1.0	M13	1	1.6
	SDC16P-70	2.0~16.0	70	42	41	50	GERC25/1.0	M18	1	1.1
	SDC16P-90	2.0~16.0	90	42	41	50	GERC25/1.0	M18	1	1.3
	SDC16P-130	2.0~16.0	130	42	41	50	GERC25/1.0	M18	1	1.7
	SDC20P-70	2.0~20.0	70	50	-	60	GERC32/1.0	M22	2	1.1
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M22	1	1.4
	SDC20P-130	2.0~20.0	130	50	49	60	GERC32/1.0	M22	1	1.9
	SDC20P-150	2.0~20.0	150	50	49	60	GERC32/1.0	M22	1	2.2
	SDC26P-90	4.0~26.0	90	63	62	71	GERC40/1.0	M28	1	1.7

Spare Part **E55** Application Collet **E65**

- LSC: Insertion depth of tool
- Through coolant system is optional
- Collets in the right size are recommended for oil hole type

M This is metric size. We can also provide in inch type

DBT-SDC/P



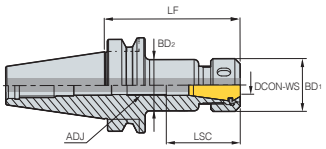


Fig. 1

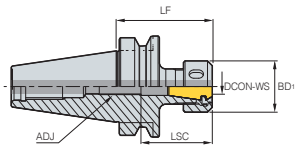


Fig. 2

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LSC	Collet/STEP	ADJ	Fig.	lbs
DBT50-	SDC10P-100	1.0~10.0	100	32	31	44.5	GERC16/1.0	M10	1	3.7
	SDC10P-120	1.0~10.0	120	32	31	44.5	GERC16/1.0	M10	1	3.7
	SDC10P-160	1.0~10.0	160	32	31	44.5	GERC16/1.0	M10	1	3.8
	SDC13P-100	1.0~13.0	100	35	34	49	GERC20/1.0	M13	1	3.8
	SDC13P-130	1.0~13.0	130	35	34	49	GERC20/1.0	M13	1	3.8
	SDC13P-160	1.0~13.0	160	35	34	49	GERC20/1.0	M13	1	4.1
	SDC13P-180	1.0~13.0	180	35	34	49	GERC20/1.0	M13	1	4.2
	SDC16P-100	2.0~16.0	100	42	41	50	GERC25/1.0	M18	1	3.9
	SDC16P-160	2.0~16.0	160	42	41	50	GERC25/1.0	M18	1	4.3
	SDC20P-70	2.0~20.0	70	50	-	60	GERC32/1.0	M22	2	1.7
	SDC20P-100	2.0~20.0	100	50	49	60	GERC32/1.0	M22	1	4.0
	SDC20P-130	2.0~20.0	130	50	49	60	GERC32/1.0	M22	1	4.3
	SDC20P-160	2.0~20.0	160	50	49	60	GERC32/1.0	M22	1	4.7
	SDC20P-180	2.0~20.0	180	50	49	60	GERC32/1.0	M22	1	5.0
	SDC26P-160	4.0~26.0	160	63	62	71	GERC40/1.0	M28	1	5.5

Spare Part **E55** Application Collet **E65**

- LSC: Insertion depth of tool
- Through coolant system is optional
- Collets in the right size are recommended for oil hole type

M This is metric size. We can also provide in inch type

Parts

Basic			For separate purchase	
Division	Sleeve bearing nut	Adjust screw	Spanner	Collet
Parts / Designation				
SDC7P	RN11	BN0716F	20~22	GERC/ER 11-ØD
SDC10P	RN16	BN1025F	32~35	GERC/ER 16-ØD
SDC13P	RN20	BN1325F	35~38	GERC/ER 20-ØD
SDC16P	RN25	BN1830F	42~46	GERC/ER 25-ØD
SDC20P	RN32	BN2230F	48~52	GERC/ER 32-ØD
SDC26P	RN40	BN2838F	62~65	GERC/ER 40-ØD

※ BT30-SDC13P-50/HSK63A-SDC13P-100 is applide with BN0716F screw.

BT-SDC/P



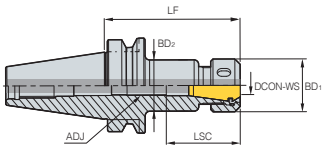


Fig. 1

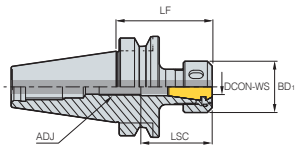


Fig. 2

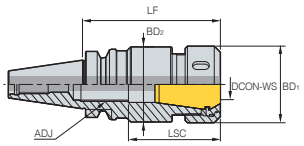


Fig. 3

(mm)

Designation		DCON-WS	LF	BD1	BD2	LSC	Collet/STEP	ADJ	Fig.	lbs
BT30-	SDC7P-70	1.0~7.0	70	18	17	33	GERC11/0.5	M7	1	0.5
	SDC7P-100	1.0~7.0	100	18	17	33	GERC11/0.5	M7	1	0.5
	SDC10P-50	1.0~10.0	50	32	-	44.5	GERC16/1.0	M10	2	0.5
	SDC10P-70	1.0~10.0	70	32	31	44.5	GERC16/1.0	M10	1	0.6
	SDC10P-100	1.0~10.0	100	32	31	44.5	GERC16/1.0	M10	1	0.7
	SDC13P-50	1.0~13.0	50	35	-	49	GERC20/1.0	M13	2	0.5
	SDC13P-70	1.0~13.0	70	35	34	49	GERC20/1.0	M13	1	0.6
	SDC13P-100	1.0~13.0	100	35	34	49	GERC20/1.0	M13	1	0.8
	SDC16P-50	2.0~16.0	50	42	-	50	GERC25/1.0	M18	2	0.5
	SDC16P-70	2.0~16.0	70	42	41	50	GERC25/1.0	M18	1	0.7
	SDC16P-100	2.0~16.0	100	42	41	50	GERC25/1.0	M18	1	1.0
	SDC20P-60	2.0~20.0	60	50	-	60	GERC32/1.0	M22	2	0.6
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M22	3	1.0
	SDC20P-120	2.0~20.0	120	50	49	60	GERC32/1.0	M22	3	1.4
BT40-	SDC7P-70	1.0~7.0	70	18	17	33	GERC11/0.5	M7	1	0.9
	SDC7P-90	1.0~7.0	90	18	17	33	GERC11/0.5	M7	1	0.9
	SDC7P-130	1.0~7.0	130	18	17	33	GERC11/0.5	M7	1	1.0
	SDC10P-70	1.0~10.0	70	32	31	44.5	GERC16/1.0	M10	1	1.0
	SDC10P-90	1.0~10.0	90	32	31	44.5	GERC16/1.0	M10	1	1.2
	SDC10P-130	1.0~10.0	130	32	31	44.5	GERC16/1.0	M10	2	1.4
	SDC13P-70	1.0~13.0	70	35	34	49	GERC20/1.0	M13	1	1.1
	SDC13P-90	1.0~13.0	90	35	34	49	GERC20/1.0	M13	1	1.2
	SDC13P-130	1.0~13.0	130	35	34	49	GERC20/1.0	M13	1	1.4
	SDC13P-150	1.0~13.0	150	35	34	49	GERC20/1.0	M13	1	1.6
	SDC16P-70	2.0~16.0	70	42	41	50	GERC25/1.0	M18	1	1.1
	SDC16P-90	2.0~16.0	90	42	41	50	GERC25/1.0	M18	1	1.3
	SDC16P-130	2.0~16.0	130	42	41	50	GERC25/1.0	M18	1	1.7
	SDC20P-70	2.0~20.0	70	50	-	60	GERC32/1.0	M22	2	1.1
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M22	1	1.4
	SDC20P-130	2.0~20.0	130	50	49	60	GERC32/1.0	M22	1	1.9
	SDC20P-150	2.0~20.0	150	50	49	60	GERC32/1.0	M22	1	2.2
	SDC26P-90	4.0~26.0	90	63	62	71	GERC40/1.0	M28	1	1.7

Spare Part **E55** Application Collet **E65**

- LSC: Insertion depth of tool
- Through coolant system is optional
- Collets in the right size are recommended for oil hole type

M This is metric size. We can also provide in inch type

BT-SDC/P



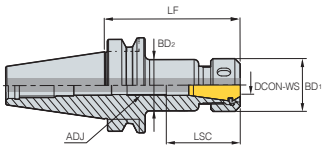


Fig. 1

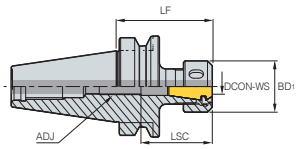


Fig. 2

(mm)

Designation		DCON-WS	LF	BD_1	BD_2	LSC	Collet/STEP	ADJ	Fig.	lbs
BT50-	SDC10P-100	1.0~10.0	100	32	31	44.5	GERC16/1.0	M10	1	3.7
	SDC10P-120	1.0~10.0	120	32	31	44.5	GERC16/1.0	M10	1	3.7
	SDC10P-160	1.0~10.0	160	32	31	44.5	GERC16/1.0	M10	1	3.8
	SDC13P-100	1.0~13.0	100	35	34	49	GERC20/1.0	M13	1	3.8
	SDC13P-130	1.0~13.0	130	35	34	49	GERC20/1.0	M13	1	3.8
	SDC13P-160	1.0~13.0	160	35	34	49	GERC20/1.0	M13	1	4.1
	SDC13P-180	1.0~13.0	180	35	34	49	GERC20/1.0	M13	1	4.2
	SDC16P-100	2.0~16.0	100	42	41	50	GERC25/1.0	M18	1	3.9
	SDC16P-160	2.0~16.0	160	42	41	50	GERC25/1.0	M18	1	4.3
	SDC20P-70	2.0~20.0	70	50	-	60	GERC32/1.0	M22	2	1.7
	SDC20P-100	2.0~20.0	100	50	49	60	GERC32/1.0	M22	1	4.0
	SDC20P-130	2.0~20.0	130	50	49	60	GERC32/1.0	M22	1	4.3
	SDC20P-160	2.0~20.0	160	50	49	60	GERC32/1.0	M22	1	4.7
	SDC20P-180	2.0~20.0	180	50	49	60	GERC32/1.0	M22	1	5.0
	SDC26P-160	4.0~26.0	160	63	62	71	GERC40/1.0	M28	1	5.5

Spare Part **E57** Application Collet **E65**

• LSC: Insertion depth of tool • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

M This is metric size. We can also provide in inch type

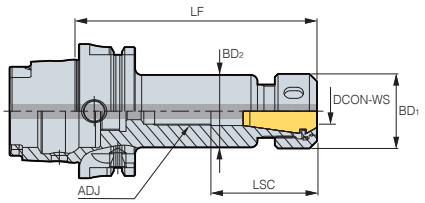
Parts

Basic			For separate purchase	
Division	Sleeve bearing nut	Adjust screw	Spanner	Collet
Parts / Designation				
SDC7P	RN11	BN0716F	20~22	GERC/ER 11-ØD
SDC10P	RN16	BN1025F	32~35	GERC/ER 16-ØD
SDC13P	RN20	BN1325F	35~38	GERC/ER 20-ØD
SDC16P	RN25	BN1830F	42~46	GERC/ER 25-ØD
SDC20P	RN32	BN2230F	48~52	GERC/ER 32-ØD
SDC26P	RN40	BN2838F	62~65	GERC/ER 40-ØD

※ BT30-SDC13P-50/HSK63A-SDC13P-100 is applide with BN0716F screw.

HSK-SDC/P





(mm)

Designation		DCON-WS	LF	BD1	BD2	LSC	ADJ	Collet/STEP	lbs
HSK63A-	SDC7P-100	1.0~7.0	100	18	17	33	M7	GERC11/0.5	0.9
	SDC7P-120	1.0~7.0	120	18	17	34	M8	GERC11/0.5	0.9
	SDC10P-100	1.0~10.0	100	32	31	44.5	M10	GERC16/1.0	1
	SDC10P-120	1.0~10.0	120	32	31	44.5	M10	GERC16/1.0	1
	SDC13P-100	1.0~13.0	100	35	34	P	M7	GERC20/1.0	1.1
	SDC13P-120	1.0~13.0	120	35	34	49	M7	GERC20/1.0	1.2
	SDC13P-150	1.0~13.0	150	35	34	49	M7	GERC20/1.0	1.2
	SDC16P-100	1.0~16.0	100	42	41	50	M7	GERC25/1.0	1.2
	SDC20P-110	1.0~20.0	110	50	49	60	M7	GERC32/1.0	1.5
	SDC26P-130	4.0~26.0	130	63	62	71	M10	GERC40/1.0	1.6
HSK100A-	SDC7P-100	1.0~7.0	100	18	17	33	M7	GERC11/0.5	2
	SDC10P-100	1.0~10.0	100	32	31	44.5	M10	GERC16/1.0	2.2
	SDC13P-100	1.0~13.0	100	35	34	49	M7	GERC20/1.0	2.4
	SDC16P-110	2.0~16.0	100	42	41	50	M13	GERC25/1.0	2.6
	SDC20P-120	2.0~20.0	120	50	49	60	M10	GERC32/1.0	2.9
	SDC26P-130	4.0~26.0	130	63	62	71	M28	GERC40/1.0	3.8

Spare Part **E58** Application Collet **E65**

• LSC: Insertion depth of tool • Through coolant system is optional
• Collets in the right size are recommended for oil hole type

M This is metric size. We can also provide in inch type

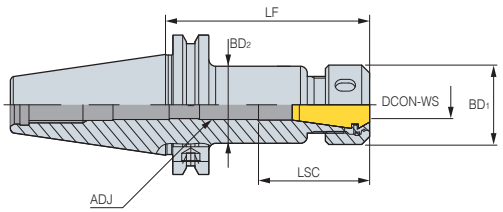
Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK63A	HSK63A-CNS
HSK100A	HSK100A-CNS

SK-SDC/P





(mm)

Designation		DCON-WS	LF	BD1	BD2	LSC	ADJ	Collet/STEP	lbs
SK40-	SDC10P-90	1.0~10.0	90	32	31	44.5	GERC16/1.0	M10	1.1
	SDC13P-90	1.0~13.0	90	35	34	49	GERC20/1.0	M13	1.2
	SDC13P-120	1.0~13.0	120	35	34	49	GERC20/1.0	M13	1.3
	SDC16P-90	2.0~16.0	90	42	41	50	GERC25/1.0	M18	1.4
	SDC20P-90	2.0~20.0	90	50	49	60	GERC32/1.0	M13	1.5

Spare Part E59 Application Collet E65

- LSC: Insertion depth of tool
- Through coolant system is optional
- Collets in the right size are recommended for oil hole type

M This is metric size. We can also provide in inch type

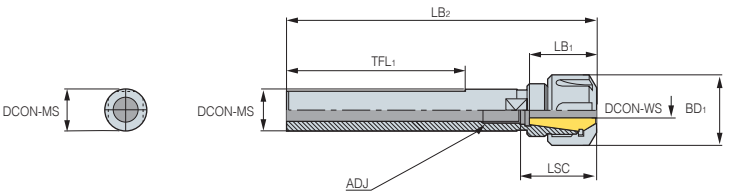
Parts

Basic			For separate purchase	
Division	Sleeve bearing nut	Adjust screw	Spanner	Collet
Parts / Designation				
SDC7P	RN11	BN0716F	20~22	GERC/ER 11-ØD
SDC10P	RN16	BN1025F	32~35	GERC/ER 16-ØD
SDC13P	RN20	BN1325F	35~38	GERC/ER 20-ØD
SDC16P	RN25	BN1830F	42~46	GERC/ER 25-ØD
SDC20P	RN32	BN2230F	48~52	GERC/ER 32-ØD
SDC26P	RN40	BN2838F	62~65	GERC/ER 40-ØD

※ BT30-SDC13P-50/HSK63A-SDC13P-100 is applide with BN0716F screw.

S-SDC





(mm)

Designation		DCON-WS	LB2	BD1	DCON-MS	LB1	TFL1	LSC	Collet/STEP	ADJ	lbs
S16-	SDC7-120M	1.0~7.0	120	19	16	-	-	33	GERC11/0.5	M7	0.1
	SDC7-120T	1.0~7.0	120	19	16	-	73	33	GERC11/0.5	M7	0.1
	SDC10-150T	1.0~10.0	150	28	16	46.5	83	34.5	GERC16/1.0	M10	0.2
S20-	SDC10-150M	1.0~10.0	150	28	20	26.5	-	34.5	GERC16/1.0	M10	0.3
	SDC10-150T	1.0~10.0	150	28	20	26.5	83	34.5	GERC16/1.0	M10	0.3
	SDC13-150M	1.0~13.0	150	35	20	50	-	49	GERC20/1.0	M13	0.3
	SDC13-150T	1.0~13.0	150	35	20	50	83	49	GERC20/1.0	M13	0.3
S25-	SDC10-150M	1.0~10.0	150	28	25	-	-	34.5	GERC16/1.0	M10	0.4
	SDC10-150T	1.0~10.0	150	28	25	-	83	34.5	GERC16/1.0	M10	0.4
	SDC13-150M	1.0~13.0	150	35	25	-	-	49	GERC20/1.0	M13	0.4
	SDC13-150T	1.0~13.0	150	35	25	-	83	49	GERC20/1.0	M13	0.4
S32-	SDC13-150M	1.0~13.0	150	35	32	-	-	49	GERC20/1.0	M13	0.7
	SDC13-150T	1.0~13.0	150	35	32	-	83	49	GERC20/1.0	M13	0.7
	SDC20-165M	2.0~20.0	165	50	32	-	-	60	GERC32/1.0	M22	0.9
	SDC20-165T	2.0~20.0	165	50	32	-	83	60	GERC32/1.0	M22	0.9

Spare Part **E59** Application Collet **E65**

• LSC: Insertion depth of tool • Through coolant system is optional

M This is metric size. We can also provide in inch type

S-SDC/S



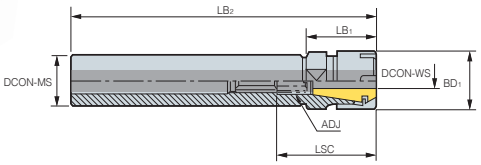


Fig. 1

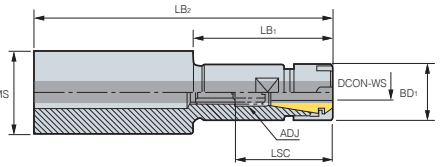


Fig. 2

(mm)

Designation		DCON-WS	LB2	BD1	DCON-MS	LB1	LSC	Collet/STEP	ADJ	Fig.	lbs
S16-	SDC7S-100M	1.0~7.0	100	16	16	21	33	GERC11/0.5	M7	1	0.1
	SDC7S-150M	1.0~7.0	150	16	16	21	33	GERC11/0.5	M7	1	0.1
	SDC10S-100M	1.0~10.0	100	22	16	50	44.5	GERC16/1.0	M10	1	0.1
	SDC10S-150M	1.0~10.0	150	22	16	50	44.5	GERC16/1.0	M10	1	0.1
S20-	SDC7S-100M	1.0~7.0	100	16	20	30	35	GERC11/0.5	M7	2	0.1
	SDC7S-150M	1.0~7.0	150	16	20	80	35	GERC11/0.5	M7	2	0.2
	SDC10S-100M	1.0~10.0	100	22	20	50	44.5	GERC16/1.0	M10	1	0.1
	SDC10S-150M	1.0~10.0	150	22	20	50	44.5	GERC16/1.0	M10	1	0.2
	SDC10S-200M	1.0~10.0	200	22	20	50	44.5	GERC16/1.0	M10	1	0.3
	SDC13S-100M	1.0~13.0	100	28	20	50	49	GERC20/1.0	M13	1	0.1
	SDC13S-150M	1.0~13.0	150	28	20	50	49	GERC20/1.0	M13	1	0.2
S25-	SDC7S-100M	1.0~7.0	100	16	25	30	33	GERC11/0.5	M7	2	0.2
	SDC7S-150M	1.0~7.0	150	16	25	80	33	GERC11/0.5	M7	2	0.2
	SDC10S-100M	1.0~10.0	100	22	25	30	44.5	GERC16/1.0	M10	2	0.2
	SDC10S-150M	1.0~10.0	150	22	25	80	44.5	GERC16/1.0	M10	2	0.3
	SDC13S-100M	1.0~13.0	100	28	25	50	49	GERC20/1.0	M13	1	0.2
	SDC13S-150M	1.0~13.0	150	28	25	50	49	GERC20/1.0	M13	1	0.4
	SDC16S-100M	2.0~16.0	100	35	25	50	50	GERC25/1.0	M18	1	0.3
	SDC16S-150M	2.0~16.0	150	35	25	50	50	GERC25/1.0	M18	1	0.4
	SDC16S-200M	2.0~16.0	200	35	25	50	50	GERC25/1.0	M18	1	0.6
S32-	SDC16S-120M	2.0~16.0	120	35	32	50	50	GERC25/1.0	M18	1	0.5
	SDC16S-150M	2.0~16.0	150	35	32	50	50	GERC25/1.0	M18	1	0.6

Spare Part **E61** Application Collet **E65**

• LSC: Insertion depth of tool • Through coolant system is optional

M This is metric size. We can also provide in inch type

Parts

Basic		For separate purchase	
Division	Nut	Spanner	Collet
Parts / Designation			
SDC7S	R11M	M11M	GERC/ER 11-ØD
SDC10S	R16M	M16M	GERC/ER 16-ØD
SDC13S	R20M	M20M	GERC/ER 20-ØD
SDC16S	R25M	M25M	GERC/ER 25-ØD

※ BT30-SDC13P-50/HSK63A-SDC13P-100 is applide with BN0716F screw.

Precision collet chuck(Length adjustment type)

SDC/PL

- Precise tool length adjustment
- Improved production efficiency by reducing tool setup time



Code system

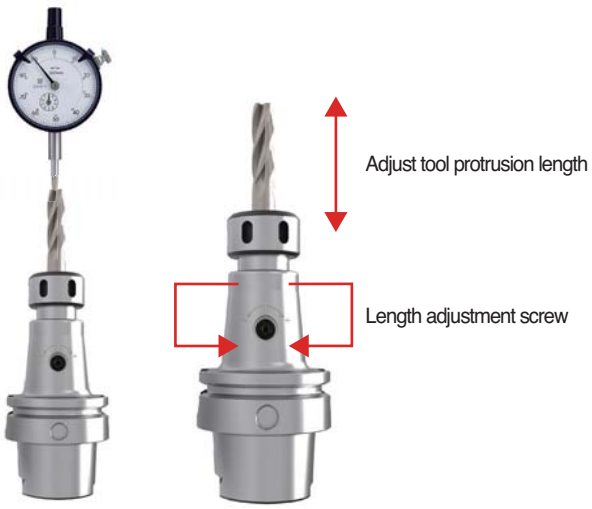
BT30	-	SDC	16	P	L	-	130
Spindle		Collet chuck	Tool diameter	Precision	Length adjustment		Length

What is SDC/PL?

- Reduced tool setting time by designing the length to be adjustable from the outside.

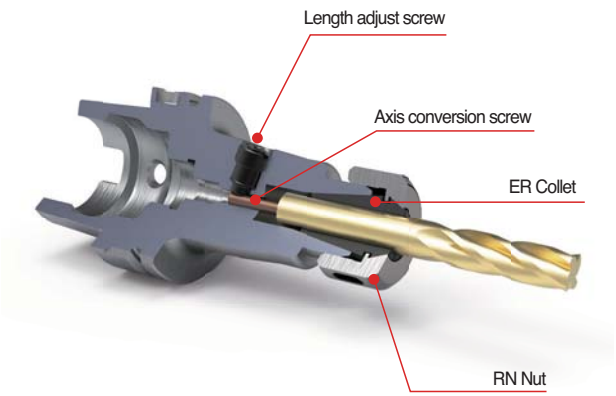
How to adjust length

- Rotate the adjustment screw to adjust the tool length



Part name

- Internal coolant system is Basic



BT-SDC/PL



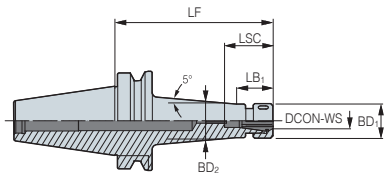


Fig. 1

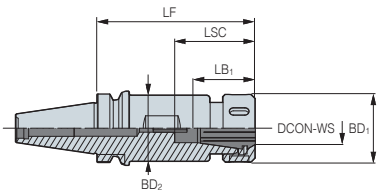


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	BD2	LSC		LB1	Collet/STEP	Fig.
BT30-	SDC13PL-100	1.0~13.0	100	35	34	49	39~49	37	GERC20/1.0	1
	SDC16PL-100	2.0~16.0	100	42	41	50	40~50	45	GERC25/1.0	2
	SDC20PL-100	2.0~20.0	120	50	49	60	50~60	55	GERC32/1.0	2
BT40-	SDC13PL-90	1.0~13.0	90	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-130	1.0~13.0	130	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-150	1.0~13.0	150	35	34	49	39~49	37	GERC20/1.0	1
	SDC16PL-90	2.0~16.0	90	42	41	50	40~50	37	GERC25/1.0	1
	SDC16PL-130	2.0~16.0	130	42	41	50	40~50	57	GERC25/1.0	1
	SDC20PL-130	2.0~20.0	130	50	49	60	50~60	58	GERC32/1.0	1
	SDC20PL-150	2.0~20.0	150	50	49	60	50~60	68	GERC32/1.0	1
BT50-	SDC13PL-100	1.0~13.0	100	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-130	1.0~13.0	130	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-160	1.0~13.0	160	35	34	49	39~49	37	GERC20/1.0	1
	SDC13PL-180	1.0~13.0	180	35	34	49	39~49	37	GERC20/1.0	1
	SDC16PL-100	2.0~16.0	100	42	41	50	40~50	37	GERC25/1.0	1
	SDC16PL-160	2.0~16.0	160	42	41	50	40~50	67	GERC25/1.0	1
	SDC20PL-130	2.0~20.0	130	50	49	60	50~60	52	GERC32/1.0	1
	SDC20PL-160	2.0~20.0	160	50	49	60	50~60	67	GERC32/1.0	1
	SDC20PL-180	2.0~20.0	180	50	49	60	50~60	77	GERC32/1.0	1
	SDC20PL-160	4.0~26.0	160	63	62	71	61~71	68	GERC40/1.0	1

Spare Part **E64** Application Collet **E65**

- LSC: Insertion depth of tool
- Through coolant system is optional
- Collets in the right size are recommended for oil hole type

M This is metric size. We can also provide in inch type

HSK-SDC/PL



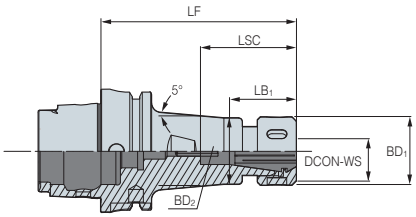


Fig. 1

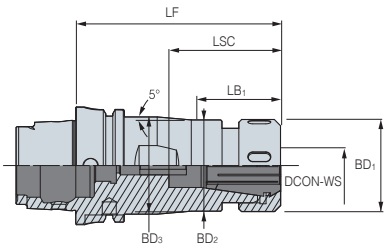


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	BD2	BD3	LSC		LB1	Collet/STEP	Fig.
HSK63A-	SDC13PL-100	1.0~13.0	100	35	34		49	39~49	37	GERC20/1.0	1
	SDC16PL-100	2.0~16.0	100	42	41		50	40~50	43	GERC25/1.0	1
	SDC20PL-110	2.0~20.0	110	50	49	52	60	50~60	48	GERC32/1.0	2
HSK100A-	SDC16PL-110	2.0~16.0	110	42	41		50	40~50	46	GERC25/1.0	1
	SDC20PL-120	2.0~20.0	120	50	49		60	50~60	52	GERC32/1.0	1

Spare Part **E64** Application Collet **E65**

- LSC: Insertion depth of tool
- Through coolant system is optional
- Collets in the right size are recommended for oil hole type

M This is metric size. We can also provide in inch type

Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK63A	HSK63A-CNS
HSK100A	HSK100A-CNS

GER Collet

GERC

- Corrosion resistant collet to micro unit
- High tech coating for long lasting precision
- Longer tool life and higher productivity

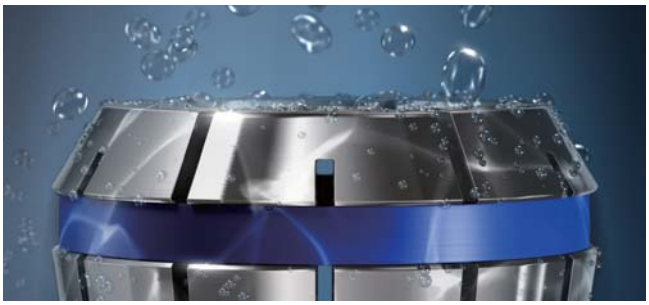


Code system

GREC	-	14	4	-	HP
GERC Collet		Collet Size	Tool diameter		HP : Precision None : General

Special coating technology

Unlike GERC collets, Conventional non-coated collets have the following features:
Non-coated collets are affected by corrosion due to high humidity, cutting fluid, cleaner, salt, gas and many other factors, which in result deteriorates whole quality of machining



- When a collet gets rusty, the tool life is shortened and precision considerably decreases. To prevent this problem, surface treatment by micro unit was applied to GERC collets for effective protection and long lasting precision



GERC



Competitor

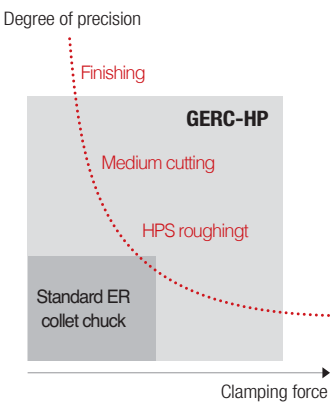
Two samples of collets after 4 months of use:
Left: GERC collet, Right: Non-coated

GERC-HP

- A precision type collet chuck is expensive than standard one, but still it has more advantages in long term cost and efficiency. Using GERC-HP can minimize pricy reworking due to smaller tolerance with maximum precision

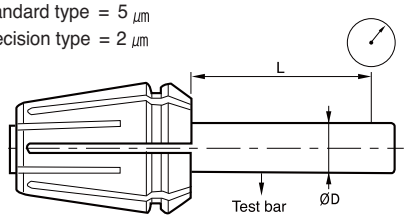


Precision type
collet 2 ㎛



Precision (L/D = 3)

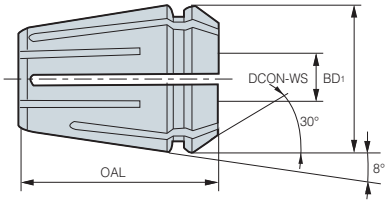
Standard type = 5 ㎛
Precision type = 2 ㎛



GERC Collet

General type





(mm)

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
GERC11-	1.0	11	1.0	18.0	11.5	5μm
	1.5	11	1.5	18.0	11.5	5μm
	2.0	11	2.0	18.0	11.5	5μm
	2.5	11	2.5	18.0	11.5	5μm
	3.0	11	3.0	18.0	11.5	5μm
	3.5	11	3.5	18.0	11.5	5μm
	4.0	11	4.0	18.0	11.5	5μm
	4.5	11	4.5	18.0	11.5	5μm
	5.0	11	5.0	18.0	11.5	5μm
	5.5	11	5.5	18.0	11.5	5μm
	6.0	11	6.0	18.0	11.5	5μm
	6.5	11	6.5	18.0	11.5	5μm
	7.0	11	7.0	18.0	11.5	5μm
GERC16-	1.0	16	1.0	27.5	17.0	5μm
	2.0	16	2.0	27.5	17.0	5μm
	3.0	16	3.0	27.5	17.0	5μm
	4.0	16	4.0	27.5	17.0	5μm
	4.5	16	4.5	27.5	17.0	5μm
	5.0	16	5.0	27.5	17.0	5μm
	6.0	16	6.0	27.5	17.0	5μm
	7.0	16	7.0	27.5	17.0	5μm
	8.0	16	8.0	27.5	17.0	5μm
	9.0	16	9.0	27.5	17.0	5μm
	10.0	16	10.0	27.5	17.0	5μm
GERC20-	1.0	20	1.0	31.5	21.0	5μm
	2.0	20	2.0	31.5	21.0	5μm
	3.0	20	3.0	31.5	21.0	5μm
	4.0	20	4.0	31.5	21.0	5μm
	5.0	20	5.0	31.5	21.0	5μm
	6.0	20	6.0	31.5	21.0	5μm
	7.0	20	7.0	31.5	21.0	5μm
	8.0	20	8.0	31.5	21.0	5μm
	9.0	20	9.0	31.5	21.0	5μm
	10.0	20	10.0	31.5	21.0	5μm
	11.0	20	11.0	31.5	21.0	5μm
	12.0	20	12.0	31.5	21.0	5μm
	13.0	20	13.0	31.5	21.0	5μm

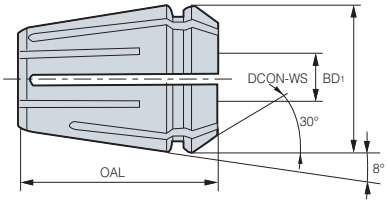
Designation		ER size	DCON-WS	OAL	BD1	Accuracy
GERC25-	2.0	25	2.0	34.0	26.0	5μm
	3.0	25	3.0	34.0	26.0	5μm
	4.0	25	4.0	34.0	26.0	5μm
	5.0	25	5.0	34.0	26.0	5μm
	6.0	25	6.0	34.0	26.0	5μm
	7.0	25	7.0	34.0	26.0	5μm
	8.0	25	8.0	34.0	26.0	5μm
	9.0	25	9.0	34.0	26.0	5μm
	10.0	25	10.0	34.0	26.0	5μm
	11.0	25	11.0	34.0	26.0	5μm
	12.0	25	12.0	34.0	26.0	5μm
	13.0	25	13.0	34.0	26.0	5μm
	14.0	25	14.0	34.0	26.0	5μm
	15.0	25	15.0	34.0	26.0	5μm
	16.0	25	16.0	34.0	26.0	5μm
GERC32-	2.0	32	2.0	40.0	33.0	5μm
	3.0	32	3.0	40.0	33.0	5μm
	4.0	32	4.0	40.0	33.0	5μm
	5.0	32	5.0	40.0	33.0	5μm
	6.0	32	6.0	40.0	33.0	5μm
	7.0	32	7.0	40.0	33.0	5μm
	8.0	32	8.0	40.0	33.0	5μm
	9.0	32	9.0	40.0	33.0	5μm
	10.0	32	10.0	40.0	33.0	5μm
	11.0	32	11.0	40.0	33.0	5μm
	12.0	32	12.0	40.0	33.0	5μm
	13.0	32	13.0	40.0	33.0	5μm
	14.0	32	14.0	40.0	33.0	5μm
	15.0	32	15.0	40.0	33.0	5μm
	16.0	32	16.0	40.0	33.0	5μm
	17.0	32	17.0	40.0	33.0	5μm
	18.0	32	18.0	40.0	33.0	5μm
	19.0	32	19.0	40.0	33.0	5μm
	20.0	32	20.0	40.0	33.0	5μm
GERC40-	16.0	40	16.0	46.0	41.0	5μm
	20.0	40	20.0	46.0	41.0	5μm
	25.0	40	25.0	46.0	41.0	5μm

M This is metric size. We can also provide in inch type

GERC Collet

Precision type





(mm)

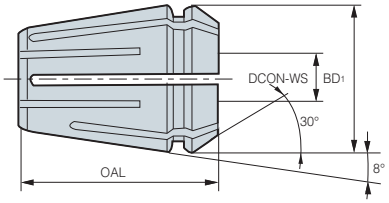
	Designation	ER size	DCON-WS	OAL	BD1	Accuracy
GERC11-	3.0HP	11.0	3.0	18.0	11.5	2μm
	4.0HP	11.0	4.0	18.0	11.5	2μm
	5.0HP	11.0	5.0	18.0	11.5	2μm
	6.0HP	11.0	6.0	18.0	11.5	2μm
GERC16-	3.0HP	16.0	3.0	27.5	17.0	2μm
	4.0HP	16.0	4.0	27.5	17.0	2μm
	5.0HP	16.0	5.0	27.5	17.0	2μm
	6.0HP	16.0	6.0	27.5	17.0	2μm
	7.0HP	16.0	7.0	27.5	17.0	2μm
	8.0HP	16.0	8.0	27.5	17.0	2μm
	9.0HP	16.0	9.0	27.5	17.0	2μm
	10.0HP	16.0	10.0	27.5	17.0	2μm
GERC20-	3.0HP	20.0	3.0	31.5	21.0	2μm
	4.0HP	20.0	4.0	31.5	21.0	2μm
	5.0HP	20.0	5.0	31.5	21.0	2μm
	6.0HP	20.0	6.0	31.5	21.0	2μm
	8.0HP	20.0	8.0	31.5	21.0	2μm
	9.0HP	20.0	9.0	31.5	21.0	2μm
	10.0HP	20.0	10.0	31.5	21.0	2μm
	11.0HP	20.0	11.0	31.5	21.0	2μm
	12.0HP	20.0	12.0	31.5	21.0	2μm
	13.0HP	20.0	13.0	31.5	21.0	2μm
GERC25-	6.0HP	25.0	6.0	34.0	26.0	2μm
	10.0HP	25.0	10.0	34.0	26.0	2μm
	12.0HP	25.0	12.0	34.0	26.0	2μm
	14.0HP	25.0	14.0	34.0	26.0	2μm
	16.0HP	25.0	16.0	34.0	26.0	2μm
GERC32-	6.0HP	32.0	6.0	40.0	33.0	2μm
	10.0HP	32.0	10.0	40.0	33.0	2μm
	12.0HP	32.0	12.0	40.0	33.0	2μm
	16.0HP	32.0	16.0	40.0	33.0	2μm
	18.0HP	32.0	18.0	40.0	33.0	2μm
	20.0HP	32.0	20.0	40.0	33.0	2μm

M This is metric size. We can also provide in inch type

GERC Collet

General Sealed type





(mm)

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
GERC16-	5.0C	16	5.0	27.5	17.0	5μm
	6.0C	16	6.0	27.5	17.0	5μm
	8.0C	16	8.0	27.5	17.0	5μm
	10.0C	16	10.0	27.5	17.0	5μm
GERC20-	6.0C	20	6.0	31.5	21.0	5μm
	8.0C	20	8.0	31.5	21.0	5μm
	10.0C	20	10.0	31.5	21.0	5μm
	12.0C	20	12.0	31.5	21.0	5μm
GERC25-	6.0C	25	6.0	34.0	26.0	5μm
	8.0C	25	8.0	34.0	26.0	5μm
	10.0C	25	10.0	34.0	26.0	5μm
	12.0C	25	12.0	34.0	26.0	5μm
	14.0C	25	14.0	34.0	26.0	5μm
	16.0C	25	16.0	34.0	26.0	5μm

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
GERC32-	8.0C	32	8.0	40.0	33.0	5μm
	9.0C	32	9.0	40.0	33.0	5μm
	10.0C	32	10.0	40.0	33.0	5μm
	11.0C	32	11.0	40.0	33.0	5μm
	12.0C	32	12.0	40.0	33.0	5μm
	13.0C	32	13.0	40.0	33.0	5μm
	14.0C	32	14.0	40.0	33.0	5μm
	15.0C	32	15.0	40.0	33.0	5μm
	16.0C	32	16.0	40.0	33.0	5μm
	18.0C	32	18.0	40.0	33.0	5μm
	20.0C	32	20.0	40.0	33.0	5μm

M This is metric size. We can also provide in inch type

GERC Collet set

General type



(mm)

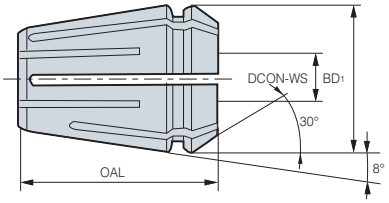
Designation		DCON-WS	Distance	Collet amount	Accuracy	lbs
GERC	11 (SET)	1.0-7.0	0.5	13pcs	5μm	0.1
	16 (SET)	1.0-10.0	1.0	10pcs	5μm	0.2
	20 (SET)	2.0-13.0	1.0	12pcs	5μm	0.5
	25 (SET)	2.0-16.0	1.0	15pcs	5μm	1.1
	32 (SET)	3.0-20.0	1.0	18pcs	5μm	2.6
	40 (SET)	4.0-26.0	1.0	23pcs	5μm	5.8

M This is metric size. We can also provide in inch type

ER Collet

General type





(mm)

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER11-	1.0	11	1.0	18.0	11.5	10μm
	1.5	11	1.5	18.0	11.5	10μm
	2.0	11	2.0	18.0	11.5	10μm
	2.5	11	2.5	18.0	11.5	10μm
	3.0	11	3.0	18.0	11.5	10μm
	3.5	11	3.5	18.0	11.5	10μm
	4.0	11	4.0	18.0	11.5	10μm
	4.5	11	4.5	18.0	11.5	10μm
	5.0	11	5.0	18.0	11.5	10μm
	5.5	11	5.5	18.0	11.5	10μm
	6.0	11	6.0	18.0	11.5	10μm
	6.5	11	6.5	18.0	11.5	10μm
	7.0	11	7.0	18.0	11.5	10μm
ER16-	1.0	16	1.0	27.5	17.0	10μm
	2.0	16	2.0	27.5	17.0	10μm
	3.0	16	3.0	27.5	17.0	10μm
	4.0	16	4.0	27.5	17.0	10μm
	5.0	16	5.0	27.5	17.0	10μm
	6.0	16	6.0	27.5	17.0	10μm
	7.0	16	7.0	27.5	17.0	10μm
	8.0	16	8.0	27.5	17.0	10μm
	9.0	16	9.0	27.5	17.0	10μm
	10.0	16	10.0	27.5	17.0	10μm
ER20-	1.0	20	1.0	31.5	21.0	10μm
	2.0	20	2.0	31.5	21.0	10μm
	3.0	20	3.0	31.5	21.0	10μm
	4.0	20	4.0	31.5	21.0	10μm
	5.0	20	5.0	31.5	21.0	10μm
	6.0	20	6.0	31.5	21.0	10μm
	7.0	20	7.0	31.5	21.0	10μm
	8.0	20	8.0	31.5	21.0	10μm
	9.0	20	9.0	31.5	21.0	10μm
	10.0	20	10.0	31.5	21.0	10μm
	11.0	20	11.0	31.5	21.0	10μm
	12.0	20	12.0	31.5	21.0	10μm
	13.0	20	13.0	31.5	21.0	10μm

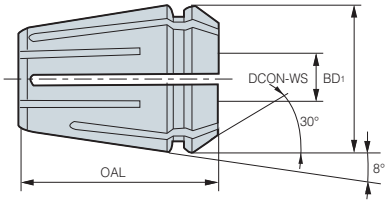
Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER25-	2.0	25	2.0	34.0	26.0	10μm
	3.0	25	3.0	34.0	26.0	10μm
	4.0	25	4.0	34.0	26.0	10μm
	5.0	25	5.0	34.0	26.0	10μm
	6.0	25	6.0	34.0	26.0	10μm
	7.0	25	7.0	34.0	26.0	10μm
	8.0	25	8.0	34.0	26.0	10μm
	9.0	25	9.0	34.0	26.0	10μm
	10.0	25	10.0	34.0	26.0	10μm
	11.0	25	11.0	34.0	26.0	10μm
	12.0	25	12.0	34.0	26.0	10μm
	13.0	25	13.0	34.0	26.0	10μm
	14.0	25	14.0	34.0	26.0	10μm
	15.0	25	15.0	34.0	26.0	10μm
	16.0	25	16.0	34.0	26.0	10μm
ER32-	2.0	32	2.0	40.0	33.0	10μm
	3.0	32	3.0	40.0	33.0	10μm
	4.0	32	4.0	40.0	33.0	10μm
	5.0	32	5.0	40.0	33.0	10μm
	6.0	32	6.0	40.0	33.0	10μm
	7.0	32	7.0	40.0	33.0	10μm
	8.0	32	8.0	40.0	33.0	10μm
	9.0	32	9.0	40.0	33.0	10μm
	10.0	32	10.0	40.0	33.0	10μm
	11.0	32	11.0	40.0	33.0	10μm
	12.0	32	12.0	40.0	33.0	10μm
	13.0	32	13.0	40.0	33.0	10μm
	14.0	32	14.0	40.0	33.0	10μm
	15.0	32	15.0	40.0	33.0	10μm
	16.0	32	16.0	40.0	33.0	10μm
	17.0	32	17.0	40.0	33.0	10μm
	18.0	32	18.0	40.0	33.0	10μm
	19.0	32	19.0	40.0	33.0	10μm
	20.0	32	20.0	40.0	33.0	10μm

M This is metric size. We can also provide in inch type

ER Collet

Precision type





(mm)

Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER11-	2.0P	11	2.0	18.0	11.3	5μm
	3.0P	11	3.0	18.0	11.3	5μm
	4.0P	11	4.0	18.0	11.3	5μm
	5.0P	11	5.0	18.0	11.3	5μm
	6.0P	11	6.0	18.0	11.3	5μm
	7.0P	11	7.0	18.0	11.3	5μm
ER16-	2.0P	16	2.0	27.5	16.7	5μm
	3.0P	16	3.0	27.5	16.7	5μm
	4.0P	16	4.0	27.5	16.7	5μm
	5.0P	16	5.0	27.5	16.7	5μm
	6.0P	16	6.0	27.5	16.7	5μm
	7.0P	16	7.0	27.5	16.7	5μm
	8.0P	16	8.0	27.5	16.7	5μm
	9.0P	16	9.0	27.5	16.7	5μm
	10.0P	16	10.0	27.5	16.7	5μm
ER20-	2.0P	20	2.0	31.5	20.7	5μm
	3.0P	20	3.0	31.5	20.7	5μm
	4.0P	20	4.0	31.5	20.7	5μm
	5.0P	20	5.0	31.5	20.7	5μm
	6.0P	20	6.0	31.5	20.7	5μm
	7.0P	20	7.0	31.5	20.7	5μm
	8.0P	20	8.0	31.5	20.7	5μm
	9.0P	20	9.0	31.5	20.7	5μm
	10.0P	20	10.0	31.5	20.7	5μm
	11.0P	20	11.0	31.5	20.7	5μm
	12.0P	20	12.0	31.5	20.7	5μm
	13.0P	20	13.0	31.5	20.7	5μm

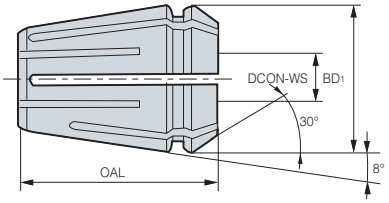
Designation		ER size	DCON-WS	OAL	BD1	Accuracy
ER25-	2.0P	25	2.0	34.0	25.8	5μm
	3.0P	25	3.0	34.0	25.8	5μm
	4.0P	25	4.0	34.0	25.8	5μm
	5.0P	25	5.0	34.0	25.8	5μm
	6.0P	25	6.0	34.0	25.8	5μm
	7.0P	25	7.0	34.0	25.8	5μm
	8.0P	25	8.0	34.0	25.8	5μm
	9.0P	25	9.0	34.0	25.8	5μm
	10.0P	25	10.0	34.0	25.8	5μm
	11.0P	25	11.0	34.0	25.8	5μm
	12.0P	25	12.0	34.0	25.8	5μm
	13.0P	25	13.0	34.0	25.8	5μm
	14.0P	25	14.0	34.0	25.8	5μm
	15.0P	25	15.0	34.0	25.8	5μm
	16.0P	25	16.0	34.0	25.8	5μm
ER32-	2.0P	32	2.0	40.0	32.8	5μm
	3.0P	32	3.0	40.0	32.8	5μm
	4.0P	32	4.0	40.0	32.8	5μm
	5.0P	32	5.0	40.0	32.8	5μm
	6.0P	32	6.0	40.0	32.8	5μm
	7.0P	32	7.0	40.0	32.8	5μm
	8.0P	32	8.0	40.0	32.8	5μm
	9.0P	32	9.0	40.0	32.8	5μm
	10.0P	32	10.0	40.0	32.8	5μm
	11.0P	32	11.0	40.0	32.8	5μm
	12.0P	32	12.0	40.0	32.8	5μm
	13.0P	32	13.0	40.0	32.8	5μm
	14.0P	32	14.0	40.0	32.8	5μm
	15.0P	32	15.0	40.0	32.8	5μm
	16.0P	32	16.0	40.0	32.8	5μm
	17.0P	32	17.0	40.0	32.8	5μm
	18.0P	32	18.0	40.0	32.8	5μm
	19.0P	32	19.0	40.0	32.8	5μm
	20.0P	32	20.0	40.0	32.8	5μm

M This is metric size. We can also provide in inch type

ER Collet

General Sealed type





(mm)

	Designation	ER size	DCON-WS	OAL	BD1	Accuracy
ER16-	5.0C	16	5.0	27.5	17.0	10μm
	6.0C	16	6.0	27.5	17.0	10μm
	8.0C	16	8.0	27.5	17.0	10μm
	10.0C	16	10.0	27.5	17.0	10μm
ER20-	6.0C	20	6.0	31.5	21.0	10μm
	8.0C	20	8.0	31.5	21.0	10μm
	10.0C	20	10.0	31.5	21.0	10μm
	12.0C	20	12.0	31.5	21.0	10μm
ER25-	6.0C	25	6.0	34.0	26.0	10μm
	8.0C	25	8.0	34.0	26.0	10μm
	10.0C	25	10.0	34.0	26.0	10μm
	12.0C	25	12.0	34.0	26.0	10μm
	14.0C	25	14.0	34.0	26.0	10μm
	16.0C	25	16.0	34.0	26.0	10μm
ER32-	8.0C	32	8.0	40.0	33.0	10μm
	9.0C	32	9.0	40.0	33.0	10μm
	10.0C	32	10.0	40.0	33.0	10μm
	11.0C	32	11.0	40.0	33.0	10μm
	12.0C	32	12.0	40.0	33.0	10μm
	13.0C	32	13.0	40.0	33.0	10μm
	14.0C	32	14.0	40.0	33.0	10μm
	15.0C	32	15.0	40.0	33.0	10μm
	16.0C	32	16.0	40.0	33.0	10μm
	18.0C	32	18.0	40.0	33.0	10μm
	20.0C	32	20.0	40.0	33.0	10μm

M This is metric size. We can also provide in inch type

ER Collet set

General type



(mm)

	Designation	DCON-WS	Distance	Collet amount	Accuracy	lbs
ER	**11 (SET)**	1.0-7.0	0.5	13pcs	10μm	0.1
	16 (SET)	1.0-10.0	1.0	10pcs	10μm	0.1
	20 (SET)	2.0-13.0	1.0	12pcs	10μm	0.4
	25 (SET)	2.0-16.0	1.0	15pcs	10μm	1.1
	32 (SET)	3.0-20.0	1.0	18pcs	10μm	2.6

M This is metric size. We can also provide in inch type

Lock collet for ER collet chuck

ER/L



- Designed to prevent the end mill from falling out
- Prevents tool fallout, slipping, or idle running
- Uses the Weldon flat (DIN 6535HB) end mill without any special endmill
- Useful for machining large-sized mold or difficult-to-cut materials

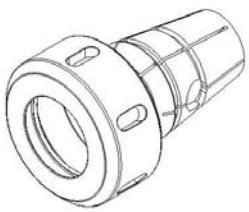
Code system

ER	-	20	12	-	L
ER Collet		Collet Size	Tool diameter		Lock

How to use

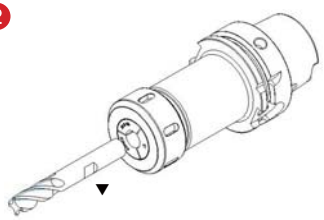
- Assemble the collet with nut (same for general ER collet in use)
- Assemble the end tool (in the direction of assembling notch with key)
- Tighten the nut with the body

❶



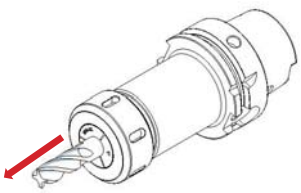
Combine the non-slip ER collet with nut

❷



Clamp the nut after inserting no. ❶ into the collet chuck. After that, insert the end mill notch to be aligned with the part ▼ (steel ball position)

❸



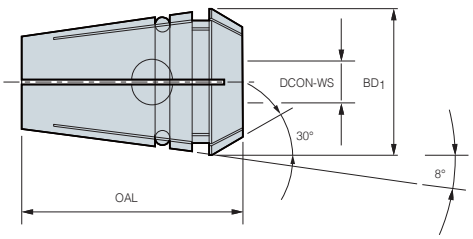
After checking that the steel ball in the collet is caught in the notched part, completely clamp the nut by pulling the end mill in the axial direction (arrow direction)

Note If an auto clamp device is used, skip step ❸ (Endmill rotation may cause injury)

ER/L Collet

Lock collet for ER collet chuck





(mm)

Designation		ER size	DCON-WS	OAL	BD_1	BD_2
ER	20-6L	20	6	31.5	20.7	20
	20-8L	20	8	31.5	20.7	20
	20-10L	20	10	31.5	20.7	20
	20-12L	20	12	31.5	20.7	20
	32-12L	32	12	40.0	32.7	32
	32-16L	32	16	40.0	32.7	32
	32-20L	32	20	40.0	32.7	32

M This is metric size. We can also provide in inch type

Jet coolant disk

RTJW

- Provides a longer cutting tool service life by preventing chips from adhering to the tool
- Improveds chip breakability/breaking strong jet injection
- Reduces equipment non-operation time as nozzle position change is not necessary

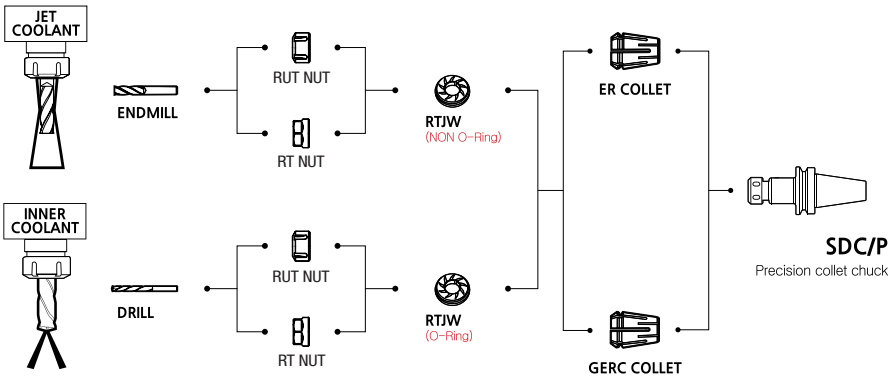


Code system

RTJW	16	-	6
Jet Coolant Disk	ER Collet Size		Tool diameter

Application

- With one waterproof type (RT, RUT) NUT, the inside jet coolant is simultaneously used
- Enables a fast change of the inside jet coolant only by disk replacement
- Strong jet injection with no scattering even in the high-speed rotation



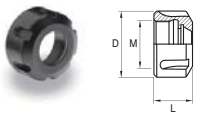
RT NUT

Type	M	D	L
RT16	M22x1.50	28.0	22.5



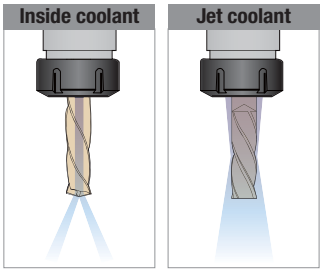
RUT NUT

Type	M	D	L
RUT20	M25x1.50	35.0	24.0
RUT25	M32x1.50	42.0	25.0
RUT32	M40x1.50	50.0	27.5
RUT40	M50x1.50	63.0	30.5



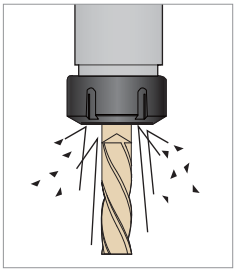
	Pocket machining	After	Remarks
Jet coolant			• The chips in the pocket are completely removed by a strong jet injection
Outside coolant			• The chips in the pocket are not removed • Chips are accumulated in the collet and nut

Inside coolant | **Jet coolant**



Coolant method

According to use,
inside coolant and jet coolant
refueling can be used



Mixing prevention

Effective for vibration proof by preventing mixing of cutting chips by using RTJW

RTJW





(mm)

Designation		ER size	Inner Dia.
RTJW16-	6	16	6
	7	16	7
	8	16	8
RTJW20-	6	20	6
	7	20	7
	8	20	8
	9	20	9
	10	20	10
RTJW25-	6	25	6
	7	25	7
	8	25	8
	9	25	9
	10	25	10
	11	25	11
	12	25	12
	13	25	13
	14	25	14
	15	25	15
	16	25	16

Designation		ER size	Inner Dia.
RTJW32-	6	32	6
	7	32	7
	8	32	8
	9	32	9
	10	32	10
	11	32	11
	12	32	12
	13	32	13
	14	32	14
	15	32	15
	16	32	16
	17	32	17
	18	32	18
	20	32	20
RTJW40-	18	40	18
	19	40	19
	20	40	20
	21	40	21
	22	40	22
	24	40	24

Clamping items **E49 ~ E52**

• Less than Ø5 cannot be used for production

M This is metric size. We can also provide in inch type

Slim type collet chuck

DSK

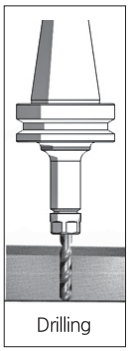
- Available for machining at max.15,000 RPM and balancing of G6.3
- Minimized tool vibration during operation by using collet 8°
- Swiss made high precision nut enhances stability
- Tool clamping range: Ø2~25

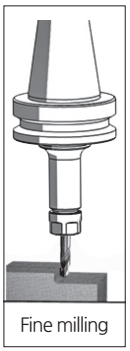


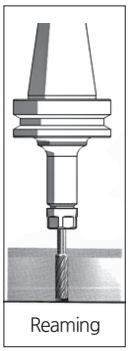
Code system

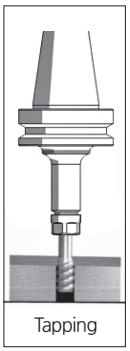
BT30	-	DSK	10	-	90
Spindle		Tapping holder	Tool diameter		Length

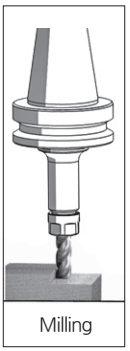
Multipurpose operation

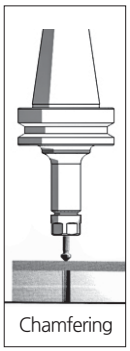

Drilling


Fine milling


Reaming


Tapping


Milling


Chamfering

Collet

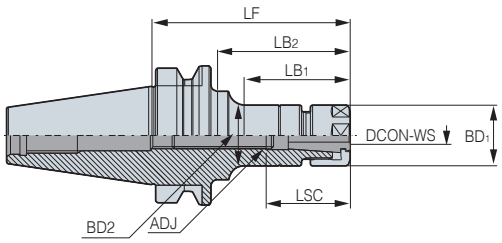
Standard type & Precision type	Designation	Max Chacking	Run-out
	HC6 - ØD	6.0	Standard type 5 µm Precision type 3 µm
	HC10 - ØD	10.0	
	HC13 - ØD	13.0	
	HC16 - ØD	16.0	
	HC20 - ØD	20.0	
	HC25 - ØD	25.0	

8° HC Collet

Minimized tool vibration during operation

BT-DSK





(mm)

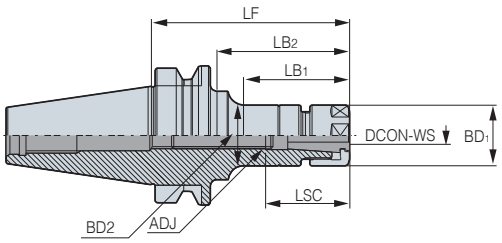
Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	LSC	COLLET	ADJ	RPMX	lbs
BT30-	DSK6-60	3.0~6.0	60	20	20	33	33	31	HC6	M8	15,000	0.4
	DSK6-90	3.0~6.0	90	20	32	56	65	31	HC6	M8	15,000	0.5
	DSK10-60	2.0~10.0	60	28	28	35	35	38	HC10	M12	15,000	0.5
	DSK10-90	2.0~10.0	90	28	28	65	65	38	HC10	M12	15,000	0.6
	DSK10-120	2.0~10.0	120	28	28	95	95	38	HC10	M12	15,000	1.1
	DSK13-60	3.0~13.0	60	33	33	36	36	43	HC13	M12	15,000	0.5
	DSK16-60	3.0~16.0	60	40	40	37	37	52	HC16	M12	15,000	0.6
	DSK16-90	3.0~16.0	90	40	40	67	67	52	HC16	M18	15,000	0.8
	DSK16-120	3.0~16.0	120	40	40	97	97	60	HC16	M18	15,000	1.1
	DSK20-75	4.0~20.0	75	48	48	52	52	70	HC20	M12	15,000	1.1
	DSK20-90	4.0~20.0	90	48	48	52	52	70	HC20	M18	15,000	1.2
	DSK25-90	16.0~25.0	90	55	55	67.5	67.5	63.5	HC25	M12	15,000	0.9
BT40-	DSK6-60	3.0~6.0	60	20	20	30	30	35	HC6	M8	10,000	1.0
	DSK6-90	3.0~6.0	90	19.5	32	51	61	31	HC6	M8	10,000	1.1
	DSK6-120	3.0~6.0	120	19.5	32	60	90	31	HC6	M8	10,000	1.1
	DSK6-150	3.0~6.0	150	19.5	25	60	120	31	HC6	M8	10,000	1.1
	DSK10-60	2.0~10.0	60	28	28	32	32	50	HC10	M12	10,000	1.1
	DSK10-90	2.0~10.0	90	27.5	40	48	60	38	HC10	M12	10,000	1.2
	DSK10-120	2.0~10.0	120	27.5	40	73	90	38	HC10	M12	10,000	1.2
	DSK10-150	2.0~10.0	150	27.5	34.5	73	118	38	HC10	M12	10,000	1.4
	DSK10-180	2.0~10.0	180	28	39	73	148	50	HC10	M12	10,000	1.4
	DSK13-90	3.0~13.0	90	33	33	59	59	43	HC13	M15	10,000	1.3
	DSK16-60	3.0~16.0	90	40	40	58	58	52	HC16	M18	10,000	1.3
	DSK16-90	3.0~16.0	90	40	40	58	58	52	HC16	M18	10,000	1.3
	DSK16-120	3.0~16.0	120	40	40	88	88	52	HC16	M18	10,000	1.5
	DSK16-150	3.0~16.0	150	40	40	118	118	52	HC16	M18	10,000	1.9
	DSK16-180	3.0~16.0	180	40	40	148	148	60	HC16	M18	10,000	1.9
	DSK20-60	4.0~20.0	60	48	48	32	32	70	HC20	M22	10,000	1.5
	DSK20-90	4.0~20.0	90	48.5	48.5	60	60	60	HC20	M22	10,000	1.5
	DSK20-120	4.0~20.0	120	48.5	48.5	90	90	60	HC20	M22	10,000	1.8
	DSK25-90	16.0~25.0	90	55	55	61	61	63.5	HC25	M28	10,000	1.6
	DSK25-120	16.0~25.0	120	55	55	91	91	85	HC25	M28	10,000	2.0

Spare Part **E78** Application Collet **E83**

M This is metric size. We can also provide in inch type

BT-DSK





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	LSC	COLLET	ADJ	RPMX	lbs
BT50-	DSK6-105	3.0~6.0	105	19.5	32	55	64	31	HC6	M8	8,000	3.6
	DSK6-135	3.0~6.0	135	19.5	32	60	92	31	HC6	M8	8,000	3.7
	DSK6-165	3.0~6.0	165	19.5	32	60	114	31	HC6	M8	8,000	4.1
	DSK10-105	2.0~10.0	105	27.5	27.5	57	57	38	HC10	M12	8,000	3.8
	DSK10-135	2.0~10.0	135	27.5	32	70	92	38	HC10	M12	8,000	3.9
	DSK10-165	2.0~10.0	165	27.5	36	75	114	38	HC10	M12	8,000	4.1
	DSK10-195	2.0~10.0	195	28	36	75	146	38	HC10	M12	8,000	4.5
	DSK13-135	3.0~13.0	135	33	33	92	92	43	HC13	M15	8,000	3.8
	DSK16-105	3.0~16.0	105	40	40	62	62	52	HC16	M18	8,000	4.0
	DSK16-135	3.0~16.0	135	40	40	92	92	52	HC16	M18	8,000	4.2
	DSK16-165	3.0~16.0	165	40	50	40	122	52	HC16	M18	8,000	4.6
	DSK16-195	3.0~16.0	195	40	52	40	152	60	HC16	M18	8,000	4.6
	DSK20-105	4.0~20.0	105	48	40	62	62	60	HC20	M22	8,000	4.2
	DSK20-135	4.0~20.0	135	48	40	92	92	60	HC20	M22	8,000	4.5
	DSK20-165	4.0~20.0	165	48	40	122	122	60	HC20	M22	8,000	4.9
	DSK25-105	16.0~25.0	105	55	55	62	62	63.5	HC25	M28	8,000	4.4
	DSK25-135	16.0~25.0	135	55	55	92	92	63.5	HC25	M28	8,000	4.5
	DSK25-165	16.0~25.0	165	55	55	122	122	63.5	HC25	M28	8,000	5.2

Spare Part **E78** Application Collet **E83**

M This is metric size. We can also provide in inch type

Parts

Division	Basic			For separate purchase
	Nut	Adjust screw	Collet Extractor	Spanner
Parts / Designation				
DSK6	DN6	BN0825F	DSK-6CE	DSS-6
DSK10	DN10	BN1225F	DSK-10CE	DSS-10
DSK13	DN13	BN1230(BT30)/BN1524F(etc.)	DSK-13CE	DSS-13
DSK16	DN16	BN1830F	DSK-16CE	DSS-16
DSK20	DN20	BN2230F	DSK-20CE	DSS-20
DSK25	DN25	BN2838F	DSK-25CE	DSS-25

Great speed slim collet chuck

GSK

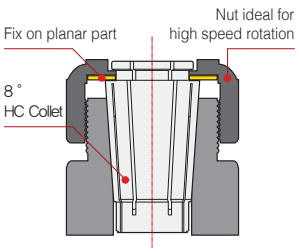
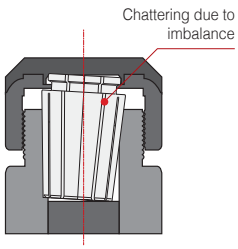
- Available for machining at max.25,000 RPM and balancing of G6.3
- Increased productivity due to high speed machining
- Minimized tool vibration during operation by using collet 8°
- Swiss made high precision nut enhances stability by pressing collet uniformly
- Tool clamping range: Ø2~25



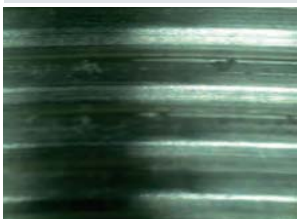
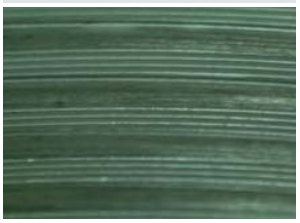
Code system

BT40	-	GSK	10	-	90
Spindle		Tapping holder	Tool diameter		Length

Original design

GSK	Competitor
	
Strong clamping by 8° collet and stable fixing with the use of planar part fixing	Imbalance due to centrifugal force during high speed rotation

Comparison of screw polishing points of nut tighetned

GSK	Competitor
	
Provides excellent reproduction precision through screw grinding	Unstable precision due to turning operation

Special design

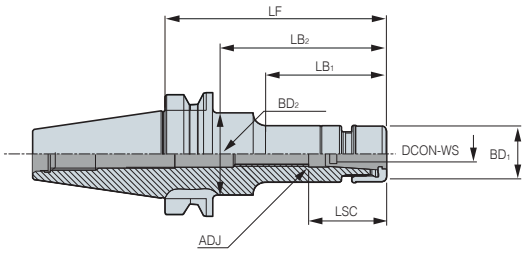
- Optimized for great-speed collet chucks and uniquely designed to enable easy run-out measurement by designating the test area to the product



C Internal coolant system is optional

BT-GSK





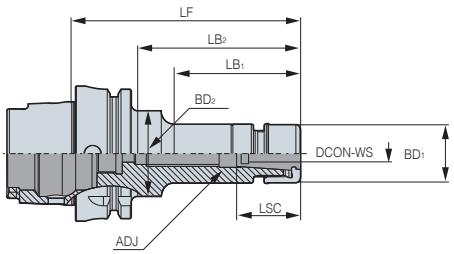
(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	LSC	COLLET	ADJ	RPMX	lbs
BT30-	GSK6-60	3.0~6.0	60	19.5	19.5	33	33	31	HC6	M8	25,000	0.4
	GSK6-90	3.0~6.0	90	19.5	32	56	65	31	HC6	M8	25,000	0.5
	GSK10-60	2.0~10.0	60	27	27	35	35	38	HC10	M12	25,000	0.5
	GSK10-90	2.0~10.0	90	27	27	65	65	38	HC10	M12	25,000	0.6
	GSK13-60	3.0~13.0	60	35	35	36	36	43	HC13	M12	25,000	0.6
	GSK16-60	3.0~16.0	60	40	40	37	37	52	HC16	M12	25,000	0.6
	GSK16-90	3.0~16.0	90	40	40	67	67	52	HC16	M18	25,000	0.8
	GSK25-90	16.0~25.0	90	55	55	67.5	67.5	64	HC25	M12	25,000	1.0
BT40-	GSK6-90	3.0~6.0	90	20	32	51	61	31	HC6	M8	20,000	1.0
	GSK6-120	3.0~6.0	120	20	32	60	90	31	HC6	M8	20,000	1.2
	GSK6-150	3.0~6.0	150	20	25	60	120	31	HC6	M8	20,000	1.2
	GSK10-90	2.0~10.0	90	27	40	48	60	38	HC10	M12	20,000	1.1
	GSK10-120	2.0~10.0	120	27	40	73	90	38	HC10	M12	20,000	1.3
	GSK10-150	2.0~10.0	150	27	35	73	118	38	HC10	M12	20,000	1.4
	GSK13-90	3.0~13.0	90	35	35	59	59	43	HC13	M15	20,000	1.2
	GSK16-90	3.0~16.0	90	40	40	58	58	52	HC16	M18	20,000	1.3
	GSK16-120	3.0~16.0	120	40	40	88	88	52	HC16	M18	20,000	1.5
	GSK16-150	3.0~16.0	150	40	40	118	118	52	HC16	M18	20,000	1.8
	GSK20-90	4.0~20.0	90	48	48	60	60	60	HC20	M22	20,000	1.4
	GSK20-120	4.0~20.0	120	48	48	90	90	60	HC20	M22	20,000	1.8
	GSK25-90	16.0~25.0	90	55	55	61	61	64	HC25	M28	20,000	1.6
	GSK25-120	16.0~25.0	120	55	55	91	91	64	HC25	M28	20,000	2.0
BT50-	GSK6-105	3.0~6.0	105	20	32	55	64	31	HC6	M8	15,000	3.6
	GSK6-135	3.0~6.0	135	20	32	60	92	31	HC6	M8	15,000	3.6
	GSK6-165	3.0~6.0	165	20	32	60	114	31	HC6	M8	15,000	3.9
	GSK10-105	2.0~10.0	105	27	27	57	57	38	HC10	M12	15,000	3.7
	GSK10-135	2.0~10.0	135	27	32	70	92	38	HC10	M12	15,000	3.7
	GSK10-165	2.0~10.0	165	27	36	75	114	38	HC10	M12	15,000	4.0
	GSK13-135	3.0~13.0	135	35	35	92	92	43	HC13	M15	15,000	3.9
	GSK16-105	3.0~16.0	105	40	40	62	62	52	HC16	M18	15,000	3.9
	GSK16-135	3.0~16.0	135	40	40	92	92	52	HC16	M18	15,000	4.1
	GSK16-165	3.0~16.0	165	40	50	40	122	52	HC16	M18	15,000	4.3
	GSK20-105	4.0~20.0	105	48	-	-	62	60	HC20	M22	15,000	4.1
	GSK20-135	4.0~20.0	135	48	-	-	92	60	HC20	M22	15,000	4.4
	GSK20-165	4.0~20.0	165	48	-	-	122	60	HC20	M22	15,000	4.9
	GSK25-105	16.0~25.0	105	55	55	62	62	64	HC25	M28	15,000	4.2
	GSK25-135	16.0~25.0	135	55	55	92	92	64	HC25	M28	15,000	4.6
	GSK25-165	16.0~25.0	165	55	55	122	122	64	HC25	M28	15,000	5.1

M This is metric size. We can also provide in inch type

HSK-GSK





(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	LB2	LSC	COLLET	ADJ	RPMX	lbs
HSK63A-	GSK6-100	3.0~6.0	100	20	32	51	71	31	HC6	M8	20,000	0.8
	GSK10-105	2.0~10.0	105	27	35	60	76	38	HC10	M12	20,000	0.9
	GSK16-120	3.0~16.0	120	40	40	90	-	52	HC16	M18	20,000	1.3
	GSK20-120	4.0~20.0	120	48	48	92	-	60	HC20	M22	20,000	1.6
HSK100A-	GSK6-120	3.0~6.0	120	19.5	32	70	88	31	HC6	M8	15,000	2.2
	GSK10-120	2.0~10.0	120	27	27	70	88	38	HC10	M12	15,000	2.3
	GSK16-140	3.0~16.0	140	40	40	105	-	52	HC16	M18	15,000	2.8
	GSK25-155	16.0~25.0	155	55	55	120	-	64	HC25	M28	15,000	3.6

M This is metric size. We can also provide in inch type

SK-GSK



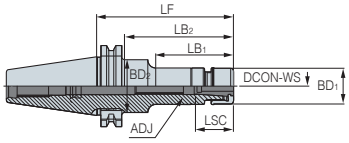


Fig. 1

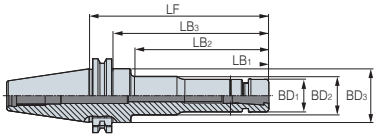


Fig. 2

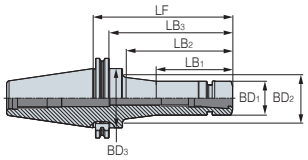


Fig. 3

(mm)

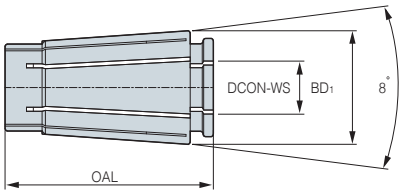
Designation		DCON-WS	LF	BD1	BD2	BD3	LB1	LB2	LB3	LSC	COLLET	ADJ	RPMX	Fig.	lbs
SK40-	GSK6-60	3.0~6.0	60	20	-	-	41	-	-	31	HC6	M8	20,000	1	0.8
	GSK6-90	3.0~6.0	90	20	45	-	48	71	-	31	HC6	M8	20,000	1	1.0
	GSK10-90	2.0~10.0	90	27	45	-	50	71	-	38	HC10	M12	20,000	1	1.1
	GSK10-150	2.0~10.0	150	27	32	45	70	112	131	38	HC10	M12	20,000	2	1.3
	GSK16-90	3.0~16.0	90	40	-	-	68	-	-	52	HC16	M18	20,000	1	1.2
	GSK16-150	3.0~16.0	150	40	45	-	114	118	-	52	HC16	M18	20,000	1	1.7
	GSK20-90	4.0~20.0	90	48	-	-	71	-	-	60	HC20	M22	20,000	1	1.3
	GSK25-90	16.0~25.0	90	55	-	-	71	-	-	64	HC25	M28	20,000	1	1.3
SK50-	GSK6-105	3.0~6.0	105	20	70	-	60	86	-	31	HC6	M8	15,000	1	3.1
	GSK6-165	3.0~6.0	165	20	32	70	60	120	15	31	HC6	M8	15,000	2	3.3
	GSK10-105	2.0~10.0	105	27	70	-	65	86	-	38	HC10	M12	15,000	1	3.2
	GSK10-165	2.0~10.0	165	27	32	70	75	120	15	38	HC10	M12	15,000	2	3.4
	GSK16-105	3.0~16.0	105	40	70	-	65	86	-	52	HC16	M18	15,000	1	3.4
	GSK16-165	3.0~16.0	165	40	50	70	90	126	15	52	HC16	M18	15,000	3	3.9
	GSK20-105	4.0~20.0	105	48	70	-	65	86	-	60	HC20	M22	15,000	1	3.6
	GSK20-165	4.0~20.0	165	48	70	-	125	146	-	60	HC20	M22	15,000	1	4.3
	GSK25-105	16.0~25.0	105	55	70	-	65	86	-	64	HC25	M28	15,000	1	3.7
	GSK25-165	16.0~25.0	165	55	70	-	125	146	-	64	HC25	M28	15,000	1	4.6

M This is metric size. We can also provide in inch type

HC Collet

General type





(mm)

Designation		DCON-WS	OAL	BD1	Clearance	Accuracy
HC6-	3.0	3.0	25.0	10.5	1.0	5μm
	4.0	4.0	25.0	10.5	1.0	5μm
	5.0	5.0	25.0	10.5	1.0	5μm
	6.0	6.0	25.0	10.5	1.0	5μm
HC10-	2.0	2.0	30.5	15.6	1.0	5μm
	3.0	3.0	30.5	15.6	1.0	5μm
	4.0	4.0	30.5	15.6	1.0	5μm
	5.0	5.0	30.5	15.6	1.0	5μm
	6.0	6.0	30.5	15.6	1.0	5μm
	7.0	7.0	30.5	15.6	1.0	5μm
	8.0	8.0	30.5	15.6	1.0	5μm
	9.0	9.0	30.5	15.6	1.0	5μm
	10.0	10.0	30.5	15.6	1.0	5μm
HC13-	3.0	3.0	39.0	20.1	1.0	5μm
	4.0	4.0	39.0	20.1	1.0	5μm
	5.0	5.0	39.0	20.1	1.0	5μm
	6.0	6.0	39.0	20.1	1.0	5μm
	7.0	7.0	39.0	20.1	1.0	5μm
	8.0	8.0	39.0	20.1	1.0	5μm
	9.0	9.0	39.0	20.1	1.0	5μm
	10.0	10.0	39.0	20.1	1.0	5μm
	11.0	11.0	39.0	20.1	1.0	5μm
	12.0	12.0	39.0	20.1	1.0	5μm
	13.0	13.0	39.0	20.1	1.0	5μm
HC16-	3.0	3.0	45.0	24.6	1.0	5μm
	4.0	4.0	45.0	24.6	1.0	5μm
	5.0	5.0	45.0	24.6	1.0	5μm
	6.0	6.0	45.0	24.6	1.0	5μm
	7.0	7.0	45.0	24.6	1.0	5μm
	8.0	8.0	45.0	24.6	1.0	5μm
	9.0	9.0	45.0	24.6	1.0	5μm
	10.0	10.0	45.0	24.6	1.0	5μm
	11.0	11.0	45.0	24.6	1.0	5μm
	12.0	12.0	45.0	24.6	1.0	5μm
	13.0	13.0	45.0	24.6	1.0	5μm
	14.0	14.0	45.0	24.6	1.0	5μm
	15.0	15.0	45.0	24.6	1.0	5μm
	16.0	16.0	45.0	24.6	1.0	5μm

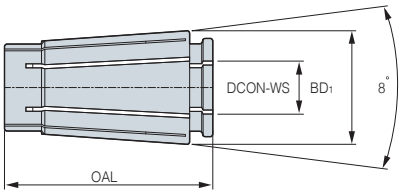
Designation		DCON-WS	OAL	BD1	Clearance	Accuracy
HC20-	4.0	4.0	54.3	29.2	2.0	5μm
	6.0	6.0	54.3	29.2	2.0	5μm
	8.0	8.0	54.3	29.2	2.0	5μm
	10.0	10.0	54.3	29.2	2.0	5μm
	12.0	12.0	54.3	29.2	2.0	5μm
	14.0	14.0	54.3	29.2	2.0	5μm
	16.0	16.0	54.3	29.2	2.0	5μm
	18.0	18.0	54.3	29.2	2.0	5μm
	20.0	20.0	54.3	29.2	2.0	5μm
HC25-	16.0	16.0	57.0	35.7	1.0	5μm
	17.0	17.0	57.0	35.7	1.0	5μm
	18.0	18.0	57.0	35.7	1.0	5μm
	19.0	19.0	57.0	35.7	1.0	5μm
	20.0	20.0	57.0	35.7	1.0	5μm
	21.0	21.0	57.0	35.7	1.0	5μm
	22.0	22.0	57.0	35.7	1.0	5μm
	23.0	23.0	57.0	35.7	1.0	5μm
	24.0	24.0	57.0	35.7	1.0	5μm
	25.0	25.0	57.0	35.7	1.0	5μm

M This is metric size. We can also provide in inch type

HC Collet

Precision type





(mm)

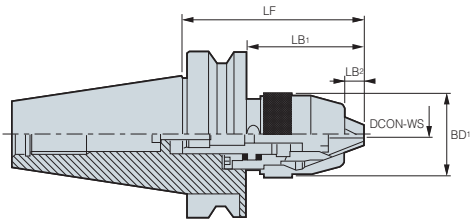
Designation		DCON-WS	OAL	BD1	Clearance	Accuracy
HC6-	3.0P	3.0	25.0	10.5	1.0	3μm
	4.0P	4.0	25.0	10.5	1.0	3μm
	5.0P	5.0	25.0	10.5	1.0	3μm
	6.0P	6.0	25.0	10.5	1.0	3μm
HC10-	2.0P	2.0	30.5	15.6	1.0	3μm
	3.0P	3.0	30.5	15.6	1.0	3μm
	4.0P	4.0	30.5	15.6	1.0	3μm
	5.0P	5.0	30.5	15.6	1.0	3μm
	6.0P	6.0	30.5	15.6	1.0	3μm
	7.0P	7.0	30.5	15.6	1.0	3μm
	8.0P	8.0	30.5	15.6	1.0	3μm
	9.0P	9.0	30.5	15.6	1.0	3μm
	10.0P	10.0	30.5	15.6	1.0	3μm
HC13-	3.0P	3.0	39.0	20.1	1.0	3μm
	4.0P	4.0	39.0	20.1	1.0	3μm
	5.0P	5.0	39.0	20.1	1.0	3μm
	6.0P	6.0	39.0	20.1	1.0	3μm
	7.0P	7.0	39.0	20.1	1.0	3μm
	8.0P	8.0	39.0	20.1	1.0	3μm
	9.0P	9.0	39.0	20.1	1.0	3μm
	10.0P	10.0	39.0	20.1	1.0	3μm
	11.0P	11.0	39.0	20.1	1.0	3μm
	12.0P	12.0	39.0	20.1	1.0	3μm
	13.0P	13.0	39.0	20.1	1.0	3μm
HC16-	3.0P	3.0	45.0	24.6	1.0	3μm
	4.0P	4.0	45.0	24.6	1.0	3μm
	5.0P	5.0	45.0	24.6	1.0	3μm
	6.0P	6.0	45.0	24.6	1.0	3μm
	7.0P	7.0	45.0	24.6	1.0	3μm
	8.0P	8.0	45.0	24.6	1.0	3μm
	9.0P	9.0	45.0	24.6	1.0	3μm
	10.0P	10.0	45.0	24.6	1.0	3μm
	11.0P	11.0	45.0	24.6	1.0	3μm
	12.0P	12.0	45.0	24.6	1.0	3μm
	13.0P	13.0	45.0	24.6	1.0	3μm
	14.0P	14.0	45.0	24.6	1.0	3μm
	15.0P	15.0	45.0	24.6	1.0	3μm
	16.0P	16.0	45.0	24.6	1.0	3μm

Designation		DCON-WS	OAL	BD1	Clearance	Accuracy
HC20-	4.0P	4.0	54.3	29.2	2.0	3μm
	6.0P	6.0	54.3	29.2	2.0	3μm
	8.0P	8.0	54.3	29.2	2.0	3μm
	10.0P	10.0	54.3	29.2	2.0	3μm
	12.0P	12.0	54.3	29.2	2.0	3μm
	14.0P	14.0	54.3	29.2	2.0	3μm
	16.0P	16.0	54.3	29.2	2.0	3μm
	18.0P	18.0	54.3	29.2	2.0	3μm
	20.0P	20.0	54.3	29.2	2.0	3μm
HC25-	16.0P	16.0	57.0	35.7	1.0	3μm
	17.0P	17.0	57.0	35.7	1.0	3μm
	18.0P	18.0	57.0	35.7	1.0	3μm
	19.0P	19.0	57.0	35.7	1.0	3μm
	20.0P	20.0	57.0	35.7	1.0	3μm
	21.0P	21.0	57.0	35.7	1.0	3μm
	22.0P	22.0	57.0	35.7	1.0	3μm
	23.0P	23.0	57.0	35.7	1.0	3μm
	24.0P	24.0	57.0	35.7	1.0	3μm
	25.0P	25.0	57.0	35.7	1.0	3μm

M This is metric size. We can also provide in inch type

BT-NPU





(mm)

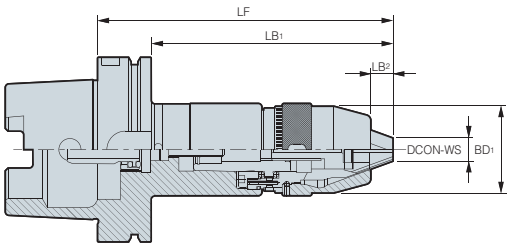
Designation		DCON-WS	LF	BD1	LB1	LB2	lbs
BT30-	NPU8-97	1~8	97	38	75	8.0	0.8
	NPU13-125	1~13	125	50	103	12.0	1.4
BT40-	NPU8-87	1~8	87	38	60	8.0	1.2
	NPU13-105	1~13	105	50	78	12.0	1.6
	NPU13-130	1~13	130	50	103	12.0	1.9
BT50-	NPU13-130	1~13	130	50	92	12.0	4.5
	NPU13-190	1~13	190	50	152	12.0	5.3

• Through coolant system is not available

M This is metric size. We can also provide in inch type

HSK-NPU





(mm)

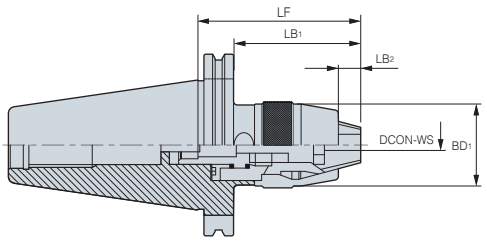
Designation		DCON-WS	LF	BD1	LB1	LB2	lbs
HSK63A-	NPU13-175	1~13	175	50	149	12.0	2.4
HSK100A-	NPU13-180	1~13	180	50	151	12.0	3.6

• Through coolant system is not available

M This is metric size. We can also provide in inch type

SK-NPU





(mm)

Designation		DCON-WS	LF	BD1	LB1	LB2	lbs
SK40-	NPU13-105	1~13	105	50	78	12.5	1.6
SK50-	NPU13-111	1~13	111	50	84	12.5	3.6

• Through coolant system is not available

M This is metric size. We can also provide in inch type

Parts

For separate purchase			For separate purchase
Division	Collet	Bolt	Spanner
Parts / Designation			
NPU8	NPU08	BX0620	NPU0836
NPU13	NPU13	BX0825	NPU1348

Tapping holder

DTN

- Compact design and slim type
- Improvement of tapping force
- Tapping range: M3~M38

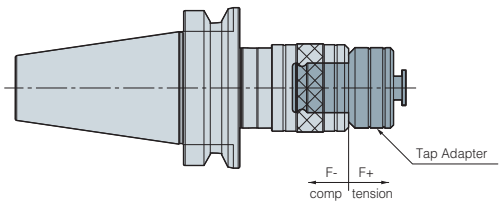


Code system

BT40	-	DTN	22	-	130
Spindle		Tapping holder	Max. chucking diameter		Length

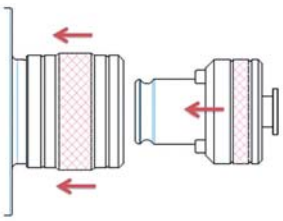
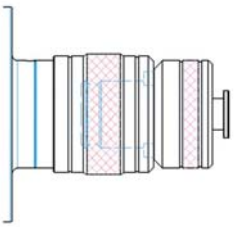
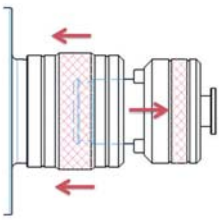
Easy exchange of TCA(Tap adaptor)

- Convenient one-touch exchange type for high precision and longer tool life Contraction of length is possible by axial floating way



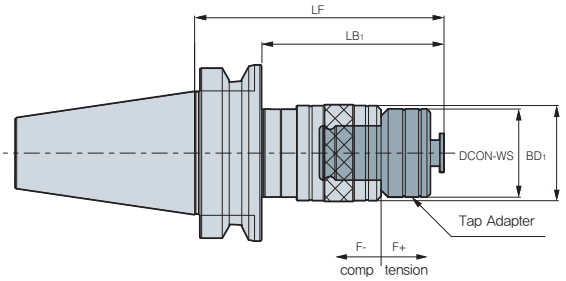


How to clamp TCA and a tap holder

Before installation	After installation	Disassembly
		
1. Insert TCA pushing the cover of tap holder 2. Clamp the TCA in the Key groove and firmly	1. The cover of tap holder is placed correctly	1. Seaparate the TCA pushing the cover of tap holder

BT-DTN





(mm)

Designation		Tapping range	LF	LB1	DCON-WS	BD1	Adaptor	F-	F +	lbs
BT30-	DTN12-85	M3~M12	85	63	32	39	TCA1-M	4	10	0.5
BT40-	DTN12-90	M3~M12	90	63	32	39	TCA1-M	4	10	1.2
	DTN12-120	M3~M12	120	93	32	39	TCA1-M	4	10	1.5
	DTN22-130	M8~M24	130	103	50	56	TCA2-M	12.5	12.5	1.7
	DTN22-160	M8~M24	160	133	50	56	TCA2-M	12.5	12.5	2.2
BT50-	DTN12-100	M3~M12	100	62	32	39	TCA1-M	4	10	3.9
	DTN12-130	M3~M12	130	92	32	39	TCA1-M	4	10	3.9
	DTN22-140	M8~M24	140	102	50	56	TCA2-M	12.5	12.5	4.3
	DTN22-170	M8~M24	170	132	50	56	TCA2-M	12.5	12.5	4.7
	DTN38-185	M16~M38	185	147	72	81	TCA3-M	20	20	5.7
	DTN38-215	M16~M38	215	177	72	81	TCA3-M	20	20	6.7

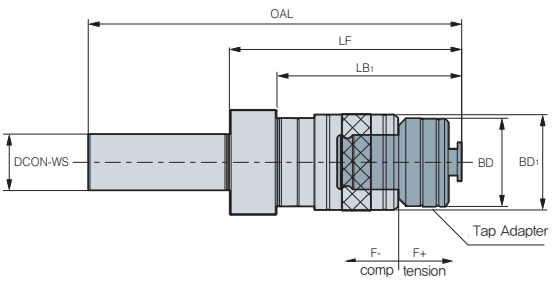
Tap Adapter(TCA) **E90**

• Through coolant system is not available

M This is metric size. We can also provide in inch type

S-DTN





(mm)

Designation		Tapping range	BD	DCON-WS	OAL	BD1	LF	LB1	Adaptor	F-	F+	lbs
S32-	DTN12-90	M3-M12	32	32	170	39	90	63	TCA1	4	10	1.0
	DTN22-130	M8-M24	50	32	210	56	130	103	TCA2	12.5	12.5	1.8

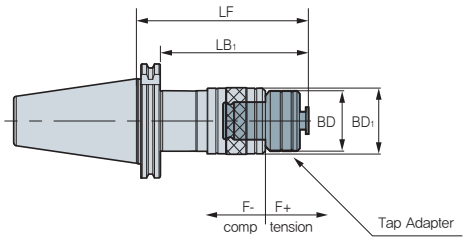
Tap Adapter(TCA) **E90**

• Through coolant system is not available

M This is metric size. We can also provide in inch type

SK-DTN





(mm)

Designation		Tapping range	BD	LF	BD1	LB1	Adaptor	F-	F+	lbs
SK40-	DTN12-90	M3~M12	32	90	39	70.9	TCA1-M	4	10	1.0
	DTN22-130	M8~M22	50	130	56	110.9	TCA2-M	12.5	12.5	1.6
SK50-	DTN12-100	M3~M12	32	100	39	80.9	TCA1-M	4	10	2.9
	DTN22-140	M8~M22	50	140	56	120.9	TCA2-M	12.5	12.5	3.5

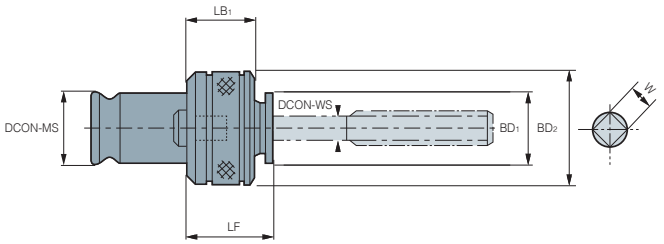
Tap Adapter(TCA) E90

• Through coolant system is not available

M This is metric size. We can also provide in inch type

TCA Tap Adapter





(mm)

Designation		DCON-WS	LF	DCON-MS	LB1	BD1	BD2	W	lbs
TCA1-	M3	4	27	19	25	19	32	3	0.2
	M4	5	27	19	25	19	32	4	0.2
	M5	6	27	19	25	19	32	4	0.2
	M6	6	27	19	25	19	32	4	0.2
	M8	6.2	27	19	25	19	32	5	0.2
	M10	7	27	19	25	19	32	6	0.2
	M11	8	27	19	25	19	32	6	0.2
	M12	9	27	19	25	19	32	7	0.2
TCA2-	M8	6.2	34	31	31	29	50	5	0.5
	M10	7	34	31	31	29	50	6	0.5
	M12	8.5	34	31	31	29	50	7	0.5
	M14	11	34	31	31	29	50	8	0.5
	P1/4	11	34	31	31	29	50	9	0.5
	M16	13	34	31	31	29	50	10	0.5
	M18	14	34	31	31	29	50	11	0.5
	M20	15	34	31	31	29	50	12	0.5
	M22	17	34	31	31	29	50	13	0.5
	P1/2	18	34	31	31	29	50	14	0.5
	M24	19	34	31	31	29	50	15	0.5
TCA3-	M16	13	45	48	41	44	72	10	1.4
	M18	14	45	48	41	44	72	11	1.4
	M20	15	45	48	41	44	72	12	1.4
	M22	17	45	48	41	44	72	13	1.4
	M24	19	45	48	41	44	72	15	1.4
	M27	20	45	48	41	44	72	15	1.4
	M30	23	45	48	41	44	72	17	1.4
	M33	25	45	48	41	44	72	19	1.4
	M36	28	45	48	41	44	72	21	1.4

• Through coolant system is not available

M This is metric size. We can also provide in inch type

High speed synchro tapping chuck

DST

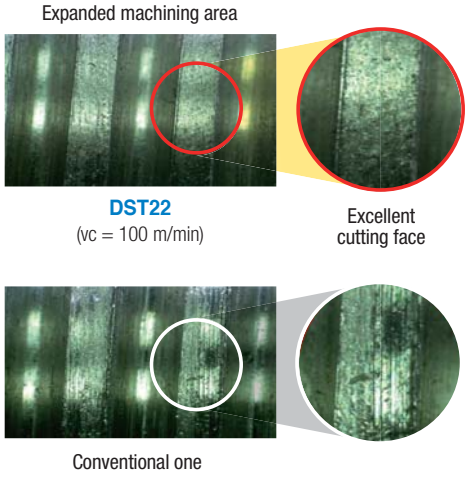
- Tapping chuck for high speed machining
- Specially designed structure for absorbing thrust load and preventing damage on the tap
- Through coolant system available
- Applicable range: M1~M22



Code system

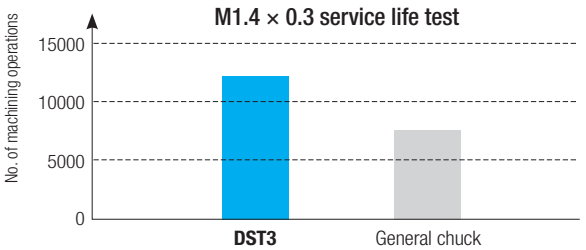
BT40	-	DST	22	-	110
Spindle		Tapping holder	Max. Chucking diameter		Length

Excellent performance, precise machining



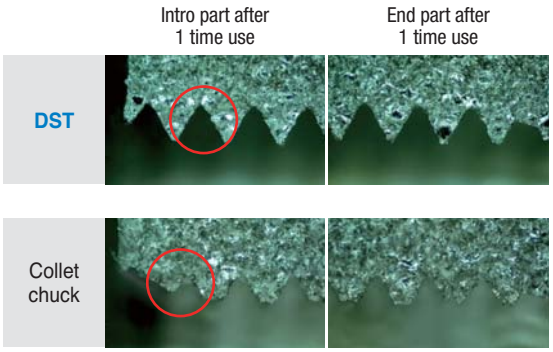


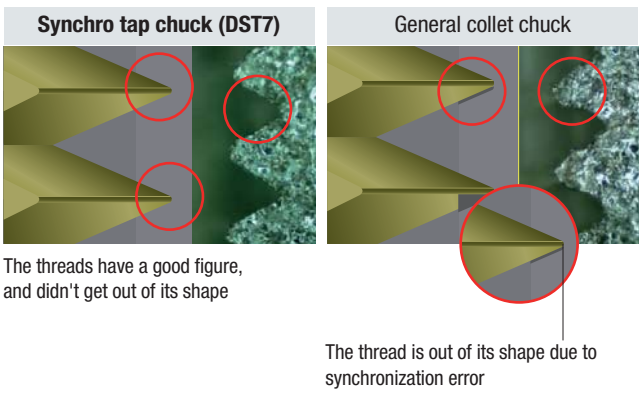
Exclusive collet for tapping
- At tapping work use of TER collet
- DST3: Use of ER11 collet



Increased tool service life versus collet chuck use

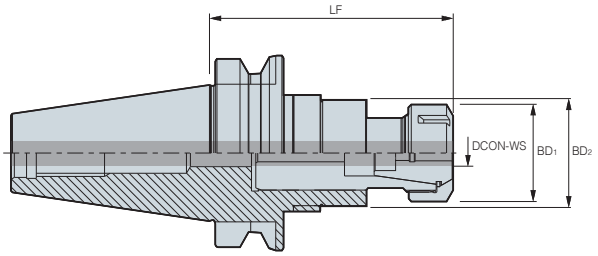
Comparison of thread figures





BT-DST





(mm)

Designation		DCON-WS	LF	BD1	BD2	Collet	F-	F+	lbs
BT30-	DST3-70	M1~M3	70	20	19	ER11	0.5	0.5	0.5
	DST10-100	M3~M10	100	40.4	28	TER16	0.5	0.5	0.8
BT40-	DST3-70	M1~M3	70	20	19	ER11	0.5	0.5	1.0
	DST10-100	M3~M10	100	40.4	28	TER16	0.5	0.5	1.3
	DST22-110	M6~M22	110	60	50	TER32	0.7	0.7	1.7
BT50-	DST10-110	M3~M10	110	60	50	TER16	0.5	0.5	3.8
	DST22-130	M6~M22	130	60	50	TER32	0.7	0.7	4.5

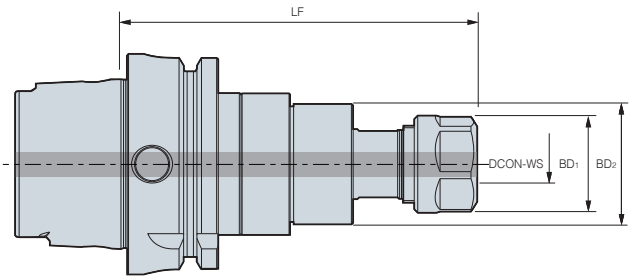
Application Collet **E69, E94**

• Through coolant system is optional

M This is metric size. We can also provide in inch type

HSK-DST





(mm)

Designation		DCON-WS	LF	BD1	BD2	Collet	F-	F+	lbs
HSK63A-	DST3-80	M1~M3	80	19	20	ER11	0.5	0.5	0.7
	DST10-100	M3~M10	100	28	40.4	TER16	0.5	0.5	0.9
	DST22-130	M6~M22	130	49.5	60	TER32	0.7	0.7	1.8

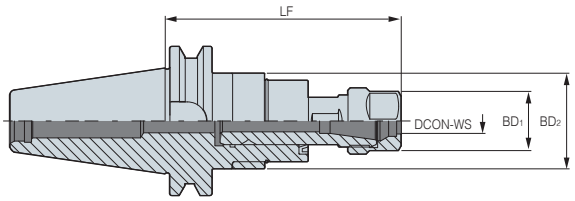
Application Collet **E69, E94**

• Through coolant system is optional

M This is metric size. We can also provide in inch type

SK-DST





(mm)

Designation		DCON-WS	LF	BD1	BD2	Collet	F-	F+	lbs
SK30-	DST3-70	M1~M3	70	19	20	ER11	0.2	0.2	0.4
SK40-	DST3-70	M1~M3	70	19	20	ER11	0.2	0.2	0.9
	DST10-110	M3~M10	110	28	35	TER16	0.5	0.5	1.2
	DST22-120	M6~M22	120	50	54	TER32	0.7	0.7	1.8
SK50-	DST10-110	M3~M10	110	28	35	TER16	0.5	0.5	3.0
	DST22-120	M6~M22	120	50	54	TER32	0.7	0.7	3.7

Application Collet **E69, E94**

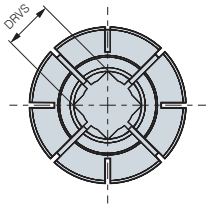
• Through coolant system is optional

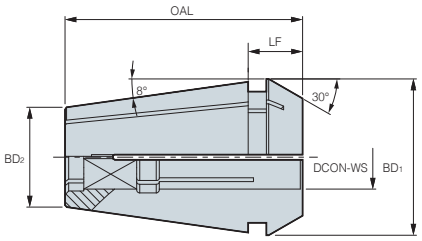
M This is metric size. We can also provide in inch type

TER Collet

Tap Collet







(mm)

Designation		Tapping Range	DCON-WS	OAL	DRVS	BD1	BD2	LF	lbs
TER16-	4x3.2	M3	4	27.5	3.2	16.74	10.1	6.3	0.03
	5x4	M4	5	27.5	4	16.74	10.1	6.3	0.03
	5.5x4.5	M5	5.5	27.5	4.5	16.74	10.1	6.3	0.02
	6x4.5	M6,U1/4	6	27.5	4.5	16.74	10.1	6.3	0.02
	6.2x5	M7, M8	6.2	27.5	5	16.74	10.1	6.3	0.02
	7x5.5	M9, M10, U3/8	7	27.5	5.5	16.74	10.1	6.3	0.02
TER20-	5x4	M4	5	31.5	4	20.74	13.2	7.2	0.05
	5.5x4.5	M5	5.5	31.5	4.5	20.74	13.2	7.2	0.05
	6x4.5	M6,U1/4	6	31.5	4.5	20.74	13.2	7.2	0.05
	6.2x5	M7, M8	6.2	31.5	5	20.74	13.2	7.2	0.04
	7x5.5	M9, M10, U3/8	7	31.5	5.5	20.74	13.2	7.2	0.05
	8x6	M11, U7/16, P1/8	8	31.5	6	20.74	13.2	7.2	0.04
	8.5x6.5	M12	8.5	31.5	6.5	20.74	13.2	7.2	0.04
TER25-	5x4	M4	5	34	4	25.74	17.6	7.5	0.9
	5.5x4.5	M5	5.5	34	4.5	25.74	17.6	7.5	0.8
	6x4.5	M6	6	34	4.5	25.74	17.6	7.5	0.8
	6.2x5	M7, M8	6.2	34	5	25.74	17.6	7.5	0.1
	7x5.5	M9, M10, U3/8	7	34	5.5	25.74	17.6	7.5	0.8
	8.5x6.5	M12	8.5	34	6.5	25.74	17.6	7.5	0.8
TER32-	6x4.5	M6,U1/4	6.2	40	4.5	32.74	23.1	8.2	0.2
	6.2x5	M7, M8	M8	40	5	32.74	23.1	8.2	0.2
	7x5.5	M9, M10, U3/8	7	40	5.5	32.74	23.1	8.2	0.2
	8X6	M11, U7/16, P1/8	8	40	6	32.74	23.1	8.2	0.2
	8.5x6.5	M12	8.5	40	6.5	32.74	23.1	8.2	0.2
	10.5x8	M14, U9/16	10.5	40	8	32.74	23.1	8.2	0.2
	12.5x10	M16	12.5	40	10	32.74	23.1	8.2	0.2
	14x11	M18, P3/8	14	40	11	32.74	23.1	8.2	0.1
	15x12	M20	15	40	12	32.74	23.1	8.2	0.1
	17x13	M22, U7/8	17	40	13	32.74	23.1	8.2	0.1
	11x9	P1/4	11	40	9	32.74	23.1	8.2	0.2
	12x9	U5/8	12	40	9	32.74	23.1	8.2	0.2
	9x7	U1/2	9	40	7	32.74	23.1	8.2	0.2

• Water proof tapping is possible with the use of RTJW and nuts (limited to the right sizes)

M This is metric size. We can also provide in inch type

Tap Extension Holder

TEH

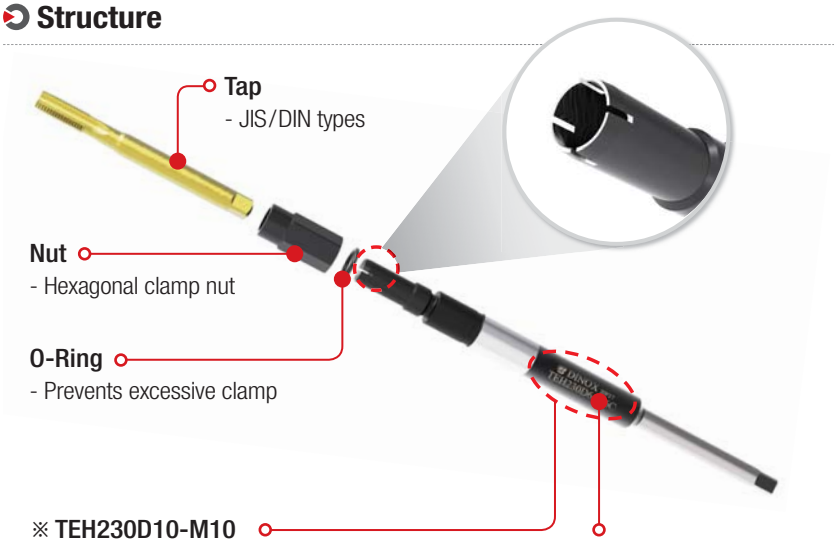
- Length-extending holder exclusive for tap when applying to the interference section
- Tool cost is reduced, and machining performance 1s improved compared to the use of long taps



Code system

TEH	230	D6	J	M6	-	C
Holder	Length	Shank diameter	J : JIS NON : DIN	Tap size		C : Coolant NON : General

Structure

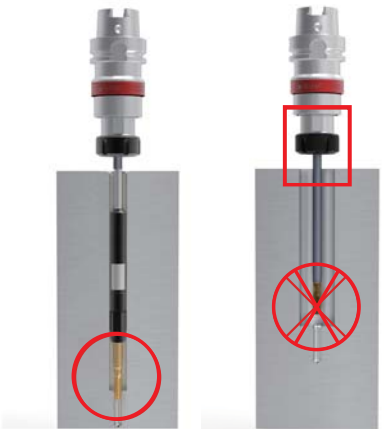


※ TEH230D10-M10

- Tap Extension Holder
- 230 : Full length
- D10 : END TOOL Ø / TEH SHANK Ø
- M10 : Tap size

Holder
- Excellent rigidity/run-out

Processing of deep holes



[TEH]
Processing O

[General long Tap]
Processing X

Full length comparison	TEH	General long tap
M10	230mm	150mm
M22	330mm	200mm

※ Since the full length is longer than that of the general long tap, it is favorable for processing narrow, deep holes.

TEH Setting Method



DST
High speed synchro tapping chuck

TER Collet

TEH
Tap Extension Holder

Tap
(M4~M22)

TEH (JIS)



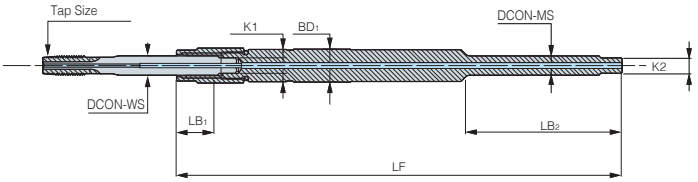


Fig. 1

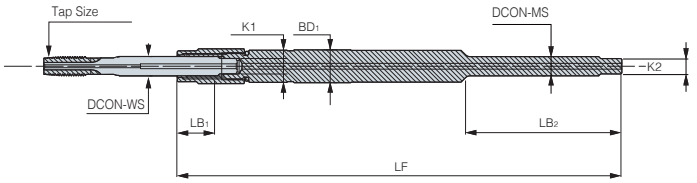


Fig. 2

(mm)

Designation		Tapping range	LB1	LB2	LF	BD1	DCON-WS	DCON-MS	K1	K2	NutØ	Fig.
TEH230	D5J-M4	M4	18	50	230	11	5	6	4	45	12.1	2
	D6J-M6C	M6	18	50	230	12	6	6	4.5	4.5	13.3	1
	D6.2J-M8C	M8	18	65	230	12	6.2	6.2	5	5	13.3	1
	D7J-M10C	M10	18	65	230	13	7	7	5.5	5.5	14.4	1
	D8.5J-M12C	M12	22	65	230	14	8.5	8.5	6.5	65	15.6	1
TEH330	D10.5J-M14C	M14	25	70	330	16	10.5	10.5	8	8	17.9	1
	D12.5J-M16C	M16	25	70	330	18	12.5	12.5	10	10	19.9	1
	D14J-M18C	M18	25	70	330	20	14	14	11	11	21.9	1
	D15J-M20C	M20	25	75	330	21	15	15	12	12	22.9	1
	D17J-M22C	M22	25	75	330	23	17	17	13	13	25.9	1

• Through coolant system is installed (Fig.2 Designation is non-coolant type)

M This is metric size. We can also provide in inch type

TEH (DIN)



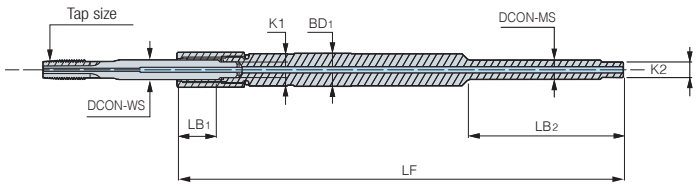


Fig. 1

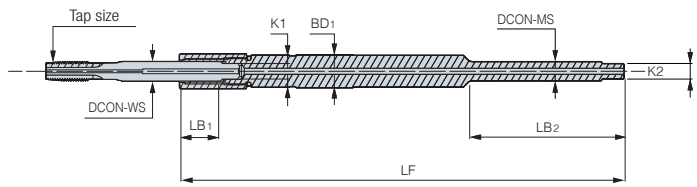


Fig. 2

(mm)

Designation		Tapping range	LB1	LB2	LF	BD1	DCON-WS	DCON-MS	K1	K2	NutØ	Fig.
TEH230	D4.5-M4	M4	18	50	230	10	4.5	6	3.4	4.5	11.1	2
	D6-M6C	M6	20	50	230	12	6	7	4.9	5.5	13.3	1
	D8-M8C	M8	23	65	230	14	8	8	6.3	6.2	15.6	1
	D10-M10C	M10	24	65	230	16	10	10	8	8	17.9	1
	D9-M12C	M12	23	65	230	15	9	9	7	7	16.8	1
TEH330	D11-M14C	M14	26	70	330	17	11	11	9	9	19.1	1
	D12-M16C	M16	26	70	330	18	12	12	9	9	19.9	1
	D14-M18C	M18	28	70	330	20	14	14	11	11	21.9	1
	D16-M20C	M20	28	75	330	22	16	16	12	12	23.9	1
	D18-M22C	M22	28	75	330	24	18	18	14.5	14.5	25.9	1

• Through coolant system is installed (Fig.2 Designation is non-coolant type)

M This is metric size. We can also provide in inch type

DINE Synchro Tapping ER Collet

STER PAT.



- Floating function applicable for tap machining just by fastening the ER collet chuck
- Tap size can be converted just by replacing the connector
- Tap : M6~M16

Code system

ST	ER	32C	M6
Synchronizing Tapping Collet	Collet	Collet size	Tool diameter

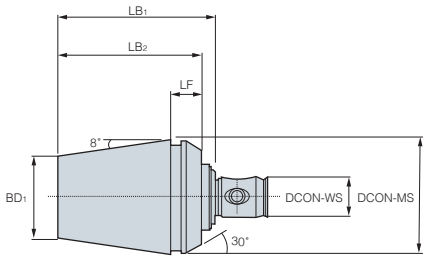
Details

STER32



Detailed specifications

COLLET



CONNECTOR

Fig. 1

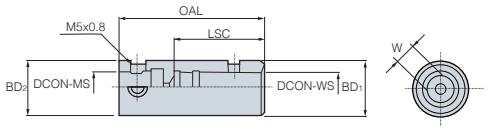
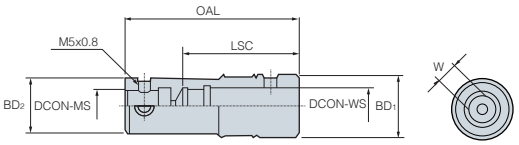


Fig. 2



※COLLET

Designation	DCON-MS	BD1	DCON-WS	LB1	LB2	LF	Fig.
STER32	32	23.1	11	44	40	8.2	1

※CONNECTOR

Designation	BD1	BD2	DCON-WS	DCON-MS	OAL	LSC	W	Fig.
STER32C-M6	19	21	6	11	50	29.5	4.5	2
STER32C-M8	19	21	6.2	11	50	30	5	2
STER32C-M10	19	21	7	11	50	29	5.5	2
STER32C-M12	19	21	8.5	11	50	30.5	6.5	2
STER32C-M14	19	21	10.5	11	50	31	8	2
STER32C-M16	19	21	12.5	11	50	40.5	10	2

PART

BTT0506F



BT0504



PART

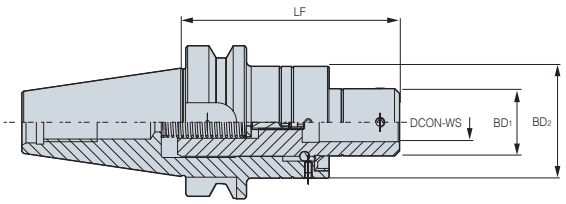
LW-2.5



BT-OFH

Floating holder





(mm)

Designation		DCON-WS	LF	BD1	BD2	Sleeve stroke(F)	RPMX
BT30-	OFH6-75	6	75	19.7	38	6	15,000

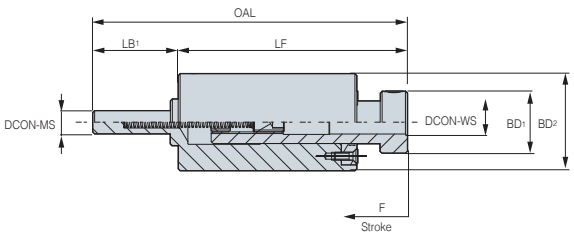
• Through coolant system is not available

M This is metric size. We can also provide in inch type

ST-OFH

Floating holder





(mm)

Designation		DCON-WS	OAL	BD1	BD2	DCON-MS	LB1	LF	Sleeve stroke(F)	RPMX
ST06-	OFH6-60	6	81	16	25	6	59	22	6	15,000

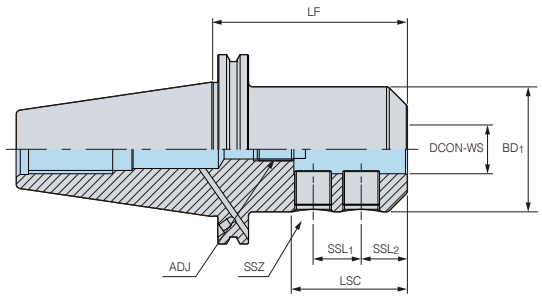
• Through coolant system is not available

M This is metric size. We can also provide in inch type

CAT-SLA

Side Lock Arbor





inch

Designation		DCON-WS	LF	BD1	LSC	SSL1	SSL2	SSZ	ADJ
CAT40B-	SLA1/2-3.50	1/2	3.5	1.65	1.81	-	0.89	7/16"-20UNFx12	M8
	SLA5/8-3.50	5/8	3.5	1.89	1.93	-	0.94	7/16"-20UNFx14	M12
	SLA3/4-4.00	3/4	4	2.05	2.01	-	0.98	5/8"-18UNFx16	M12
	SLA1-4.00	1	4	2.56	2.32	0.98	0.94	3/4"-16UNFx18	M12
	SLA1 1/4-4.00	1 1/4	4	2.83	2.48	1.1	0.94	3/4"-16UNFx18	M12
	SLA1 1/2-4.00	1 1/2	4	3.15	2.87	1.26	1.18	3/4"-16UNFx18 3/4"-16UNFx10	M12
CAT50B-	SLA1/2-3.5	1/2	3.5	1.65	1.81	-	0.89	7/16"-20UNFx12	M8
	SLA5/8-3.5	5/8	3.5	1.89	1.93	-	0.94	7/16"-20UNFx14	M12
	SLA3/4-4.00	3/4	4	2.05	2.01	-	0.98	5/8"-18UNFx16	M12
	SLA1-4.00	1	4	2.56	2.32	0.98	0.94	3/4"-16UNFx18	M12
	SLA1 1/4-4.00	1 1/4	4	2.83	2.48	1.1	0.94	3/4"-16UNFx18	M12
	SLA1 1/2-4.00	1 1/2	4	3.15	2.87	1.26	1.18	3/4"-16UNFx18 3/4"-16UNFx13	M12

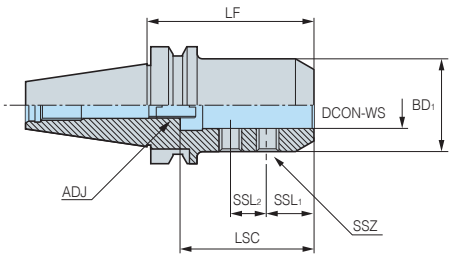
Parts

Basic		
Division	Set Screw	Adjust Screw
Parts / Designation		
SLA1/2	7/16"-20UNFx12	M0820C
SLA5/8	7/16"-20UNFx14	M1220C
SLA3/4	5/8"-18UNFx16	M1230C
SLA1	3/4"-16UNFx18	M1220C
SLA1 1/4	3/4"-16UNFx18	M1220C
SLA1 1/2	3/4"-16UNFx10/13/18	M1220C

BT-SLA

Side Lock Arbor





(mm)

Designation		DCON-WS	LF	BD1	LSC	SSL1	SSL2	SSZ	ADJ	lbs
BT30-	SLA16-90	16	90	40	72	25	20	M10	M12	0.9
	SLA20-90	20	90	50	72	25	20	M12	M12	1.2
	SLA25-90	25	90	50	72	25	20	M12	M12	1.1
BT40-	SLA16-90	16	90	40	72	25	20	M10	M12	1.4
	SLA20-90	20	90	50	72	25	20	M12	M12	1.8
	SLA25-90	25	90	50	72	25	20	M12	M12	1.6
	SLA32-90	32	90	60	82	25	25	M14	M12	1.8
	SLA32-105	32	105	60	82	25	25	M14	M12	2.0
	SLA40-105	40	105	80	82	25	25	M16	M12	2.9
BT50-	SLA16-90	16	90	40	72	25	20	M10	M12	4
	SLA20-105	20	105	50	72	25	20	M12	M12	4.4
	SLA25-105	25	105	50	72	25	20	M12	M12	4.3
	SLA25-135	25	135	50	72	25	20	M12	M12	4.6
	SLA25-165	25	165	50	82	25	20	M12	M12	5.2
	SLA32-105	32	105	60	82	25	25	M14	M12	4.5
	SLA32-135	32	135	60	82	25	25	M14	M12	5.1
	SLA32-165	32	165	60	82	25	25	M14	M12	5.7
	SLA40-105	40	105	90	82	25	20	M16	M12	6.1
	SLA40-150	40	150	90	82	25	25	M16	M12	8.1
	SLA42-105	42	105	90	82	25	25	M16	M12	5.9

Spare Part **E91**

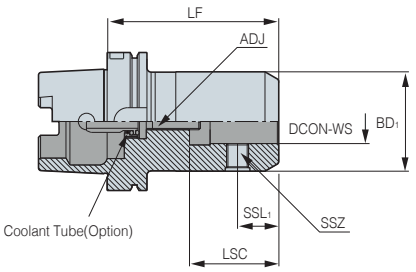
• Through coolant system is installed

M This is metric size. We can also provide in inch type

HSK-SLA

Side Lock Arbor





(mm)

Designation		DCON-WS	LF	BD1	LSC	SSL1	SSZ	ADJ	lbs
HSK30A-	SLA20-100	20	100	52	51	25	M8	M12	1.6
	SLA25-105	25	105	65	59	25	M8	M12	2.1
	SLA32-105	32	105	72	63	30	M5	M12	2.3
HSK100A-	SLA20-105	20	105	52	51	25	M16	M12	3.1
	SLA25-110	25	110	65	59	25	M18	M12	3.8
	SLA32-125	32	125	72	63	30	M20	M12	4.4
	SLA40-135	40	135	80	73	32	M20	M12	5.2

Spare Part **E101**

• Through coolant system is installed

M This is metric size. We can also provide in inch type

Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK63A	HSK63A-CNS
HSK100A	HSK100A-CNS

SK-SLA

Side Lock Arbor



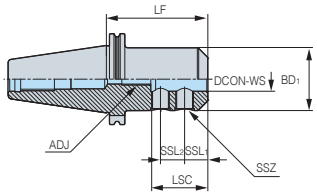


Fig. 1

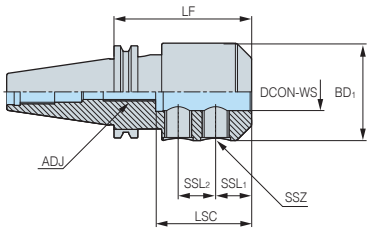


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	LSC	SSL1	SSL2	SSZ	ADJ	Fig.	lbs
SK40-	SLA16-75	16	75	48	49	24	-	M14	M12	1	1.4
	SLA20-75	20	75	52	51	25	-	M16	M12	1	1.5
	SLA25-95	25	95	65	59	24	25	M18	M12	2	2.1
	SLA32-105	32	105	72	63	24	28	M20	M12	2	2.8
SK50-	SLA16-90	16	90	48	49	24	-	M14	M12	1	3.5
	SLA20-90	20	90	52	51	25	-	M16	M12	1	3.6
	SLA25-105	25	105	65	59	24	25	M18	M12	1	4.5
	SLA32-120	32	120	72	63	24	28	M20	M12	1	5.2
	SLA40-120	40	120	80	73	30	32	M20	M12	1	5.6

Spare Part **E102**

• Through coolant system is not available

M This is metric size. We can also provide in inch type

Parts

Basic				For separate purchase	
Division	Set screw		Adjust screw	Wrench	
Parts / Designation					
	BT Type	HSK Type		BT Type	HSK Type
SLA16	BTF1010	BTF1414-1.5	M1230C	LW-5	LW-6
SLA20	BTF1212-1.5	BTF1616-1.5		LW-6	LW-8
SLA25	BTF1212-1.5	BTF1818-1.5		LW-6	LW-8
SLA32	BTF1414-1.5	BTF2020-1.5		LW-6	LW-10
SLA40	BTF1624-1.5	BTF2020-1.5		LW-8	LW-10
SLA42	BTF1624-1.5	BTF2020-1.5		LW-8	LW-10

SK-MTA

Morse Taper Arbor



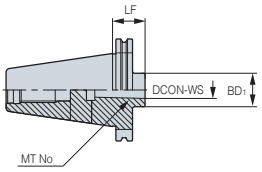


Fig. 1

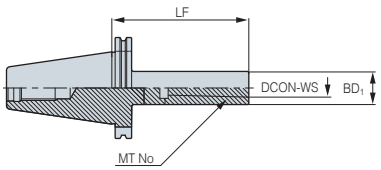


Fig. 2

(mm)

Designation		MT No.	LF	DCON-WS	BD1	Fig.	lbs
SK50-	MTA3-45	3	45	23.825	40	1	2.7
	MTA3-150	3	150	23.825	40	2	3.6
	MTA4-75	4	75	31.267	50	1	2.9

• Through coolant system is not available

M This is metric size. We can also provide in inch type

CAT-FMA

Face Mill Arbor



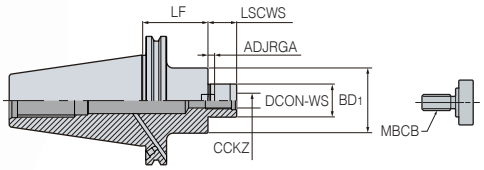


Fig. 1

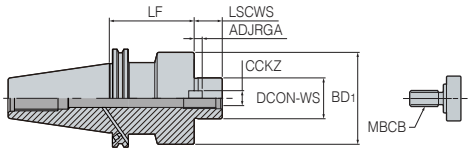


Fig. 2

inch

Designation		DCON-WS	LF	BD1	LSCWS	CCKZ	ADJRGA	M	Fig.
CAT40B-	FMA1/2-2.5	1/2	2.5	1.417	0.55	0.237	0.118	UNF1/4-28*16	1
	FMA3/4-2.5	3/4	2.5	1.75	0.71	0.296	0.157	UNF3/8-24*24	1
	FMA1-2.5	1	2.5	1.969	0.866	0.37	0.197	UNF1/2-20*32	2
	FMA1 1/4-2.5	1 1/4	2.5	2.362	1.181	0.5	0.276	UNF5/8-18*40	2
	FMA1 1/2-3.0	1 1/2	3	3.15	1.339	0.63	0.354	UNF3/4-16*47	2
CAT50B-	FMA1/2-2.5	1/2	2.5	1.417	0.55	0.237	0.118	UNF1/4-28*16	1
	FMA3/4-2.5	3/4	2.5	1.75	0.71	0.296	0.157	UNF3/8-24*24	1
	FMA1-2.0	1	2	1.969	0.866	0.37	0.197	UNF1/2-20*32	1
	FMA1 1/4-2.5	1 1/4	2.5	2.362	1.181	0.5	0.276	UNF5/8-18*40	1
	FMA1 1/2-2.5	1 1/2	2.5	3.15	1.339	0.63	0.354	UNF3/4-16*47	2
	FMA2-3.0	2	3	3.937	1.417	0.75	0.394	UN1-14*48	2

Spare Part **E104**

Parts

For separate purchase			
Division / Parts / Designation	Key	Key Clamp Bolt	Mount Bolt
			
FMA1/2	K6	BX01608	UNF1/4-28
FMA3/4	K7.5	BX02510	UNF3/8-24
FMA1	K9.5	BX0412	UNF1/2-20
FMA1 1/4	K12.7	BX0515	UNF5/8-18
FMA1 1/2	K15.87	BX0616	UNF3/4-16
FMA2	K19.05	BX0820	UN1-14

BT-FMA

Face Mill Arbor



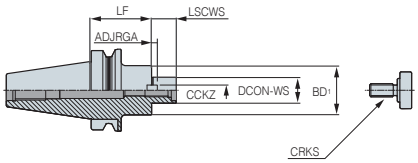


Fig. 1

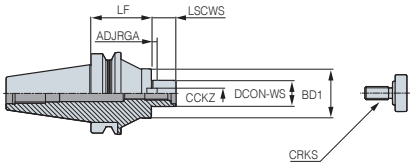


Fig. 2

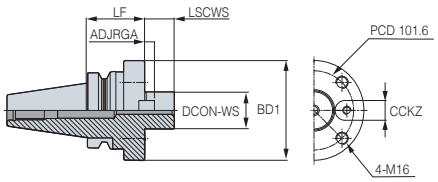


Fig. 3

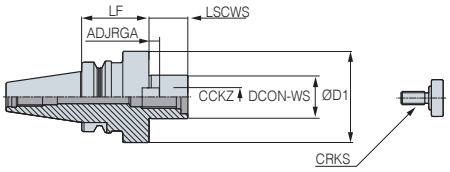


Fig. 4

(mm)

Designation		DCX	DCON-WS	LF	BD1	LSCWS	CCKZ	ADJRGA	CRKS/ MBCB	Fig.	lbs
BT30-	**FMA25.4-45**	80	25.4	45	50	22	9.5	5	M12	4	1.0
BT40-	**FMA25.4-45**	80	25.4	45	50	22	9.5	5	M12	1	1.4
	FMA25.4-90	80	25.4	90	50	22	9.5	5	M12	1	2.2
	FMA31.75-45	100	31.75	45	60	30	12.7	7	M16	1	1.6
	FMA31.75-75	100	31.75	75	60	30	12.7	7	M16	1	2.2
	FMA31.75-90	100	31.75	90	60	30	12.7	7	M16	1	2.5
	FMA38.1-60	125	38.1	60	80	34	15.87	9	M20	4	2.6
BT50-	**FMA25.4-45**	80	25.4	45	50	22	9.5	5	M12	1	4.0
	FMA25.4-90	80	25.4	90	50	22	9.5	5	M12	1	4.7
	FMA25.4-150	80	25.4	150	50	22	9.5	5	M12	2	6.4
	FMA31.75-45	100	31.75	45	60	30	12.7	7	M16	1	4.1
	FMA31.75-75	100	31.75	75	60	30	12.7	7	M16	1	4.8
	FMA31.75-105	100	31.75	105	60	30	12.7	7	M16	2	5.6
	FMA38.1-45	125	38.1	45	80	34	15.87	9	M20	1	4.4
	FMA38.1-75	125	38.1	75	80	34	15.87	9	M20	1	5.6
	FMA50.8-45	160	50.8	45	100	36	19.05	10	M24	1	4.9
	FMA50.8-75	160	50.8	75	100	36	19.05	10	M24	1	6.8
	FMA47.625-75	200	47.625	75	128	38	25.4	12.5	-	3	8.3

Spare Part **E106**

• Through coolant system is not available

M This is metric size. We can also provide in inch type

NT-FMA

Face Mill Arbor



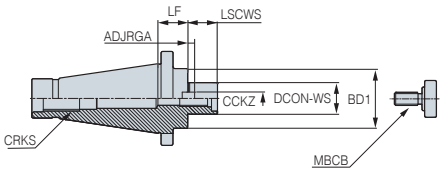


Fig. 1

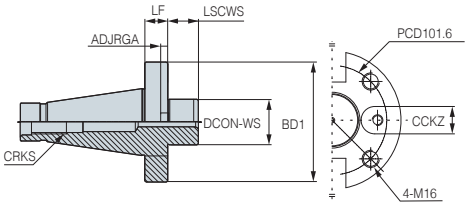


Fig. 1

(mm)

Designation		DCX	DCON-WS	LF	BD1	LSCWS	MBCB	CCKZ	ADJRGA	CRKS	Fig.	lbs
NT40-	FMA25.4-25	80	25.4	25	50	22	M12	9.5	5	M16	1	1.1
	FMA31.75-25	100	31.75	25	60	30	M16	12.7	7	M16	1	1.3
	FMA38.1-25	125	38.1	25	80	34	M20	15.87	9	M16	1	1.8
	FMA50.8-25	160	50.8	25	100	36	M24	19.05	10	M16	1	2.8
NT50-	FMA25.4-25	80	25.4	23.2	50	22	M12	9.5	5	M24	1	3.1
	FMA31.75-30	100	31.75	26.2	60	30	M16	12.7	7	M24	1	3.3
	FMA38.1-30	125	38.1	25.2	80	34	M20	15.87	9	M24	1	3.6
	FMA50.8-30	160	50.8	27.2	100	36	M24	19.05	10	M24	1	4.2
	FMA47.625-25	200	47.625	27.2	128	38	-	25.4	12.5	M24	2	5.3

Spare Part **E106**

• Through coolant system is not available

M This is metric size. We can also provide in inch type

Parts

	Basic				For separate purchase
Division / Parts / Designation	Key	Key Bolt	Mount Bolt	Clamp Bolt	Wrench
FMA25.4	K9.5	BX0412	MBA-M12	BX1230	LW-10
FMA31.75	K12.7	BX0515	MBA-M16	-	LW-14
FMA38.1	K15.87	BX0616	MBA-M20	-	LW-17
FMA50.8	K19.05	BX0820	MBA-M24	-	
FMA47.625	K25.4	BX1020	-	BX1645	

BT-FMC

Face Mill Arbor



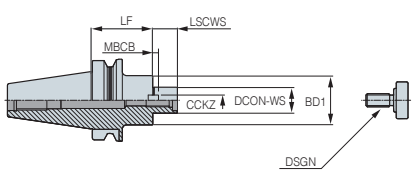


Fig. 1

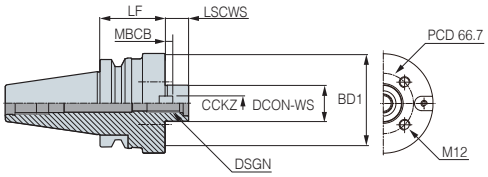


Fig. 2

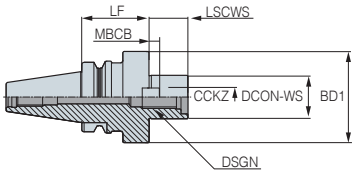


Fig. 3

(mm)

Designation		DCX	DCON-WS	LF	BD_1	LSCWS	CCKZ	MBCB	DSGN	Fig.	lbs
BT30-	**FMC16-45**	40	16	45	38	17	8	5.0	M8	1	0.7
	FMC22-45	50/63	22	45	48	19	10	5.6	M10	2	0.8
	FMC27-50	80	27	50	60	21	12	6.3	M12	2	1.0
BT40-	**FMC16-60**	40	16	60	38	17	8	5.0	M8	1	1.3
	FMC22-45	50/63	22	45	48	19	10	5.6	M10	1	1.3
	FMC22-90	50/63	22	90	48	19	10	5.6	M10	1	1.9
	FMC27-60	80	27	60	60	21	12	6.3	M12	1	1.8
	FMC27-90	80	27	90	60	21	12	6.3	M12	1	2.4
	FMC32-60	100	32	60	78	24	14	7.0	M16	2	2.1
	FMC40-50	125/160	40	50	89	27	15.87	8.0	M20	3	2.3
BT50-	**FMC16-60**	40	16	60	38	17	8	5.0	M8	1	3.9
	FMC22-60	50/63	22	60	48	19	10	5.6	M10	1	4.1
	FMC27-40	80	27	40	60	21	12	6.3	M12	1	3.8
	FMC27-90	80	27	90	60	21	12	6.3	M12	1	4.8
	FMC27-150	80	27	150	60	21	12	6.3	M12	1	6.1
	FMC32-45	100	32	45	78	24	14	7.0	M16	1	4.1
	FMC32-75	100	32	75	78	24	14	7.0	M16	1	5.2
	FMC32-105	100	32	105	78	24	14	7.0	M16	1	6.3
	FMC40-50	125/160	40	50	89	27	15.87	8.0	M20	2	4.6

Spare Part **E109**

• Through coolant system is not available

M This is metric size. We can also provide in inch type

HSK-FMC

Face Mill Arbor



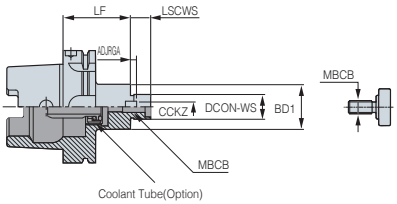


Fig. 1

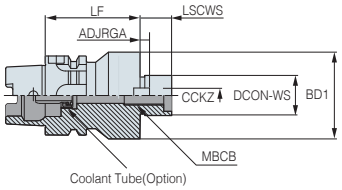


Fig. 2

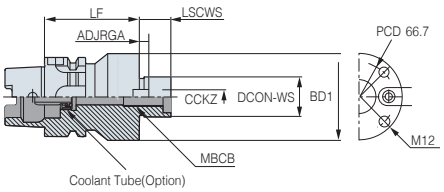


Fig. 3

(mm)

Designation		DCX	DCON-WS	LF	BD1	LSCWS	CCKZ	ADJRGA	MBCB	Fig.	lbs
HSK50A-	FMC16-40	40	16	40	38	17	8	5.0	M8	1	0.4
	FMC22-50	50/63	22	50	48	19	10	5.6	M10	1	0.8
HSK63A-	FMC16-50	40	16	50	38	17	8	5.0	M8	1	0.9
	FMC22-50	50/63	22	50	48	19	10	5.6	M10	1	1.1
	FMC27-60	80	27	60	60	21	12	6.3	M12	1	1.4
	FMC32-60	100	32	60	78	24	14	7.0	M16	2	1.7
	FMC40-60	125/160	40	60	89	27	15.87	8.0	M20	3	2.5

Spare Part **E109**

• Internal coolant system is optional

M This is metric size. We can also provide in inch type

SK-FMC

Face Mill Arbor



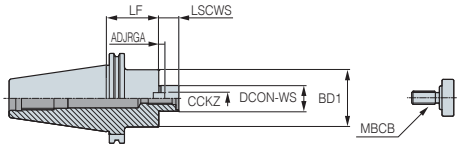


Fig. 1

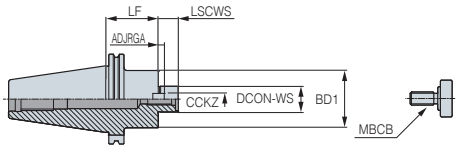


Fig. 2

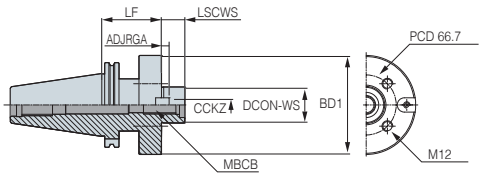


Fig. 3

(mm)

Designation		DCX	DCON-WS	LF	BD_1	LSCWS	CCKZ	ADJRGA	MBCB	Fig.	lbs
SK30-	FMC16-60	40	16	60	38	17	8	5	M8	1	0.8
	FMC22-50	50/63	22	50	48	19	10	5.6	M10	2	0.8
	FMC27-55	80	27	55	60	21	12	6.3	M12	2	1.1
SK40-	FMC16-55	40	16	55	38	17	8	5	M8	1	1.2
	FMC22-55	50/63	22	55	48	19	10	5.6	M10	1	1.4
	FMC27-60	80	27	60	60	21	12	6.3	M12	2	1.6
	FMC32-60	100	32	60	78	24	14	7	M16	2	2.2
	FMC40-50	125/160	40	50	89	27	15.87	8	M20	3	2.3
SK50-	FMC16-60	40	16	60	38	17	8	5	M8	1	2.9
	FMC22-60	50/63	22	60	48	19	10	5.6	M10	1	3.2
	FMC27-40	80	27	40	60	21	12	6.3	M12	1	3.2
	FMC32-45	100	32	45	78	24	14	7	M16	1	3.7
	FMC40-50	125/160	40	50	89	27	15.87	8	M20	3	4.2

Spare Part **E109**

• Through coolant system is not available

M This is metric size. We can also provide in inch type

Parts

Basic				
Division	Key	Key Bolt	Mount Bolt	Clamp Bolt
Parts / Designation				
FMC16	K8.0	BX0310	-	BX0830
FMC22	K10.0	BX0412	-	BX1030
FMC27	K12.0	BX0516	MBA-M12	BX1230
FMC32	K14.0	BX0616	MBA-M16	-
FMC40	K15.87	BX0616	MBA-M20	BX1230

For separate purchase				
Division	Wrench	Division	Coolant Tube for HSK	Wrench
Parts / Designation		Parts / Designation		
FMC16	LW-6	HSK50A	HSK50A-CNS	HSK50-WRENCH(C)
FMC22	LW-8	HSK63A	HSK63A-CNS	HSK63-WRENCH(C)
FMC27	LW-10			
FMC32	LW-14			
FMC40	LW-17			

DBT-MD

Modular Arbor

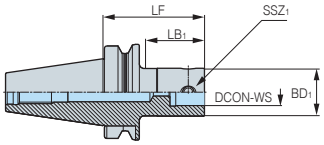


Fig. 1

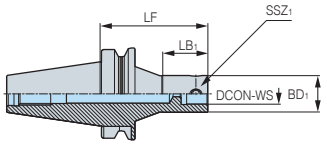


Fig. 2

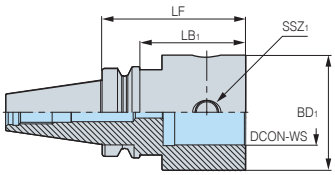


Fig. 3

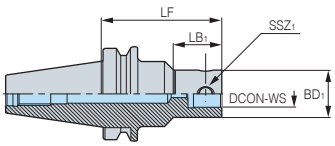


Fig. 4

(mm)

Designation		DCON-WS	LF	BD1	LB1	SSZ1	Fig.	lbs
DBT30-	MD19F-70R	11	70	19	27	M5	4	0.5
	MD25F-90R	14	90	25	43	M6	4	0.6
	MD32F-80R	18	80	32	39	M8	4	0.7
	MD40F-45	22	45	40	23	M10	1	0.5
	MD40F-80R	22	80	40	49	M10	4	0.8
	MD50F-70	28	70	50	40	M12	3	0.9
DBT40-	MD19F-70	11	70	19	43	M5	1	1.0
	MD25F-95	14	95	25	68	M6	1	1.1
	MD25F-105R	14	105	25	40	M6	2	1.2
	MD32F-100	18	100	32	73	M8	1	1.2
	MD32F-115R	18	115	32	45	M8	2	1.5
	MD40F-50	22	50	40	23	M10	1	1.2
	MD40F-110R	22	110	40	60	M10	2	1.6
	MD40F-115	22	115	40	88	M10	1	1.6
	MD50F-100R	28	100	50	60	M12	2	1.8
	MD50F-105	28	105	50	78	M12	1	1.9
	MD63F-64	36	64	63	37	M16	3	1.5
	MD63F-90	36	90	63	63	M16	3	2.1
	MD63F-110	36	110	63	83	M16	3	2.5
	MD80F-100	45	100	80	73	M16	3	2.9

• Through coolant system is installed

M This is metric size. We can also provide in inch type

DBT-MD

Modular Arbor

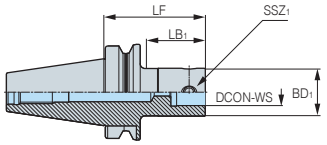


Fig. 1

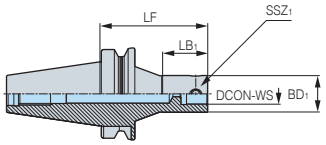


Fig. 2

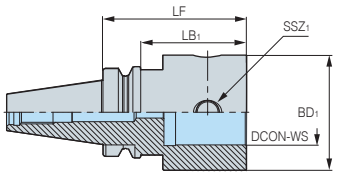


Fig. 3

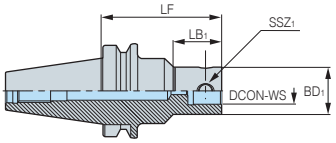


Fig. 4

(mm)

Designation		DCON-WS	LF	BD1	LB1	SSZ1	Fig.	lbs
DBT50-	MD19F-85	11	85	19	45	M5	1	3.7
	MD19F-100	11	100	19	60	M5	1	3.8
	MD25F-105	14	105	25	64	M6	1	3.9
	MD25F-120R	14	120	25	40	M6	2	4.0
	MD32F-110	18	110	32	67	M8	1	4.1
	MD32F-115R	18	115	32	45	M8	2	4.2
	MD32F-235R	18	235	32	115	M8	2	5.5
	MD40F-60	22	60	40	22	M10	1	3.7
	MD40F-125R	22	125	40	59	M10	2	4.3
	MD40F-145	22	145	40	102	M10	1	4.5
	MD40F-195R	22	195	40	83	M10	4	4.8
	MD40F-230R	22	230	40	180	M10	2	5.0
	MD50F-125	28	125	50	82	M12	1	4.6
	MD50F-160R	28	160	50	61	M12	2	5.8
	MD50F-225R	28	225	50	125	M12	4	6.0
	MD50F-250R	28	250	50	81	M12	2	7.0
	MD63F-75	36	75	63	35	M16	1	4.2
	MD63F-130	36	130	63	87	M16	1	5.3
	MD63F-140	36	140	63	97	M16	1	5.5
	MD63F-140R	36	140	63	70	M16	2	5.7
	MD63F-195R	36	195	63	120	M16	4	6.8
	MD63F-230R	36	230	63	149	M16	4	7.5
	MD63F-240R	36	240	63	190	M16	2	7.8
	MD80F-75	45	75	80	36	M16	1	4.4
	MD80F-110	45	110	80	69	M16	1	5.8
	MD80F-160	45	160	80	119	M16	1	8.0
	MD90F-75	45	75	90	37	M16	1	4.8
	MD90F-145	45	145	90	107	M16	1	7.4

• Through coolant system is installed

M This is metric size. We can also provide in inch type

BT-MD

Modular Arbor



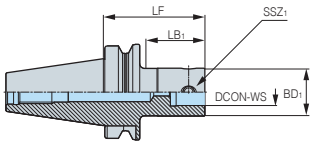


Fig. 1

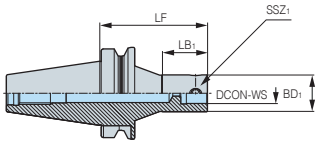


Fig. 2

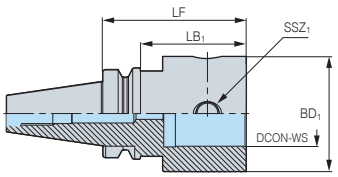


Fig. 3

(mm)

Designation		DCON-WS	LF	BD1	LB1	SSZ1	Fig.	lbs
BT30-	MD19F-70	11	70	19	45	M5	1	0.5
	MD25F-90	14	90	25	63	M6	1	0.6
	MD32F-80	18	80	32	55	M8	1	0.7
	MD40F-45	22	45	40	22	M10	1	0.5
	MD40F-60	22	60	40	36	M10	1	0.7
	MD40F-80	22	80	40	56	M10	1	0.9
	MD50F-70	28	70	50	48	M12	3	0.9
BT40-	MD19F-70	11	70	19	40	M5	1	1.0
	MD25F-95	14	95	25	63	M6	1	1.1
	MD25F-105R	14	105	25	40	M6	2	1.2
	MD32F-100	18	100	32	70	M8	1	1.2
	MD32F-115R	18	115	32	45	M8	2	1.5
	MD40F-60	22	60	40	31	M10	1	1.1
	MD40F-110R	22	110	40	60	M10	2	1.6
	MD40F-115	22	115	40	83	M10	1	1.6
	MD50F-60	28	60	50	33	M12	1	1.3
	MD50F-100R	28	100	50	50	M12	2	1.8
	MD50F-105	28	105	50	73	M12	1	1.8
	MD63F-64	36	64	63	37	M16	3	1.5
	MD63F-90	36	90	63	63	M16	3	2.0
	MD63F-110	36	110	63	83	M16	3	2.4
	MD63F-135	36	135	63	108	M16	3	3.0
	MD80F-100	45	100	80	73	M16	3	2.9

• Through coolant system is installed

M This is metric size. We can also provide in inch type

BT-MD

Modular Arbor



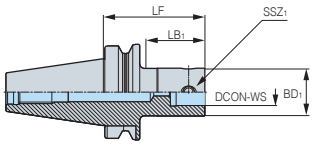


Fig. 1

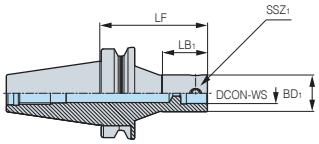


Fig. 2

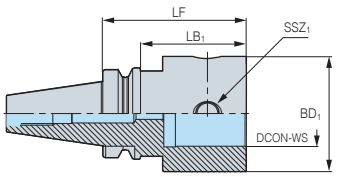


Fig. 3

(mm)

Designation		DCON-WS	LF	BD1	LB1	SSZ1	Fig.	lbs
BT50-	MD19F-85	11	85	19	44	M5	1	3.7
	MD19F-100	11	100	19	62	M5	1	3.7
	MD25F-105	14	105	25	62	M6	1	3.8
	MD25F-120R	14	120	25	40	M6	2	3.8
	MD32F-110	18	110	32	67	M8	1	4.0
	MD32F-115R	18	115	32	45	M8	2	4.1
	MD32F-235R	18	235	32	115	M8	2	5.5
	MD40F-60	22	60	40	22	M10	1	3.7
	MD40F-125R	22	125	40	59	M10	2	3.8
	MD40F-145	22	145	40	107	M10	1	4.3
	MD40F-195	22	195	40	152	M10	1	4.8
	MD40F-230R	22	230	40	180	M10	2	5.0
	MD50F-125	28	125	50	82	M12	1	4.6
	MD50F-160R	28	160	50	61	M12	2	5.7
	MD50F-225	28	225	50	182	M12	1	6.0
	MD50F-250R	28	250	50	81	M12	2	7.0
	MD63F-75	36	75	63	35	M16	1	4.2
	MD63F-130	36	130	63	87	M16	1	5.3
	MD63F-140	36	140	63	92	M16	1	5.5
	MD63F-140R	36	140	63	80	M16	2	5.7
	MD63F-195	36	195	63	152	M16	1	6.8
	MD63F-230	36	230	63	187	M16	1	7.5
	MD63F-240R	36	240	63	190	M16	2	7.8
	MD80F-75	45	75	80	36	M16	1	4.3
	MD80F-110	45	110	80	69	M16	1	5.7
	MD80F-175	45	175	80	134	M16	1	8.0
	MD90F-75	45	75	90	36	M16	1	4.8
	MD90F-145	45	145	90	104	M16	1	7.4
	MD90F-195	45	195	90	154	M16	1	9.4

• Through coolant system is installed

M This is metric size. We can also provide in inch type

HSK-MD

Modular Arbor



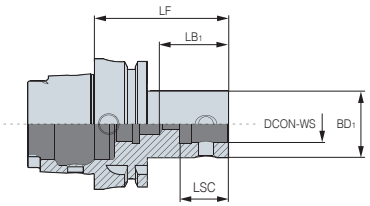


Fig. 1

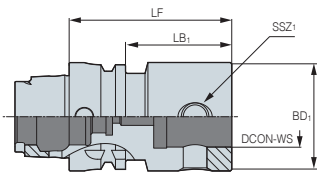


Fig. 2

(mm)

Designation		DCON-WS	LF	BD1	LB1	LSC	SSZ1	Fig.	lbs
HSK63A-	MD19F-60	11	60	19	31	15.5	M5	1	0.7
	MD25F-60	14	60	25	31	18.5	M6	1	0.7
	MD32F-65	18	65	32	36	23.5	M8	1	0.8
	MD40F-70	22	70	40	41	29	M10	1	0.9
	MD50F-85	28	85	50	58	36	M12	1	1.3
	MD63F-95	36	95	63	69	46	M16	2	1.7
HSK100A-	MD19F-60	11	60	19	19	15.5	M5	1	2.1
	MD25F-60	14	60	25	20	18.5	M6	1	2.1
	MD32F-65	18	65	32	26	23.5	M8	1	2.1
	MD40F-70	22	70	40	38	29	M10	1	2.3
	MD50F-80	28	80	50	48	36	M12	1	2.6
	MD63F-90	36	90	63	58	46	M16	1	3
	MD80F-105	45	105	80	73	57	M16	1	4.2
	MD90F-105	45	105	90	76	57	M16	1	4.7

• Through coolant system is installed

M This is metric size. We can also provide in inch type

Parts

For separate purchase		
Division	Clamp bolt	Wrench
Parts / Designation		
HSK63A	HSK63A-CNS	HSK63-WRENCHI(C)
HSK100A	HSK100A-CNS	HSK100-WRENCHI(C)

SK-MD

Modular Arbor



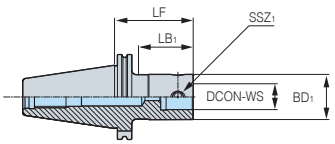


Fig. 1

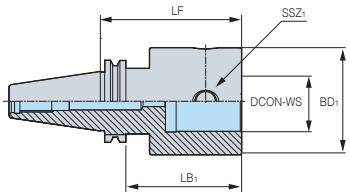


Fig. 2

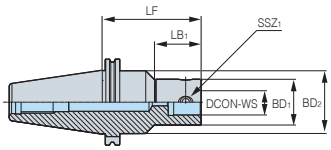


Fig. 3

(mm)

Designation		DCON-WS	LF	BD1	BD2	LB1	SSZ1	Fig.	lbs
SK40-	MD19F-80R	11	80	19	30	12	M5	3	1.0
	MD25F-80R	14	80	25	35	22	M6	3	1.1
	MD32F-115R	18	115	32	42	36	M8	3	1.5
	MD40F-60	22	60	40	-	40	M10	1	1.1
	MD40F-100	22	100	40	-	79	M10	1	1.4
	MD50F-75	28	75	50	-	55	M10	1	1.5
	MD50F-100	28	100	50	-	80	M12	1	1.8
	MD63F-70	36	70	63	-	50	M16	2	1.4
SK50-	MD19F-85R	11	85	19	40	12	M5	3	3.0
	MD25F-80R	14	80	25	44	22	M6	3	3.1
	MD25F-105R	14	105	25	44	22	M6	3	3.3
	MD32F-110	18	110	32	-	87	M8	1	3
	MD32F-110R	18	110	32	50	36	M8	3	3.5
	MD40F-100	22	100	40	-	75	M10	1	3.2
	MD40F-145	22	145	40	-	120	M10	1	3.5
	MD40F-220R	22	220	40	60	83	M10	3	5.6
	MD50F-125R	28	125	50	65	60	M12	3	4.3
	MD50F-240R	28	240	50	65	125	M12	3	6.6
	MD63F-75	36	75	63	-	52	M16	1	3.6
	MD63F-130	36	130	63	-	107	M16	1	4.7
	MD63F-230R	36	230	63	80	149	M16	3	7.9
	MD80F-95	45	95	80	-	75	M16	1	4.8
	MD80F-150	45	150	80	-	130	M16	1	6.8
	MD90F-115	45	115	90	-	95	M16	2	6.3
	MD90F-165	45	165	90	-	145	M16	2	8.1

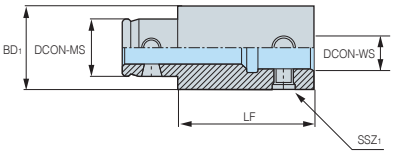
• Through coolant system is installed

M This is metric size. We can also provide in inch type

EXT

Extension Bar





(mm)

Designation		DCON-MS	LF	BD1	DCON-WS	SSZ1	lbs
EXT	1930F	11	30	19	11	M5	0.1
	1950F	11	50	19	11	M5	0.1
	2530F	14	30	25	14	M6	0.1
	2550F	14	50	25	14	M6	0.2
	3235F	18	35	32	18	M8	0.2
	3260F	18	60	32	18	M8	0.4
	4040F	22	40	40	22	M10	0.4
	4090F	22	90	40	22	M10	0.9
	5050F	28	50	50	28	M12	0.7
	50100F	28	100	50	28	M12	1.4
	6360F	36	60	63	36	M16	1.4
	63120F	36	120	63	36	M16	2.9
	8070F	45	70	80	45	M16	2.5
	80120F	45	120	80	45	M16	4.5
	9080F	45	80	90	45	M16	3.8
	90130F	45	130	90	45	M16	6.4

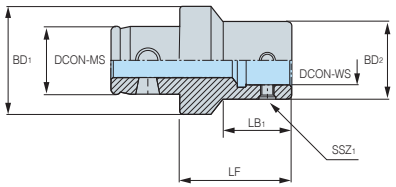
• Through coolant system is installed

M This is metric size. We can also provide in inch type

RDC

Reducer Bar





(mm)

Designation		DCON-MS	LF	BD1	DCON-WS	BD2	LB1	SSZ1	lbs
RDC	**3225F**	18	30	32	14	25	17.25	M6	0.1
	4025F	22	30	40	14	25	16.53	M6	0.3
	4032F	22	30	40	18	32	18.55	M8	0.2
	5025F	28	30	50	14	25	16.36	M6	0.3
	5032F	28	40	50	18	32	21.75	M8	0.3
	5040F	28	40	50	22	40	24.75	M10	0.5
	6325F	36	30	63	14	25	15.84	M6	0.6
	6332F	36	40	63	18	32	29.62	M8	0.6
	6340F	36	40	63	22	40	26.85	M10	0.7
	6350F	36	45	63	28	50	33.19	M12	0.9
	8040F	45	40	80	22	40	24.57	M10	1.2
	8050F	45	45	80	28	50	30.91	M12	1.3
	8063F	45	50	80	36	63	34.66	M16	1.6

• Through coolant system is installed

M This is metric size. We can also provide in inch type

FBH back boring & balanced type

FBH/B

- Capable of high-speed boring and backboring
- High precision balancing machining: G2.5, Head G6.3
- Minimum adjustment range: 2㎛



Code system

FBH	32	33	B
Fine boring head	MD Arbor Size	Boring Range (Min)	Balance Type

Back Boring Range Calculation



- A: Boring range (Ø)
- B: FBH/B body size (Ø)
- C: Diameter for pass (Ø)

Designation	Min.Diameter for Pass(Ø) 'C'
FBH1920B	Ø24above
FBH2526B	Ø30.5above
FBH3233B	Ø35above
FBH4042B	Ø44above
FBH5053B	Ø54above
FBH6368B	Ø71.5above
FBH6398B	Ø100above
FBH8098B	Ø100above

A	Max. Range of Back Boring (Ø)	A Max. Value = [2xC]-B
B	Max. FBH Body Size (Ø)	B Max. Value = [2xC]-A
C	Min. Diameter for Pass (Ø)	C Min. Value = [A+B]/2

Vernier Scale Adjustment Method

- Fine Adjustment : 2μm Boring Range
- Can be adjusted at a rate of 2μm by using the main scale and vernier scale

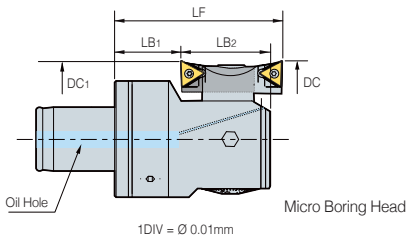


Initial Location | 0.002 Adjustment Location | 0.004 Adjustment Location



0.006 Adjustment Location | 0.008 Adjustment Location | 0.010 Adjustment Location

Boring Range



(mm)

Designation	Boring Range(DC)			Backboring Range(DC1)			
	Min.	Max.	LF	Min.	Max.	LB1	LB2
FBH1920B	20	26(30)	35.3	29	30	13.1	18.6
FBH2526B	26	34(40)	40.9	36	40	15.1	21.9
FBH3233B	33	43(50)	40.9	38	46(50)	13.1	24.9
FBH4042B	42	54(62)	50.4	48	54(62)	15.2	31.4
FBH5053B	53	70(82)	58.4	58	70(82)	15.7	38.4
FBH6368B	68	100(122)	80.6	78	100(122)	27.4	48.6
FBH6398B	98	150(172)	100.6	106	150(172)	47.4	48.6
FBH8098B	98	150(172)	100.6	106	150(172)	47.4	48.6

BT-FBH/B

Micro Boring Bar(Balanced Type)



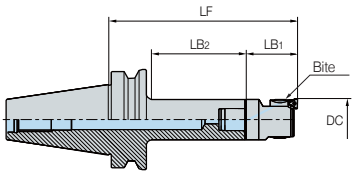


Fig. 1

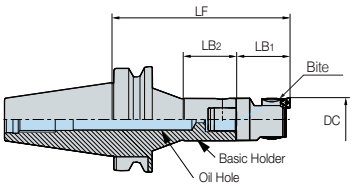


Fig. 2

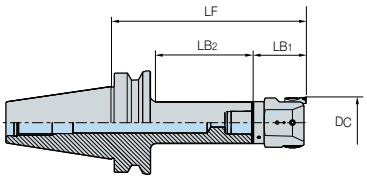
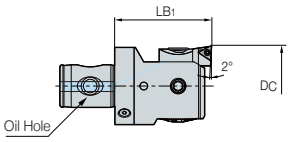


Fig. 3



Head

(mm)

Designation			Boring Range(DC)		DC	LF	LB1	LB2	lbs	Fig.
Head Designation	Bite Designation	Arbor Designation	Min.	Max.						
FBH1920B	FBB20N-□-□□	BT30-MD19F-70	20(24)	26(30)	19	105	35	45	0.2	1
FBH2526B	FBB26N-□-□□	BT30-MD25F-90	26(32)	34(40)	25	131	41	63	0.2	1
FBH3233B	FBB33N-□-□□	BT30-MD32F-80	33(40)	43(50)	32	121	41	55	0.3	1
FBH4042B	FBB42N-□-□□	BT30-MD40F-45	42(50)	54(62)	40	95	50	22	0.5	1
FBH4042B	FBB42N-□-□□	BT30-MD40F-60	42(50)	54(62)	40	110	50	36	0.5	1
FBH4042B	FBB42N-□-□□	BT30-MD40F-80	42(50)	54(62)	40	130	50	56	0.5	1
FBH5053B	FBB53N-□-□□	BT30-MD50F-70	53(65)	70(82)	50	128	58	47	0.8	1
FBH1920B	FBB20N-□-□□	BT40-MD19F-70	20(24)	26(30)	19	105	35	40	0.2	1
FBH2526B	FBB26N-□-□□	BT40-MD25F-95	26(32)	34(40)	25	136	41	63	0.2	1
FBH2526B	FBB26N-□-□□	BT40-MD25F-105R	26(32)	34(40)	25	146	41	40	0.2	2
FBH3233B	FBB33N-□-□□	BT40-MD32F-100	33(40)	43(50)	32	141	41	70	0.3	1
FBH3233B	FBB33N-□-□□	BT40-MD32F-115R	33(40)	43(50)	32	156	41	45	0.3	2
FBH4042B	FBB42N-□-□□	BT40-MD40F-60	42(50)	54(62)	40	110	50	31	0.5	1
FBH4042B	FBB42N-□-□□	BT40-MD40F-110R	42(50)	54(62)	40	160	50	60	0.5	2
FBH4042B	FBB42N-□-□□	BT40-MD40F-115	42(50)	54(62)	40	165	50	83	0.5	1
FBH5053B	FBB53N-□-□□	BT40-MD50F-105	53(65)	70(82)	50	163	58	73	0.8	1
FBH6368B	FBB68N-□-□□	BT40-MD63F-64	68(90)	100(122)	63	145	81	37	2.1	3
FBH6368B	FBB68N-□-□□	BT40-MD63F-110	68(90)	100(122)	63	191	81	83	2.1	3
FBH6368B	FBB68N-□-□□	BT40-MD63F-135	68(90)	100(122)	63	216	81	108	2.1	3
FBH6398B	FBB68N-□-□□	BT40-MD63F-64	98(120)	150(172)	63	165	101	37	3.6	3
FBH6398B	FBB68N-□-□□	BT40-MD63F-110	98(120)	150(172)	63	211	101	83	3.6	3
FBH6398B	FBB68N-□-□□	BT40-MD63F-135	98(120)	150(172)	63	236	101	108	3.6	3
FBH8098B	FBB68N-□-□□	BT40-MD80F-100	98(120)	150(172)	80	201	101	73	4.8	3

Spare Part E123 FBB bite E128

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

M This is metric size. We can also provide in inch type

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

BT-FBH/B

Micro Boring Bar(Balanced Type)



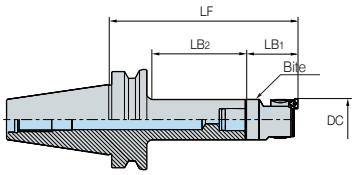


Fig. 1

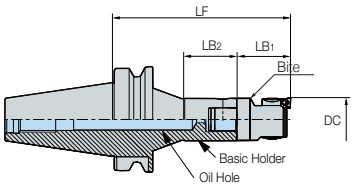


Fig. 2

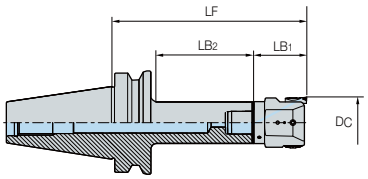
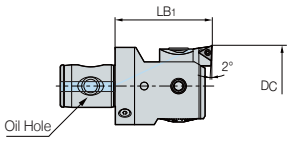


Fig. 3



Head

(mm)

Designation			Boring Range(DC)		DC	DC1	LF	LB1	LB2	lbs	Fig.
Head Designation	Bite Designation	Arbor Designation	Min.	Max.							
FBH1920B	FBB20N-□-□□	BT50-MD19F-85	20(24)	26(30)	19	11	120.2	35.2	44	0.2	1
FBH2526B	FBB26N-□-□□	BT50-MD25F-105	26(32)	34(40)	25	14	146	41	62	0.2	1
FBH2526B	FBB26N-□-□□	BT50-MD25F-120R	26(32)	34(40)	25	14	161	41	40	0.2	2
FBH3233B	FBB33N-□-□□	BT50-MD32F-110	33(40)	43(50)	32	18	151	41	67	0.3	1
FBH3233B	FBB33N-□-□□	BT50-MD32F-115R	33(40)	43(50)	32	18	156	41	45	0.3	2
FBH3233B	FBB33N-□-□□	BT50-MD32F-235R	33(40)	43(50)	32	18	276	41	115	0.3	2
FBH4042B	FBB42N-□-□□	BT50-MD40F-60	42(50)	54(62)	32	18	110.5	50.5	22	0.5	1
FBH4042B	FBB42N-□-□□	BT50-MD40F-195	42(50)	54(62)	40	22	245.5	50.5	152	0.5	1
FBH4042B	FBB42N-□-□□	BT50-MD40F-230R	42(50)	54(62)	40	22	280.5	50.5	180	0.5	2
FBH5053B	FBB53N-□-□□	BT50-MD50F-125	53(65)	70(82)	40	22	183.5	58.5	82	0.8	1
FBH5053B	FBB53N-□-□□	BT50-MD50F-225	53(65)	70(82)	50	28	283.5	58.5	182	0.8	1
FBH5053B	FBB53N-□-□□	BT50-MD50F-205R	53(65)	70(82)	50	28	263.5	58.5	81	0.8	2
FBH6368B	FBB68N-□-□□	BT50-MD63F-75	68(90)	100(122)	63	36	145.6	80.6	35	2.1	1
FBH6368B	FBB68N-□-□□	BT50-MD63F-130	68(90)	100(122)	63	36	210.6	80.6	87	2.1	1
FBH6368B	FBB68N-□-□□	BT50-MD63F-195	68(90)	100(122)	63	36	275.6	80.6	152	2.1	1
FBH6368B	FBB68N-□-□□	BT50-MD63F-230	68(90)	100(122)	63	36	310.6	80.6	187	2.1	1
FBH6398B	FBB68N-□-□□	BT50-MD63F-75	98(120)	150(172)	63	36	175.6	100.6	35	3.6	3
FBH6398B	FBB68N-□-□□	BT50-MD63F-130	98(120)	150(172)	63	36	230.6	100.6	87	3.6	3
FBH6398B	FBB68N-□-□□	BT50-MD63F-95	98(120)	150(172)	63	36	295.6	100.6	152	3.6	3
FBH6398B	FBB68N-□-□□	BT50-MD63F-230	98(120)	150(172)	63	36	330.6	100.6	187	3.6	3
FBH8098B	FBB68N-□-□□	BT50-MD80F-75	98(120)	150(172)	80	45	175.6	100.6	36	4.8	3
FBH8098B	FBB68N-□-□□	BT50-MD80F-110	98(120)	150(172)	80	45	215.6	100.6	69	4.8	3
FBH8098B	FBB68N-□-□□	BT50-MD80F-175	98(120)	150(172)	80	45	275.6	100.6	134	4.8	3

Spare Part E123 FBB bite E128

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

M This is metric size. We can also provide in inch type

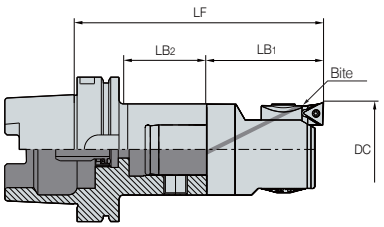
* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

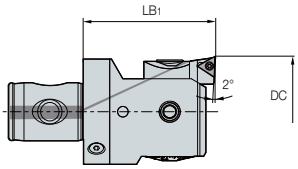
Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

HSK-FBH/B

Micro Boring Bar(Balanced Type)







Head

(mm)

Designation			Boring Range(DC)		DC	DC1	LF	LB1	LB2	Ibs
Head Designation	Bite Designation	Arbor Designation	Min.	Max.						
FBH1920B	**FBB20N-□-□□**	**HSK63A-MD19F 60**	20(24)	26(30)	19	11	95.2	35.2	31	0.2
FBH2526B	**FBB26N-□-□□**	**HSK63A-MD25F 60**	26(32)	34(40)	25	14	101	41	31	0.2
FBH3233B	**FBB33N-□-□□**	**HSK63A-MD32F 65**	33(40)	43(50)	32	18	106	41	36	0.3
FBH4042B	**FBB42N-□-□□**	**HSK63A-MD40F 70**	42(50)	54(62)	40	22	120.5	50.5	41	0.5
FBH5053B	**FBB53N-□-□□**	**HSK63A-MD50F 85**	53(65)	70(82)	50	28	143.5	58.5	58	0.9
FBH6368B	**FBB68N-□-□□**	**HSK63A-MD63F 95**	68(90)	100(122)	63	36	175.6	80.6	69	2.3
FBH6398B	**FBB68N-□-□□**	**HSK63A-MD63F 95**	98(120)	150(172)	63	36	195.6	100.6	69	3.8

Spare Part **E123** FBB bite **E128**

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

M This is metric size. We can also provide in inch type

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK50	HSK50A-CNS
HSK63	HSK63A-CNS
HSK100	HSK100A-CNS

SK-FBH/B

Micro Boring Bar(Balanced Type)



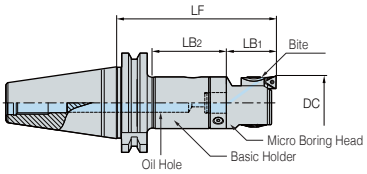


Fig. 1

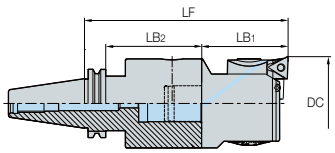


Fig. 2

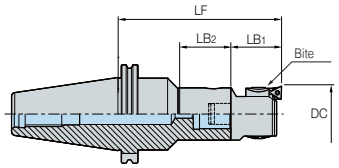
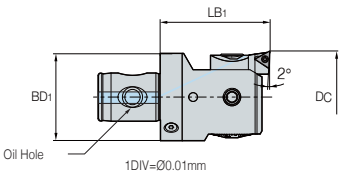


Fig. 3



Head

(mm)

Designation			Boring Range(DC)		DC	LF	LB1	LB2	lbs	Fig.
Head Designation	Bite Designation	Arbor Designation	Min.	Max.						
FBH2526B	**FBB26N-□-□□**	**SK40-MD25F-80R**	26(32)	34(40)	25	121	41	22	0.2	3
FBH3233B	**FBB33N-□-□□**	**SK40-MD32F-115R**	33(40)	43(50)	32	156	41	36	0.3	3
FBH4042B	**FBB42N-□-□□**	**SK40-MD40F-100**	42(50)	54(62)	40	150	50	80	0.5	1
FBH5053B	**FBB53N-□-□□**	**SK40-MD50F-100**	53(65)	70(82)	50	158	58	80	0.9	1
FBH6368B	**FBB68N-□-□□**	**SK40-MD63F-70**	68(90)	100(122)	63	151	81	50	2.3	2
FBH6398B	**FBB68N-□-□□**	**SK40-MD63F-70**	98(120)	150(172)	63	171	101	50	3.8	2
FBH2526B	**FBB26N-□-□□**	**SK50-MD25F-105R**	26(32)	34(40)	25	146	41	22	0.2	3
FBH3233B	**FBB33N-□-□□**	**SK50-MD32F-110**	33(40)	43(50)	32	151	41	87	0.3	1
FBH4042B	**FBB42N-□-□□**	**SK50-MD40F-145**	42(50)	54(62)	40	195	50	120	0.5	1
FBH5053B	**FBB53N-□-□□**	**SK50-MD50F-240R**	53(65)	70(82)	50	298	58	125	0.9	3
FBH6368B	**FBB68N--□-□□**	**SK50-MD63F-130**	68(90)	100(122)	63	211	81	107	2.3	1
FBH6398B	**FBB68N-□-□□**	**SK50-MD63F-130**	98(120)	150(172)	63	231	101	107	3.8	1
FBH8098B	**FBB68N-□-□□**	**SK50-MD80F-150**	98(120)	150(172)	80	251	101	130	5.1	1

Spare Part **E123** FBB bite **E128**

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

M This is metric size. We can also provide in inch type

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

Parts

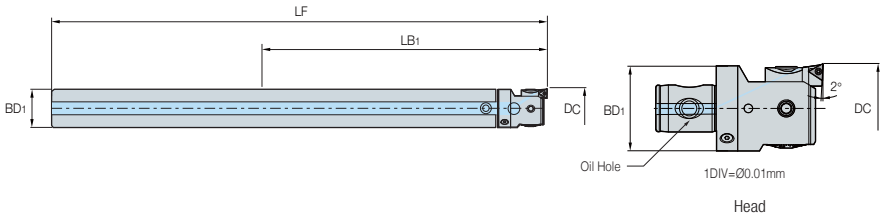
Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK50	HSK50A-CNS
HSK63	HSK63A-CNS
HSK100	HSK100A-CNS

S-FBH/B

Micro Boring Bar(Balanced Type)





(mm)

Designation	Boring Range(DC)		BD1	LF	LB1	Main Component			lbs
	Min.	Max.				Shank	Boring Head	Bite	
S19W-FBH20B-120	20	26	19	192.35	120	S19W-MD19F-157	FBH1920B	FBB20N	0.6
S19W-FBH20B-140	20	26	19	212.35	140	S19W-MD19F-177	FBH1920B	FBB20N	0.7
S19W-FBH20B-160	20	26	19	232.35	160	S19W-MD19F-197	FBH1920B	FBB20N	0.8
S25W-FBH26B-150	26	34	25	238.35	150	S25W-MD25F-197.5	FBH2526B	FBB26N	1.4
S25W-FBH26B-175	26	34	25	263.35	175	S25W-MD25F-222.5	FBH2526B	FBB26N	1.6
S25W-FBH26B-200	26	34	25	288.35	200	S25W-MD25F-247.5	FBH2526B	FBB26N	1.8
S32W-FBH33B-180	33	43	32	279.9	180	S32W-MD32F-239	FBH3233B	FBB33N	2.7
S32W-FBH33B-240	33	43	32	339.9	240	S32W-MD32F-299	FBH3233B	FBB33N	3.4
S19-FBH20B-40	20	26	19	112.35	40	S19-MD19F-77	FBH1920B	FBB20N	0.2
S19-FBH20B-80	20	26	19	152.35	80	S19-MD19F-117	FBH1920B	FBB20N	0.2
S25-FBH26B-50	26	34	25	138.35	50	S25-MD25F-97.5	FBH2526B	FBB26N	0.4
S25-FBH26B-100	26	34	25	188.35	100	S25-MD25F-147.5	FBH2526B	FBB26N	0.6
S32-FBH33B-90	33	43	32	189.9	90	S32-MD32F-149	FBH3233B	FBB33N	1.1
S32-FBH33B-120	33	43	32	219.9	120	S32-MD32F-179	FBH3233B	FBB33N	1.2

Spare Part **E123** FBB bite **E128**

• S□□W : Cemented carbide shank, S□□ : Steel shank • Through coolant system is installed

M This is metric size. We can also provide in inch type

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

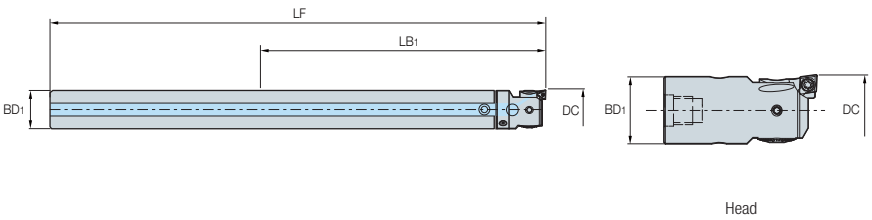
Parts

Main Component			
Type(FBH/B)	Lock Screw	Clamp Screw	Wrench
			
FBH1920B	BTF0404	BXC0304	LW-2
FBH2526B	BTF0505	BXC0405	LW-2.5
FBH3233B	BTF0606	BXC0506	LW-3
FBH4042B	BTF0808	BXC0610	LW-4
FBH5053B	BTF0812	BXC0610	LW-4
FBH6368B	BTF1016	BXC0810	LW-5
FBH6398B	BTF1012	BXC0810	LW-5
FBH8098B	BTF1014	BXC0810	LW-5

S-FBH

Small Micro boring bar with Carbide/Steel





(mm)

Designation	Boring Range(DC)		BD1	LF	LB1	Main Component			lbs
	Min.	Max.				Shank	Boring Head	Bite	
S14W-FBH15-85	15	18	14	155	85	S14W-M6-123	FBH15	FBB15-C	0.3
S14W-FBH15-110	15	18	14	180	110	S14W-M6-148	FBH15	FBB15-C	0.3
S16W-FBH18-95	18	22	16	165	95	S16W-M8-128	FBH18	FBB15-C	0.4
S16W-FBH18-125	18	22	16	195	125	S16W-M8-158	FBH18	FBB15-C	0.5
S14-FBH15-40	15	18	14	110	40	S14-M6-78	FBH15	FBB15-C	0.1
S16-FBH18-45	18	22	16	115	45	S16-M8-78	FBH18	FBB15-C	0.1

Spare Part **E124** FBB bite **E128**

• S□□W : Cemented carbide shank, S□□ : Steel shank • Through coolant system is installed

M This is metric size. We can also provide in inch type

* FBB bite is largely divided into general-type FBB□□N and extended-type (back boring) FBB□□N-1 and is available as FBB□□N-D-C09, FBB□□N-□-T11 depending on the insert.

Bite	Applicable Insert
FBB□□N, FBB□□N-1	TPGT, TPGW0802□□L
FBB□□N-□-C	CCMT, CCGT0602□□L
FBB□□N-□-C09	CCMT, CCGT09T3□□L
FBB□□N-□-T11	TPGT1103□□L

Parts

Main Component			
Type(FBH)	Lock Screw	FBB	Clamp Screw
			
FBH15	BT02503	FBB15-C	BFTX02505N
FBH18	BT02503	FBB15-C	BFTX02505N

Micro boring bar(damping type)

FBH/D

- Stable use on the deep holes is possible through the damping system (Max. 6D)
- Minimum diameter (Ø26)-based 6D processing (Max. i nsertion depth L= 160mm)
- Tool life and the ability to bore difficult materials can be increased by reducing impact due to the damping effect
- Both internal and external coolants are available



Code system

FBH	25	-	26	D
Fine boring head	MD Arbo size		Boring range (Min)	D : Damping

Vibration waveform comparison



- A damping mechanism is built into the product to minimize vibration

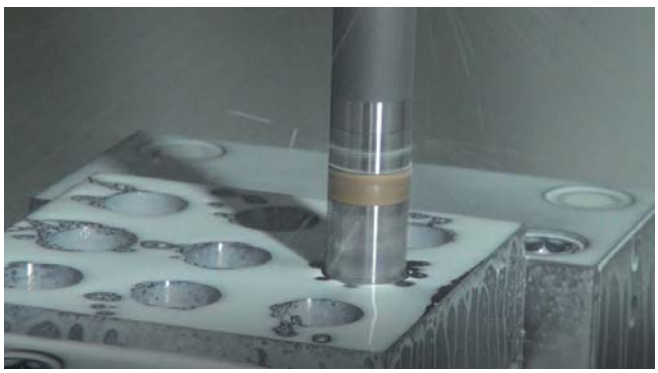
Precautions

- Performance may vary depending on conditions, so it is required to perform the work under the recommended conditions as much as possible.
- Inner oil supply Max. 60 bar
- Performance may decrease by arbitrary disassembly or impact.

※ The head and holder are integrated, so they cannot be disassembled.

Machining conditions

Cutting Speed Vc (m/min)	150~200
Feed (mm/rev)	0.06~0.1
Depth of Cut (mm)	0.1 (One side)



General Boring Tool



Insert damage or Severe shaking

Damping Boring Tool



Fine machining without vibration



BT-FBH/D

Micro Boring Bar(Damping type)

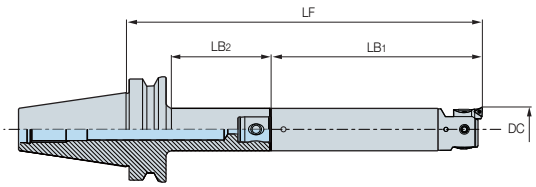


Fig. 1

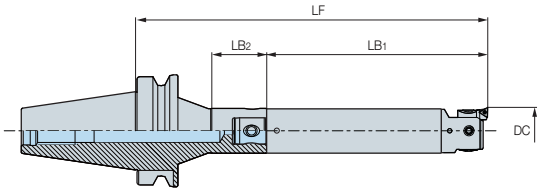
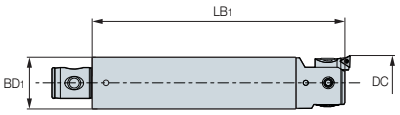


Fig. 2



Head

(mm)

Head Designation		Bite Designation	Arbor Designation	Boring Range(DC)		LF	LB1	LB2	BD1	Fig.	lbs
				Min.	Max.						
BT40	FBH2526D	FBB26N-□-□□	BT40-MD25F-95	26(32)	34(40)	215	120	63	25	1	0.5
	FBH2526D	FBB26N-□-□□	BT40-MD25F-105R	26(32)	34(40)	225	120	40	25	2	0.5
BT50	FBH2526D	FBB26N-□-□□	BT50-MD25F-105	26(32)	34(40)	225	120	62	25	1	0.5
	FBH2526D	FBB26N-□-□□	BT50-MD25F-120R	26(32)	34(40)	240	120	40	25	2	0.5
	FBH2526D	FBB26N-□-□□	BT50-MD25F-165	26(32)	34(40)	285	120	122	25	1	0.5

Spare Part **E123** FBB bite **E128**

• Through coolant system is installed • Head : Main component, Bite/Arbor : For separate purchase

M This is metric size. We can also provide in inch type

HSK-FBH/D

Micro Boring Bar(Damping type)

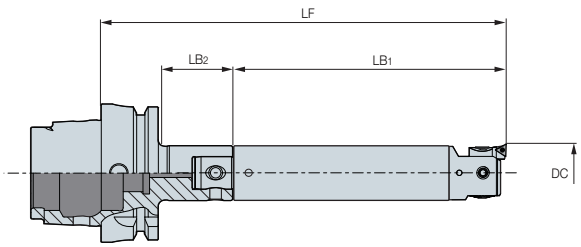
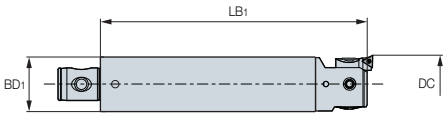


Fig. 1



Head

(mm)

Head Designation		Bite Designation	Arbor Designation	Boring Range(DC)		LF	LB1	LB2	BD1	Fig.	lbs
				Min.	Max.						
HSK63A	FBH2526D	FBB26N-□-□□	HSK63A-MD25F-60	26(32)	34(40)	180	120	31	25	1	0.5

Spare Part **E123** FBB bite **E128**

• S□□ : Steel shank • Head : Main component, Bite/Arbor : For separate purchase

M This is metric size. We can also provide in inch type

SK-FBH/D

Micro Boring Bar(Damping type)

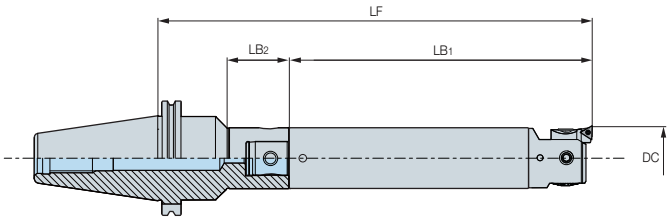


Fig. 1



Head

(mm)

Head Designation		Bite Designation	Arbor Designation	Boring Range(DC)		LF	LB_1	LB_2	BD_1	Fig.	lbs
				Min.	Max.						
SK40	FBH2526D	FBB26N-□-□□	SK40-MD25F-80R	26(32)	34(40)	200	120	22	25	1	0.5
SK50	FBH2526D	FBB26N-□-□□	SK40-MD25F-105R	26(32)	34(40)	225	120	22	25	1	0.5

Spare Part **E123** FBB bite **E128**

• Through coolant system is installed • Head : Main component, Bite/Arbor : For separate purchase

M This is metric size. We can also provide in inch type

FBB Bite

Designation	Boring Range(DC)	Insert	Insert Screw	Clamp Bolt
FBB15-C [FBH15]	Ø15~Ø18mm	CCET0301□□L	BFTX01604N	BFTX02505N
FBB15-C [FBH18]	Ø18~Ø22mm	CCET0301□□L	BFTX01604N	BFTX02505N
FBB20N	Ø20~Ø26mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0304
FBB20N-C	Ø20~Ø26mm	CCET0401□□L	FTNA0238	BXC0304
FBB20N-1	Ø24~Ø30mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0304
FBB20N-1-C	Ø24~Ø30mm	CCET0401□□L	FTNA0238	BXC0304
FBB26N	Ø26~Ø34mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0405
FBB26N-C	Ø26~Ø34mm	CCET0401□□L	FTNA0238	BXC0405
FBB26N-1	Ø32~Ø40mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0405
FBB26N-1-C	Ø32~Ø40mm	CCET0401□□L	FTNA0238	BXC0405
FBB33N	Ø33~Ø43mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0506
FBB33N-C	Ø33~Ø43mm	CCMT0602□□, CCGT0602□□	BFTX02506N	BXC0506
FBB33N-1	Ø41~Ø50mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0506
FBB33N-1-C	Ø41~Ø50mm	CCMT0602□□, CCGT0602□□L	BFTX02506N	BXC0506
FBB42N	Ø42~Ø54mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0610
FBB42N-C	Ø42~Ø54mm	CCMT0602□□, CCGT0602□□L	BFTX02506N	BXC0610
FBB42N-11	Ø42~Ø54mm	TPGT1103□□L	BFTX0307A	BXC0610
FBB42N-1	Ø50~Ø62mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0610
FBB42N-1-C	Ø50~Ø62mm	CCMT0602□□, CCGT0602□□L	BFTX02506N	BXC0610
FBB42N-1-T11	Ø50~Ø62mm	TPGT1103□□L	BFTX0307A	BXC0610
FBB53N	Ø53~Ø70mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0610
FBB53N-C	Ø53~Ø70mm	CCMT0602□□, CCGT0602□□	BFTX02506N	BXC0610
FBB53N-11	Ø53~Ø70mm	TPGT1103□□L	BFTX0307A	BXC0610
FBB53N-1	Ø65~Ø82mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0610
FBB53N-1-C	Ø65~Ø82mm	CCMT0602□□, CCGT0602□□L	BFTX02506N	BXC0610
FBB53N-1-C09	Ø65~Ø82mm	CCMT09T3□□, CCGT09T3□□L	BFTX0407N	BXC0610
FBB53N-1-T11	Ø65~Ø82mm	TPGT1103□□L	BFTX0307A	BXC0610
FBB68N	Ø68~Ø100mm/Ø98~Ø150mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0810
FBB68N-C	Ø68~Ø100mm/Ø98~Ø150mm	CCMT09T3□□, CCGT09T3□□L	BFTX0407N	BXC0810
FBB68N-11	Ø68~Ø100mm/Ø98~Ø150mm	TPGT1103□□L	BFTX0307A	BXC0810
FBB68N-1	Ø90~Ø122mm/Ø120~Ø172mm	TPGT0802□□L, TPGW0802□□	BFTX0204A	BXC0810
FBB68N-1-C09	Ø90~Ø122mm/Ø120~Ø172mm	CCMT09T3□□, CCGT09T3□□L	BFTX0407N	BXC0810
FBB68N-1-T11	Ø90~Ø122mm/Ø120~Ø172mm	TPGT1103□□L	BFTX0307A	BXC0810

New balance cut tool

DBCA

- Bidirectional simultaneous diameter adjustment is available due to the twin control structure
- Machining rigidity is reinforced due to the cartridge assist design
- Broader machining area than the existing products
- Boring range : Ø28-Ø130(mm)

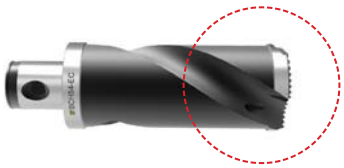


Code system

DBCA	32	33	S	32
New balance cut tool	**MD Arbor Size**	**Min. Boring diameter**	**Bcc Cartridge Set**	**H :** Helical Type **Non :** Straight Type

Features

Helical Type



- Improved capacity to discharge chips from deep holes
- Minimized damage to tools and insert due to chip clogging

Extended Head Length	Deep hole machining implemented
Helical Type	Improved capacity to discharge chips from deep holes

Boring Area Optimization

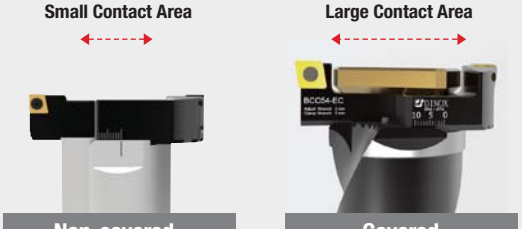


- Max. diameter expanded owing to reinforced rigidity
- Boring range expanded per designation versus conventional boring range of DINE

Coolant Hole (Direct Injection to Cutting Edge)	• Improved capacity to discharge chips • Improved capacity of machining

Effect of Improved Rigidity for Cartridge by Cover

- Clamps the top of the cartridge stably, minimizing the vibration of tools and improving the roughness of the working surface





BT-DBCA-H

Helical type



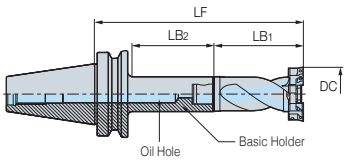


Fig. 1

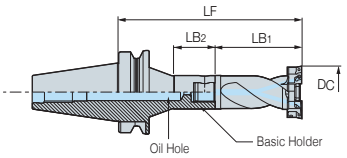


Fig. 2

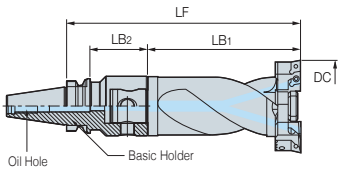
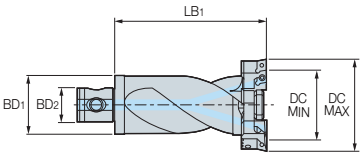


Fig. 3



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	lbs	Fig.
Head Designation	Arbor Designation	Min.	Max.							
DBCA2528S-H	BT30-MD25F-90	28	38	14	25	193	103	63	0.3	1
DBCA3238S-H	BT30-MD32F-80	38	54	18	32	190	110	55	0.5	1
DBCA5054S-H	BT30-MD50F-70	54	74	28	50	215	145	48	1.8	3
DBCA2528S-H	BT40-MD25F-95	28	38	14	25	198	103	63	0.3	1
DBCA2528S-H	BT40-MD25F-105R	28	38	14	25	208	103	40	0.3	2
DBCA3238S-H	BT40-MD32F-100	38	54	18	32	210	110	70	0.5	1
DBCA3238S-H	BT40-MD32F-115R	38	54	18	32	225	110	45	0.5	2
DBCA5054S-H	BT40-MD50F-105	54	74	28	50	250	145	73	1.8	1
DBCA6374S-H	BT40-MD63F-64	74	100	36	63	244	180	37	3.3	1
DBCA6374S-H	BT40-MD63F-110	74	100	36	63	290	180	83	3.3	1
DBCA6374S-H	BT40-MD63F-135	74	100	36	63	315	180	108	3.3	1
DBCA80100S-H	BT40-MD80F-100	100	136	45	80	315	215	73	7.3	3
DBCA2528S-H	BT50-MD25F-105	28	38	14	25	208	103	62	0.3	1
DBCA2528S-H	BT50-MD25F-120R	28	38	14	25	223	103	40	0.3	2
DBCA3238S-H	BT50-MD32F-110	38	54	18	32	220	110	67	0.5	1
DBCA3238S-H	BT50-MD32F-115R	38	54	18	32	225	110	45	0.5	2
DBCA3238S-H	BT50-MD32F-235R	38	54	18	32	345	110	115	0.5	2
DBCA5054S-H	BT50-MD50F-125	54	74	28	50	270	145	82	1.8	1
DBCA5054S-H	BT50-MD50F-225	54	74	28	50	370	145	182	1.8	1
DBCA5054S-H	BT50-MD50F-250R	54	74	28	50	395	145	81	1.8	2
DBCA6374S-H	BT50-MD63F-75	74	100	36	63	255	180	35	3.3	1
DBCA6374S-H	BT50-MD63F-130	74	100	36	63	280	180	87	3.3	1
DBCA6374S-H	BT50-MD63F-195	74	100	36	63	375	180	152	3.3	1
DBCA6374S-H	BT50-MD63F-230	74	100	36	63	410	180	187	3.3	1
DBCA80100S-H	BT50-MD80F-75	100	136	45	80	290	215	36	7.3	1
DBCA80100S-H	BT50-MD80F-110	100	136	45	80	325	215	69	7.3	1
DBCA80100S-H	BT50-MD80F-175	100	136	45	80	390	215	134	7.3	1

Spare Part E134

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

M This is metric size. We can also provide in inch type

* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

BT-DBCA-S

Straight type



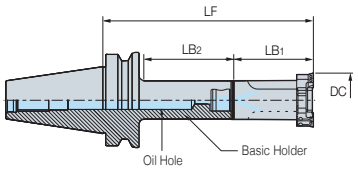


Fig. 1

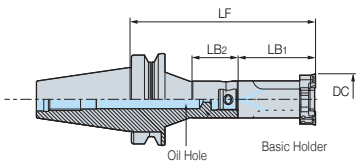


Fig. 2

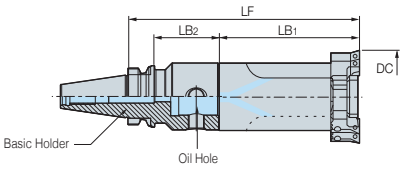
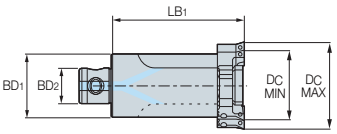


Fig. 3



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	lbs	Fig.
Head Designation	Arbor Designation	Min.	Max.							
DBCA2528S	BT30-MD25F-90	28	38	14	25	193	103	63	0.2	1
DBCA3238S	BT30-MD32F-80	38	54	18	32	190	110	55	0.4	1
DBCA5054S	BT30-MD50F-70	54	74	28	50	215	145	48	1.1	3
DBCA2528S	BT40-MD25F-95	28	38	14	25	198	103	63	0.2	1
DBCA2528S	BT40-MD25F-105R	28	38	14	25	208	103	40	0.2	2
DBCA3238S	BT40-MD32F-100	38	54	18	32	210	110	70	0.4	1
DBCA3238S	BT40-MD32F-115R	38	54	18	32	225	110	45	0.4	2
DBCA5054S	BT40-MD50F-105	54	74	28	50	205	145	73	1.1	1
DBCA6374S	BT40-MD63F-64	74	100	36	63	244	180	37	1.9	1
DBCA6374S	BT40-MD63F-135	74	100	36	63	315	180	83	1.9	1
DBCA6374S	BT40-MD80F-100	74	100	36	63	280	180	108	1.9	1
DBCA80100S	BT40-MD80F-100	100	136	45	80	315	215	73	3.7	3
DBCA2528S	BT50-MD25F-105	28	38	14	25	208	103	62	0.2	1
DBCA2528S	BT50-MD25F-120R	28	38	14	25	223	103	40	0.2	2
DBCA3238S	BT50-MD32F-110	38	54	18	32	220	110	67	0.4	1
DBCA3238S	BT50-MD32F-115R	38	54	18	32	225	110	45	0.4	2
DBCA3238S	BT50-MD32F-235R	38	54	18	32	345	110	115	0.4	2
DBCA5054S	BT50-MD50F-125	54	74	28	50	270	145	82	1.1	1
DBCA5054S	BT50-MD50F-225	54	74	28	50	370	145	182	1.1	1
DBCA5054S	BT50-MD50F-250R	54	74	28	50	395	145	81	1.1	2
DBCA6374S	BT50-MD63F-75	74	100	36	63	255	180	35	1.9	1
DBCA6374S	BT50-MD63F-130	74	100	36	63	310	180	87	1.9	1
DBCA6374S	BT50-MD63F-195	74	100	36	63	375	180	152	1.9	1
DBCA6374S	BT50-MD63F-230	74	100	36	63	410	180	187	1.9	1
DBCA80100S	BT50-MD80F-75	100	136	45	80	290	215	36	3.7	1
DBCA80100S	BT50-MD80F-110	100	136	45	80	325	215	69	3.7	1
DBCA80100S	BT50-MD80F-175	100	136	45	80	390	215	134	3.7	1

Spare Part E134

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

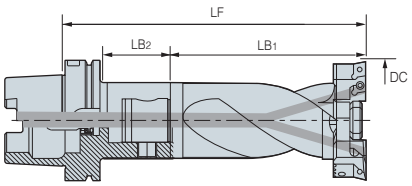
M This is metric size. We can also provide in inch type

* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

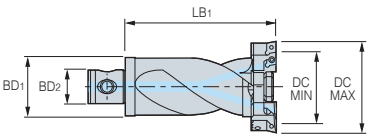
HSK-DBCA-H

Helical type





1DIV. = 0.01mm



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	lbs
Head Designation	Arbor Designation	Min.	Max.						
DBCA2528S-H	HSK63A-MD25F-60	38	54	14	25	163	103	31	0.3
DBCA3238S-H	HSK63A-MD32F-65	38	54	18	32	175	110	36	0.5
DBCA5054S-H	HSK63A-MD50F-85	54	74	28	50	230	145	58	1.8
DBCA6374S-H	HSK63A-MD63F-95	74	100	45	80	275	180	69	3.3

Spare Part E134

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

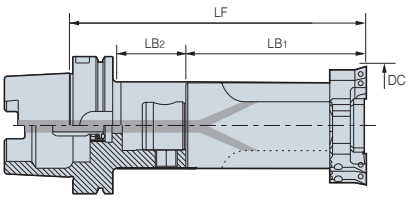
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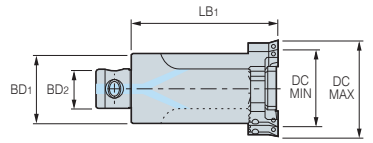
HSK-DBCA-S

Straight type





1DIV. = 0.01mm



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	lbs
Head Designation	Arbor Designation	Min.	Max.						
DBCA2528S	HSK63A-MD25F-60	38	54	14	25	122	62	31	0.3
DBCA3238S	HSK63A-MD32F-65	38	54	18	32	134.5	69.5	36	0.5
DBCA5054S	HSK63A-MD50F-85	54	74	28	50	179	94	58	1.8
DBCA6374S	HSK63A-MD63F-95	74	100	45	80	100	106.5	69	3.3

Spare Part E134

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

M This is metric size. We can also provide in inch type

* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

Parts

Division	For separate purchase
Internal coolant system	

Classification by shank	
HSK50	HSK50A-CNS
HSK63	HSK63A-CNS
HSK100	HSK100A-CNS

BT-DBC

Straight type



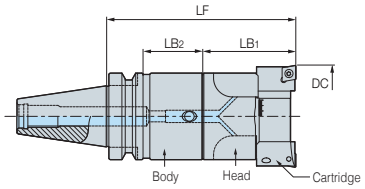


Fig. 1

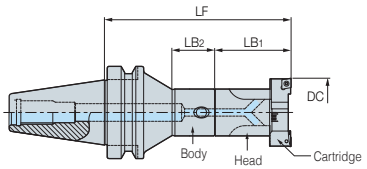


Fig. 2

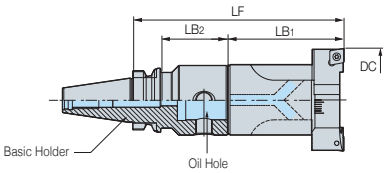
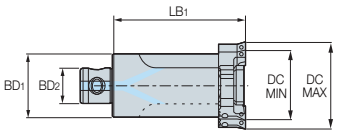


Fig. 3



Head

(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	lbs	Fig.
Head Designation	Arbor Designation	Min.	Max.							
DBC2528S	BT30-MD25F-90	28	35	14	25	150	60	63	0.3	1
DBC3235S	BT30-MD32F-80	35	46	18	32	145	65	55	0.4	1
DBC4046S	BT30-MD40F-45	46	58	22	40	115	70	22	0.6	1
DBC4046S	BT30-MD40F-60	46	58	22	40	130	70	36	0.6	1
DBC4046S	BT30-MD40F-80	46	58	22	40	140	70	56	0.6	1
DBC5058S	BT30-MD50F-70	58	74	28	50	150	80	48	1.1	3
DBC2528S	BT40-MD25F-95	28	35	14	25	155	60	63	0.3	1
DBC2528S	BT40-MD25F-105R	28	35	14	25	165	60	40	0.3	2
DBC3235S	BT40-MD32F-100	35	46	18	32	165	65	70	0.4	1
DBC3235S	BT40-MD32F-115R	35	46	18	32	180	65	45	0.4	2
DBC4046S	BT40-MD40F-60	46	58	22	40	130	70	31	0.6	1
DBC4046S	BT40-MD40F-110R	46	58	22	40	180	70	60	0.6	2
DBC4046S	BT40-MD40F-115	46	58	22	40	185	70	83	0.6	1
DBC5058S	BT40-MD50F-105	58	74	28	50	185	80	73	1.1	1
DBC6374S	BT40-MD63F-64	74	94	36	63	154	90	37	2.0	1
DBC6374S	BT40-MD63F-110	74	94	36	63	200	90	83	2.0	1
DBC6374S	BT40-MD63F-135	74	94	36	63	225	90	108	2.0	1
DBC8094S	BT40-MD80F-100	94	120	45	80	200	100	73	3.5	3
DBC2528S	BT50-MD25F-105	28	35	14	25	165	60	62	0.3	1
DBC2528S	BT50-MD25F-120R	28	35	14	25	185	60	40	0.3	2
DBC3235S	BT50-MD32F-110	35	46	18	32	175	65	67	0.4	1
DBC3235S	BT50-MD32F-115R	35	46	18	32	180	65	45	0.4	2
DBC3235S	BT50-MD32F-235R	35	46	18	32	300	65	115	0.4	2
DBC4046S	BT50-MD40F-60	46	58	22	40	130	70	22	0.6	1
DBC4046S	BT50-MD40F-195	46	58	22	40	265	70	152	0.6	1
DBC4046S	BT50-MD40F-230R	46	58	22	40	300	70	180	0.6	2
DBC5058S	BT50-MD50F-125	58	74	28	50	205	80	82	1.1	1
DBC5058S	BT50-MD50F-225	58	74	28	50	305	80	182	1.1	1
DBC5058S	BT50-MD50F-250R	58	74	28	50	330	80	81	1.1	2
DBC6374S	BT50-MD63F-75	74	94	36	63	165	90	35	2.0	1
DBC6374S	BT50-MD63F-130	74	94	36	63	220	90	87	2.0	1
DBC6374S	BT50-MD63F-195	74	94	36	63	285	90	152	2.0	1
DBC6374S	BT50-MD63F-230	74	94	36	80	320	90	187	2.0	1
DBC8094S	BT50-MD80F-75	94	120	36	80	175	100	36	3.5	1
DBC8094S	BT50-MD80F-110	94	120	45	80	210	100	69	3.5	1
DBC8094S	BT50-MD80F-175	94	120	45	80	275	100	134	4.5	1
DBC120S	BT50-MD80F-175	120	175	45	80	275	100	134	4.1	1

Spare Part E134

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

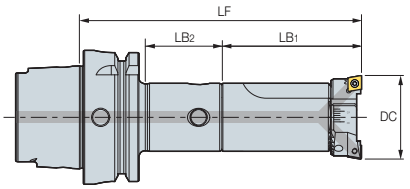
M This is metric size. We can also provide in inch type

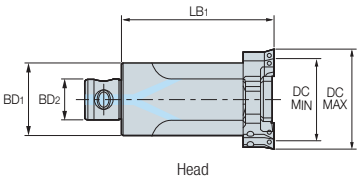
* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

HSK-DBC

Modular type







(mm)

Designation		Boring Range(DC)		BD2	BD1	LF	LB1	LB2	lbs
Head Designation	Arbor Designation	Min.	Max.						
DBC2528S	HSK63A-MD25F-60	28	35	14	25	120	60	31	0.3
DBC3235S	HSK63A-MD32F-65	35	46	18	32	130	65	36	0.4
DBC4046S	HSK63A-MD40F-70	46	58	22	40	140	70	41	0.6
DBC5058S	HSK63A-MD50F-85	58	74	28	50	165	80	58	1.1
DBC6374S	HSK63A-MD63F-95	74	94	36	63	185	90	69	2.0

Spare Part E134

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is installed

M This is metric size. We can also provide in inch type

* In the above table, the Arbor designation is an example designation and able to adjust the depth of boring with a combination of MD arbors and extension bars. For more details, see the MD arbor page

Parts

• DBCA

Basic									
Division	Head	Spring Pin	Wrench Bolt	Wrench	Cartridge	Set Screw	Wrench	Clamp Screw	Torx Wrench
Parts / Designation									
DBCA2528S	DBCA2528	SP0308	BX0420	LW-3	BCC28-EC	BT0308	LW-1.5	BFTX02506N	TRX8
DBCA3238S	DBCA3238	SP0410	BX0525	LW-4	BCC38-EC	BT0310	LW-1.5	BFTX02506M	TRX8
DBCA5054S	DBCA5054	SP0616	BX0630	LW-5	BCC54-EC	BT0414	LW-2	BFTX0407N	TRX15
DBCA6374S	DBCA6374	SP1018	BX0635	LW-5	BCC74-EC	BT0520	LW-2.5	BFTX0511N	TRX20
DBCA80100S	DBCA80100	SP1020	BX0840	LW-6	BCC100-EC	BT0625	LW-3	BFTX0511N	TRX20

• DBC

Basic									
Division	Head	Spring Pin	Wrench Bolt	Wrench	Cartridge	Set Screw	Wrench	Clamp Screw	Torx Wrench
Parts / Designation									
DBC2528S	DBC2528	SP0308	BX0415	LW-3	BCC28	BT0306	LW-1.5	FTKA02565	TRX7
DBC3235S	DBC3235	SP0410	BX0515	LW-4	BCC35	BT0308			
DBC4046S	DBC4046	SP0516	BX0620	LW-5	BCC46	BT0410	LW-2	FTNA0408	TRX15
DBC5058S	DBC5058	SP0616			BCC58	BT0412			
DBC6374S	DBC6374	SP1018	BX0830	LW-6	BCC74	BT0516	LW-2.5	BFTX0511N	TRX20
DBC8094S	DBC8094	SP1020	BX1035	LW-8	BCC94	BT0620	LW-3		
DBC120S	DBC120N	SP1020	BX0830	LW-6	BCC120	BT0830	LW-4	BFTX0511N	TRX20

BT-SMB

Small Micro Boring Bar



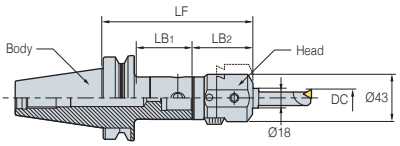


Fig. 1

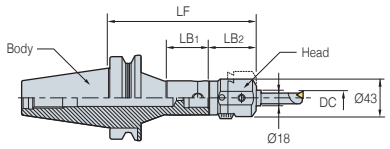
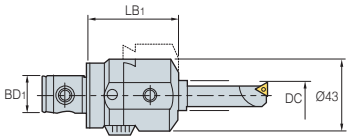


Fig. 2



Head

• 1DIV = Ø0.02mm

(mm)

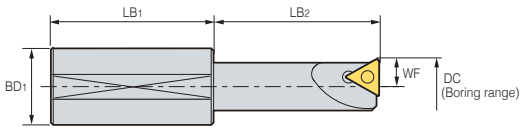
Designation			Boring Range(DC)	LF	LB1	LB2	Ibs	Fig.
Head Designation	Arbor Designation	Bite Designation						
SMB4022	BT30-MD40F-45	BB18-□(S)	Ø6.0~Ø34.0	107.5	22	62.5	0.6	1
SMB4022	BT30-MD40F-60	BB18-□(S)	Ø6.0~Ø34.0	122.5	36	62.5	0.6	1
SMB4022	BT30-MD40F-80	BB18-□(S)	Ø6.0~Ø34.0	142.5	56	62.5	0.6	1
SMB4022	BT40-MD40F-60	BB18-□(S)	Ø6.0~Ø34.0	122.5	31	62.5	0.6	1
SMB4022	BT40-MD40F-110R	BB18-□(S)	Ø6.0~Ø34.0	172.5	60	62.5	0.6	2
SMB4022	BT40-MD40F-115	BB18-□(S)	Ø6.0~Ø34.0	177.5	83	62.5	0.6	1
SMB4022	BT50-MD40F-60	BB18-□(S)	Ø6.0~Ø34.0	122.5	22	62.5	0.6	1
SMB4022	BT50-MD40F-195	BB18-□(S)	Ø6.0~Ø34.0	257.5	152	62.5	0.6	1
SMB4022	BT50-MD40F-230R	BB18-□(S)	Ø6.0~Ø34.0	292.5	180	62.5	0.6	2

* Adjustment Range : 10mm

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

M This is metric size. We can also provide in inch type

BB Bite(for SMB)



(mm)

Designation		Boring Range(DC)		BD1	LB1	LB2	WF	Ibs	Insert	Screw
		Min.	Max.							
BB	18-7(S)	7	27	18	30	30	3.5	0.1	TBGT0601□□L	BFTX0204A
	18-9(S)	9	29	18	30	40	4.5	0.1	TPGT0802□□L	BFTX0204A
	18-11(S)	11	31	18	30	45	5.5	0.1	TPGT1103□□L	BFTX0307A
	18-13(S)	13	33	18	40	45	6.5	0.1	TPGT1103□□L	BFTX0307A
	18-15(S)	15	35	18	40	50	7.5	0.2	TPGT1103□□L	BFTX0307A
	18-17(S)	17	37	18	40	50	8.5	0.2	TPGT1103□□L	BFTX0307A

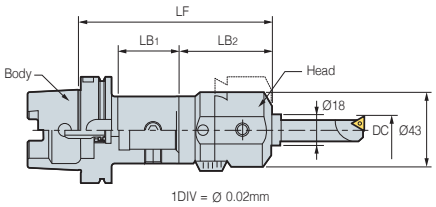
Parts

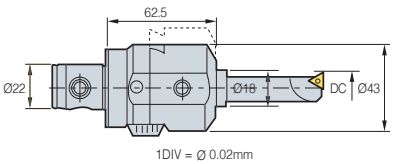
Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
SMB	SMB4022	BTT1013F	LW-2.5	BB18	MD40F

HSK-SMB

Small Micro Boring Bar







Head

(mm)

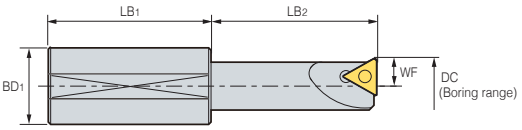
Designation			Boring Range(DC)	LF	LB1	LB2	Ibs
Head Designation	Arbor Designation	Bite Designation					
SMB4022	HSK63A-MD40F - 70	BB18-□(S)	Ø6.0~Ø34.0	132.5	41	62.5	0.6

* Adjustment Range : 10mm

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

M This is metric size. We can also provide in inch type

BB Bite(for SMB)



(mm)

Designation		Boring Range(DC)		BD1	LB1	LB2	WF	Ibs	Insert	Screw
		Min.	Max.							
BB	18-7(S)	7	27	18	30	30	3.5	0.1	TBGT0601□□L	BFTX0204A
	18-9(S)	9	29	18	30	40	4.5	0.1	TPGT0802□□L	BFTX0204A
	18-11(S)	11	31	18	30	45	5.5	0.1	TPGT1103□□L	BFTX0307A
	18-13(S)	13	33	18	40	45	6.5	0.1	TPGT1103□□L	BFTX0307A
	18-15(S)	15	35	18	40	50	7.5	0.2	TPGT1103□□L	BFTX0307A
	18-17(S)	17	37	18	40	50	8.5	0.2	TPGT1103□□L	BFTX0307A

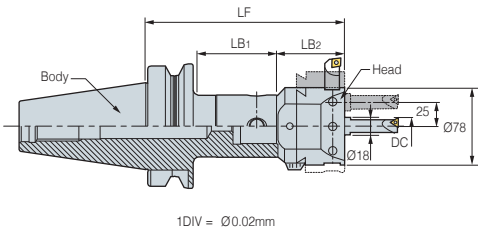
Parts

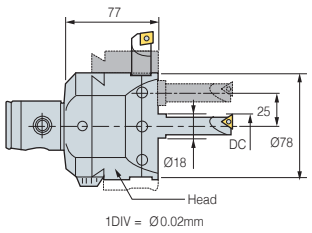
	Basic			For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
SMB	SMB4022	BTT1013F	LW-2.5	BB18	MD40F

BT-KMB

Micro Boring







Head

(mm)

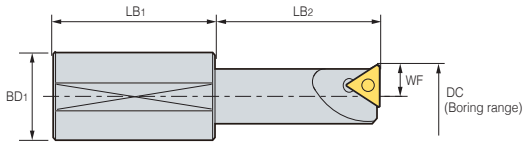
Designation			Boring Range(DC)		LF	LB1	LB2	Ibs
Head Designation	Arbor Designation	Bite Designation						
KMB6336	BT40-MD63F-64	BB18-□(S)	Center Hole	Ø8.0~Ø38.0	141	37	77	2.2
KMB6336	BT40-MD63F-110	BB18-□(S)	Center Hole	Ø8.0~Ø38.0	187	83	77	2.2
KMB6336	BT40-MD63F-135	BB18-□(S)	Eccentric Hole	Ø41.0~101.0	212	108	77	2.2
KMB6336	BT50-MD63F-75	BB18-□(S)	Eccentric Hole	Ø41.0~101.0	152	35	77	2.2
KMB6336	BT50-MD63F-135	BB18-□(S)	Side Hole	Max.Ø165.0	207	87	77	2.2
KMB6336	BT50-MD63F-195	BB18-□(S)	Side Hole	Max.Ø165.0	272	152	77	2.2

* Adjustment Range : 17mm

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

M This is metric size. We can also provide in inch type

BB Bite(for KMB)



(mm)

Designation		Boring Range(DC)				BD1	LB1	LB2	WF	Ibs	Insert	Screw
		Center		Eccentric								
BB	18-7(S)	7	40	27	91	18	30	30	3.5	0.1	TBGT0601□□L	BFTX0204A
	18-9(S)	9	42	29	93	18	30	40	4.5	0.1	TPGT0802□□L	BFTX0204A
	18-11(S)	11	44	31	95	18	30	45	5.5	0.1	TPGT1103□□L	BFTX0307A
	18-13(S)	13	46	33	97	18	40	45	6.5	0.1	TPGT1103□□L	BFTX0307A
	18-15(S)	15	48	35	99	18	40	50	7.5	0.2	TPGT1103□□L	BFTX0307A
	18-17(S)	17	50	37	101	18	40	50	8.5	0.2	TPGT1103□□L	BFTX0307A

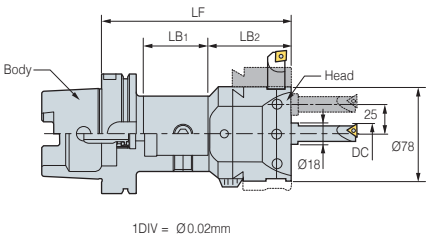
Parts

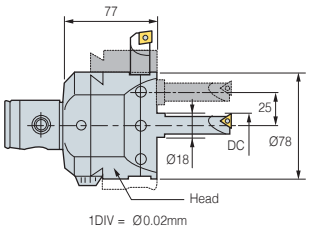
Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
KMB	KMB6336	BTT1620F	LW-4.0	BB18	MD63F

HSK-KMB

Micro Boring







Head

(mm)

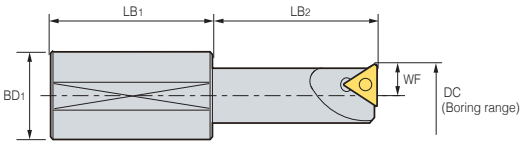
Designation			Boring Range(DC)		LF	LB1	LB2	Ibs
Head Designation	Arbor Designation	Bite Designation						
KMB6336	HSK63A-MD63F-95	BB18-□(S)	Center Hole	Ø8.0~Ø38.0	172	69	77	2.2

* Adjustment Range : 17mm

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

M This is metric size. We can also provide in inch type

BB Bite(for KMB)



(mm)

Designation		Boring Range(DC)				BD1	LB1	LB2	WF	Ibs	Insert	Screw
		Center		Eccentric								
BB	18-7(S)	7	40	27	91	18	30	30	3.5	0.1	TBGT0601□□L	BFTX0204A
	18-9(S)	9	42	29	93	18	30	40	4.5	0.1	TPGT0802□□L	BFTX0204A
	18-11(S)	11	44	31	95	18	30	45	5.5	0.1	TPGT1103□□L	BFTX0307A
	18-13(S)	13	46	33	97	18	40	45	6.5	0.1	TPGT1103□□L	BFTX0307A
	18-15(S)	15	48	35	99	18	40	50	7.5	0.2	TPGT1103□□L	BFTX0307A
	18-17(S)	17	50	37	101	18	40	50	8.5	0.2	TPGT1103□□L	BFTX0307A

Parts

Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
KMB	KMB6336	BTT1620F	LW-4.0	BB18	MD63F

BT-SMH

Small Micro Boring Bar(Precision type)



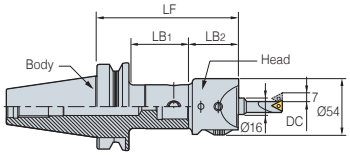


Fig. 1

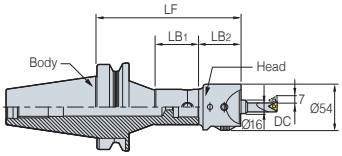
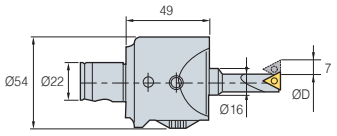


Fig. 2



Head

• 1DIV = Ø0.01mm

(mm)

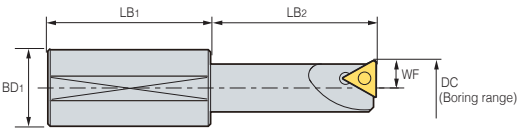
Designation			Boring Range(DC)	LF	LB_1	LB_2	Ibs	Fig.
Head Designation	Arbor Designation	Bite Designation						
SMH4022	BT30-MD40F-45	BB16-□(S)	Ø6.0~Ø34.0	94	22	49	0.6	1
SMH4022	BT30-MD40F-60	BB16-□(S)	Ø6.0~Ø34.0	109	36	49	0.6	1
SMH4022	BT30-MD40F-80	BB16-□(S)	Ø6.0~Ø34.0	129	56	49	0.6	1
SMH4022	BT40-MD40F-60	BB16-□(S)	Ø6.0~Ø34.0	109	31	49	0.6	1
SMH4022	BT40-MD40F-110R	BB16-□(S)	Ø6.0~Ø34.0	159	60	49	0.6	2
SMH4022	BT40-MD40F-115	BB16-□(S)	Ø6.0~Ø34.0	164	83	49	0.6	1
SMH4022	BT50-MD40F-60	BB16-□(S)	Ø6.0~Ø34.0	109	22	49	0.6	1
SMH4022	BT50-MD40F-195	BB16-□(S)	Ø6.0~Ø34.0	244	152	49	0.6	1
SMH4022	BT50-MD40F-230R	BB16-□(S)	Ø6.0~Ø34.0	279	180	49	0.6	2

* Adjustment Range : 7mm

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

M This is metric size. We can also provide in inch type

BB Bite(for SMH)



(mm)

Designation		Boring Range(DC)		BD_1	LB_1	LB_2	WF	Insert	Screw	Wrench
		Min.	Max.							
BB	16-5(S)	5	19	16	34	20	2.75	WBGT0601□□L	BFTX0203A	TRX06
	16-7(S)	7	21	16	34	30	3.5	TBGT0601□□L	BFTX0204A	TRX06
	16-9(S)	9	23	16	34	40	4.5	TPGT0802□□L	BFTX0204A	TRX06
	16-11(S)	11	25	16	34	45	5.5	TPGT1103□□L	BFTX0307A	TRX10
	16-15(S)	15	29	16	34	50	7.5	TPGT1604□□L	BFTX0307A	TRX10
	16-19(S)	19	33	16	34	60	9.5	TPGT1604□□L	BFTX0410A	TRX15

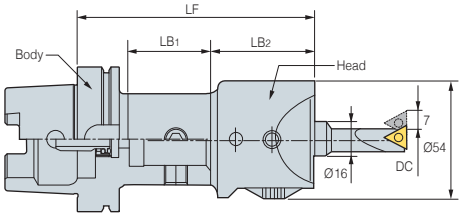
Parts

Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
SMH	SMH4022	BTT1013F	LW-3.0	BB16	MD40F

HSK-SMH

Small Micro Boring Bar(Precision type)





• 1DIV = Ø0.01mm

(mm)

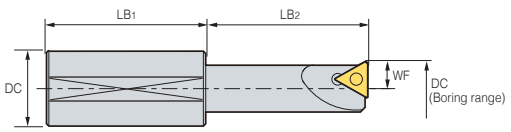
Designation			Boring Range(DC)	LF	LB1	LB2	Ibs
Head Designation	Arbor Designation	Bite Designation					
SMH4022	HSK63-MD40F-70	BB16-□(S)	Ø6.0~Ø34.0	132.5	41	49	0.6

* Adjustment Range : 7mm

• Head : Main component, Bite/Arbor : For separate purchase • Through coolant system is not available

M This is metric size. We can also provide in inch type

BB Bite(for SMH)



Designation		Boring Range(DC)		Insert	Screw	Ibs
		Min.	Max.			
BB	16-7(S)	8	28	TBGT0601□□L	BFTX0204A	0.1
	16-9(S)	10	30	TPGT0802□□L	BFTX0204A	0.1
	16-11(S)	12	32	TPGT1103□□L	BFTX0307A	0.1
	16-13(S)	14	34	TPGT1103□□L	BFTX0307A	0.1
	16-15(S)	16	36	TPGT1604□□L	BFTX0307A	0.2
	16-17(S)	18	38	TPGT1604□□L	BFTX0307A	0.2

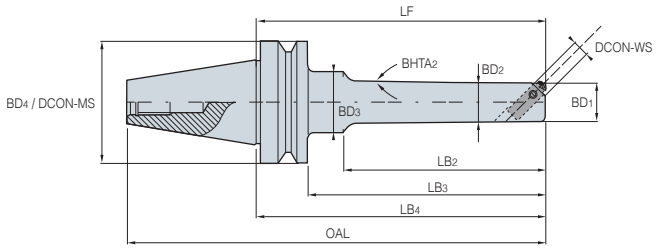
Parts

Basic				For separate purchase	
Division	Boring Head	Taper Screw	Wrench	Boring Bite	MD Arbor
Parts / Designation					
SMH	SMH4022	BTT1013F	LW-3.0	BB16	MD40F

BT-BKA

Micro Boring Bar





(mm)

Designation		FZ UNIT	LF	LB1	LB2	BD1	BD2	DCON-WS	SSZ	lbs
BT30-	BKA28-150	FZ10-□□-3[S]	150	123	-	25	-	10	M6	0.9
	BKA36-150	FZ12-□□-3[S]	150	125	-	32	-	12	M8	1.2
	BKA45-150	FZ16-□□-3[S]	150	128	-	40	-	16	M10	1.6
BT40-	BKA23-150	FZ8-□□-3[S]	150	95	40	20	22	8	M6	1.6
	BKA23-225	FZ8-□□-3[S]	225	95	40	20	22	8	M6	2.8
	BKA28-165	FZ10-□□-3[S]	165	122	50	25	26	10	M6	1.5
	BKA28-225	FZ10-□□-3[S]	225	125	50	25	26	10	M6	2.6
	BKA36-165	FZ12-□□-3[S]	165	133	60	32	35	12	M8	1.9
	BKA36-225	FZ12-□□-3[S]	225	193	60	32	35	12	M8	2.8
	BKA45-165	FZ16-□□-3[S]	165	133	70	40	44	16	M10	2.3
	BKA45-225	FZ16-□□-3[S]	225	208	70	40	44	16	M10	3
	BKA56-165	FZ20-□□-3[S]	165	-	70	50	54	20	M12	3
	BKA56-240	FZ20-□□-3[S]	240	-	70	50	54	20	M12	4.2
	BKA72-165	FZ25-□□-3[S]	165	-	-	63	-	25	M16	4
	BKA72-240	FZ25-□□-3[S]	240	-	-	63	-	25	M16	5.7
	BKA90-165	FZ32-□□-3[S]	165	-	100	80	-	32	M20	4.9
	BKA90-240	FZ32-□□-3[S]	240	-	100	80	-	32	M20	6.8

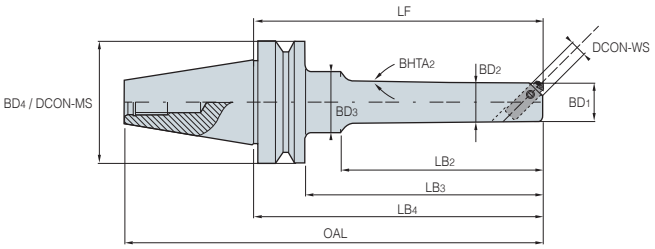
• Through coolant system is not available

M This is metric size. We can also provide in inch type

BT-BKA

Micro Boring Bar





(mm)

Designation		FZ UNIT	LF	LB1	LB2	BD1	BD2	DCON-WS	SSZ	lbs
BT50-	BKA23-150	FZ8-□□-3[S]	150	95	40	20	22	8	M6	4.2
	BKA23-225	FZ8-□□-3[S]	225	95	40	20	22	8	M6	5.3
	BKA28-165	FZ10-□□-3[S]	165	122	50	25	26	10	M6	4.1
	BKA28-225	FZ10-□□-3[S]	225	122	50	25	26	10	M6	5.1
	BKA36-165	FZ12-□□-3[S]	165	122	60	32	35	12	M8	4.4
	BKA36-225	FZ12-□□-3[S]	225	182	60	32	35	12	M8	4.9
	BKA45-165	FZ16-□□-3[S]	165	122	70	40	44	16	M10	4.8
	BKA45-225	FZ16-□□-3[S]	225	182	70	40	44	16	M10	5.5
	BKA56-165	FZ20-□□-3[S]	165	122	70	50	54	20	M12	5.5
	BKA56-240	FZ20-□□-3[S]	240	197	70	50	54	20	M12	6.7
	BKA72-165	FZ25-□□-3[S]	165	122	80	63	68	25	M16	6.5
	BKA72-240	FZ25-□□-3[S]	240	197	80	63	68	25	M16	8.5
	BKA90-165	FZ32-□□-3[S]	165	122	90	80	-	32	M20	7.9
	BKA90-240	FZ32-□□-3[S]	240	197	-	80	-	32	M20	10.9
	BKA110-270	FZ32-□□-3[S]	270	-	-	100	-	32	M20	14.8

• Through coolant system is not available

M This is metric size. We can also provide in inch type

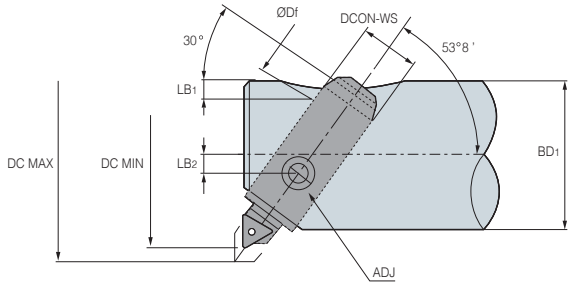
Parts

Basic			For separate purchase		
Division	Set Screw	Division	Unit		Wrench
Parts / Designation		Parts / Designation			
BKA23	BTF0606	BKA23	FZ8-23-3(P10.K10)		LW-3
BKA28	BTF0606	BKA28	FZ10-28-3(S)	FZ10-32-3(S)	LW-3
BKA36	BTF0808	BKA36	FZ12-36-3(S)	FZ12-40-3(S)	LW-4
BKA45	BTF1010	BKA45	FZ16-45-3(S)	FZ16-50-3(S)	LW-5
BKA56	BTF1212	BKA56	FZ20-56-3(S)	FZ20-64-3(S)	LW-4
BKA72	BTF1616	BKA72	FZ25-72-3(S)	FZ25-80-3(S)	LW-8
BKA90	BTF2020	BKA90	FZ32-90-3(S)	FZ32-100-3(S)	LW-10
BKA110	BTF2020	BKA110	FZ32-110-3(S)	FZ32-125-3(S)	LW-10

FZ UNIT

FZ Unit Inclined Mounting type





(mm)

Designation		Boring Range(DC)		Insert Holder(ISO)	Insert(ISO)	BD1	LB1	ØDf	LB2	ADJ	DCON-MS	lbs
		Min.	Max.									
FZ8-	23-3(P10,K10)	23	29(32)	8Z3 (Brazed tip)	-	20	3	8	1.5	M6	8	0.04
	26-3(P10,K10)	26	32(34)	8Z3 (Brazed tip)	-	20	3	8	1.5	M6	8	0.04
FZ10-	28-3(S)	28	34(38)	U10Z3S	TBGT0601□□L	25	3.5	8	2	M6	10	0.1
	32-3(S)	32	38(44)	U10Z3S	TBGT0601□□L	25	3.5	8	2	M6	10	0.1
FZ12-	36-3(S)	36	44(48)	U12Z3S	TBGT0601□□L	32	4	10	2.5	M8	12	0.1
	40-3(S)	40	48(55)	U12Z3S	TBGT0601□□L	32	4	10	2.5	M8	12	0.1
FZ16-	45-3(S)	45	54(60)	U16Z3S	TBGT0802□□L	40	6.5	12	3	M10	16	0.1
	50-3(S)	50	59(68)	U16Z3S	TBGT0802□□L	40	6.5	12	3	M10	16	0.1
FZ20-	56-3(S)	56	68(78)	U20Z3S	TBGT0802□□L	50	7	16	5	M12	20	0.2
	64-3(S)	64	76(90)	U20Z3S	TBGT0802□□L	50	7	16	5	M12	20	0.2
FZ25-	72-3(S)	72	88(100)	U25Z3S	TPGT1103□□L	63	8	20	4	M16	25	0.3
	80-3(S)	80	96(114)	U25Z3S	TPGT1103□□L	63	8	20	4	M16	25	0.3
FZ32-	90-3(S)	90	114(126)	U32Z3S	TPGT1103□□L	80	10	25	6	M20	32	0.6
	100-3(S)	100	124(140)	U32Z3S	TPGT1103□□L	80	10	25	6	M20	32	0.6
	110-3(S)	110	134(150)	U32Z3S	TPGT1103□□L	100	10	25	12	M20	32	0.7
	125-3(S)	125	149(175)	U32Z3S	TPGT1103□□L	100	10	25	12	M20	32	0.8

• Through coolant system is not available

M This is metric size. We can also provide in inch type

Parts

Basic						For separate purchase
Division	Housing Set	Spindle	Insert Screw	Torx Wrench	L-Wrench	Wrench
Parts / Designation						
FZ8-23, 26-3, P10	8-23, 26-3	8Z3(P10)	-	-	LW-1.5	R0/N0
FZ8-23, 26-3, K10	8-23, 26-3	8Z3(K10)	-	-	LW-1.5	R0/N0
FZ10-28, 32-3(S)	10-28, 32-3	U10Z3-TB06	BFTX0204A	TRX6	LW-2.0	R2/N1
FZ12-36, 40-3(S)	12-36, 40-3	U12Z3-TB06	BFTX0204A	TRX6	LW-2.5	R2A/N2
FZ16-45, 50-3(S)	16-45, 50-3	U16Z3-TP08	BFTX0204A	TRX6	LW-3.0	N3
FZ20-56, 64-3(S)	20-56, 64-3	U20Z3-TP08	BFTX0204A	TRX6	LW-4.0	R4/N4
FZ25-72, 80-3(S)	25-72, 80-3	U25Z3-TP11	BFTX0307A	TRX10	LW-4.0	ZV25
FZ32-90, 100, 110, 125-3(S)	32-90, 100-3	U32Z3-TP11	BFTX0307A	TRX10	LW-5.0	R5/N5

ANGULAR HEAD

ANGULAR HEAD

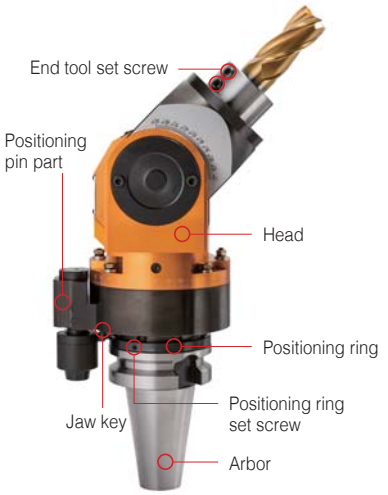


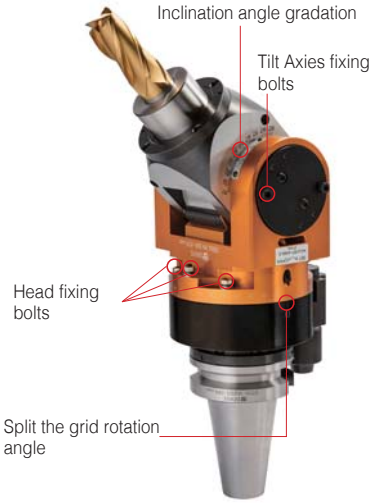
- Doubled effect by one equipment/Available for various angles
- Lighter aluminum body

Code system

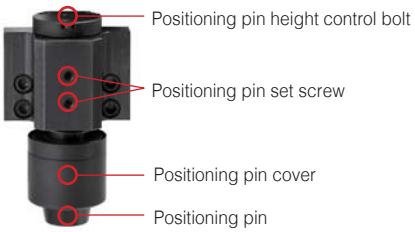
BT50	-	KHU	10	-	195
Spindle		Angular Head	Max. chucking diameter		Length

Name of angular head parts

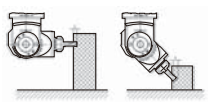
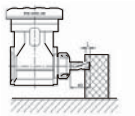
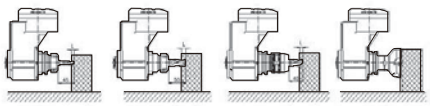




Positioning pin details



Various applications

			
0~90-degree rotating (MAH, KHU)	Fixed 90-degree type (KAH)	Fixed 45-degree type (KAC)	Attachment type (HRAG, KAG)

Components



Positioning block



Angular head



Part (Basic)



The warranty



MAH

Universal type MAH (Reinforced series)



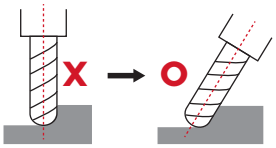
- **Reinforced type Better performance by improving existing universal Angular head**
  - Stability on large mold machining
  - Can use 32mm Ball Endmill

KHU

Universal type KHU (Free angle)



- **Adjustable angle-type angular head that enables flexible machining**
  - Wide vertical (0˚~90˚) and horizontal (0˚~360˚) machining angle range
  - To use Tap-exclusive collet, please contact us in advance
  - HSK and SK types are customizable



Be sure to give a slope to the cutting edge of a ball end mill when machining it as the ball end mill edge is worn out and the surface roughness of the workpiece becomes defective

HRAG

Attachment type HRAG (Reinforced type)



- **HRAG** : The reinforced bracket enhanced durability upto 200%
  - Stablility on face milling machining
  - Enhances compatibility with the machining device due to easy bracket disassembly/ assembly even on the BT50 shank
  - Improves product life cycle

KAG

Attachment type KAG



- **Free 360° angle adjusting from side to side**
  - Possible to use various tools of BT40 and BT30
  - HSK and SK type are order made
  - Coolant types are to be ordered separately

KAH

Modular type KAH (90° type)



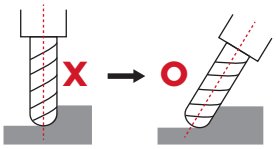
- **Fixed angle type angular head that enables flexible machining**
  - Adjusting angle up to 360˚
  - To use Tap-exclusive Collet, please contact us in advance
  - HSK and SK type are order made

KAC

Modular type KAC (45° type)



- **Fixed angle type angular head that enables flexible machining**
  - Adjusting angle up to 360˚
  - To use Tap-exclusive Collet, please contact us in advance
  - 45-degree fixed type angular head
  - For BT40 types, please contact us separately



Be sure to give a slope to the cutting edge of a ball end mill when machining it as the ball end mill edge is worn out and the surface roughness of the workpiece becomes defective

KAH(90° type)_Fixed Angle-type Angular Head

BT-KAH



High Clamping Force

Fixed angle type angular head that enables flexible machining

- Adjustable angle up to 360° degree
- HSK and SK types are customizable
- ATC (automatic tool change) available
- Tool rotates in the opposite direction to that of spindle

BT-30 KAH Features

- A small angular head for small equipment (BT30)
- Light weight of 2.6 KG for easy installation
- Available multi-surface processing
- It's processing angle can be freely adjusted by 360° on both sides
- ER11 size collet appllied

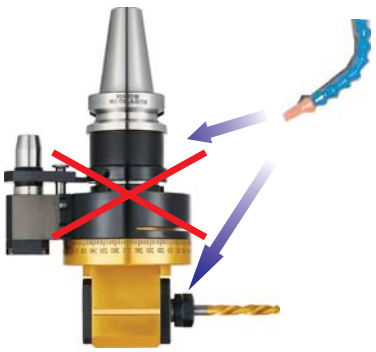
BT-KAH Structure

- Uses spiral bevel gear (with axial angle of 90)
- Reduced vibration and noise
- Small backlash
- Thanks to the use of a 1 : 1 gear ratio, can use without complex calculations
- Reverse-rotation direction compared to spindle (CW:CCW)



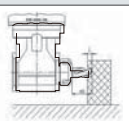
Precautions

- Do not inject cutting oil direct to the Angular Head body.



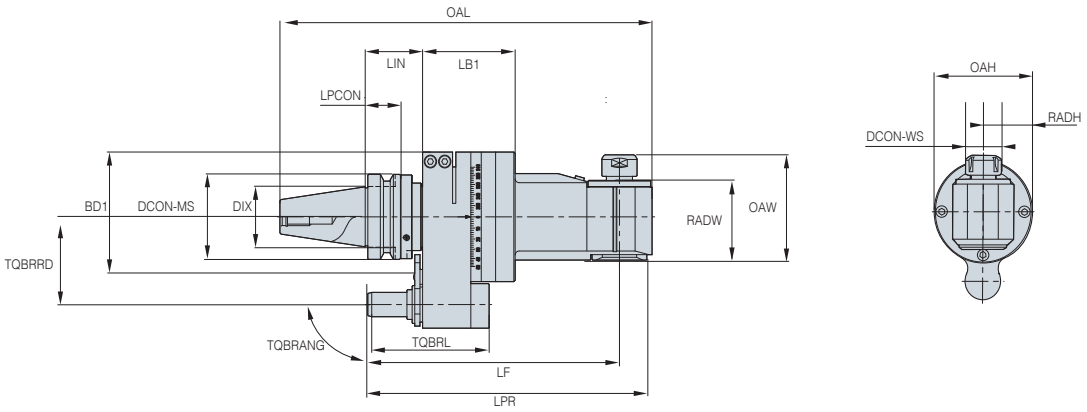
Machining Example

Model : BT50-KAH20-200

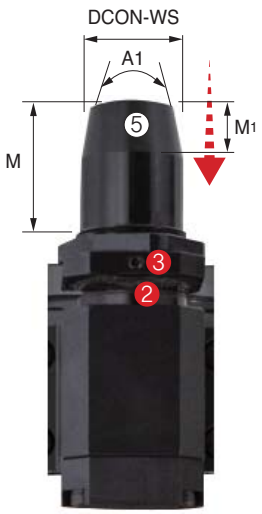
Cutting tool	Workpiece	Depth of cut	RPMX	Feed (mm/min)	Feed (mm/rev)	BT50-KAH20-200
Ø16-2 Flute Endmill(HSS), Over length-40mm	S45C	3	700	98	0.14	
	S45C	4	500	60	0.12	
	Al	7	900	72	0.08	
	Al	4	1800	144	0.08	

Parts

Angular head	Basic		Accessories	Positioning Block
	Nut	Spanner	GERC Collet	
KAH7	R11-AH	S-17	GERC11-ØD	
KHU10	R16-AH(M20)	S-25	GERC16-ØD	
KAH13	RU20-AH	35-38	GERC20-ØD	
KHU20	RU32-AH	48-52	GERC32-ØD	



Positioning Pin



Shank	M	M1	A1	DCON-WS
BT30	Max : 23 Min : 17	8	20°	Ø15
BT40	Max : 32 Min : 26	10	20°	Ø19.6
BT50	Max : 35 Min : 29	15	20°	Ø28

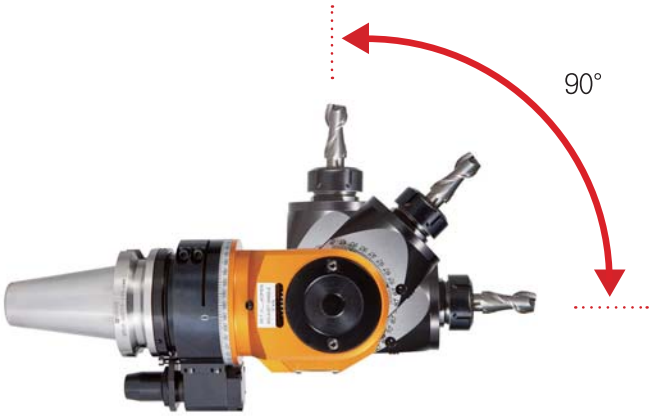
NO	Name
①	Head
②	Rotation Angle Split-gradation (Freely Adjustable for 360 Position
③	Fix Pin Block
④	Jaw Key
⑤	Height Adjusting Wrench Hole

NO	Name	Designation
1	Head angle fix bolt	BX0618
2	Set screw	BT0404
3	Position pin height fix bolt	BX50630

Designation		DCON-MS	DIX	BD1	TQBRRD	OAH	DCON-WS	RADH	LF	LPR	TQBRL	TQBRANG	LPCON	LIN	LB1	OAL	RADW	OAW	Gear ratio	RPMX	Collet	lbs
BT30-	**KAH7-120**	46	42	72	55	40	11	20	120	140	61	90	22	56	39	188.4	24.5	61.5	1:1	5,000	GERC11	2.6
BT40-	**KAH7-170**	63	50	96	65	40	11	20	170	190	94	90	27	44	71	255.4	24.5	61.5	1:1	5,000	GERC11	5.8
	KAH10-195	63	50	96	65	58	16	29	195	220	94	90	27	44	71	285.4	32	78	1:1	5,000	GERC16	6.2
	KAH13-165	63	50	96	65	60	20	30	165	193	94	90	27	44	71	258.4	35	88	1:1	5,000	GERC20	6.0
	KAH20-180	63	50	96	65	76	32	38	180	218	94	90	27	44	71	283.4	49	120	1:1	3,500	GERC32	7.5
BT50-	**KAH07-220**	100	87	114	80	40	11	20	220	240	104	90	38	57	54	341.8	24.5	61.5	1:1	3,500	GERC11	10.7
	KAH10-215	100	87	114	80	58	16	29	215	240	104	90	38	57	54	341.8	32	78	1:1	3,500	GERC16	11.0
	KAH10-260	100	87	114	80	58	16	29	260	285	104	90	38	57	54	386.8	32	78	1:1	3,500	GERC16	11.4
	KAH13-260	100	87	114	80	60	20	30	260	288	104	90	38	57	54	389.8	35	88	1:1	3,500	GERC20	12.0
	KAH20-200	100	87	114	80	76	32	38	200	238	104	90	38	57	54	339.8	49	120	1:1	3,500	GERC32	11.6
	KAH20-240	100	87	114	80	76	32	38	240	278	140	90	38	57	54	379.8	49	120	1:1	3,500	GERC32	13.5

KHU(Free angle)_Collet Type Angular Head (0°-90°)

BT-KHU



Features

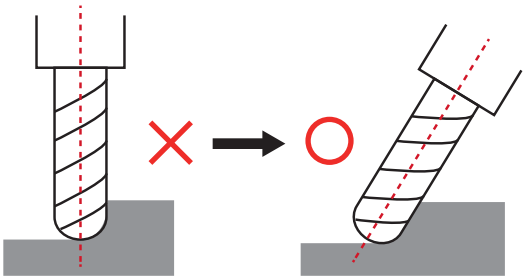
Adjustable angle-type angular head that enables flexible machining

- Wide vertical (0°~90°) and horizontal (0°~360°) machining angle range
- HSK and SK types are customizable

Precautions

» Do not inject cutting oil direct to the Angular Head body.





Wear of the ball endmill blade and defective surface roughness of the workpiece can occur, so please slope the edge of the ball endmill when machining

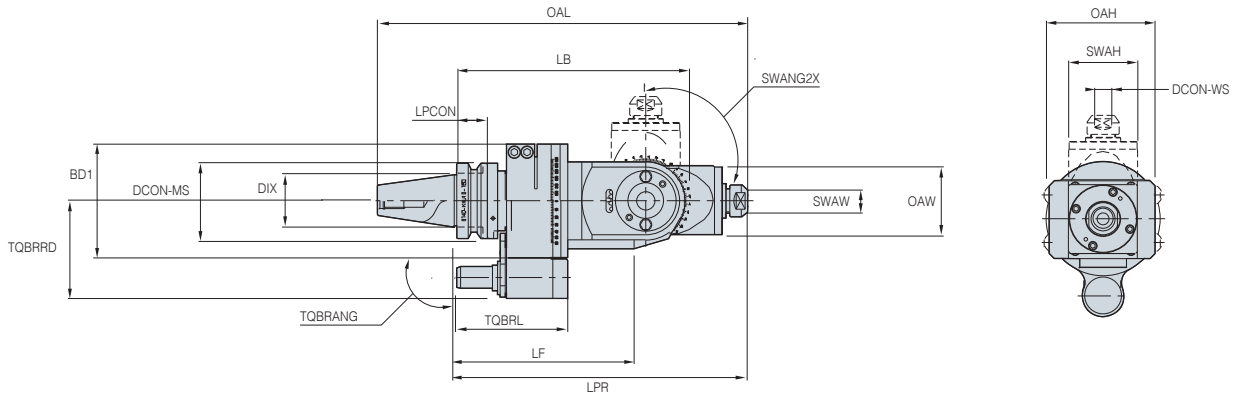
Machining Example

Model : BT50-KHU20-195

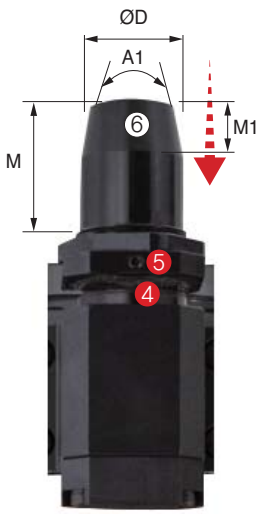
Cutting tool	Workpiece	Depth of cut	RPMX	Feed (mm/min)	Feed (mm/rev)	Cutting angle
Ø16-2 Flute Endmill(HSS), Over length-40mm	S45C	2	600	48	0.08	90°
	AL	3	1200	168	0.14	90°
	S45C	3	600	48	0.08	45°
	AL	5	1200	144	0.12	45°

Parts

Angular head	Basic		Accessories
	Nut	Spanner	GERC Collet
KHU10	R16-AH	S-25	GERC16-ØD
KHU20	RU32-AH	48-52	GERC32-ØD



Positioning Pin



Shank size	M	M1	A	ØD
BT40	Max : 32 Min : 26	10	20°	Ø19.6
BT50	Max : 35 Min : 29	15	20°	Ø28

NO	Name
①	Head
②	Rotating angle graduation (Free radius position in 360°)
③	Positioning pin part
④	Jaw key
⑤	Height control wrench hole

NO	Part name	Designation
1	Tilt Axies fixing bolt	BX0618
2	Set screw	BT0404
3	Fixing bolts	BX50630

Designation		DCON-MS	DIX	BD1	TABBRD	LF	LPR	TQBRL	TQBRANG	LB	OAL	LPCON	SWANG2X	SWAW	OAW	OAH	SWAH	DCON-WS	Torque rate (IN:OUT)	Rotation Direction versus Spindle	RPMX	Collet	lbs
BT40-	**KHU10-160**	63	54	96	65	160	247	94	90	193	312.4	27	90	58	66	90	58	16	1:2	Normal rotation	6,000	GERC16	8.3
BT50-	**KHU10-180**	100	87	114	80	180	267	104	90	213	368.8	38	90	58	66	90	58	16	1:2	Normal rotation	6,000	GERC16	11.5
	KHU20-195	100	90	114	80	195	316	104	90	242	417.8	38	90	84	94	128	84	32	1:1	Normal rotation	3,000	GERC32	17.9

Attachmaent type KAG

BT-KAG

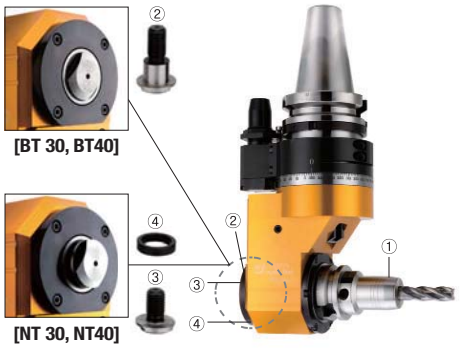


Features

- Horizontal machining angle range from 0° to 360°
- Compatible with various tools for BT40 and BT50
- HSK and SK types are customizable
- Coolant types are to be ordered separately

How to Tighten the Tool

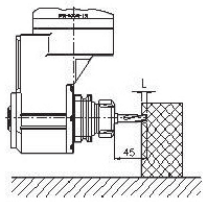
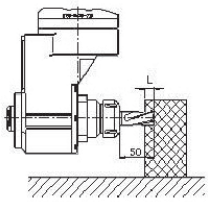
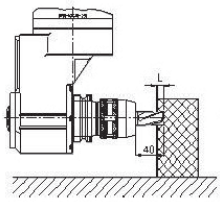
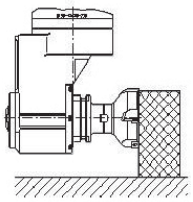
1. Insert the tool ① into the angular head spindle.
2. Tightly secure the tool ① using the fixing bolt ②· (BT type)
3. Tighten the tool ① by putting the ring ④ on the bolt ③. (NT type)

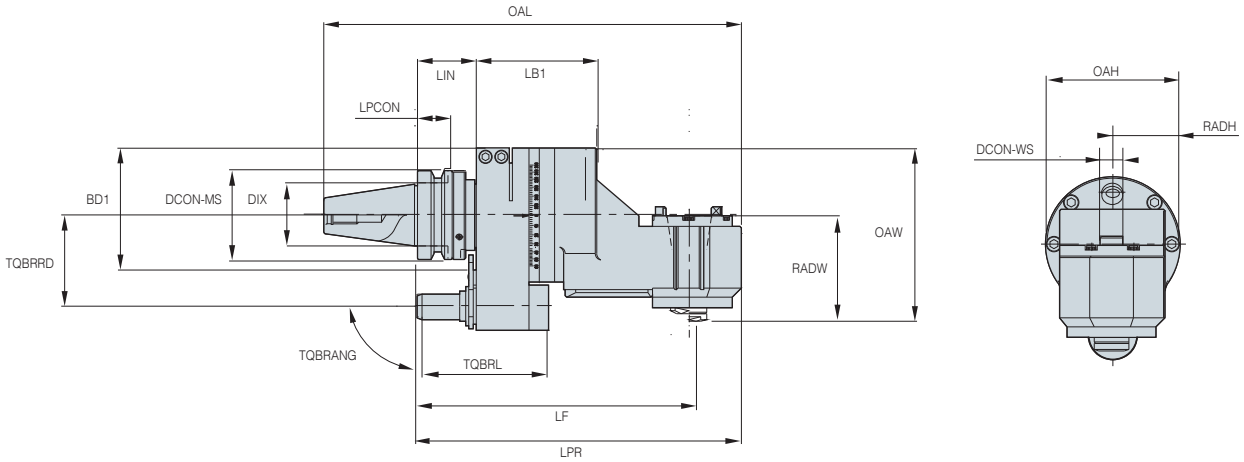


Machining Example

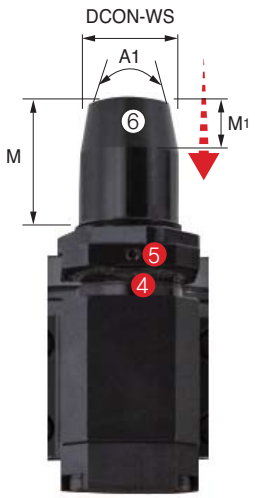
Model : BT50-KAG40-230

Cutting tool	Workpiece	Depth of cut	RPMX	Feed (mm/min)	Feed (mm/rev)
BT40-SDC20-60 Ø12-2 Flute Endmill (HSS)	S45C	3	400	72	0.09
	S45C	3	200	36	0.09
NT40-SDC20-60 Ø20-2 Flute Endmill (HSS)	S45C	4	500	50	0.05
	AL	10	1,000	100	0.05
BT40-NPM20-85 Ø20-2 Flute Endmill (HSS) over hang 40mm	S45C	3	400	72	0.09
	S45C	3	400	36	0.09
	AL	5	400	72	0.09
	AL	5	480	86	0.09
	AL	10	400	72	0.09
	AL	10	320	58	0.09
BT40-FMA25.4-45 Ø80 Shoulder mill (5 Flute-50L)	S45C	2	400	120	-
	S45C	1	200	60	-
	AL	2	600	150	-
	AL	1	600	150	-

BT40-SDC20-60 (Ø12 E/M)	NT40-SDC20-60 (Ø20 E/M)	BT40-NPM20-85 (Ø20 E/M)	BT40-FMA25.4-45 (Ø80 Shoulder Mill)
			



Positioning Pin



Shank size	M	M1	A1	ØD
BT40	Max: 32 Min: 26	10	20°	Ø19.6
BT50	Max: 35 Min: 29	15	20°	Ø28

NO	Name
①	Rotating angle graduation (Free radius position in 360°)
②	Head
③	Positioning pin part
④	Jaw key
⑤	Height control wrench hole

NO	Part name	Designation
1	Set screw	BT0404
2	Fixing bolts	BX50630
3	BT / NT Bolt	

Designation	DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LIN	LB1	LPCON
BT40- KAG30-195	63	50	96	65	195	232.5	94	90	297.9	44	86	27
	RADW		OAW		OAH	DCNWS	RADH	Gear Ratio	Rotation Direction versus Spindle	RPMX	Holder shank	lbs
	BT	NT	BT	NT								
	70	76.4	118	124.4	75	31.75	37.5	1:1	Normal Rotation	4,000	BT/NT30	7.2

Designation	DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LIN	LB1	LPCON
BT50- KAG40-230	100	87	114	80	230	276.5	104	90	378.3	57	88	38
	RADW		OAW		OAH	DCNWS	RADH	Gear Ratio	Rotation Direction versus Spindle	RPMX	Holder shank	lbs
	BT	NT	BT	NT								
	95	102	152	159	93	44.45	46.5	1:1	Normal Rotation	3,000	BT/NT40	15.7

Attachment type HRAG(Reinforced)_Attachment type

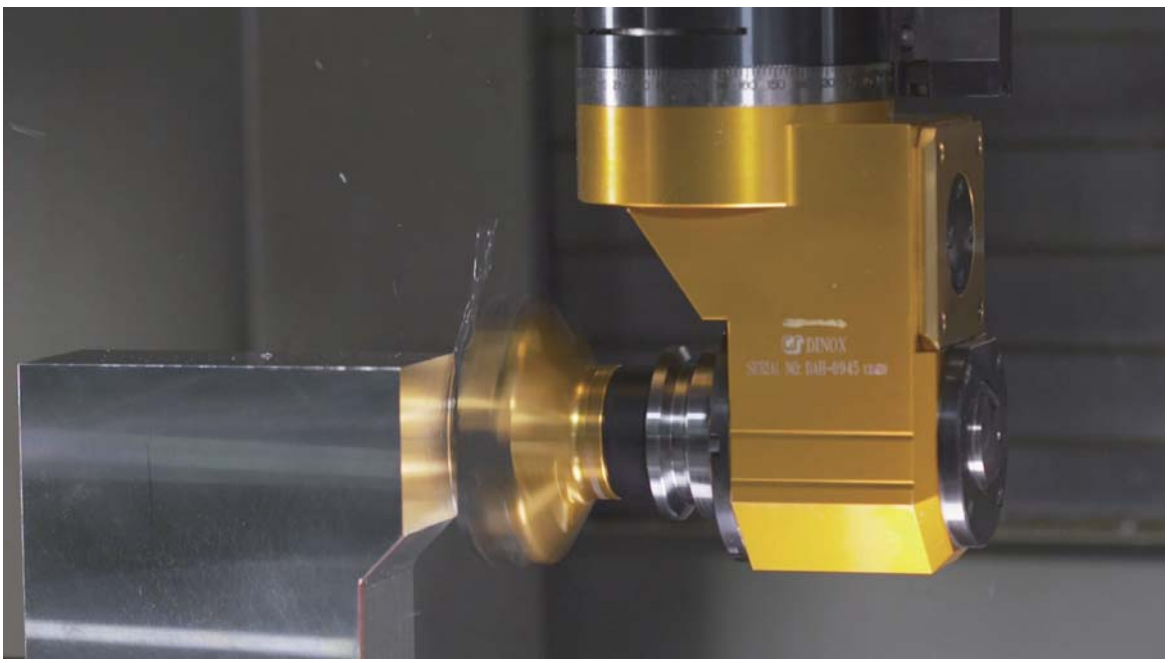
BT-HRAG

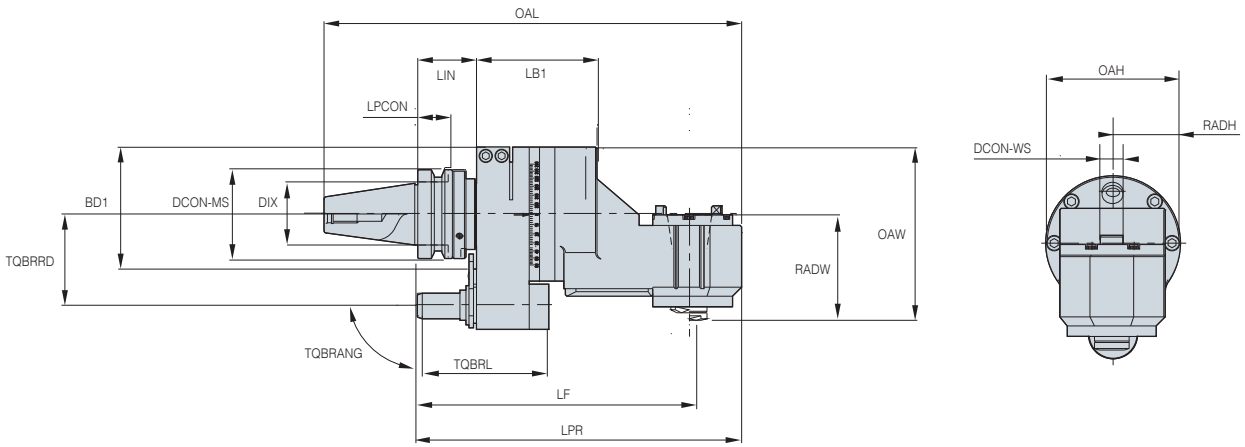


Features

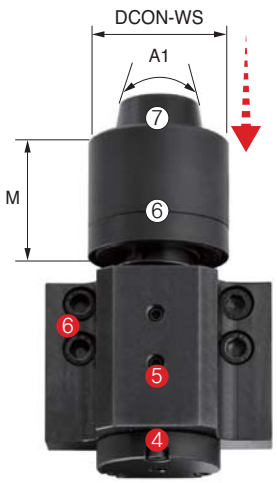
HRAG that improves the rigidity of the attachment-type bracket by 200%

- Provides stable operation of the face mill cutter
- Enhances compatibility with the machining device due to easy bracket disassembly/assembly even on the BT50 shank
- Improves product life cycle





Positioning Pin



Shank size	M	A1	ØD
BT50	56.5	20°	Ø40

NO	Name
①	Rotating angle graduation (Free radius position in 360°)
②	Head
③	Positioning pin part
④	Jaw key
⑤	Positioning ring
⑥	Positioning pin cover
⑦	Positioning pin

NO	Part name	Designation
1	Head fixed bolts	BX0660
2	Positioning ring set screw	MSST5-12
3	Rotating angle graduation screw	BT0648
4	Positioning pin height control bolt	BT0516
5	Positioning pin set screw	BT0512
6	Body position block set screw	BT0516
7	BT/NT Bolt	

Designation		DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LIN	LB1	LPCON
BT50-	**HRAG40-230**	100	88	136	80	230	276.5	103	90	378.3	57	88	38
		RADW		**OAW**		**OAH**	**DCNWS**	**RADH**	**RPMX**	**Holder shank**			**lbs**
		BT	**NT**	**BT**	**NT**								
		95	102	163	170	93	44.45	46.5	3000	BT/NT40			18.2

Rigidity-reinforced Side Lock type MAH (reinforced series)/Angle Adjustment

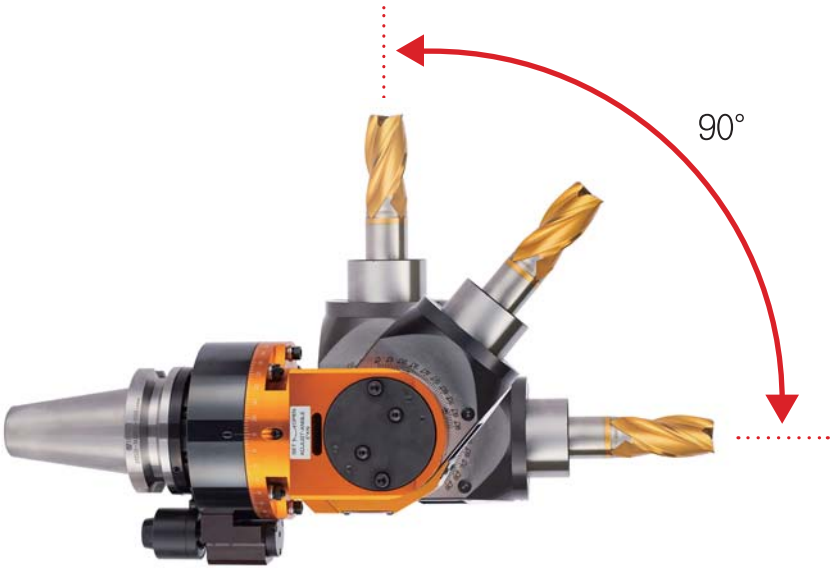
BT-MAH

Features

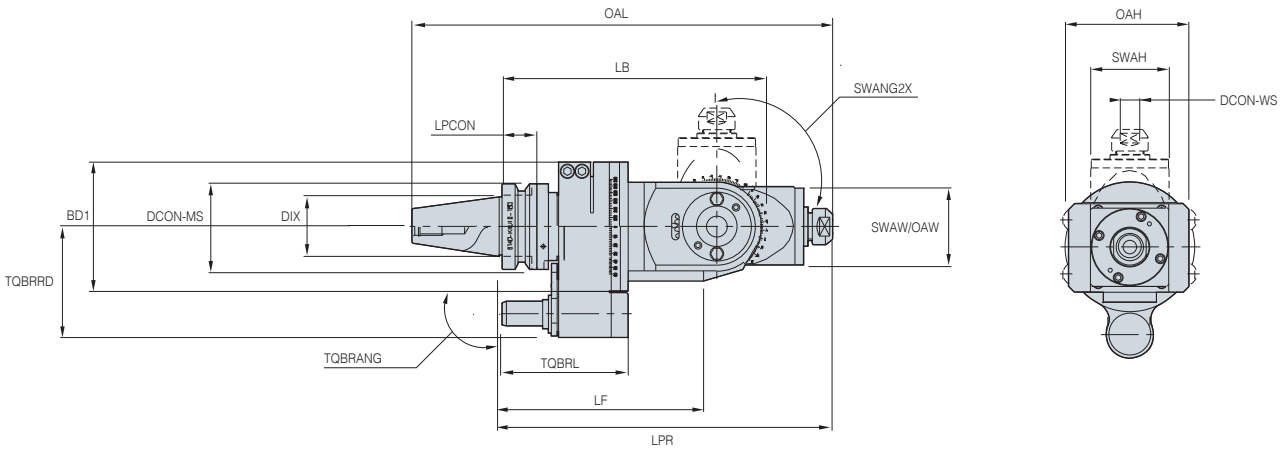
MAH for Mold Machining

MAH ideal for mold machining by improving the performance of conventional universal type products

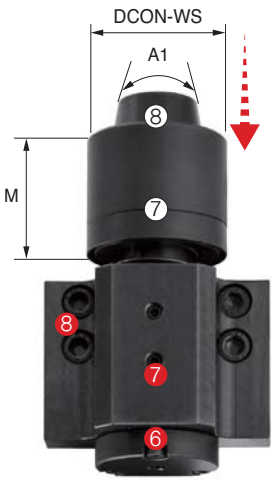
- Stability on large mold machining
- Tool diameter (D) 32mm ball endmill usable







Positioning Pin



Shank	M	A1	ØD
BT50	56.5	20°	Ø40

NO	Name
①	Inclination angle gradation (Axial positioning in 0°~90°)
②	Rotating angle graduation (Free radius position in 360°)
③	Head
④	Positioning pin part
⑤	Jaw key
⑥	Positioning ring
⑦	Positioning pin cover
⑧	Positioning pin

NO	Part name	Designation
1	Inclination angle gradation screw	BT1216
2	Head fixed bolts	BT0645
3	Rotating angle graduation screw	BT0640
4	Positioning ring set screw	MSST5-12
5	Tilt Axies fixing bolt	BH0616
6	Positioning pin height control bolt	BT0516
7	Positioning pin set screw	BT0512
8	Body position block set screw	BX0516

Designation	DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LB	LPCON
BT50- MAH32-200	100	55	136	80	200	325	103	90	426.8	247	38
	SWANG2X		SWAW / OAW		OAH	SWAH	DCON-WS	RPMX	Install tool		lbs
	90		95		154	95	32	3,000	SIDE LOCK		19.6

KAC(45° type)_Fixed Angle-type

BT-KAC

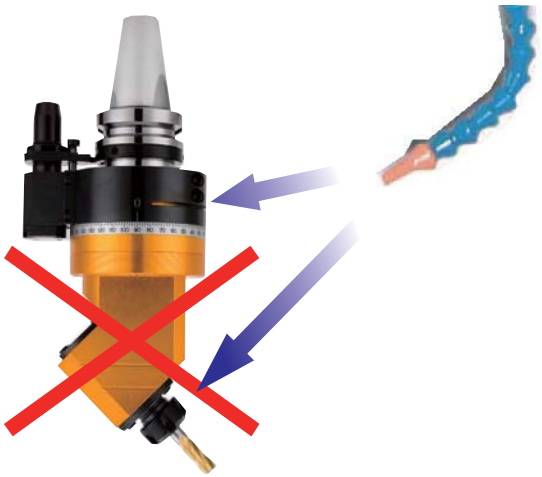
Features

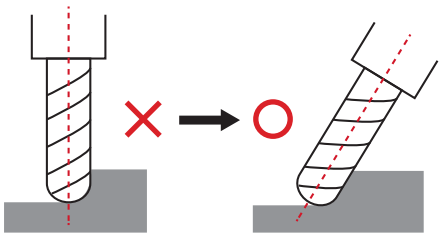
Fixed angle type angular head that enables flexible machining

- Adjustable angle up to 360 degree
- 45-degree fixed type angular head
- For BT40 types, please contact us separately

Precautions

» Do not inject cutting oil direct to the Angular Head body.

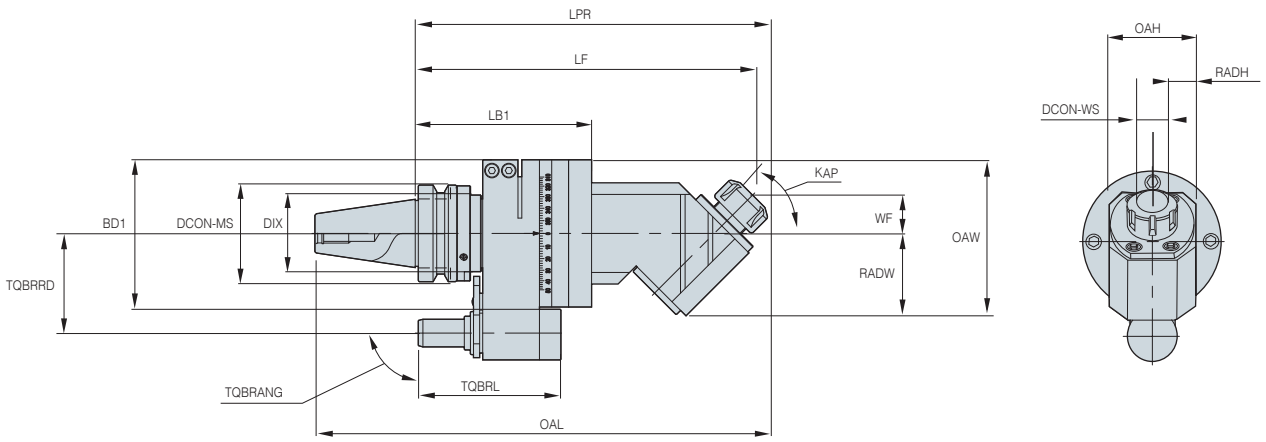




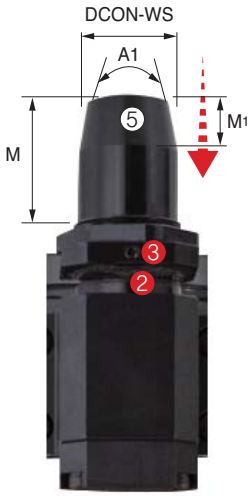
Be sure to give a slope to the cutting edge of a ball end mill when machining it as the ball end mill edge is worn out and the surface roughness of the workpiece becomes defective.

Parts

Angular head	Basic		Accessories
	Nut	Spanner	GERC Collet
KAC10	R16-AH (M20)	S-25	GERC16-ØD
KAC10	RU20-AH	35-38	GERC20-ØD
KAC20	RU32-AH	48-52	GERC32-ØD



Positioning Pin



Shank	M	M1	A	DCON-WS
BT40	Max : 32 Min : 26	10	20°	Ø19.6
BT50	Max : 35 Min : 29	15	20°	Ø28

NO	Name
①	Head
②	Rotating angle graduation (Free radius position in 360°)
③	Positioning pin part
④	Jaw key
⑤	Height control wrench hole

NO	Part name	Designation
1	Head fixing bolts	BX0618
2	Set screw	BT0404
3	Fixing bolts	BX0630

Designation		DCON-MS	DIX	BD1	TQBRRD	OAL	TQBRL	TQBRANG	LPR	LF	LB1	OAW	WF	RADW	KAP	OAH	DCON-WS	RADH	RPMXX	Collet	lbs
BT50-	**KAC10-240**	100	87	114	80	350.8	104	90	249	240	111	102	25	54	45	60	16	30	5,000	GERC16	9.7
	KAC13-240	100	87	114	80	352.8	104	90	251	240	111	102	25	54	45	60	20	30	5,000	GERC20	10.7
	KAC20-250	100	87	114	80	367.8	104	90	266	250	111	108	30	60	45	72	32	36	3,500	GERC32	11.7

Slim Angular Head

BT-SAH

- Angular head for narrow inside boring
  (min. inner diameter of workpiece: Ø40, min. boring width: 32 mm)
- MAX 3,500 RPM, Spindle: applied rotation ratio = 1:1.37
- Boring range: Ø3, Ø4, Ø6



Code system

BT50	-	SAH	6	-	10
Spindle		Slim Angular head	Tool diameter		Length

Machining Features

Min. Ø40 Hole (except tool projection)	Min.32mm gap (except tool projection)
	

Clamping Force

Division	Measurement	Measured value (N-m)			
Clamp torque	2	2.5	3	3.5	4
Clamping Force	Not measurable	5.5	6.5	7	7

※ The moderate clamp torque of collet is 3.5N-m.

Exclusive collet

Designation	Clamping range	Stock
SAH6-C3	3	•
SAH6-C4	4	•
SAH-C6	6	•

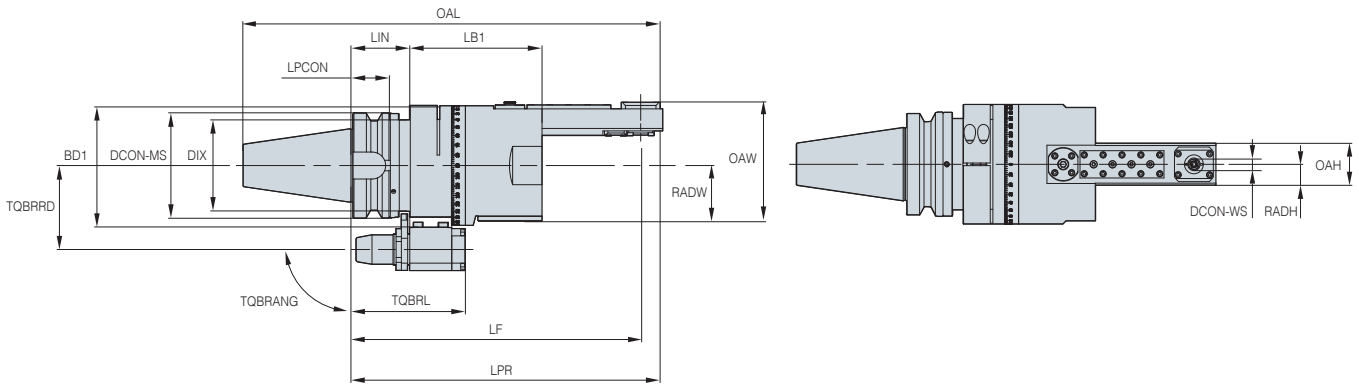
● : Stock item



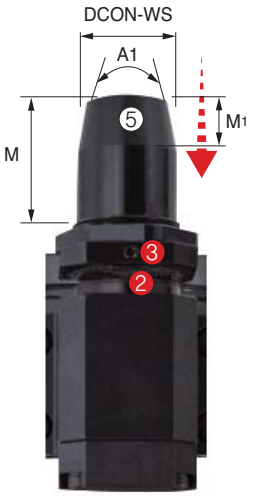
How to clamp



01. Couple the tool with SAH dedicated collet
02. Insert the coupled tool into SAH and fix it with a dedicated tightening jig
03. Turn the bolt using a hexagonal wrench



Positioning Pin



Shank	M	M1	A	DCON-WS
BT50	Max : 35 Min : 29	15	20°	Ø28

NO	Name
①	Head
②	Rotating angle graduation (Free radius position in 360°)
③	Positioning pin part
④	Jaw key
⑤	Height control wrench hole

NO	Part name	Designation
1	Head fixing bolts	BX0618
2	Set screw	BT0404
3	Fixing bolts	BX0630

Designation	DCON-MS	DIX	BD1	TQBRRD	LF	LPR	TQBRL	TQBRANG	OAL	LIN	LB1	LPCON	OAW	RADW	OAH	DCON-WS	RADH	Rotation ratio (IN:OUT)	Rotation direction	RPMXX	lbs
BT50-SAH6-277	100	87	114	80	277	298	104	90	399.8	57	126	38	113	53	40	10	20	1:1.37	CW:CW	3,500	15.2

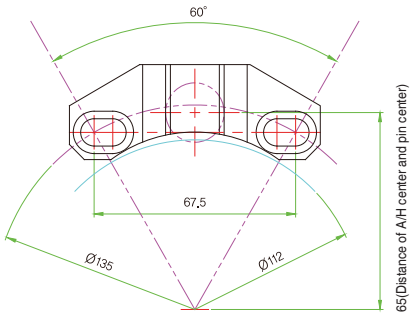
Positioning Block (For BT40)

POSITIONING BLOCK

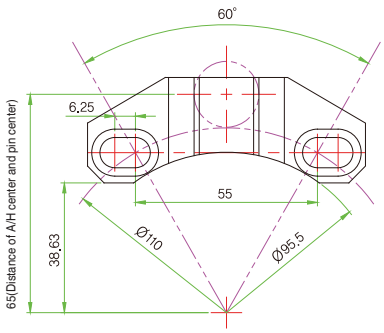
How to install the positioning block on the machine

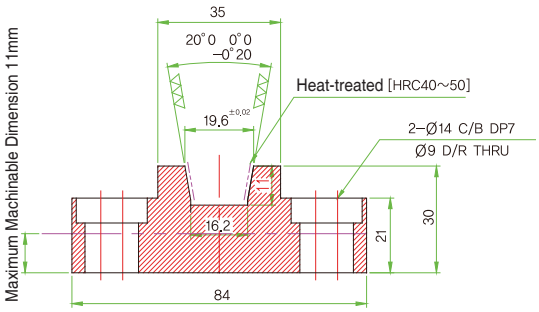
BT40 Customer Standard type - Group A (60° Standard type)

- In case Min. PCD=110mm
- Spindle diameter less than Ø94 available
- Keep the minimum distance 55mm between bolts



- In case Max. PCD=135mm
- Spindle diameter less than Ø112 available
- Keep the minimum distance 67.5mm between bolts

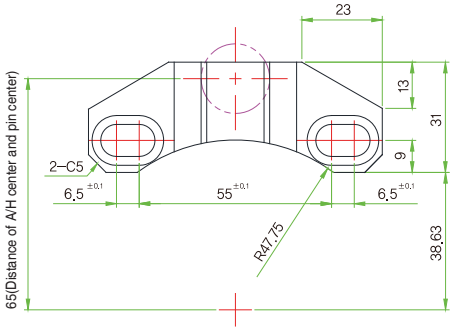


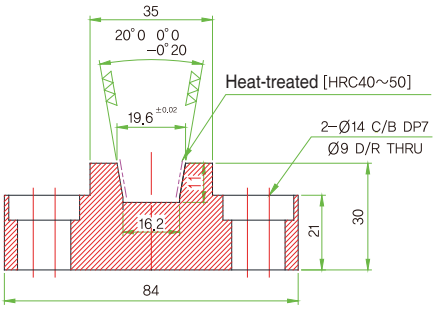


- Semi-finishing : Requires Block Height Machining
- The customer must machine the bottom of the block in person to use after determining the block height

※ Minimum block height : 19mm (based on the upper side)

- Only the taper part to be heat-treated
- Based on M10 in the case of less than M8, washer can be supplied





DINE Inc, provides the positioning block type as default. (Excluding BT30 Angular Head)

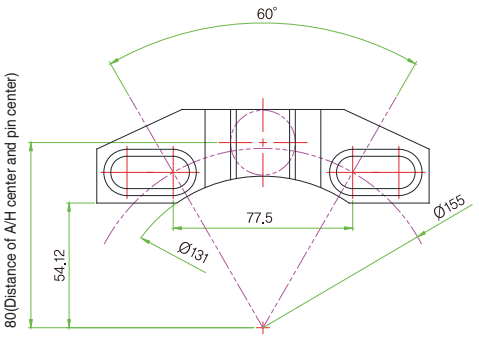
Positioning Block (For BT50)

POSITIONING BLOCK

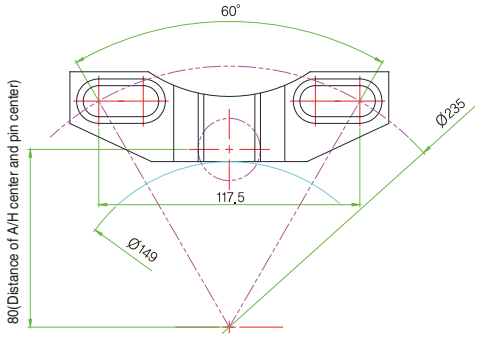
How to install the positioning block on the machine

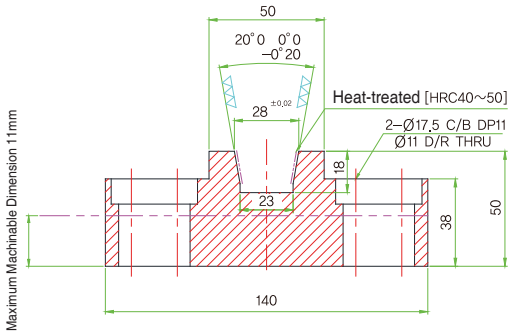
BT50 Customer Standard type - Group A (60° Standard type)

- In case Min. PCD=155mm
- Spindle diameter less than Ø130 available
- Keep the minimum distance 77.5mm between bolts



- In case Max. PCD=235mm
- Spindle diameter less than Ø148 available
- Keep the minimum distance 117.5mm between bolts

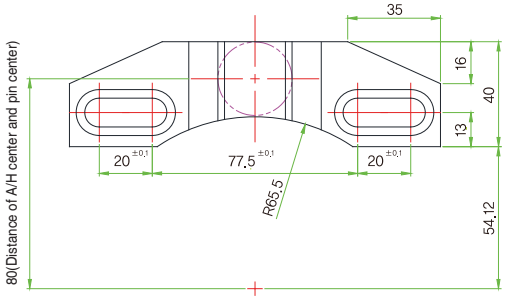


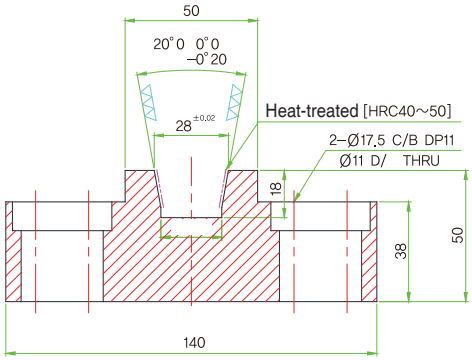


- Semi-finishing : Requires Block Height Machining
- The customer must machine the bottom of the block in person to use after determining the block height

※ Minimum block height : 28mm (based on the upper side)

- Only the taper part to be heat-treated
- Based on M10 in the case of less than M8, washer can be supplied





DINE Inc, provides the positioning block type as default. (Excluding BT30 Angular Head)

Air Turbine Machine

ATM



Code system

BT50	-	ATM	6	228	-	(ATC)
Spindle		Air Turbine Machine	Tool diameter	Length		ATC : Auto Tool Change Type NON : General

Features

- High-speed turbine rotation structure using compressed air (max. 50,000rpm)
- The conventional MCT can be compatible just by supplying high-pressure compressed air
- High-speed/precision machining is available regardless of the machine's age
- Continuous machining is possible for a long time due to rapid heat discharge

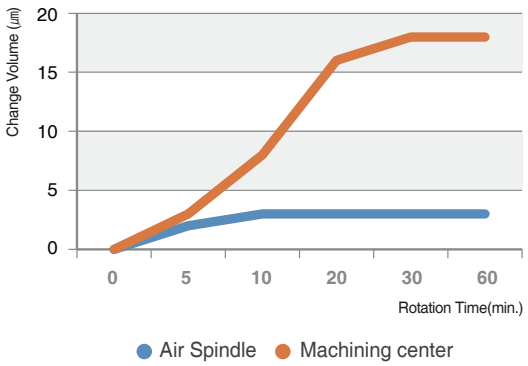
What is Air Spindle?

The air spindle is able to rotate at a high-speed (50,000 RPM) using compressed air, and realize performance the same as that of a high-speed processor even in a standard (conventional) machining center

Thermal Deformation Protection

- It prevents an increase in temperature of the spindle using an air blade rotation method
- Prevents the deformation of the Z-axis by thermal deformation of the spindle

Z-axis Change with Rotation Time



Part Name

AIR SPINDLE



General type



How to Use

- Use in an equipment able to spray air on the main axis
- Able to perform ATC as there is no external air hose to be connected

Precautions

- When spraying the air on the main axis, be careful about introduction of foreign



How to Use

- Connect an external air hose
- Connect it directly to the regulator and minimize the introduction of foreign substances

Precautions

- Must separate the hose from the product in case of ATC
- Be careful when the main axis rotates

Auto Tool Change type



How to Use

- It is able to perform ATC and equipment rotation even on equipment with no air main
- The air is supplied on the Positioning Block, so ATC and equipment spindle rotation is possible
- The main axis can rotate at a low-speed, and the tool length can be corrected

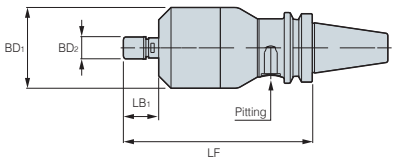
Processing Test

Air spindle has a shank and a body in a prefabricated shape, so the shank (BT30, BT40, BT50, HSK63A) can be easily adapted to different types of equipment

Equipment	Air Spindle <HSK63A-ATM6-170>	Machining center <Hydraulic Chuck>
Materials	SCM440 (HRC40)	SCM440 (HRC40)
RPM	50,000	20,000
Cycle Time	146 min.	276 min.
Axial-directional Displacement	5㎛	21㎛
Surface Roughness		
Note	Improved processing speed and surface roughness	Lowered surface roughness and tool life

BT-ATM

Air Spindle General type



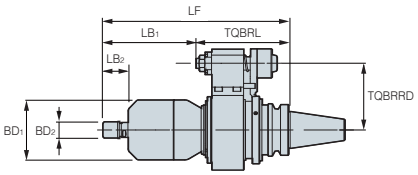
(mm)

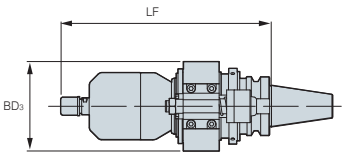
Designation		BD1	BD2	LF	LB1	RPM (Based on 2 Bar of Regulator)	Pitting
BT30	ATM6-176	72	19.5	176	31.5	MAX 50,000	PC12-02
BT40	ATM6-171	72	19.5	171	31.5	MAX 50,000	PC12-02
BT50	ATM6-182	72	19.5	182	31.5	MAX 50,000	PC12-02

• This product does not support the internal coolant system

M This is metric size. We can also provide in inch type

Air Spindle ATC type





(mm)

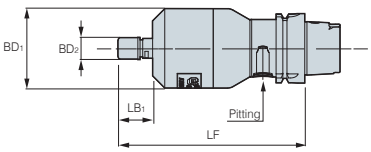
Designation		BD1	BD2	BD3	LF	TQBRL	LB1	LB2	TQBRRD	RPM (Based on 2 Bar of Regulator)
BT40	ATM6-227(ATC)	72	19.5	96	227	114	113	32	80	MAX.50,000
BT50	ATM6-228(ATC)	72	19.5	96	228	115	113	32	80	MAX.50,000

• This product does not support the internal coolant system

M This is metric size. We can also provide in inch type

HSK-ATM

Air Spindle General type



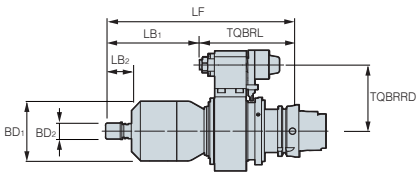
(mm)

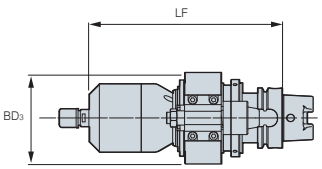
Designation		BD1	BD2	LF	LB1	RPM (Based on 2 Bar of Regulator)	Pitting
HSK63A	ATM6-170	72	19.5	170	31.5	MAX 50,000	PC12-02

• This product does not support the internal coolant system

M This is metric size. We can also provide in inch type

Air Spindle ATC type





(mm)

Designation		BD1	BD2	BD3	LF	TQBRL	LB1	LB2	TQBRRD	RPM (Based on 2 Bar of Regulator)
HSK63A	ATM6-235(ATC)	72	19.5	96	235	122	113	32	80	MAX.50,000

• This product does not support the internal coolant system

M This is metric size. We can also provide in inch type

Air Spindle Related Parts

ATM(U) SPARE PART

Basic



(ATM)



(ATU)

Parts

Basic					
Images					
Components	Air Spindle	Air Regulator	Fitting	Spanner	Nut
Quantity	1	1	2	1	1

Type	AIR SPINDLE					
Spec	ATM(U)6 (BT30,40,50,HSK63A)				ATM	ATU
ATM components	No	Classification	Name	Designation	Quantity	Quantity
	1	Basic Specifications	ATM(U)6	□□□-ATM(U)6-□□□	1	1
	2		NUT	GN-06	1	1
	3		Regulator	TPC PP3-03BG	1	1
	4		Fitting	PC12-02	1	-
	5			PC12-03	1	2
	6		Spanner	GSK6-SPANNER	1	1
	7			S16 SPANNER	1	1
	8			S17 SPANNER	-	1
	9		Wrench	LW-1.5	-	1
	10			LW-2.5	-	1
	11			LW-3.0	-	1
	12			LW-6.0	-	1

Parts (Accessories)

Designation	Image	ØD1	L	MAX ØD	Distance
HC6ØD(P)		10.5	25	6	1

Positioning Block


Angle Adjustment Air Spindle (Universal type)

ATU



Code system

BT50	-	ATU	6	-	155
Spindle		Air Turbine Universal	Tool diameter		Length

Features

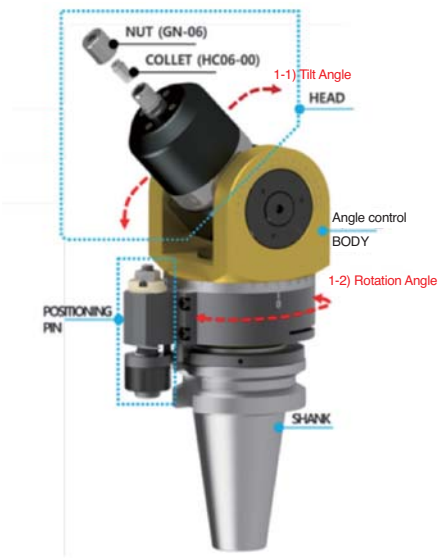
- Air spindle is applicable to multi-axis machining by adjusting the angle
- Air injection method can be selected (positioning pin or equipment main axis)
- ATC device is available

Product Structure and Characteristics

1) Angle Control

1-1) Tilt Angle: -90° ~ +90°

1-2) Rotation Angle: 0° ~ 360°

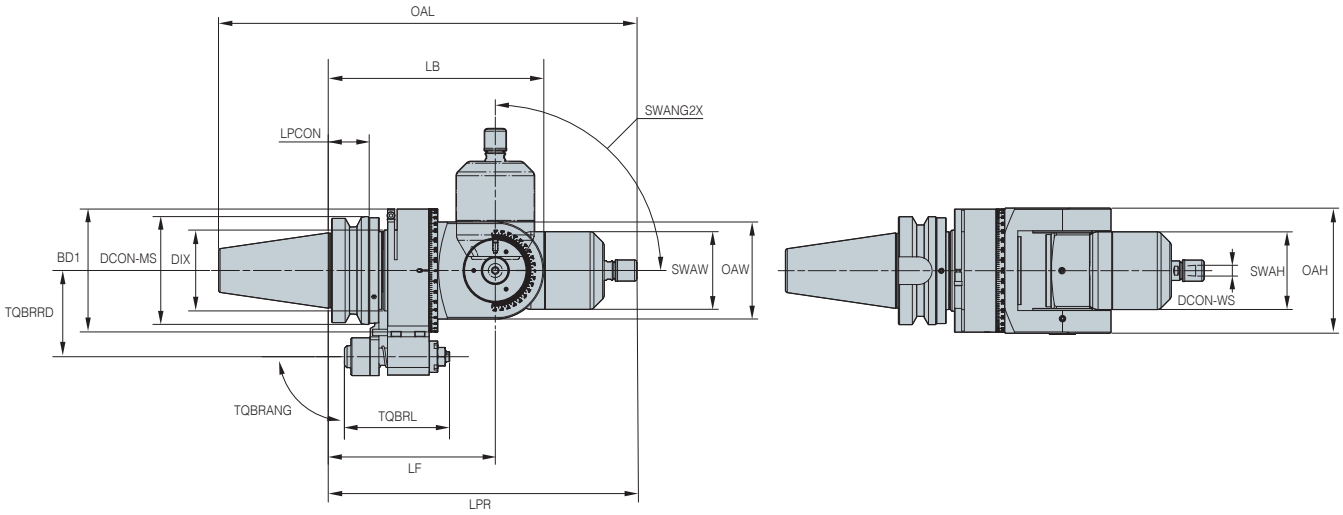


2) Air Injection Method

2-1) External air method

2-2) Equipment main axis method





Designation	DCON-MS	DIX	BD1	TQBBRD	LF	LPR	TQBRL	TQBRANG
BT50-ATU6-155	100	75	114	80	155	286.5	97.5	90

LB	OAL	LPCON	SWANG2X	SWAW	OAW	OAH	SWAH	DCON-WS
200	388.3	38	90	Ø72	90	116	Ø72	10

1. When using it, never rotate the main axis
2. Proper air pressure is based on the Max. RPM and a maximum of 50,000 RPM is available for both external air and main spindle method at approximately 3 bar of pressure
3. ATC is available

KORLOY Anti-Vibration tool

KORLOY Damping Pro

DAMPING PRO
Anti-Vibration Tool

- The application of a special design provides an excellent Anti-Vibration effect and is optimized for Overhang work
- Capable to elevate Feed comparing to standard arbor with stable machining
- Longer tool life and noise decrease
- Provides a solution for Mold, Deep Cavity machining, and Heavy-duty work

Code system

KDP	-	BT50	-	FMA25.4	-	260
KORLOY Damping Pro		**Arbor Taper** BT Type HSK Type SK Type		**FMA** : JIS B4113 Face milling **FMB** : T-MAX Face milling/Shoulder Cutter **FMC** : T-MAX Face milling/Shoulder Cutter		**Length of gauge line**

Features



- **Anti-Vibration:** Exclusively designed Anti-Vibration structure
- **Material**: Special alloy steel
- **Anti-Vibration body:** Application of high density damper
- **Overhang:** Capable for 2D~5D
- **Coolant:** Inner coolant is capable

BT type



HSK type



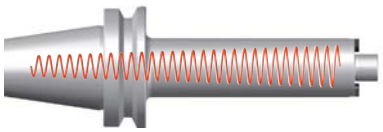
SK type

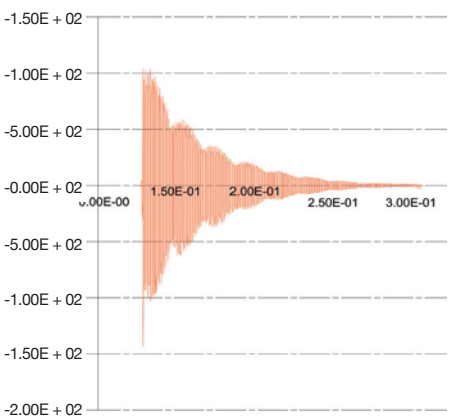


[Various types and sizes are applicable]

Comparison of vibration damping time

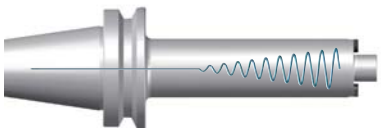
Standard Arbor

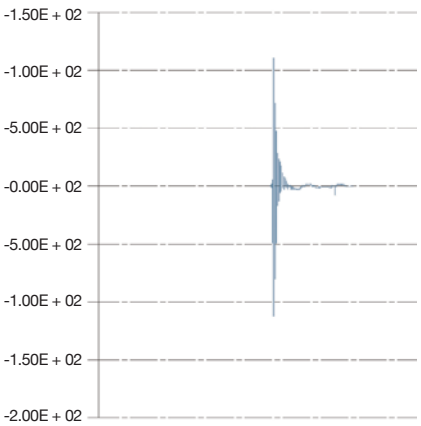




Longer Vibration damping time/
Chattering is caused while Overhang work

KORLOY Damping Pro





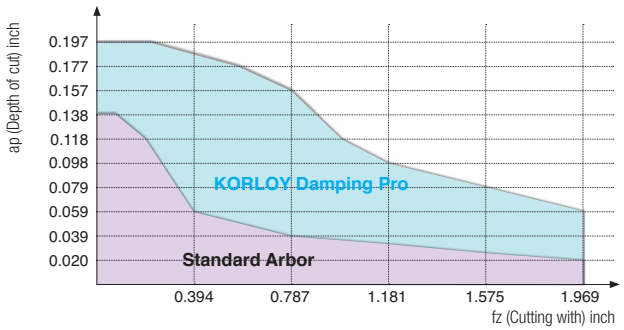
Short Vibration damping time/
Performance is 2~3 times better than standard arbor

Performance evaluation

Cutting condition fz (ipt) = 0.004, vc (sfm) = 328

Cutter AMC4063HS, 6flute

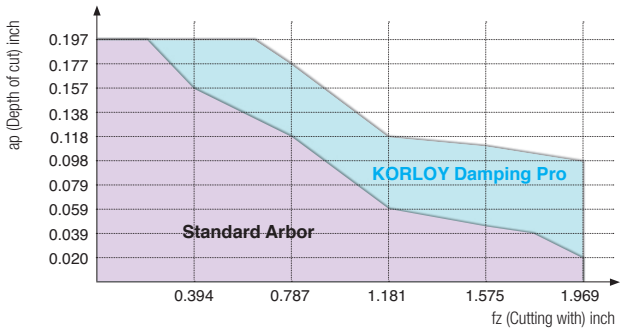
Arbor
- BT50-FMC22-210 (Standard arbor)
- KDP-BT50-FMC22-210 (Damping pro)



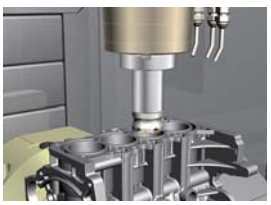
Cutting condition fz (ipt) = 0.004, vc (sfm) = 328

Cutter FMRC3063HRD-H, 6flute

Arbor
- BT50-FMC22-210 (Standard arbor)
- KDP-BT50-FMC22-210 (Damping pro)



Application examples

Mold machining	Side milling cutter machining	Facing for long depth	Deep-hole Boring machining
			
Better productivity than general arbor	Excellent performance in the deep grooving	Better productivity and surface roughness than general arbor	Better surface roughness and machinability than general arbor

Side milling cutter machining example

- Faulty occurrence on size and surface roughness by the vibration, when use the general arbor
- **Using DAMPING PRO, good size and surface roughness**



■ General arbor

Cutting condition

vc (sfm) = 164
fz (ipt) = 0.039
ae (inch) = 0.787

■ KORLOY Damping Pro

Cutting condition

vc (sfm) = 328
fz (ipt) = 0.039
ae (inch) = 0.787

Big size Crankshaft machining example

- General arbor: ap = 0.079 inch
- KORLOY DAMPING PRO: ap = 0.157 inch available
- **2 times better productivity**



■ General arbor

Cutting condition

vc (sfm) = 328
fz (ipt) = 0.045
ap (inch) = 0.079

■ KORLOY Damping Pro

Cutting condition

vc (sfm) = 328
fz (ipt) = 0.045
ap (inch) = 0.157

CAT-FMA



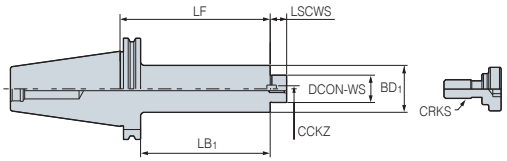


Fig. 1

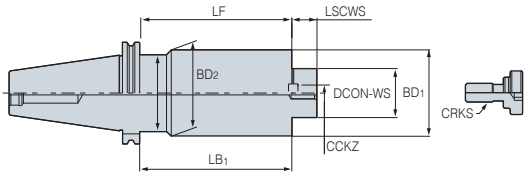


Fig. 2

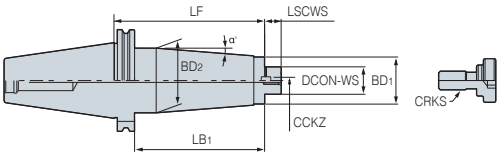
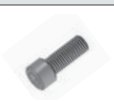


Fig. 3

inch

Designation		Cutter dia.	DCON-WS	LF	LB1	BD1	BD2	ØC2	LSCWS	CRKS	lbs	Fig.	α°
KDP-CAT40-	FMA0.75-8	2.5	0.75	8	7.25	1.75	-	-	0.69	3/8-24UNF	7.5	1	-
	FMA1-8	3	1	8	7.25	2.25	-	-	0.69	1/2-20UNF	10.54	2	-
KDP-CAT50-	FMA1-8	3	1	8	7.25	2.25	-	2.759	0.69	1/2-20UNF	18.3	3	2
	FMA1-10	3	1	10	9.25	2.25	-	2.759	0.69	1/2-20UNF	21.65	3	1
	FMA1.25-8	4	1.25	8	7.25	3	-	2.759	0.75	5/8-18UNF	20.72	3	1
	FMA1.25-10	4	1.25	10	9.25	3	-	2.759	0.75	5/8-18UNF	24.03	3	1

Parts

Basic					For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts					

BT-FMA



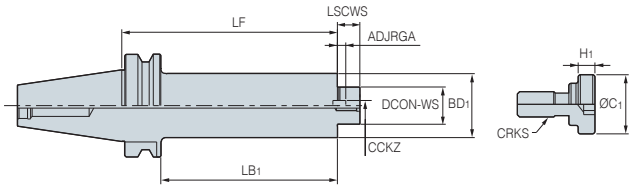


Fig. 1

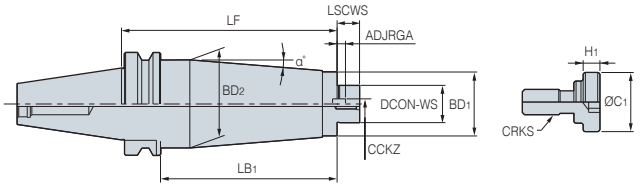


Fig. 2

inch

Designation		Cutter dia.	DCON-WS	LF	LB1	BD1	BD2	LSCWS	CRKS	lbs	Fig.	α°
KDP-BT40 -	FMA1-8	3	1	8	6.937	2.25	-	0.69	1/2-20UNF	11.95	1	-
	FMA1-10	3	1	10	8.937	2.25	-	0.69	1/2-20UNF	14.33	2	-
KDP-BT50 -	FMA1-8	3	1	8	6.504	2.25	3	0.69	1/2-20UNF	21.23	2	4
	FMA1-10	3	1	10	8.504	2.25	3	0.69	1/2-20UNF	26.01	2	3
	FMA1.25-8	4	1.25	8	6.771	3	3.3	0.75	5/8-18UNF	28	2	1
	FMA1.25-10	4	1.25	10	8.504	3	3.3	0.75	5/8-18UNF	31.31	2	1

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMA25.4	K9.5 (B)	MBA-M12	BX0412	BX1225	LW-10
FMA31.75	K12.7 (D)	MBA-M16	BX0515	-	LW-14

BT-FMC



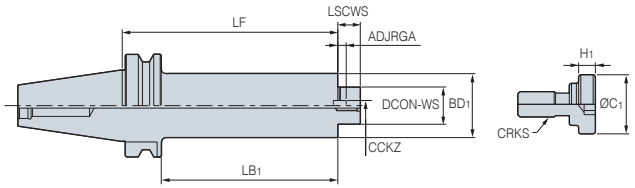


Fig. 1

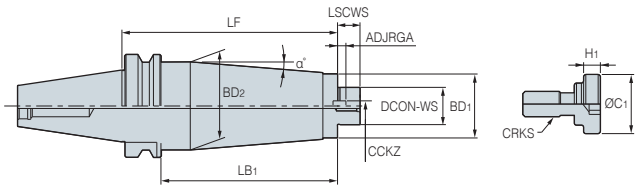


Fig. 2

(mm)

Designation		DC	DCON-WS	LF	LB1	BD1	BD2	LSCWS	CCKZ	ADJRGA	CRKS	lbs	Fig.	α°
KDP-BT40 -	FMC16-160	40	16	160	133	38	-	17	8	5	M8	2.45	1	-
	FMC22-210	50/63	22	210	183	48	4.95	19	10	5.6	M10	4.37	2	0.1
	FMC22-260	50/63	22	260	233	48	60	19	10	5.6	M10	6.3	2	1.5
	FMC27-210	80	27	210	183	60	-	21	12	6.3	M12	6	1	-
	FMC27-260	80	27	260	233	60	-	21	12	6.3	M12	7.25	1	-
KDP-BT50 -	FMC16-171	40	16	171	133	38	-	17	8	5	M8	5.1	1	-
	FMC22-210	50/63	22	210	172	48	49.5	19	10	5.6	M10	7.3	2	0.1
	FMC22-260	50/63	22	260	222	48	62	19	10	5.6	M10	10	2	1
	FMC27-210	80	27	210	172	60	78	21	12	6.3	M12	10.6	2	2.5
	FMC27-260	80	27	260	222	60	78	21	12	6.3	M12	12.6	2	2
	FMC27-320	80	27	320	282	60	78	21	12	6.3	M12	14.8	2	1
	FMC32-210	100	32	210	172	78	-	24	14	7	M16	11.7	1	-
	FMC32-260	100	32	260	222	78	-	24	14	7	M16	14.2	1	-
	FMC32-330	100	32	330	292	78	-	24	14	7	M16	16.6	1	-

- The A type is for JIS B4113 Face milling
- The B type and C type are arbors for T-MAX Face Milling and shoulder cutter
- The weight (kg) shown in the chart does not include the weight of face cutter
- Key and screw are clamped
- Wrench is separately sold

M This is metric size. We can also provide in inch type

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMC16	K8.0(A)	-	BX0310	BX0820	LW-6
FMC22	K10.0(C)	-	BX0412	BX1030	LW-8
FMC27	K12.0	MBA-M12	BX0616	-	LW-10
FMC32	K14.0	MBA-M16	BX0820	-	LW-14

HSK-FMA



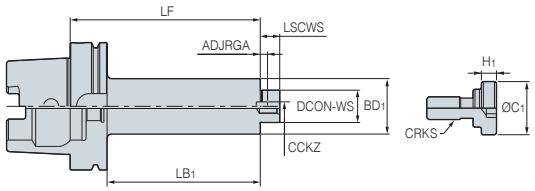


Fig. 1

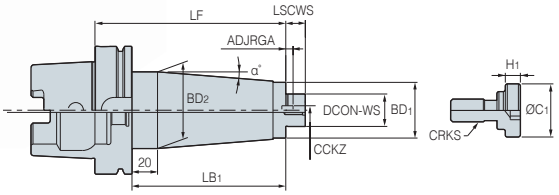


Fig. 2

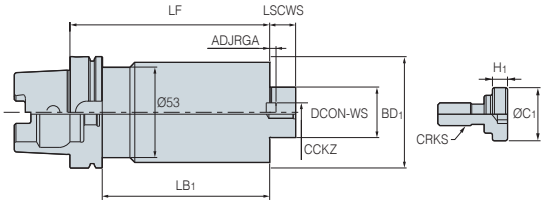


Fig. 3

inch

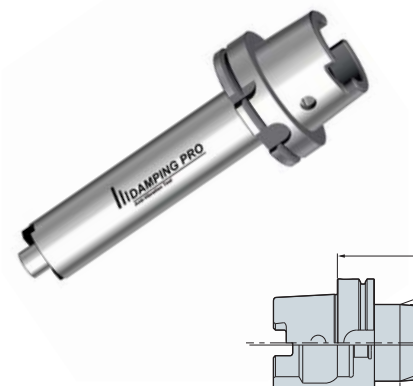
Designation		Cutter dia.	DCON-WS	LF	LB1	BD1	BD2	ØC2	LSCWS	CRKS	lbs	Fig.	α°
KDP-HSK63 -	FMA1-8	3	1	8	6.976	2.25	2.08	-	0.69	1/2-20UNF	10.8	1	0.1
	FMA1-10	3	1	10	5.791	2.25	2.08	-	0.69	1/2-20UNF	12.99	1	0.1
KDP-HSK100 -	FMA1-8	3	1	8	6.858	2.25	-	3	0.69	1/2-20UNF	18.34	2	3
	FMA1-10	3	1	10	8.858	2.25	-	3	0.69	1/2-20UNF	22.05	2	2
	FMA1.25-8	4	1.25	8	6.858	3	-	3.3	0.75	5/8-18UNF	24.87	2	1
	FMA1.25-10	4	1.25	10	8.858	3	-	3.3	0.75	5/8-18UNF	29.94	2	1

• Key and screw are clamped • Wrench is separately sold

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMA25.4	K9.5(B)	MBA-M12	BX0412	BX1230	LW-10
FMA31.75	K12.7(D)	MBA-M16	BX0515	-	LW-14

HSK-FMC



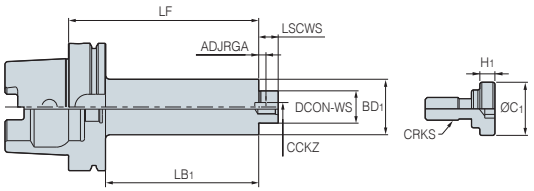


Fig. 1

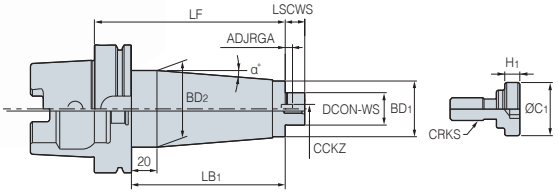


Fig. 2

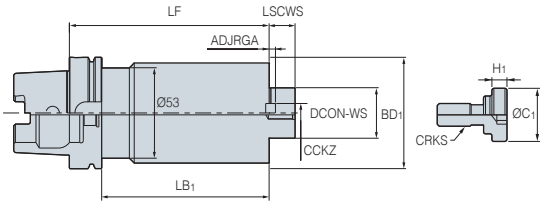


Fig. 3

(mm)

Designation		DC	DCON-WS	LF	LB1	BD1	BD2	LSCWS	CCKZ	ADJRGA	CRKS	lbs	Fig.	α°
KDP-HSK63 -	FMC16-160	40	16	160	134	38	-	17	8	5	M8	2.10	1	-
	FMC22-210	50/63	22	210	184	48	4.95	19	10	5.6	M10	3.82	1	0.1
	FMC22-260	50/63	22	260	234	48	62	19	10	5.6	M10	6.14	3	1.6
	FMC27-210	80	27	210	184	60	-	21	12	6.3	M12	5.53	2	-
	FMC27-260	80	27	260	234	60	-	21	12	6.3	M12	6.83	2	-
KDP-HSK100 -	FMC16-160	40	16	160	131	38	-	17	8	5	M8	3.45	1	-
	FMC22-210	50/63	22	210	181	48	49.5	19	10	5.6	M10	4.60	3	0.1
	FMC22-260	50/63	22	260	231	48	62	19	10	5.6	M10	8.10	3	1
	FMC27-210	80	27	210	181	60	78	21	12	6.3	M12	8.44	3	2.5
	FMC27-260	80	27	260	231	60	78	21	12	6.3	M12	10.40	3	2
	FMC27-320	80	27	320	291	60	78	21	12	6.3	M12	13.60	3	1
	FMC32-210	100	32	210	181	78	-	24	14	7	M16	10.20	1	-
	FMC32-260	100	32	260	231	78	-	24	14	7	M16	13.00	1	-
	FMC32-330	100	32	330	301	78	-	24	14	7	M16	15.43	1	-

- The A type is for JIS B4113 Face milling
- The B type and C type are arbors for T-MAX Face Milling and shoulder cutter
- The weight (kg) shown in the chart does not include the weight of face cutter
- Key and screw are clamped
- Wrench is separately sold

M This is metric size. We can also provide in inch type

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMC16	K8.0(A)	-	BX0310	BX0820	LW-6
FMC22	K10.0(C)	-	BX0412	BX1030	LW-8
FMC27	K12.0	MBA-M12	BX0616	-	LW-10
FMC32	K14.0	MBA-M16	BX0820	-	LW-14

SK-FMC



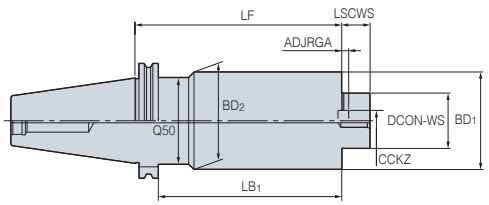


Fig. 1

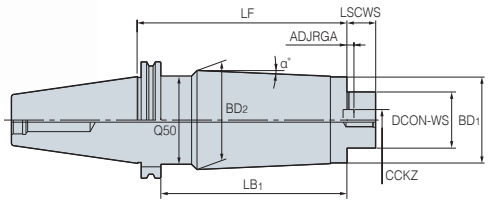


Fig. 2

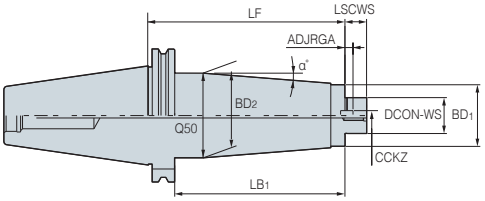


Fig. 3

(mm)

Designation		DC	DCON-WS	LF	LB1	BD1	BD2	LSCWS	CCKZ	ADJRGA	CRKS	lbs	Fig.	α°
KDP-SK40 -	FMC22-210	50/63	22	210	183.0	48	49.5	19	10	4.4	M10	4.4	3	0.1
	FMC22-260	50/63	22	260	233.0	48	60	19	10	5.6	M10	6.2	2	1.4
	FMC27-210	80	27	210	183.0	60	60	21	12	6.3	M12	5.9	1	-
	FMC27-260	80	27	260	233.0	60	60	21	12	6.3	M12	7.2	1	-
KDP-SK50 -	FMC22-210	50/63	22	210	190.9	48	49.5	19	10	5.6	M10	6.4	3	0.1
	FMC22-260	50/63	22	260	240.9	48	62	19	10	5.6	M10	9.1	3	1
	FMC27-210	80	27	210	190.9	60	78	21	12	6.3	M12	9.8	3	2.5
	FMC27-260	80	27	260	240.9	60	78	21	12	6.3	M12	12.4	3	1.8
	FMC27-320	80	27	320	300.9	60	78	21	12	6.3	M12	14.5	3	1.2
	FMC32-210	100	32	210	190.9	78	-	24	14	7	M16	11.5	1	-
	FMC32-260	100	32	260	240.9	78	-	24	14	7	M16	14	1	-
	FMC32-330	100	32	330	310.9	78	-	24	14	7	M16	16.4	1	-

- The A type is for JIS B4113 Face milling
- The B type and C type are arbors for T-MAX Face Milling and shoulder cutter
- The weight (kg) shown in the chart does not include the weight of face cutter
- Key and screw are clamped
- Wrench is separately sold

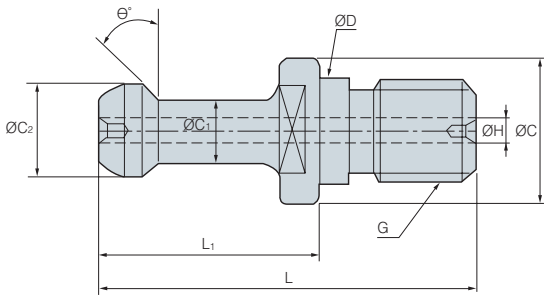
M This is metric size. We can also provide in inch type

Parts

	Basic				For separate purchase
Division	Key	Clamp bolt	Wrench bolt	Wrench bolt	Wrench
Parts / Designation					
FMC16	K8.0(A)	-	BX0310	BX0820	LW-6
FMC22	K10.0(C)	-	BX0412	BX1030	LW-8
FMC27	K12.0	MBA-M12	BX0616	-	LW-10
FMC32	K14.0	MBA-M16	BX0820	-	LW-14

Pull Stud Bolt





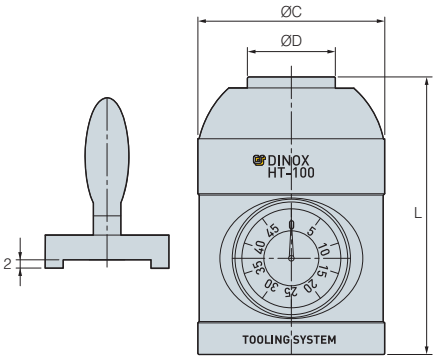
(mm)

Designation	DC	ØC	ØC1	ØC2	L1	L	θ	G	ØH
P20T-1	8.5	12	6	8.5	17.5	31.5	15°	M8	
P30T-1	12.5	16.5	7	11	23	43	45°	M12	
P30T-1(Ø2.5)	12.5	16.5	7	11	23	43	45°	M12	Ø2.5
P30T-2	12.5	16.5	7	11	23	43	30°	M12	
P30T-2(Ø2.5)	12.5	16.5	7	11	23	43	30°	M12	Ø2.5
P40T-1	17	23	10	15	35	60	45°	M16	
P40T-1(3)	17	23	10	15	35	60	45°	M16	Ø3
P40T-2	17	23	10	15	35	60	30°	M16	
PS40-3F	17	23	10	15	35	60	0°	M16	
PS-G51	17	22	12.45	18.8	19.11	44.11	45°	M16	Ø7
DIN69872-A40	17	23	14	19	26	54	15°	M16	Ø7
DIN69872-B40	17	23	14	19	26	54	15°	M16	
JISB6339-A40(PS-806)	17	23	14	19	29	54	15°	M16	Ø7
JISB6339-B40(PS-805)	17	23	14	19	29	54	15°	M16	
P50T-1	25	38	17	23	45	85	45°	M24	
P50T-1(7)	25	38	17	23	45	85	45°	M24	Ø7
P50T-2	25	38	17	23	45	85	30°	M24	
PS50-1F	25	38	17	23	45	85	0°	M24	
PS50-1FH	25	38	17	23	45	85	0°	M24	Ø8
PS-G41	25	37	20.83	28.96	25.2	65.2	45°	M24	Ø10
DIN69872-A50	25	36	21	28	34	74	15°	M24	Ø11.5
P50T-1HS	25	38	17	23	45	85	45°	M24	Ø5.7

M This is metric size. We can also provide in inch type

HT





(mm)

Designation	ØD	ØC	L
HT-100	32	68	100

- Good for setting the Tool length at CNC machine
- No inturferance between height Touch setter and Tool makes safe work
- Location Accuracy: ±0.003 mm

M This is metric size. We can also provide in inch type

PART

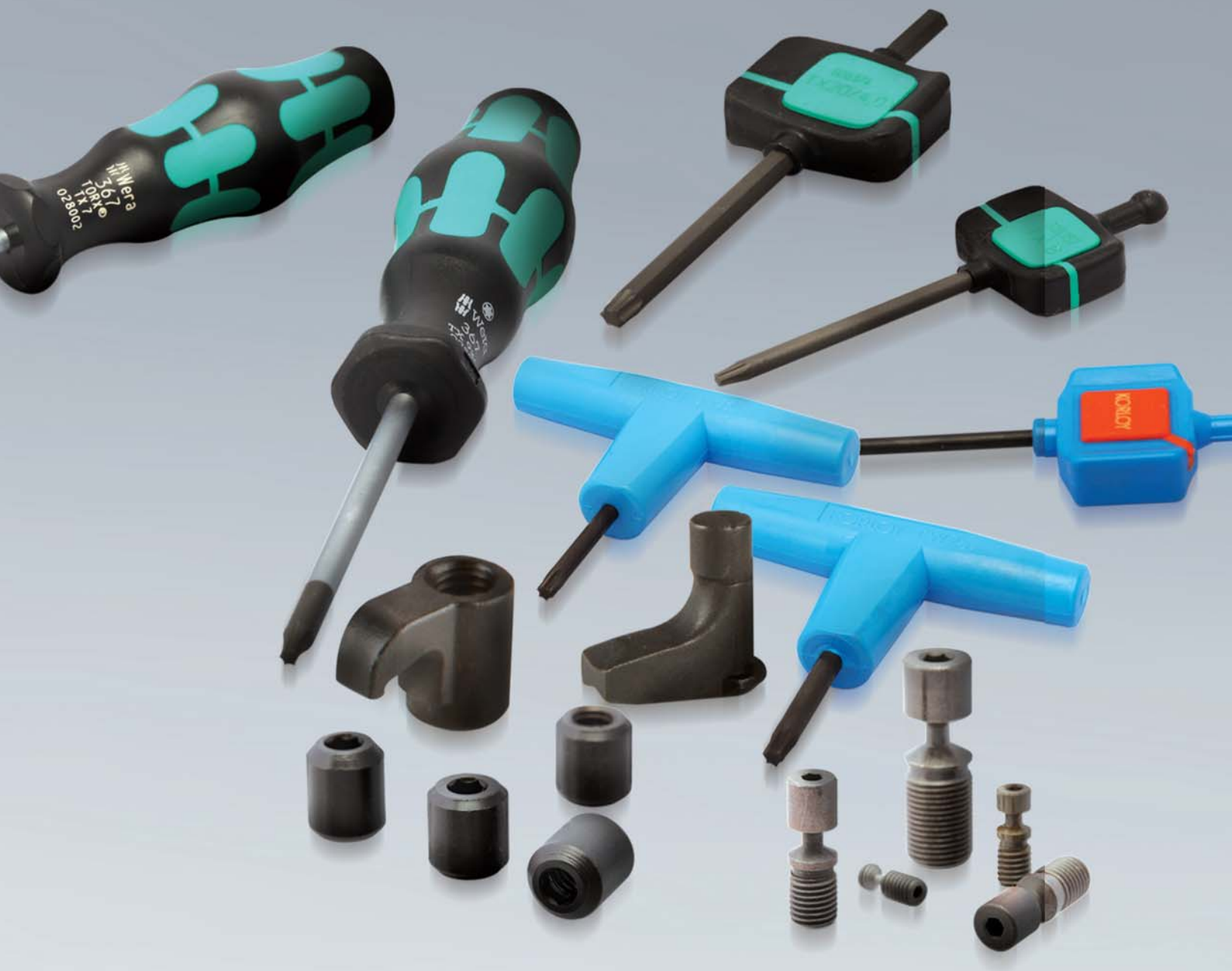
PARTS

Technical information for PARTS

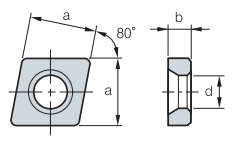
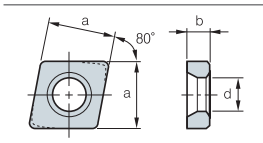
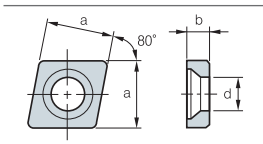
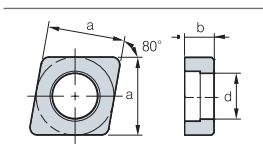
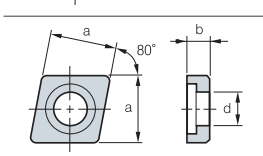
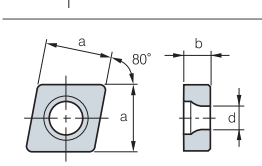
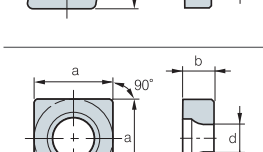
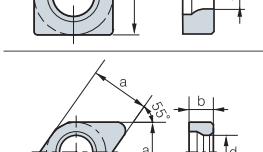
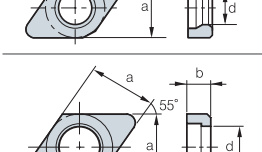
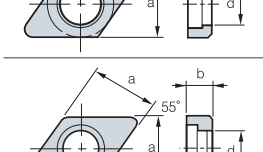
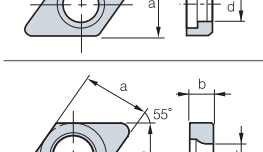
F3	Shim
F4	Cartridge
F4	Chip breaker
F4	Chip cover
F4	Clamp
F5	Coolant bolt
F5	Wrench bolt
F5	Lever
F6	Locator
F6	Nut
F6	Pin
F6	Screw
F7	Shim pin
F8	Spring
F8	Wrench
F8	Stop ring
F8	Washer
F8	Stopper
F8	Nozzle

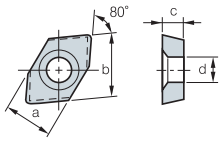
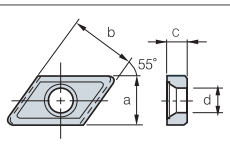
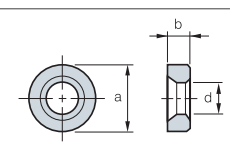
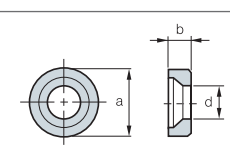
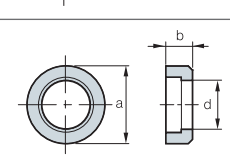
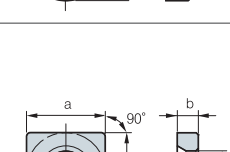
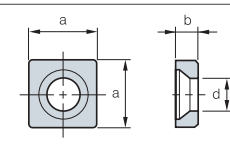
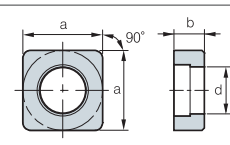
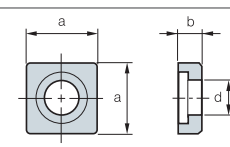
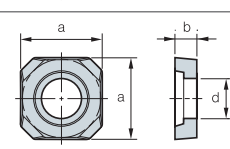
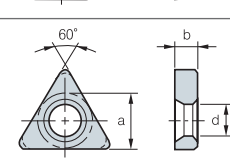


2025 ▸ 2026
KORLOY ROTATING TOOLS

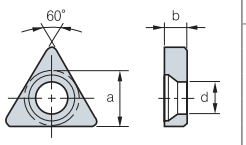
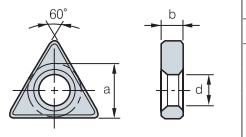
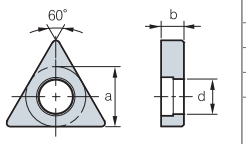
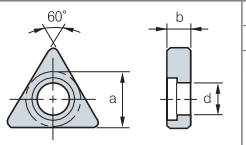
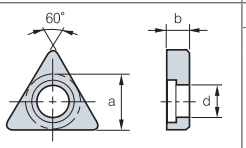
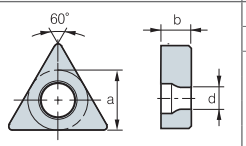
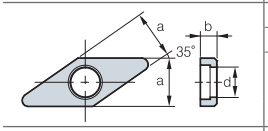
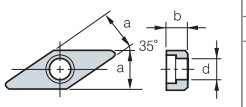
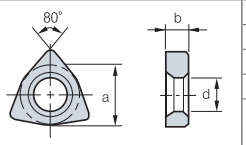
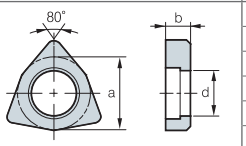
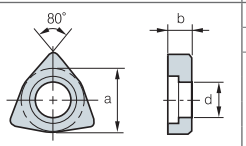
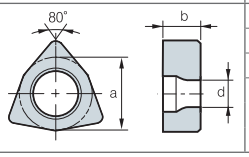


Shim

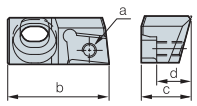
Geometry	Designation	Dimensions (inch)				
		a	b	c	d	angle
	**SC32**	0.335	0.125		0.193	
	SC32N	0.335	0.125		0.192	
	SC42	0.492	0.125		0.272	
	SC42N	0.457	0.125		0.256	
	SC53	0.618	0.187		0.311	
	SC53N	0.575	0.187		0.319	
	SC63	0.742	0.187		0.394	
	SC63N	0.701	0.187		0.378	
	SC83	0.961	0.187		0.504	
	SC84N	0.953	0.250		0.512	
	**SC42B**	0.492	0.125		0.272	
	**SC42CC**	0.492	0.125		0.138	
	**SC32D**	0.365	0.125		0.255	
	SC43D	0.490	0.187		0.289	
	SC53D	0.615	0.187		0.380	
	SC63D	0.740	0.187		0.443	
	SC84D	0.987	0.250		0.585	
	**SC42S**	0.453	0.125		0.252	
	SC32S	0.327	0.125		0.213	
	**SC63V**	0.722	0.187		0.217	
	SC83V	0.996	0.187		0.258	
	SC84V	0.996	0.250		0.250	
	SC32V	0.359	0.125		0.134	
	SC42V	0.496	0.125		0.177	
	SC44V	0.496	0.250		0.177	
	SC54V	0.620	0.250		0.217	
	**SS32V**	0.359	0.125		0.134	
	SS42V	0.496	0.125		0.177	
	SS54V	0.620	0.250		0.217	
	SS64V	0.744	0.250		0.217	
	**SD317**	0.368	0.106		0.205	
	SD32N	0.335	0.125		0.192	
	SD42	0.492	0.125		0.272	
	SD42N	0.457	0.125		0.256	
	SD43N	0.457	0.187		0.256	
	**SD32D**	0.362	0.125		0.228	
	SD43D	0.490	0.187		0.289	
	**SD32S**	0.335	0.125		0.213	
	SD42S	0.453	0.125		0.252	
	**SD32V**	0.359	0.125		0.134	
	SD43V	0.496	0.187		0.177	
	SD44V	0.496	0.250		0.177	

Geometry	Designation	Dimensions (inch)				
		a	b	c	d	angle
	**SES33C**	0.358	0.472	0.187	0.138	
	**SK33C**	0.367	0.579	0.189	0.138	
	SK33CL	0.367	0.579	0.189	0.138	
	**SR10**	0.331	0.125		0.185	
	SR12	0.394	0.125		0.185	
	SR16	0.533	0.187		0.272	
	SR20	0.673	0.191		0.311	
	SR25	0.866	0.250		0.378	
	SR32	1.094	0.250		0.512	
	**SR42CC**	0.495	0.125		0.138	
	**SR10S**	0.346	0.125		0.213	
	SR12S	0.415	0.125		0.213	
	**SS32**	0.335	0.125		0.193	
	SS32N	0.335	0.125		0.192	
	SS42	0.492	0.125		0.272	
	SS42B	0.492	0.125		0.272	
	SS42N	0.457	0.125		0.256	
	SS53	0.618	0.187		0.311	
	SS53N	0.575	0.187		0.319	
	SS63	0.742	0.187		0.394	
	SS63N	0.701	0.187		0.378	
	SS84	0.961	0.250		0.504	
	SS84N	0.953	0.250		0.512	
	**SS42CC**	0.492	0.125		0.138	
	SS32CC	0.366	0.125		0.138	
	**SS32D**	0.365	0.125		0.227	
	SS43D	0.490	0.187		0.289	
	SS53D	0.615	0.187		0.380	
	SS63D	0.740	0.187		0.443	
	SS84D	0.990	0.250		0.568	
	**SS32S**	0.327	0.125		0.213	
	SS42S	0.453	0.125		0.252	
	**SS42SAF**	0.441	0.118		0.217	
	**ST317**	0.368	0.106		0.197	
	ST317B	0.368	0.106		0.197	
	ST317N	0.335	0.106		0.192	
	ST42	0.492	0.125		0.272	
	ST42N	0.457	0.125		0.256	
	ST53	0.618	0.187		0.311	

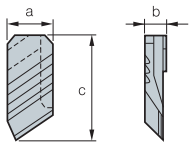
Shim

Geometry	Designation	Dimensions (inch)				
		a	b	c	d	angle
	ST32CC	0.368	0.125		0.138	
	ST32C1	0.359	0.125		0.195	
	ST42C1	0.484	0.125		0.195	
	ST32D	0.368	0.125		0.227	
	ST43D	0.493	0.187		0.289	
	ST53D	0.618	0.187		0.380	
	ST63D	0.743	0.187		0.443	
	ST32M	0.343	0.125		0.185	
	ST43M	0.492	0.187		0.248	
	ST32S	0.335	0.125		0.213	
	ST32V	0.359	0.125		0.134	
	ST44V	0.496	0.250		0.177	
	SV32D	0.362	0.125		0.228	
	SV43D	0.484	0.187		0.289	
	SV32D2	0.362	0.125		0.228	
	SV32S	0.331	0.125		0.213	
	SW317	0.368	0.106		0.197	
	SW317N	0.335	0.106		0.192	
	SW42	0.492	0.125		0.272	
	SW42N	0.457	0.125		0.256	
	SW32D	0.364	0.125		0.228	
	SW43D	0.490	0.187		0.289	
	SW53D	0.615	0.187		0.380	
	SW63D	0.740	0.187		0.443	
	SW84D	0.980	0.250		0.568	
	SW43M	0.492	0.187		0.244	
	SW32M	0.335	0.125		0.205	
	SW32V	0.359	0.125		0.134	
	SW44V	0.496	0.250		0.177	
	SW54V	0.620	0.187		0.217	

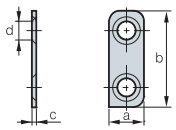
Cartridge

Geometry	Designation	Dimensions (inch)				
		a	b	c	d	angle
	LAPDR-AJ	M4×0.7	1.181	0.591	0.394	

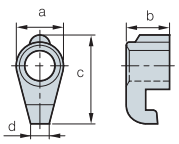
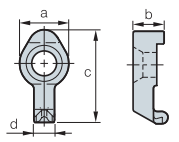
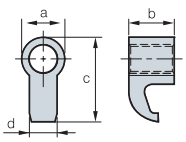
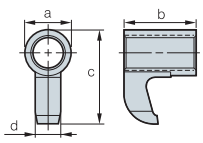
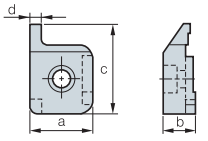
Chip breaker

Geometry	Designation	Dimensions (inch)				
		a	b	c	d	angle
	CB20	0.335	0.134	0.787		

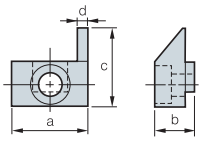
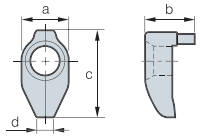
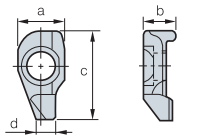
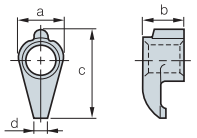
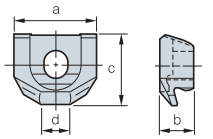
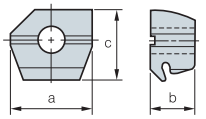
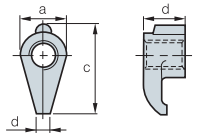
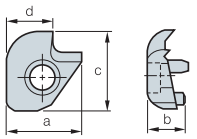
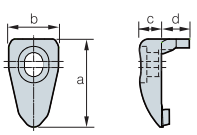
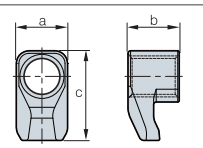
Chip cover

Geometry	Designation	Dimensions (inch)				
		a	b	c	d	angle
	CFMP3R14R1-A	0.413	0.787	0.039	(Ø0.169)	
	CFMP3R-A	0.315	0.709	0.039	(Ø0.169)	
	CFMP4R-A	0.315	0.866	0.039	(Ø0.169)	

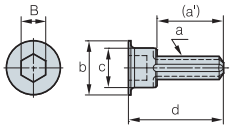
Clamp

Geometry	Designation	Dimensions (inch)				
		a	b	c	d	angle
	CA05R	0.350	0.217	0.693	0.130	
	CA06R	0.472	0.283	0.811	0.209	
	CH5R3	0.309	0.283	0.583	0.122	
	CH6R4	0.473	0.354	0.944	0.148	
	CBH4.5R1	0.315	0.226	0.697	0.157	
	CBH4.5R2	0.374	0.252	0.709	0.157	
	CBH5R1	0.394	0.307	0.839	0.197	
	CBH6R1	0.472	0.366	1.024	0.236	
	CDH6N	0.374	0.394	0.732	0.240	
	CDH7N	0.311	0.449	0.579	0.185	
	CDH8N	0.429	0.665	0.882	0.240	
	CDH8N1	0.429	0.665	0.752	0.240	
	CDH8N2	0.429	0.665	1.000	0.240	
	CDH8N3	0.492	0.780	1.000	0.362	
	CDS8N	0.425	0.669	0.874	0.197	
	CGH5R1	0.768	0.374	1.134	0.098	
	CGH5R2	0.807	0.374	1.134	0.138	
	CGH5R3	0.886	0.374	1.134	0.217	

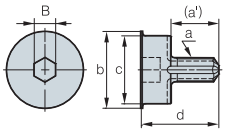
Clamp

Geometry	Designation	Dimensions (inch)				
		a	b	c	d	angle
	CGH6R1	0.878	0.469	0.913	0.098	
	CGH6R2	0.913	0.469	0.913	0.134	
	CGH6R3	0.945	0.469	0.913	0.165	
	CHH3.5R1	0.295	0.264	0.512	0.096	
	CHH4.5R1	0.311	0.309	0.555	0.100	
	CHH5.5R1	0.386	0.394	0.646	0.157	
	CH4R1	0.291	0.197	0.555	0.122	
	CH5R1	0.394	0.260	0.795	0.177	
	CH5R2	0.270	0.276	0.543	0.079	
	CH6R2	0.348	0.343	0.650	0.079	
	CH6R3	0.465	0.394	0.906	0.165	
	CMH5R1	0.728	0.311	0.630	0.246	
	CMH6R2	0.787	0.433	0.689	0.543	
	CMH6R6	0.728	0.311	0.630	0.246	
	CMH6R1	0.945	0.335	0.650	0.326	
	CMH6R3	0.787	0.433	0.689		
	CMH6L3	0.787	0.433	0.689		
	CS5R1	0.268	0.276	0.571	0.079	
	CS6R1	0.346	0.335	0.713	0.106	
	CS8R1	0.465	0.394	0.906	0.165	
	CTH6L1	0.925	0.472	1.000	0.565	
	CTH6R1	0.925	0.472	1.000	0.565	
	CTH6R2	0.857	0.508	1.229	0.682	
	CVH3	0.827	0.433	0.228	0.303	
	CVH3V	1.142	0.551	0.276	0.315	
	CVH4	1.004	0.571	0.236	0.276	
	CVH5	1.181	0.669	0.295	0.374	
	CVH6	1.319	0.728	0.315	0.394	
	CXH8N	0.398	0.394	0.689		

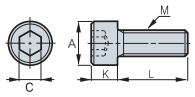
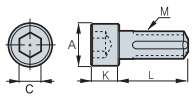
Coolant bolt

Geometry	Designation	Dimensions (inch)					
		a	b	c	d	B(T)	a´
	CBA063-3IN/MM	M10	Ø0.984	Ø0.630	1.457	0.315	(1.063)
	CBA063-4IN/MM	M10	Ø0.984	Ø0.630	1.673	0.315	(1.063)
	CBA080-IN/MM	M12	Ø1.102	Ø0.709	1.791	0.394	(1.260)
	CBP063-IN/MM	M10	Ø0.866	Ø0.630	1.520	0.315	(1.063)
	CBP080-IN/MM	M12	Ø0.984	Ø0.709	1.913	0.394	(1.260)

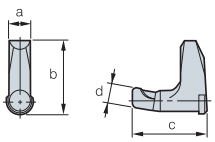
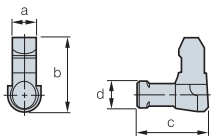
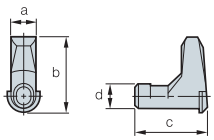
Coolant bolt

Geometry	Designation	Dimensions (inch)					
		a	b	c	d	B(T)	a´
	CBA100-IN/MM	M16	Ø2.126	Ø1.693	1.850	0.551	(1.260)
	CBA100-IN-25.4	M12	Ø1.732	Ø1.417	1.634	0.394	(0.984)
	CBA125-IN	M20	Ø2.559	Ø2.126	2.205	0.669	(1.496)
	CBA125-IN-25.4	M12	Ø1.732	Ø1.417	1.713	0.394	(0.984)
	CBA125-MM	M20	Ø2.559	Ø2.126	2.244	0.669	(1.378)
	CBA160-IN	M24	Ø3.268	Ø2.874	2.205	0.748	(1.496)
	CBA160-MM	M20	Ø3.268	Ø2.874	2.087	0.669	(1.339)
	CBP100-IN	M16	Ø1.969	Ø1.693	1.913	0.551	(1.260)
	CBP100-IN-25.4	M12	Ø1.732	Ø1.417	1.831	0.394	(0.984)
	CBP100-MM-1	M16	Ø1.969	Ø1.693	1.913	0.551	(1.417)
	CBP125-IN	M20	Ø2.559	Ø2.126	2.205	0.669	(1.496)
	CBP125-IN-25.4	M12	Ø1.732	Ø1.417	2.165	0.394	(0.984)
	CBP125-MM	M20	Ø2.559	Ø2.126	2.244	0.669	(1.378)
	CBP125-MM-1	M20	Ø2.402	Ø2.126	2.583	0.551	(1.299)
	CBP160-IN	M24	Ø3.268	Ø2.874	2.205	0.748	(1.496)
	CBP160-MM	M20	Ø3.268	Ø2.874	2.087	0.669	(1.339)

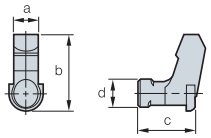
Wrench bolt

Geometry	Designation	Dimensions (inch)				
		A	C	K	L	M
	SB0825	0.512	0.236	0.315	0.984	M08×1.25
	SB1025	0.630	0.315	0.394	0.984	M10×1.50
	SB1035	0.630	0.315	0.394	1.378	M10×1.50
	SB1230	0.709	0.394	0.472	1.181	M12×1.75
	SB1630	0.945	0.551	0.630	1.181	M16×2.0
	SB1645	0.945	0.551	0.630	1.772	M6×2.0
	SB2040	1.181	0.669	0.787	1.575	M20×2.5
	CB1025	0.512	0.236	0.315	0.984	M08×1.25
	CB1025	0.630	0.315	0.394	0.984	M10×1.50
	CB1035	0.630	0.315	0.394	1.378	M10×1.50
	CB1230	0.709	0.394	0.472	1.181	M12×1.75
	CB1245	0.709	0.394	0.472	1.772	M12×1.75
	CB1630	0.945	0.551	0.630	1.181	M16×2.0
	CB1645	0.945	0.551	0.630	1.772	M16×2.0
	CB2040	1.181	0.669	0.787	1.575	M20×2.5

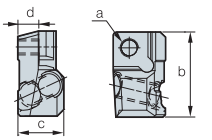
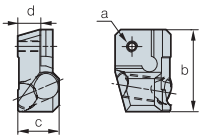
Lever

Geometry	Designation	Dimensions (inch)			
		a	b	c	d
	LR10	0.134	0.425	0.461	0.118
	LR12	0.146	0.531	0.528	0.138
	LR16	0.187	0.736	0.720	0.169
	LR20	0.232	0.807	0.736	0.219
	LR25	0.289	0.955	0.933	0.244
	LR32	0.333	1.169	1.061	0.311
	LV2	0.102	0.305	0.236	0.083
	LV3B	0.122	0.394	0.374	0.146
	LV4B	0.185	0.573	0.614	0.185
	LV4BN	0.185	0.630	0.587	0.184
	LV3	0.146	0.394	0.472	0.142
	LV3N	0.148	0.394	0.472	0.140
	LV3AN	0.148	0.476	0.449	0.183
	LV3C	0.122	0.394	0.309	0.142
	LV3CN	0.126	0.394	0.307	0.142
	LV3DN	0.126	0.459	0.374	0.140
	LV4	0.185	0.573	0.551	0.185
	LV4N	0.185	0.530	0.520	0.184
	LV5	0.236	0.673	0.669	0.236
	LV5N	0.236	0.646	0.672	0.234
	LV5AN	0.236	0.741	0.681	0.234
	LV6N	0.295	0.807	0.827	0.299
	LV8N	0.339	1.004	1.000	0.339

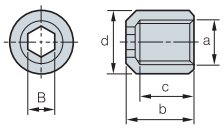
Lever

Geometry	Designation	Dimensions (inch)			
		a	b	c	d
	LV4A	0.181	0.521	0.392	0.185
	LV4AN	0.185	0.524	0.394	0.184

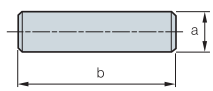
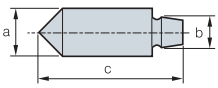
Locator

Geometry	Designation	Dimensions (inch)			
		a	b	c	d
	LFMP3R-A	M3.5	0.736	0.398	0.181
	LFMP4R1-A	M4.5	0.957	0.543	0.244
	LFMP4R-A	M4.5	1.035	0.543	0.244
	LFMA3R-A	M3	0.728	0.374	0.189
	LFMA4R-A	M3.5	1.024	0.516	0.287

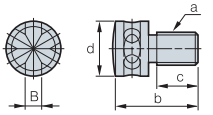
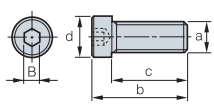
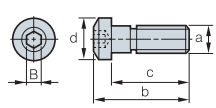
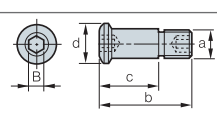
Nut

Geometry	Designation	Dimensions (inch)				
		a	b	c	d	B(T)
	N0407	M4 X 0.7	0.295	0.236	0.276	0.118
	N0508	M5 X 0.8	0.327	0.260	0.276	0.118

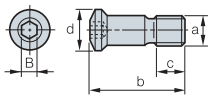
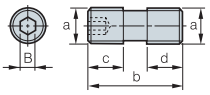
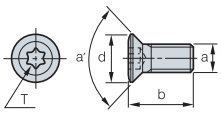
Pin

Geometry	Designation	Dimensions (inch)		
		a	b	c
	PN0308	0.118	0.315	
	PN0310	0.118	0.394	
	PN0312	0.118	0.472	
	PN0314	0.118	0.551	
	PN0515	0.189	0.130	0.571

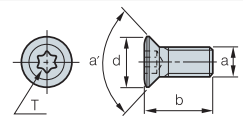
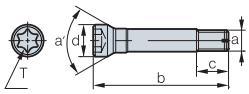
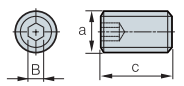
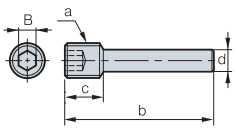
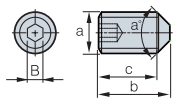
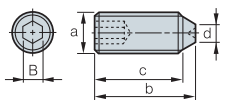
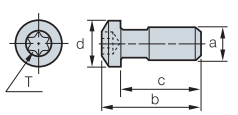
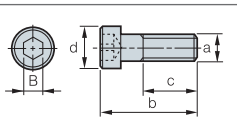
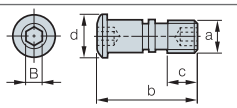
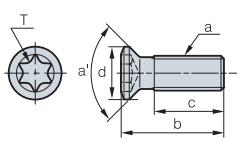
Screw

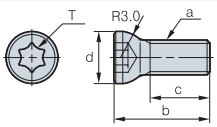
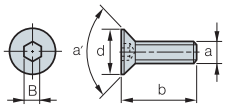
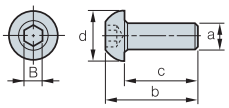
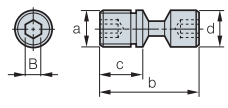
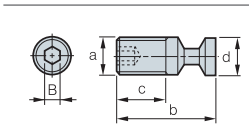
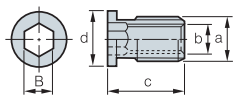
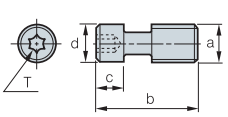
Geometry	Designation	Dimensions (inch)				
		a	b	c	d	B(T)
	AZ0508F	M5 X 0.5	0.512	0.315	0.354	Ø0.079
	AZ0514	M5 X 0.8	0.551	0.276	0.354	Ø0.098
	BHA0510	M5 X 0.8	0.591	0.394	0.335	0.157
	BHA0512	M5 X 0.8	0.669	0.472	0.335	0.157
	BHA0612	M6 X 1.0	0.709	0.472	0.394	0.197
	BHA0614	M6 X 1.0	0.787	0.551	0.394	0.197
	BHA0616	M6 X 1.0	0.866	0.630	0.394	0.197
	BHA0619-NYLOK	M6 X 1.0	0.984	0.748	0.394	0.197
	CHX0407	M4 X 0.7	0.374	0.290	0.224	0.098
	CHX0415	M4 X 0.7	0.689	0.591	0.213	0.098
	CHX0510	M5 X 0.8	0.516	0.398	0.303	0.118
	CHX0518	M5 X 0.8	0.846	0.709	0.315	0.118
	CHX0622	M6 X 1.0	1.043	0.866	0.394	0.157
	CHX0513	M5 X 0.8	0.512	0.315	0.252	0.098
	CHX0616	M6 x 1.0	0.638	0.398	0.335	0.118
	CHX0617L	M6 x 1.0(Left)	0.677	0.398	0.335	0.118
	CHX0621	M6 X 1.0	0.827	0.398	0.335	0.118

Screw

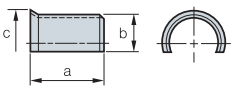
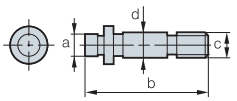
Geometry	Designation	Dimensions (inch)					
		a	b	c	d	B(T)	a´
	CHX0625	1/4-20UNC	0.976	0.433	0.394	0.157	-
	CTX03510	M3.5 X 0.6	0.394	0.185	0.209	0.591	-
	CTX04513	M4.5 X 0.75	0.516	0.272	0.268	0.787	-
	CTX04513H	M4.5 X 0.75	0.516	0.283	0.268	0.787	-
	CTX0515	M5 X 0.8	0.591	0.315	0.276	0.787	-
	CTX0517	M5 X 0.8	0.689	0.394	0.276	0.787	-
	CTX0621	M6 X 1.0	0.835	0.488	0.354	0.984	-
	DHA0514	M5 X 0.8	0.551	0.197	0.276	0.098	-
	DHA0617	M6 x 1.0	0.669	0.276	0.295	0.118	-
	DHA0620	M6 x 1.0	0.787	0.315	0.315	0.118	-
	DHA0624	M6 x 1.0	0.945	0.472	0.335	0.118	-
	DHA0815	M8 X 1.25	0.610	0.246	0.246	0.157	-
	DHA0818F	M8 X 1.0	0.709	0.335	0.217	0.157	-
	DHA0820	M8 X 1.25	0.787	0.315	0.354	0.157	-
	DHA0821F	M8 X 1.0	0.827	0.335	0.335	0.157	-
	DHA0825	M8 X 1.25	0.984	0.394	0.354	0.157	-
	DHA0830	M8 X 1.25	1.181	0.453	0.453	0.157	-
	ETGA0520CBM	M5 X 0.8	0.787	-	0.256	0.787	43°
	ETGD0825	M8 X 1.25	0.992	-	0.437	1.575	40°
	ETKA0523	M5 X 0.8	0.906	-	0.299	0.787	43°
	ETKA0625	M6 X 1.0	1.004	-	0.346	0.787	43°
	ETKD0516	M5 X 0.8	0.646	-	0.268	0.787	40°
	ETKD0620	M6 X 1.0	0.787	-	0.327	0.984	40°
	ETNA02506	M2.5 X 0.45	0.224	-	0.134	0.276	43°
	ETNA0408	M4 X 0.7	0.315	-	0.201	0.591	43°
	ETNA0412	M4 X 0.7	0.472	-	0.201	0.591	43°
	ETNA0511	M5 X 0.8	0.433	-	0.252	0.787	43°
	ETND02506F	M2.5 X 0.35	0.246	-	0.122	0.276	40°
	ETND0307F	M3 X 0.35	0.307	-	0.146	0.315	40°
	ETND03509	M3.5 X 0.6	0.378	-	0.185	0.394	40°
	FTGA03507	M3.5 X 0.6	0.276	-	0.209	0.591	60°
	FTGA03508	M3.5 X 0.6	0.315	-	0.209	0.591	60°
	FTGA03510	M3.5 X 0.6	0.394	-	0.209	0.591	60°
	FTGA03512	M3.5 X 0.6	0.472	-	0.197	0.591	60°
	FTGA0411F	M4 X 0.5	0.433	-	0.276	0.591	60°
	FTGA0417CBM	M4 X 0.7	0.669	-	0.217	0.591	62°
	FTGA0510-P	M5 X 0.8	0.394	-	0.276	0.787	63°
	FTGA0512-P	M5 X 0.8	0.472	-	0.276	0.787	63°
	FTGA0513	M5 X 0.8	0.520	-	0.276	0.787	61°
	FTGA0513-P	M5 X 0.8	0.512	-	0.276	0.787	63°
	FTGA0517	M5 X 0.8	0.669	-	0.295	0.787	61°
	FTGA0621	M6 X 1.0	0.846	-	0.354	0.787	61°
	FTGA0826	M8 X 1.25	1.024	-	0.457	0.984	61°
	FTKA02206	M2.2 X 0.45	0.217	-	0.118	0.236	60°
	FTKA02206S	M2.2 X 0.45	0.220	-	0.120	0.276	60°
	FTKA02555	M2.5 X 0.45	0.217	-	0.138	0.276	60°
	FTKA02565	M2.5 X 0.45	0.256	-	0.138	0.276	60°
	FTKA02565S	M2.5 X 0.45	0.256	-	0.150	0.315	60°
	FTKA0307	M3 X 0.5	0.283	-	0.165	0.354	60°
	FTKA03508	M3.5 X 0.6	0.331	-	0.217	0.591	60°
	FTKA03510	M3.5 X 0.6	0.409	-	0.217	0.591	60°
	FTKA03511A	M3.5 X 0.6	0.433	-	0.205	0.591	60°
	FTKA0408	M4 X 0.7	0.331	-	0.217	0.591	60°
	FTKA0410	M4 X 0.7	0.394	-	0.217	0.591	60°
	FTKA0411K	M4 X 0.7	0.433	-	0.268	0.591	60°
	FTKA0412B	M4 X 0.7	0.492	-	0.217	0.591	60°
	FTKA0413	M4 X 0.7	0.512	-	0.217	0.591	60°
	FTNA01633	M1.6 X 0.35	0.130	-	0.102	0.236	60°
	FTNA0203	M2 X 0.4	0.118	-	0.106	0.236	60°
	FTNA02033	M2 X 0.4	0.130	-	0.106	0.236	60°
	FTNA0204	M2 X 0.4	0.169	-	0.106	0.236	60°
	FTNA02205	M2.2 X 0.45	0.177	-	0.118	0.236	60°
	FTNA0238	M2 X 0.4	0.150	-	0.118	0.236	60°
	FTNA0305	M3 X 0.5	0.205	-	0.165	0.354	60°
	FTNA0306	M3 X 0.5	0.244	-	0.165	0.354	60°
	FTNA0307	M3 X 0.5	0.283	-	0.165	0.354	60°
	FTNA0408	M4 X 0.7	0.335	-	0.217	0.591	60°
	FTNA0411	M4 X 0.7	0.433	-	0.217	0.591	60°
	FTNA0511	M5 X 0.8	0.276	-	0.264	0.787	63°
	FTNA0513	M5 X 0.8	0.512	-	0.276	0.787	60°
	FTNA0516	M5 X 0.8	0.630	-	0.276	0.787	60°

Screw

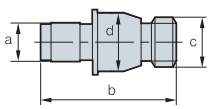
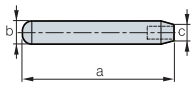
Geometry	Designation	Dimensions (inch)					
		a	b	c	d	B(T)	a´
	FTNB0411	M4 X 0.7	0.425	-	0.224	0.591	60°
	FTNC04509	M4.5 X 0.75	0.374	-	0.268	0.787	55°
	FTNC04511	M4.5 X 0.75	0.453	-	0.268	0.787	55°
	FTNB0209	2 X 0.4	0.354	0.098	0.106	-	60°
	FTNB0209-P	2 X 0.4	0.354	0.098	0.106	-	60°
	FTNB02512	2.5 X 0.45	0.472	0.138	0.138	-	60°
	FTNB02512-P	2.5 X 0.45	0.472	0.138	0.138	-	60°
	FTNB02514	2.5 X 0.45	0.551	0.138	0.138	-	60°
	FTNB02514-P	2.5 X 0.45	0.551	0.138	0.138	-	60°
	FTNB0316	3 X 0.5	0.630	0.177	0.165	-	60°
	FTNB0316-P	3 X 0.5	0.630	0.177	0.165	-	60°
	FTNB0319	3 X 0.5	0.748	0.197	0.177	-	60°
	FTNB03522	3.5 X 0.6	0.866	0.220	0.217	-	60°
	FTNB03524	3.5 X 0.6	0.945	0.220	0.217	-	60°
	FTNB0426	4 X 0.7	1.024	0.264	0.217	-	60°
	FTNB0528	5 X 0.8	1.102	0.264	0.276	-	60°
	KHA0508	M5 X 0.8	0.315	-	-	0.098	-
	KHA0510	M5 X 0.8	0.394	-	-	0.098	-
	KHA0610	M6 X 1.0	0.394	-	-	0.118	-
	KHA0612	M6 X 1.0	0.472	-	-	0.118	-
	KHA0812	M8 X 1.25	0.472	-	-	0.157	-
	KHA0815	M8 X 1.25	0.591	-	-	0.157	-
	KHA1015	M10 X 1.5	0.591	-	-	0.197	-
	KHA1020	M10 X 1.5	0.787	-	-	0.197	-
	KHB0417	M4 X 0.7	0.677	0.177	0.098	0.079	-
	KHB0406	M4 X 0.7	0.236	0.165	0.118	0.079	-
	KHC0510	M5 X 0.8	0.394	0.319	-	0.098	90°
	KHC0610	M6 X 1.0	0.394	0.307	-	0.118	90°
	KHC0812	M8 X 1.25	0.472	0.354	-	0.157	90°
	KHC1016	M10 X 1.5	0.630	0.484	-	0.197	90°
	KHC1020	M10 X 1.5	0.787	0.642	-	0.197	90°
	KHD0510	M5 X 0.8	0.394	0.354	0.118	0.098	-
	KHD0610	M6 X 1.0	0.394	0.394	0.157	0.118	-
	KHD0810	M8 X 1.25	0.394	0.394	0.295	0.157	-
	LTX0512	M5 X 0.8	0.594	0.472	0.287	0.787	-
	LTX0514	M5 X 0.8	0.673	0.551	0.287	0.787	-
	MHA0512	M5 X 0.8	0.669	0.425	0.315	0.157	-
	MHB0310	M3 X 0.5	0.528	0.315	0.217	0.098	-
	MHB0410	M4 X 0.7	0.551	0.315	0.276	0.118	-
	MHB1055	M10 X 1.5	2.559	1.969	0.630	0.315	-
	MHB1260	M12 X 1.75	2.835	2.165	0.709	0.394	-
	MHB1680	M16 X 2.0	3.780	2.953	0.945	0.551	-
	MHX0523	M5 X 0.8	0.925	0.382	0.394	0.098	-
	MHX0626	M6 X 1.0	1.016	0.394	0.433	0.118	-
	MHX0630	M6 X 1.0	1.181	0.492	0.413	0.157	-
	PTKA02508	M2.5 X 0.45	0.315	0.197	0.150	0.315	92°
	PTKA03510	M3.5 X 0.6	0.394	0.197	0.197	0.591	92°
	PTKA0407	M4 X 0.7	0.276	0.181	0.217	0.591	86°
	PTKA0407F	M4 X 0.5	0.287	0.150	0.256	0.591	91°
	PTKA0408	M4 X 0.7	0.315	0.220	0.217	0.591	86°
	PTKA0408F	M4 X 0.5	0.327	0.224	0.256	0.591	91°
	PTKA0409F	M4 X 0.5	0.366	0.264	0.256	0.591	91°
	PTKA0410F	M4 X 0.5	0.406	0.303	0.256	0.591	91°
	PTKA0411F	M4 X 0.5	0.445	0.343	0.256	0.591	91°
	PTKA0412	M4 X 0.7	0.472	0.295	0.232	0.591	92°
	PTKA0412F	M4 X 0.5	0.484	0.382	0.256	0.591	91°
	PTKA0413F	M4 X 0.5	0.524	0.421	0.256	0.591	91°
	PTKA0512	M5 X 0.8	0.472	0.276	0.272	0.787	92°
	PTMA03508	M3.5 X 0.6	0.315	0.209	0.236	0.354	90°
	PTMA0403F	M4 X 0.5	0.130	0.067	0.256	0.591	91°
	PTMA0404F	M4 X 0.5	0.169	0.106	0.256	0.591	91°
	PTMA0405F	M4 X 0.5	0.209	0.146	0.256	0.591	91°
	PTMA0406F	M4 X 0.5	0.248	0.185	0.256	0.591	91°
	PTMA0411	M4 X 0.7	0.433	0.335	0.260	0.591	90°

Geometry	Designation	Dimensions (inch)					
		a	b	c	d	B(T)	a´
	FHGA0618	M4 X 0.7	0.433	0.272	0.236	15	-
	FHGA0618	M6 X 1.0	0.709		0.335	0.157	61°
	PXMA0306	M3 X 0.5	0.232		0.224	0.079	90°
	SHX0310	M3 X 0.5	0.394		0.232	0.079	91°
	RHA0510	M5 X 0.8		0.394		0.157	-
	RHA0613	M6 X 1.0	0.642	0.512	0.413	0.157	-
	RHA0620	M6 X 1.0	0.945	0.787	0.413	0.157	-
	VHX0509B	M5 X 0.8	0.354	0.163	0.197	0.079	-
	VHX0512B	M5 X 0.8	0.472	0.256	0.197	0.079	-
	VHX0512BN	M5 X 0.8	0.472	0.258	0.197	0.079	-
	VHX0514	M5 X 0.8	0.571	0.325	0.197	0.079	-
	VHX0613N	M6 X 1.0	0.528	0.295	0.233	0.098	-
	VHX0617	M6 X 1.0	0.669	0.394	0.236	0.098	-
	VHX0617N	M6 X 1.0	0.659	0.328	0.232	0.098	-
	VHX0621	M6 X 1.0	0.827	0.551	0.236	0.098	-
	VHX0817N	M8 X 1.0	0.671	0.314	0.311	0.118	-
	VHX0820N	M8 X 1.0	0.815	0.314	0.311	0.118	-
	VHX0820AN	M8 X 1.0	0.807	0.408	0.311	0.118	-
	VHX0821	M8 X 1.0	0.827	0.394	0.315	0.118	-
	VHX0821N	M8 X 1.0	0.835	0.381	0.311	0.118	-
	VHX0823N	M8 X 1.0	0.925	0.408	0.311	0.118	-
	VHX0825	M8 X 1.0	0.984	0.472	0.315	0.118	-
	VHX1027N	M10 X 1.0	1.071	0.567	0.386	0.197	-
	VHX1236N	M12 X 1.0	1.417	0.720	0.465	0.197	-
	VHX0613A	M6 X 1.0	0.528	0.358	0.236	0.098	-
	SHXN0509F	M5 X 0.5	M3.5 X 0.6	0.341	0.248	0.138	-
	SHXN0609F	M6 X 0.75	M4 X 0.7	0.354	0.307	0.157	-
	SHXN0610F	M6 X0.75	M4 X 0.5	0.394	0.307	0.157	-
	SHXN0712F	M7 X0.75	M5 X 0.8	0.472	0.335	0.197	-
	WTX0813	M8 X 1.25	0.677	0.193	0.335	0.984	-
	WTX0817	M8 X 1.25	0.866	0.193	0.335	0.984	-

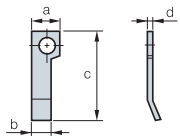
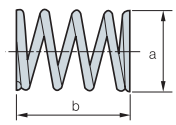
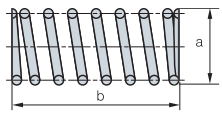
Shim pin

Geometry	Designation	Dimensions (inch)			
		a	b	c	d
	SP3	0.217	0.138	0.232	-
	SP3N	0.270	0.130	0.219	-
	SP4	0.276	0.157	0.299	-
	SP4N	0.228	0.171	0.291	-
	SP5	0.335	0.177	0.346	-
	SP5N	0.335	0.224	0.354	-
	SP6N	0.437	0.236	0.433	-
	SP8N	0.472	0.394	0.604	-
	SP2M	0.197	0.551	M5x0.8	0.236
	SP3M	0.138	0.768	M4x0.7	0.157
	SP3M-1	0.138	0.650	M4x0.7	0.157
	SP4M	0.197	0.748	M5x0.8	0.236

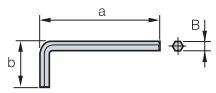
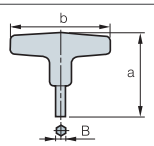
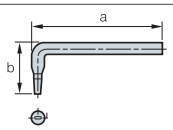
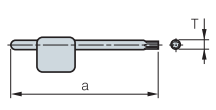
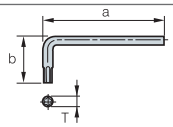
Shim pin

Geometry	Designation	Dimensions (inch)			
		a	b	c	d
	SP3D	0.146	0.516	UNF10-32	0.220
	SP3D2	0.142	0.472	UNF10-32	0.217
	SP3DS	0.146	0.454	UNF10-32	0.220
	SP4D	0.196	0.677	UNF1/4 28	0.280
	SP4DL	0.197	0.673	UNF1/4 28	0.276
	SP4DS	0.196	0.522	UNF1/4 28	0.000
	SP5D	0.244	0.862	UNF5/16-24	0.372
	SP6D	0.305	0.862	UNF3/8-24	0.434
	SP8D	0.355	1.167	UNF7/16-20	0.559
	LSPS3	2.362	0.323	0.219	-
	LSPS4	2.559	0.394	0.276	-
	LSPS5	2.717	0.449	0.348	-
	LSPS6	2.717	0.512	0.433	-
	LSPS8	2.874	0.650	0.598	-

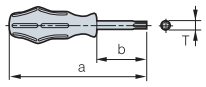
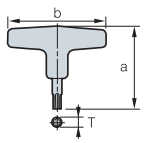
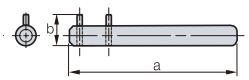
Spring

Geometry	Designation	Dimensions (inch)			
		a	b	c	d
	SR2	0.157	0.110	0.496	0.016
	SPR0315	0.118	0.591	-	-
	SPR0415	0.157	0.591	-	-
	SR3	0.362	0.492	-	-
	SR4	0.157	0.433	-	-
	SPR0714	0.276	0.551	-	-
	SPR0510	0.197	0.394	-	-
	SPR0714	0.276	0.551	-	-
	SPR0811	0.315	0.433	-	-

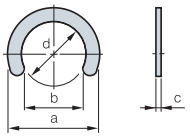
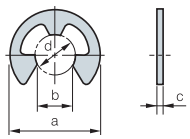
Wrench

Geometry	Designation	Dimensions (inch)		
		a	b	B(T)
	HW20L	2.047	0.709	0.079
	HW25L	2.303	0.807	0.098
	HW30L	2.598	0.906	0.118
	HW35L	2.835	0.984	0.138
	HW40L	2.913	1.142	0.157
	HW50L	3.346	1.299	0.197
	HW40	3.228	3.150	0.157
	HW50	3.780	3.543	0.197
	SW50L	2.756	1.083	-
	TW06P	2.480	-	0.236
	TW07P	2.480	-	0.276
	TW08P	2.795	-	0.315
	TW09P	2.953	-	0.354
	TW10P	3.071	-	0.394
	TW15P	3.228	-	0.591
	TW20P	3.386	-	0.787
	TW15L	2.362	0.827	0.591
	TW20L	2.362	0.827	0.787

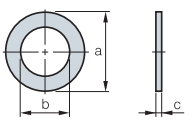
Wrench

Geometry	Designation	Dimensions (inch)		
		a	b	B(T)
	TW07S	5.512	2.362	0.276
	TW08S	5.906	2.992	0.315
	TW09S	6.496	2.756	0.354
	TW15S	7.480	3.543	0.591
	TW20S	7.677	3.583	0.787
	TW20	2.953	3.150	0.787
	TW25	2.913	3.150	0.984
	TW15-100	5.000	3.150	0.591
	TW20-100	5.000	3.150	0.787
	SW15S	5.906	0.512	-

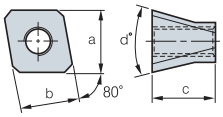
Stop ring

Geometry	Designation	Dimensions (inch)			
		a	b	c	d
	CR03	0.189	0.102	0.016	0.118
	CR04	0.260	0.142	0.016	0.157
	CR05	0.299	0.181	0.016	0.197
	ER03	0.276	0.102	0.024	0.118
	ER04	0.354	0.138	0.024	0.157
	ER05	0.039	0.169	0.024	0.197

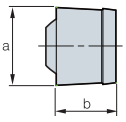
Washer

Geometry	Designation	Dimensions (inch)		
		a	b	c
	WA3	0.433	0.268	0.02~0.039
	WA4	0.394	0.209	0.02~0.039

Stopper

Geometry	Designation	Dimensions (inch)			
		a	b	c	d°
	STP5	0.433	0.402	0.433	30°

Nozzle

Geometry	Designation	Dimensions (inch)			
		a	b	c	d°
	CN0605	0.433	0.402		



TECHNICAL INFORMATION

Technical information for TECHNICAL INFORMATION

Technical Information I

G2 Workpiece Material Grades

G6 Steel, Non-ferrous Metal Symbol List

G7 SI Unit Conversion Table

G8 Hardness Calculating Table

Technical Information II

G9 Actual designation of Milling Cutter

G11 Clamping Part of Milling Cutter (Oil-hole)

G19 The Comparison of Grade for Milling

2025 ▸ 2026
KORLOY ROTATING TOOLS



Workpiece Material Grades

Carbon steel and alloy steel for structural use

Type		U.S.A AISI SAE	Korea KS	ISO ISO	Japan JIS	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ
Carbon steel		1010	SM10C	C10	S10C	040A10 045A10 045M10	C10E C10R	XC10	-
		1015	SM15C	C15E4 C15M2	S15C	055M15	C15E C15R	-	-
		1020	SM20C	-	S20C	070M20 C22, C22E C22R	C22 C22E C22R	C22 C22E C22R	-
		1025	SM25C	C25 C25E4 C25M2	S25C	C25 C25E C25R	C25 C25E C25R	C25 C25E C25R	-
		1030	SM30C	C30 C30E4 C30M2	S30C	080A30 080M30 CC30 C30E C30R	C30 C30E C30R	C30 C30E C30R	30Г
		1035	SM35C	C35 C35E4 C35M2	S35C	C35 C35E C35R	C35 C35E C35R	C35 C35E C35R	35Г
		1039 1040	SM40C	C40 C40E4 C40M2	S40C	080M40 C40 C40E C40R	C40 C40E C40R	C40 C40E C40R	40Г
		1042 1043	SM43C	-	S43C	080A42	-	-	40Г
		1045 1046	SM45C	C45 C45E4 C45M2	S45C	C45 C45E C45R	C45 C45E C45R	C45 C45E C45R	45Г
		-	SM48C	-	S48C	080A47	-	-	45Г
		1049	SM50C	C50 C50E4 C50M2	S50C	080M50 C50 C50E C50R	C50 C50E C50R	C50 C50E C50R	50Г
		1050 1053	SM53C	-	S53C	-	-	-	50Г
		1055	SM55C	C55 C55E4 C55M2	S55C	070M55 C55 C55E C55R	C55 C55E C55R	C55 C55E C55R	-
		1059 1060	SM58C	C60 C60E4 C60M2	S58C	C60 C60E C60R	C60 C60E C60R	C60 C60E C60R	60Г
Alloy steel	Nickel chromium steel	- - - - -	SNC236 SNC415(H) SNC631(H) SNC815(H) SNC836	- - - 15NiCr13 -	SNC236 SNC415(H) SNC631(H) SNC815(H) SNC836	- - - 655M13(655H13) -	- - - 15NiCr13 -	- - - - -	40XH - 30XH3A - -
	Nickel chromium molybdenum steel	8615 8617(H) 8620(H) 8622(H)	SNCM220	20NiCrMo2 20NiCrMoS2	SNCM220	805A20 805M20 805A22 805M22	20NiCrMo2 20NiCrMoS2	20NCD2	-
		8637 8640	SNCM240	41CrNiMo2 41CrNiMoS2	SNCM240	-	-	-	-
		- 4320(H) - 4340 - - - - -	SNCM415 SNCM420(H) SNCM431 SNCM439 SNCM447 SNCM616 SNCM625 SNCM630 SNCM815	- - - - - - - - -	SNCM415 SNCM420(H) SNCM431 SNCM439 SNCM447 SNCM616 SNCM625 SNCM630 SNCM815	- - - - - - - - -	- - - - - - - - -	- - - - - - - - -	- 20XH2M(20XHM) - - - - - - - -
	Chromium steel	-	SCr415(H)	-	SCr415(H)	-	17Cr3 17CrS3	-	15X 15XA
		5120(H)	SCr420(H)	20Cr4(H) 20CrS4	SCr420(H)	-	-	-	20X
		5130(H) 5132(H)	SCr430(H)	34Cr4 34CrS4	SCr430(H)	34Cr4 34CrS4	34Cr4 34CrS4	34Cr4 34CrS4	30X
		5135(H)	SCr435(H)	34Cr4 34CrS4 37Cr4 37CrS4	SCr435(H)	37Cr4 37CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X
		5140(H)	SCr440(H)	37Cr4 37CrS4 41Cr4 41CrS4	SCr440(H)	530M40 41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X
		-	SCr445(H)		SCr445(H)				45X

• The above Alloy steel can supplied by domestic manufacturing

Carbon steel and alloy steel for structural use

Type		U.S.A AISI SAE	Korea KS	ISO ISO	Japan JIS	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ
Alloy steel	Chromium molybdenum steel	-	SCM415(H)	-	SCM415(H)	-	-	-	-
		-	SCM418(H)	18CrMo4 18CrMoS4	SCM418(H)	-	18CrMo4 18CrMoS4	-	20XM
		-	SCM420(H)	-	SCM420(H)	708M20(708H20)	-	-	20XM
		4130	SCM430	-	SCM430	-	-	-	30XM 30XMA
		-	SCM432	-	SCM432	-		-	-
		(4135H) 4137(H)	SCM435(H)	34CrMo4 34CrMoS4	SCM435(H)	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	35XM
		4140(H) 4142(H)	SCM440(H)	42CrMo4 42CrMoS4	SCM440(H)	708M70 709M40 42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	-
		4145(H) 4147(H)	SCM445(H)	-	SCM445(H)	-	-	-	-
	Manganese steel and Manganese chromium steel	1522(H) 1534 1541(H) 1541(H) - -	SMn420(H) SMn433(H) SMn438(H) SMn443(H) SMnC420(H) SMnC443(H)	22Mn6(H) - 36Mn6(H) 42Mn6(H) - -	SMn420(H) SMn433(H) SMn438(H) SMn443(H) SMnC420(H) SMnC443(H)	150M19 150M36 150M36 - - -	- - - - -	- - - - -	- 30Г2 35Г2 35Г2 40Г2 40Г2 45Г2 - -
	Aluminum chromium molybdenum steel	-	SACM645	41CrAlMo74	SACM645	-	-	-	-

• The above Alloy steel can supplied by domestic manufacturing

Tool steel

Type	U.S.A AISI SAE	Korea KS	ISO ISO	Japan AISI SAE	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ
High speed steel	T1 T4 T5 T15 M2 M3-1 M3-2 M4 M 35 M36 - M7 M42	SKH2 SKH3 SKH4 SKH10 SKH51 SKH52 SKH53 SKH54 SKH55 SKH56 SKH57 SKH58 SKH59	HS18-0-1 - - - HS6-5-2 HS6-6-2 HS6-5-3 HS6-5-4 HS6-5-2-5 - HS10-4-3-10 HS2-9-2 HS2-9-1-8	SKH2 SKH3 SKH4 SKH10 SKH51 SKH52 SKH53 SKH54 SKH55 SKH56 SKH57 SKH58 SKH59	 BM 2 BM 35 	 S6/5/2 S6/5/2/5 S2/9/2 	 Z 85 WDCV 6-5-2-5 	
Alloy tool steel	F2 - - - L6 - - - - W2-9 1/ W2-8 1-2 - - - - - D3 D2 A2 - H21 H11 H13 H12 H10 H19 - L6	STS11 STS2 STS21 STS5 STS51 STS7 STS8 STS4 STS41 STS43 STS44 STS3 STS31 STS93 STS94 STS95 STD1 STD11 STD12 STD4 STD5 STD6 STD61 STD62 STD7 STD8 STF3 STF4	- - - - - - - - - 105V - - 105WCr1 - - - 210Cr12 - 100CrMoV5 - X30WCrV9-3 X37CrMoV5-1 X40CrMoV5-1 X35CrWMoV5 32CrMoV12-28 - - 55NiCrMoV7	SKS11 SKS2 SKS21 SKS5 SKS51 SKS7 SKS8 SKS4 SKS41 SKS43 SKS44 SKS3 SKS31 SKS93 SKS94 SKS95 SKD1 SKD11 SKD12 SKD4 SKD5 SKD6 SKD61 SKD62 SKD7 SKD8 SKT3 SKT4	 BD3 BA2 BH21 BH13 	 105WCr6 X210Cr12 X100CrMoV5 1 X30WCrV9 3 X40CrMoV5 1 55NiCrMoV6	 105WC13 Z200C12 Z100CDV5 Z30WCV9 Z40CDV5 55NCDV7	

• The above Alloy steel can supplied by domestic manufacturing

Tool steel

Type	U.S.A	Korea	ISO	Japan	Great Britain	Germany	France	Russia
	AISI SAE	KS	ISO	JIS	BS BS/EN	DIN DIN/EN	NF NF/EN	ГОСТ
Free cutting carbon steel	1110	SUM11	-	SUM11				
	1109	SUM12	-	SUM12				
	1212	SUM21	9S20	SUM21				
	1213	SUM22	11SMn28	SUM22	230M07	9SMn28	S250	
	12L13	SUM22L	11SMnPb28	SUM22L		9SMnPb28	S250Pb	
	1215	SUM23	-	SUM23	240M07	9SMn36	S 300	
	-	SUM23L	-	SUM23L				
	12L14	SUM24L	11SMnPb28	SUM24L		9SMnPb36	S300Pb	
	-	SUM25	12SMn35	SUM25				
	1117	SUM31	-	SUM31				
	-	SUM31L	-	SUM31L				
	-	SUM32	-	SUM32				
	1137	SUM41	-	SUM41				
	1141	SUM42	-	SUM42				
	1144	SUM43	44SMn28	SUM43				
High carbon chromiom	-	STB1	-	SUJ1				
	52100	STB2	B1	SUJ2	534A99	100Cr6	100Cr6	
	ASTM A 485 Grade 1	STB3	B2	SUJ3				
	-	STB4	-	SUJ4				
	-	STB5	-	SUJ5				

• The above Alloy steel can supplied by domestic manufacturing

Stainless steel

Type		U.S.A		Korea	ISO	Japan	Great Britain	Germany	France	Russia
		UNS	AISI SAE	KS	ISO	JIS	BS BS/EN	DIN DIN/EN	NF NF/EN	ГОСТ
Stainless steel	Austenitic	S20100	201	STS201	X12CrMnNiN17-7-5	SUS201	284S16	X12CrNi17-7	Z12CMN17-07Az	12X17ЯН4
		S20200	202	STS202	X12CrMnNiN18-9-5	SUS202	301S21	X2CrNiN18-7		07X16H6
		S30100	301	STS301	X10CrNi18-8	SUS301		X12CrNi17-7	Z11CN17-08	
				STS301L	X2CrNiN18-7	SUS301L				
				STS301J1		SUS301J1	302S25			12X18H9
		S30200	302	STS302		SUS302		X10CrNiS18-9	Z12CN18-09	
		S30215	302B	STS302B	X12CrNiSi18-9-3	SUS302B	303S21			
		S30300	303	STS303	X10CrNiS18-9	SUS303	303S41		Z8CNF18-09	12X18H10E
		S30323	303Se	STS303Se		SUS303Se		X5CrNi18-10		
				STS303Cu		SUS303Cu	304S31			08X18H10
		S30400	304	STS304	X5CrNi18-9 X2CrNi18-9	SUS304	304S11	X2CrNi19-11	Z7CN18-09	03X18H11
		S30403	304L	STS304L	X2CrNi19-11	SUS304L		X2CrNiN18-10	Z3CN19-11	
		S30451	304N	STS304N1	X5CrNiN18-8	SUS304N1			Z6CN19-09Az	
		S30453	304LN	STS304LN	X2CrNiN18-8	SUS304LN		X5CrNi18-12	Z3CN18-10Az	
				STS304J1		SUS304J1	305S19			06X18H11
		S30500	305	STS305	X6CrNi18-12	SUS305			Z8CN18-12	
		S30908	309S	STS309S		SUS309S	310S31	X5CrNiMo27-12-2	Z10CN24-13	10X23H18
		S31008	310S	STS310S	X6CrNi25-20	SUS310S	316S31	X5CrNiMo27-13-3	Z8CN25-20	
		S31600	316	STS316	X5CrNiMo17-12-2 X3CrNiMo17-12-3	SUS316	316S11	X2CrNiMo17-13-2 X2CrNiMo17-14-3	Z7CND17-12-02 Z6CND18-12-03	03X17H14M3
		S31603	316L	STS316L	X2CrNiMo17-12-2 X2CrNiMo17-12-3 X2CrNiMo18-14-3	SUS316L			Z3CND17-12-02 Z3CND17-12-03	
		S31651	316N	STS316N		SUS316N	317S16	X6CrNiTi18-10		
		S31700	317	STS317		SUS317	321S31	X6CrNiNb18-10		08X18H10T
		S32100	321	STS321	X6CrNiTi18-10	SUS321	347S31		Z6CNT18-10	08X18H12
		S34700	347	STS347	X6CrNiNb18-10	SUS347		X6CrAl13	Z6CNNb18-10	
		S38400	384	STS384	X3NiCr18-16	SUS384	405S17		Z6CN18-16	
	Ferritic	S40500	405	STS405	X6CrAl13	SUS405			Z8CA12	
				STS410L		SUS410L		X6Cr17	Z3C14	
		S42900	429	STS429		SUS429	430S17	X7CrS18		12X17
		S43000	430	STS430	X6Cr17	SUS430		X6CrMo17-1	Z8C17	
		S43020	430F	STS430F	X7CrS17	SUS430F	434S17		Z8CF17	
		S43400	434	STS434	X6CrMo17-1	SUS434			Z8CD17-01	
		S44400	444	STS444	X2CrMoTi18-2	SUS444			Z3CDT18-02	
		S44627		STSXM27		SUSXM27		X10Cr13	Z1CD26-01	
	Martensitic	S40300	403	STS403		SUS403	410S21			
		S41000	410	STS410	X12Cr13	SUS410	416S21	X20Cr13	Z13C13	
		S41600	416	STS416	X12CrS13	SUS416	420S29	X20CrNi17-2	Z11CF13	20X13
		S42000	420	STS420J1	X20Cr13	SUS420J1	431S29		Z20C13	20X17H2
		S43100	431	STS431	X19CrNi16-2	SUS431			Z15CN16-02	
		S44002	440A	STS440A	X70CrMo15	SUS440A		X7CrNiAl17-7	Z70C15	
	Precipitation hardening type	S17400	S17400	STS630	X5CrNiCuNb16-4	SUS630			Z6CNU17-04	09X17H7IO
		S17700	S17700	STS631	X7CrNiAl17-7	SUS631			Z9CNA17-07	
				STS631J1		SUS631J1				

• The above Alloy steel can supplied by domestic manufacturing

Casting or forging steel

Type		U.S.A AISI SAE	Korea KS	ISO ISO	Japan JIS	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ
Casting Iron	Grey iron casting	No 20 B No 25 B No 30 B No 35 B No 45 B No 50 B No 55 B	GC100 GC150 GC200 GC250 GC300 GC350	100,150, 200, 250, 300, 350	FC100 FC150 FC200 FC250 FC300 FC350	 Grade 150 Grade 220 Grade 260 Grade 300 Grade 350 Grade 400	GG 10 GG 15 GG 20 GG 25 GG 30 GG 35 GG 40	Ft 10 D Ft 15 D Ft 20 D Ft 25 D Ft 30 D Ft 35 D Ft 40 D	
	Spheroidal graphite iron casting	60-40-18 65-45-12 80-55-06 100-70-03	GCD400-15, GCD400-18 GCD450-10, GCD500-7 GCD600-3 GCD700-2	400-15, 400-18 450-10, 500-7 600-3 700-2	FCD400 FCD500 FCD600 FCD700	SNG 420/12 SNG 370/17 SNG 500/7 SNG 600/3 SNG 700/2	GGG 40 GGG 40.3 GGG 50 GGG 60 GGG 70	FCS 400-12 FGS 370-17 FGS 500-7 FGS 600-3 FGS 700-2	
	Austempered Spheroidal graphite iron casting	-	FCAD	-	FCAD	EN-GJS-	EN-GJS-	EN-GJS-	
	Austenitic iron casting	Type 1, 2, Type D-2, D-3A Class 1, 2	FCA- FCDA-	L-, S-	FCA- FCDA-	F1, F2, S2W, S5S	GGL-, GGG-	L-, S-	

Non-ferrous alloy

Type		U.S.A AISI SAE	Korea KS	ISO ISO	Japan JIS	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ
Aluminum alloy	Aluminum alloy ingots for casting	204.0	AC1B	Al-Cu4MgTi	AC1B	-	-	A-U5GT	
		-	AC2A	-	AC2A	-	-	-	
		319.0	AC2B	-	AC2B	-	-	-	
		-	AC3A	-	AC3A	LM-6	-	-	
		-	AC4A	-	AC4A	-	G(GK)-AlSi9Cu3	-	
		-	AC4B	-	AC4B	-	-	-	
		356.0	AC4C	Al-Si7Mg(Fe)	AC4C	LM-25	G(GK)-AlSi7MG	A-S7G	
		A356.0	AC4CH	Al-Si7Mg	AC4CH	-	-	-	
		355.0	AC4D	Al-Si5Cu1Mg	AC4D	LM-16	-	-	
		242.0	AC5A	Al-Cu4Ni2Mg2	AC5A	-	G(GK)-AlMg5	A-U4NT	
		514.0	AC7A	-	AC7A	LM-5	-	-	
		-	AC8A	-	AC8A	LM-13	-	A-S12UNG	
		-	AC8B	-	AC8B	LM-26	-	A-S10UG	
		-	AC8C	-	AC8C	-	-	A-S10UG	
		-	AC9A	-	AC9A	LM-29	-	-	
		-	AC9B	-	AC9B	-	GD-AlSi12 (Cu)	A-S18UNG	
	Aluminum alloy die casting	A413.0	ALDC1	Al-Si12CuFe	ADC1	LM20	GD-AlSi10Mg	A-S13	
		A360.0	ALDC2	-	ADC3	-	GD-AlMg9	A-S9G	
		518.0	ALDC3	-	ADC5	-	-	A-G6	
		-	ALDC4	-	ADC6	-	GD-AlSi9Cu3	A-G3T	
		A380.0	ALDC7	Al-Si8Cu3Fe	ADC10	-	GD-AlSi9Cu3	-	
		A380.0	ALDC7Z	Al-Si8Cu3Fe	ADC10Z	LM24	-	-	
		383.0	ALDC8	-	ADC12	LM2	-	-	
		383.0	ALDC8Z	-	ADC12Z	LM2	-	-	
		B390.0	ALDC9	-	ADC14	LM30	EN AW-5052	-	
	Aluminum alloy extruded shapes	5052	A5052S	-	A5052S	EN AW-5052	EN AW-5454	EN AW-5052	
		5454	A5454S	-	A5454S	EN AW-5454	EN AW-5083	EN AW-5454	
		5083	A5083S	AlMg4.5Mn0.7	A5083S	EN AW-5083	EN AW-5086	EN AW-5083	
		5086	A5086S	-	A5086S	EN AW-5086	EN AW-6061	EN AW-5086	
		6061	A6061S	AlMg1SiCu	A6061S	EN AW-6061	EN AW-6063	EN AW-6061	
		6063	A6063S	AlMg0.7Si	A6063S	EN AW-6063	EN AW-7003	EN AW-6063	
		-	A7003S	-	A7003S	EN AW-7003	-	EN AW-7003	
		-	A7N01S	-	A7N01S	-	EN AW-7075	-	
		7075	A7075S	AlZn5.5MgCu	A7075S	EN AW-7075		EN AW-7075	

Heat resistant steel

Type		U.S.A UNS	U.S.A AISI SAE	Korea KS	ISO ISO	Japan JIS	Great Britain BS BS/EN	Germany DIN DIN/EN	France NF NF/EN	Russia ГОСТ
Heat resistant steel	Austenitic			STR31		SUH31	331S42		Z35CNWS14-14	
				STR35		SUH35	349S52	X53CrMnNi21-9	Z52CMN21-09-Az	
				STR36		SUH36	349S54		Z55CMN21-09-Az	
		S63008		STR37		SUH37	381S34			
		S63017		STR38		SUH38				
				STR309		SUH309	309S24	CrNi2520	Z15CN24-13	
		S30900		STR310		SUH310	310S24		Z15CN25-20	
		S31000	309	STR330		SUH330			Z12NCS35-16	
		N08330	310	STR660		SUH660			Z6NCTV25-20	
		S66286	N08330	STR661		SUH661		CrAl1205		
	Ferritic	R30155		STR21		SUH21		X6CrTi12		
				STR409	X6CrTi12	SUH409	409S19		Z6CT12	
		S40900		STR409L	X2CrTi12	SUH409L			Z3CT12	
			409	STR446		SUH446		X45CrSi9-3	Z12C25	
	Martensitic	S44600		STR1		SUH1	401S45		Z45CS9	
		S65007	446	STR3		SUH3			Z40CSD10	
				STR4		SUH4	443S65		Z80CSN20-02	
				STR11		SUH11				
				STR600		SUH600				
		S42200		STR616		SUH616				

• The above Heat resistant steel can supplied by domestic manufacturing

Steel, Non-ferrous Metal Symbol List

Comparison of workpiece material standards

Group		Standard term	Code
Structural Steel		Rolled Steel for Welded Suructure	SWS
		Rerolled Steel	SBR
		Rolled Steel for General Structure	SB
		Light Gauge Steel for General Structure	SBC
		Hot- rolled Steel Plate, Sheet/ Strip for Automobile Structural Use	SAPH
Steel Plate		Cold-rolled Steel Sheet/Strip	SBC
		Hot-rolled Soft Steel Sheet/Strip	SHP
Steel Pipe		Carbon Steel Pipe for Ordinary Piping	SPP
		Carbon Steel Pipe for Boiler and Heat Exchanger	STH
		Seamless Steel Pipe for High Pressure Gas Cylinder	STHG
		Carbon Steel Pipe for General Structural Use	SPS
		Carbon Steel Pipe for Machine Structural Use	STST
		Alloy Steel Pipe for Structural Use	STA
		Stainless Steel Pipe for Machine and Structural Use	STS-TK
		Carbon Steel Square Pipe for General Structural Use	SPSR
		Alloy Steel Pipe	SPA
		Carbon Steel Pipe for Pressure Service	SPPS
		Carbon Steel Pipe for High Temperature Service	SPSR
		Carbon Steel Pipe for High Pressure Service	SPPH
		Stainless Steel Pipe	STSxT
Iron and Steel		Carbon Steel for Machine Structural Use	SMxxC, SMxxCK
		Aluminum Chromium Molybdenum Steel	SACM
		Chromium Molybdenum Steel	SCM
		Chromium Steel	SCr
		Nickel Chromium Steel	SNC
		Nickel Chromium Molybdenum Steel	SNCM
		Manganese Steel and manganese Chromium Steel for Machine Structural Use	SMn, SMnC
Special steel	Tool steel	Carbon Tool Steel	STC
		Hollow Drill Steel	SKC
		Alloy Tool Steel	STS, STD, STF
		High Speed Tool Steel	SKH
	Stainless steel	Stainless Steel Bar	STS
	Heat resisting steel	Heat Resisting Steel	STR
		Heat Resisting Steel Bar	STR
		Heat Resisting Steel Sheet	STR
	Free cutting carbon steel		SUM
	Special steel		STB
	Spring steel		SPS

Group	Standard term	Code
Forged steel	Carbon Steel Forging	SF
	Chromium Molybdenum Steel Forging	SFCM
	Nickel Chromium Molybdenum Steel Forging	SFNCM
Cast iron	Gray Cast iron	GC
	Spheroidal Graphite Cast iron	GCD
	Blackheart Malleable Cast iron	BMC
	Whiteheat Malleable Cast iron	WMC
	Pearlitic Malleable Cast iron	PMC
Cast steel	Carbon Cast Steel	SC
	High Tensile Strength Carbon Cast Steel & Low Alloy Cast Steel	HSC
	Stainless Cast Steel	SSC
	Heat Resisting Cast Steel	HRSC
	High Manganese Cast Steel	HMnSC
	Cast Steel for High Temperature and High Pressure Service	SCPH
Casting	Brass Casting	BsC
	High Strength Brass Casting	HBsC
	Bronze Casting	BrC
	Phosphoric Bronze Casting	PCB
	Aluminum Bronze Casting	AlBC
	Aluminum Alloy Casting	ACxA
	Magnesium Alloy Casting	MgC
	Zinc Alloy Die Casting	ZnDC
	Aluminum Alloy Die Casting	Aℓ DC
	Magnesium Alloy Die Casting	MgDC
	White Metal	WM
	Aluminum Alloy Casting for Bearing	AM
	Brass Alloy Casting for Bearing	KM

SI Unit Conversion Table

Major SI unit conversion table

Force

N	kgf	dyn
1	1.01972×10^{-1}	1×10^{5}
9.80665	1	9.80665×10^{5}
1×10^{-5}	1.01972×10^{-6}	1

Stress

Pa or N/m²	MPa or 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

Pa	kPa	MPa	bar	kgf/cm²
1	1×10^{-3}	1×10^{-6}	1×10^{-5}	1.01972×10^{-5}
1×10^{3}	1	1×10^{-3}	1×10^{-2}	1.01972×10^{-2}
1×10^{6}	1×10^{3}	1	1×10	1.01972×10
1×10^{5}	1×10^{2}	1×10^{-1}	1	1.01972
9.80665×10^{4}	9.80665×10	9.80665×10^{-2}	9.80665×10^{-1}	1

Work, Energy, Calorie

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

Power

W	kW	kgf·m/s	PS	kcal/h
1	1×10^{-3}	1.01972×10^{-1}	1.35962×10^{-3}	0.860
1×10^{3}	1	1.01972×10^{2}	1.359 62	8.60000×10^{2}
9.81 65	9.80665×10^{-3}	1	1.33333×10^{-2}	8.433 71
7.355×10^{2}	7.355×10^{-1}	7.5×10	1	6.32529×10^{2}
1.16279	1.16279×10^{-3}	1.18572×10^{-1}	1.58095×10^{-3}	1

Specific heat

J/(kg·K)	kcal/(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	8.6000×10^{-1}
1.16279	1

Revolution per minute

min^{-1}	s^{-1}	r.p.m.
1	0.0167	1
60	1	60

Hardness Calculating Table

Work piece hardness calculating table

Vickers 50kgf HV	Brinell 3000kgf HB		Rockwell				Shore	Tensile strength (approximate value)
	Standard ball 10㎜	Cemented carbide ball 10㎜	A scale 60kgf Diamond particle HRA	B scale 100kgf 1/16in ball HRB	C scale 150kgf Diamond particle HRC	D scale 100kgf Diamond particle HRD	HS	MPa (1)
940	-	-	85.6	-	68.0	76.9	97	-
920	-	-	85.3	-	67.5	76.5	96	-
900	-	-	85.0	-	67.0	76.1	95	-
880	-	(767)	84.7	-	66.4	75.7	93	-
860	-	(757)	84.4	-	65.9	75.3	92	-
840	-	(745)	84.1	-	65.3	74.8	91	-
820	-	(733)	83.8	-	64.7	74.3	90	-
800	-	(722)	83.4	-	64.0	74.8	88	-
780	-	(710)	83.0	-	63.3	73.3	87	-
760	-	(698)	82.6	-	62.5	72.6	86	-
740	-	(684)	82.2	-	61.8	72.1	84	-
720	-	(670)	81.8	-	61.0	71.5	83	-
700	-	(656)	81.3	-	60.1	70.8	81	-
690	-	(647)	81.1	-	59.7	70.5	-	-
680	-	(638)	80.8	-	59.2	70.1	80	-
670	-	630	80.6	-	58.8	69.8	-	-
660	-	620	80.3	-	58.3	69.4	79	-
650	-	611	80.0	-	57.8	69.0	-	-
640	-	601	79.8	-	57.3	68.7	77	-
630	-	591	79.5	-	56.8	68.3	-	-
620	-	582	79.2	-	56.3	67.9	75	-
610	-	573	78.9	-	55.7	67.5	-	-
600	-	564	78.6	-	55.2	67.0	74	-
590	-	554	78.4	-	54.7	66.7	-	2055
580	-	545	78.0	-	54.1	66.2	72	2020
570	-	535	77.8	-	53.6	65.8	-	1985
560	-	525	77.4	-	53.0	65.4	71	1950
550	(505)	517	77.0	-	52.3	64.8	-	1905
540	(496)	507	76.7	-	51.7	64.4	69	1860
530	(488)	497	76.4	-	51.1	63.9	-	1825
520	(480)	488	76.1	-	50.5	63.5	67	1795
510	(473)	479	75.7	-	49.8	62.9	-	1750
500	(465)	471	75.3	-	49.1	62.2	66	1705
490	(456)	460	74.9	-	48.4	61.6	-	1660
480	488	452	74.5	-	47.7	61.3	64	1620
470	441	442	74.1	-	46.9	60.7	-	1570
460	433	433	73.6	-	46.1	60.1	62	1530
450	425	425	73.3	-	45.3	59.4	-	1495
440	415	415	72.8	-	44.5	58.8	59	1460
430	405	405	72.3	-	43.6	58.2	-	1410
420	397	397	71.8	-	42.7	57.5	57	1370
410	388	388	71.4	-	41.8	56.8	-	1330
100	379	379	70.8	-	40.8	56.0	55	1290
390	369	369	70.3	-	39.8	55.2	-	1240
380	360	360	69.8	(100.0)	38.8	54.4	52	1205
370	350	350	69.2	-	39.9	53.6	-	1170
360	341	341	68.7	(109.0)	36.6	52.8	50	1130
350	331	331	68.1	-	35.5	51.9	-	1095
340	322	322	67.6	(108.0)	34.4	51.1	47	1070
330	313	313	67.0	-	33.3	50.2	-	1035
320	303	303	66.4	(107.0)	32.2	49.4	45	1005
310	294	294	65.8	-	31.0	48.4	-	980
300	284	284	65.2	(105.5)	29.8	47.5	42	950
295	280	280	64.8	-	29.2	47.1	-	935
290	275	275	64.5	(104.5)	28.5	46.5	41	915
285	270	270	64.2	-	27.8	46.0	-	905
280	265	265	63.8	(103.5)	27.1	45.3	40	890
275	261	261	63.5	-	26.4	44.9	-	875
270	256	256	63.1	(102.0)	25.6	44.3	38	855
265	252	252	62.7	-	24.8	43.7	-	840
260	247	247	62.4	(101.0)	24.0	43.1	37	825
255	243	243	62.0	-	23.1	42.2	-	805
250	238	238	61.6	99.5	22.2	41.7	36	795
245	233	233	61.2	-	21.3	41.1	-	780
240	228	228	60.7	98.1	20.3	40.3	34	765
230	219	219	-	96.7	(18.0)	-	33	730
220	209	209	-	95.0	(15.7)	-	32	695
210	200	200	-	93.4	(13.4)	-	30	670
200	190	190	-	91.5	(11.0)	-	29	635
190	181	181	-	89.5	(8.5)	-	28	605
180	171	171	-	87.1	(6.0)	-	26	580
170	162	162	-	85.0	(3.0)	-	25	545
160	152	152	-	81.7	(0.0)	-	24	515
150	143	143	-	78.7	-	-	22	490
140	133	133	-	75.0	-	-	21	455
130	124	124	-	71.2	-	-	20	425
120	114	114	-	66.7	-	-	-	390
110	105	105	-	62.3	-	-	-	-
100	95	95	-	56.2	-	-	-	-
95	90	90	-	52.0	-	-	-	-
90	86	86	-	48.0	-	-	-	-
85	81	81	-	41.0	-	-	-	-

Note) 1. 1MPa = 1N/㎟
2. The number In the blank is not generally used ranges

Actual designation of Milling Cutter

Inch Type

Fig. 1

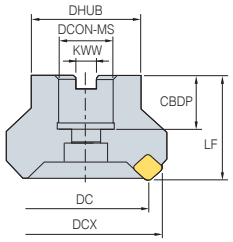


Fig. 2

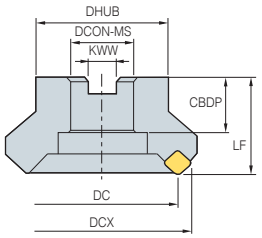


Fig. 3

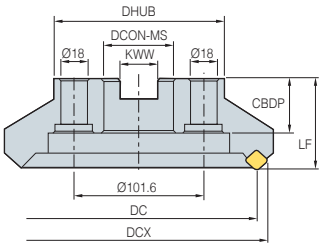
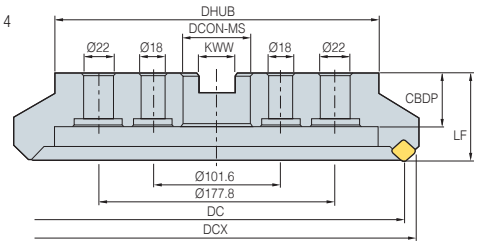


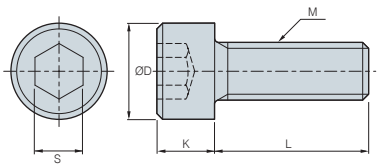
Fig. 4



Internal inch type

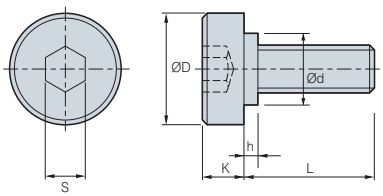
Dimensions (mm)						Fig.	Available arbors
DCX	DCON-MS	KWW	CBDP	LF	DHUB		
40	16	8.4	18	40	34	1	FMC16, SMA16
50	22	10.4	20	40	42	1	FMC22
63	22	10.4	20	40	49	1	FMC22
80	25.4	9.5	25	50	57	1	FMA25.4
100	31.75	12.7	32	50	67	2	FMA31.75, SMB31.75
125	38.1	15.9	38	63	87	2	FMA38.1
160	50.8	19	38	63	107	2	FMA50.8
200	47.625	25.4	38	63	130	3	FMA47.625
250	47.625	25.4	38	63	180	3	FMA47.625
315	47.625	25.4	38	63	240	4	-

Wrench bolt



Designation	D	S	K	L	M	Cutter size
SB0825	13	6	8	25	M08×1.25	Ø40
SB1025	16	8	10	25	M10×1.50	Ø50, Ø63
SB1035	16	8	10	35	M10×1.50	Ø50, Ø63(HRM)
SB1230	18	10	12	30	M12×1.75	Ø80
SB1630	24	14	16	30	M16×2.0	Ø100
SB1645	24	14	16	45	M16×2.0	Ø80, Ø100(HRM)
SB2040	30	17	20	40	M20×2.5	Ø125

Wrench bolt



Designation	Dimensions (mm)						Cutter size
	D	L	K	S	h	d	
M8×1.25	20	20	7	6	-	-	Ø40
M10×1.5	28	24	9	8	-	-	Ø50, Ø63
M12×1.75	33	28	10	10	2	23	Ø80
M16×2	40	32	10	14	5	23	Ø100
M20×2.5	50	40	14	17	5	27	Ø125
M24×3	64	46	14	19	9	37	Ø160

Actual designation of Milling Cutter

Metric Type - ISO6462, DIN138

Fig. 1

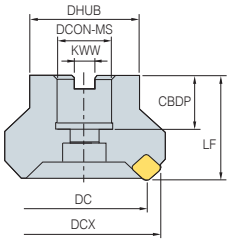


Fig. 2

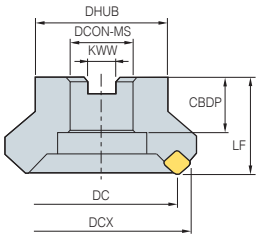


Fig. 3

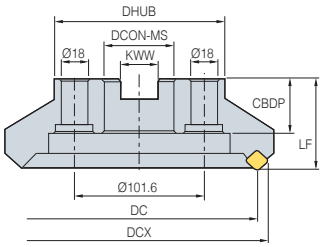
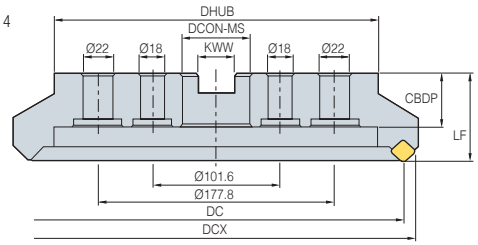


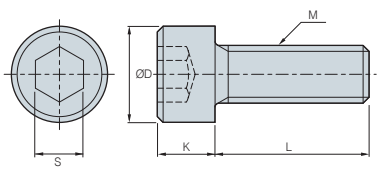
Fig. 4



Internal metric type

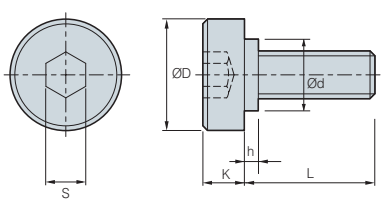
Dimensions (mm)						Fig.	Available arbors
DCX	DCON-MS	KWW	CBDP	LF	DHUB		
40	16	8.4	18	40	34	1	FMC16, SMA16
50	22	10.4	20	40	42	1	FMC22
63	22	10.4	20	40	49	1	FMC22
80	27	12.4	22	50	57	1	FMC27
100	32	14.4	28	50	67	2	FMC32
125	40	16.4	32	63	87	2	FMB40
160	40	16.4	32	63	107	2	FMB40
200	60	25.7	38	63	130	3	FMB60
250	60	25.7	38	63	180	3	FMB60
315	60	25.7	38	63	240	4	-

Wrench bolt



Designation	DCON-MS	S	K	L	M	Cutter size
SB0825	13	6	8	25	M08×1.25	Ø40
SB1025	16	8	10	25	M10×1.50	Ø50, Ø63
SB1035	16	8	10	35	M10×1.50	Ø50, Ø63(HRM)
SB1230	18	10	12	30	M12×1.75	Ø80
SB1245	18	10	12	45	M12×1.75	Ø80(HRM)
SB1630	24	14	16	30	M16×2.0	Ø100
SB1645	24	14	16	45	M16×2.0	Ø100(HRM)
SB2040	30	17	20	40	M20×2.5	Ø125

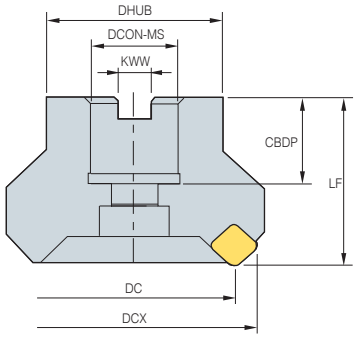
Clamp bolt



Designation	Dimensions (mm)						Cutter size
	D	L	K	S	h	d	
M12×1.75	33	28	10	10	2	23	Ø80
M16×2	40	32	10	14	5	23	Ø100
M20×2.5	50	40	14	17	5	27	Ø125, Ø160

Clamping Part of Milling Cutter (Oil-hole)

Clamping part of milling cutter



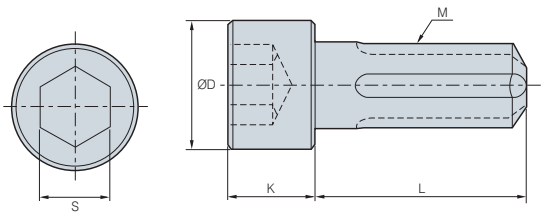
Inch type

Dimensions (mm)						Available arbors
DCX	DCON-MS	KWW	CBDP	LF	DHUB	
40	16	8.4	19	40	34	FMC16, SMA16
50	22	10.4	21	40	42	FMC22
63	22	10.4	21	40	49	FMC22
80	25.4	9.5	24	50	57	FMA25.4, FMB25.4
100	31.75	12.7	32	63	67	FMA31.75, SMB31.75
125	38.1	15.9	35	63	87	FMA38.1, FMB38.1, FMC38.1

Metric type

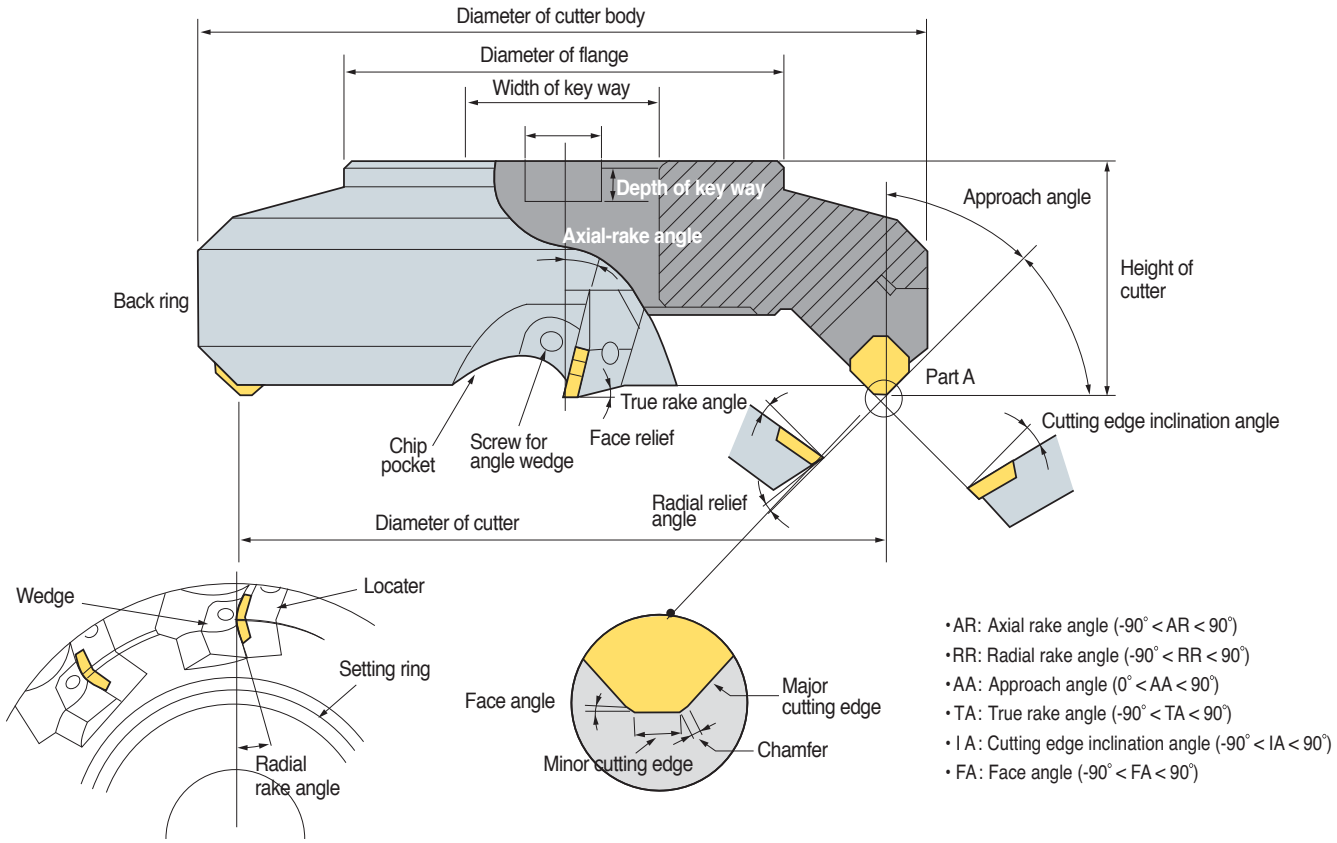
Dimensions (mm)						Available arbors
DCX	DCON-MS	KWW	CBDP	LF	DHUB	
40	16	8.4	19	40	34	FMC16, SMA16
50	22	10.4	21	40	42	FMC22
63	22	10.4	21	40	49	FMC22
80	27	12.4	23	50	57	FMC27
100	32	14.4	25	50	67	FMC32
125	40	16.4	29	63	87	FMB40/FMC40

Wrench bolt



Designation	ØD	S	K	L	M	Cutter size
CB0825	13	6	8	25	M08×1.25	Ø40
CB1025	16	8	10	25	M10×1.50	Ø50, Ø63
CB1035	16	8	10	35	M10×1.50	Ø50, Ø63(HRM)
CB1230	18	10	12	30	M12×1.75	Ø80
CB1245	18	10	12	45	M12×1.75	Ø80(HRM)
CB1630	24	14	16	30	M16×2.0	Ø100
CB1645	24	14	16	45	M16×2.0	Ø100(HRM)
CB2040	30	17	20	40	M20×2.5	Ø125

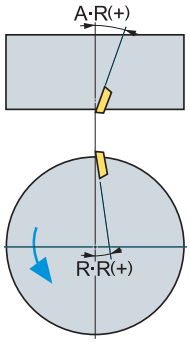
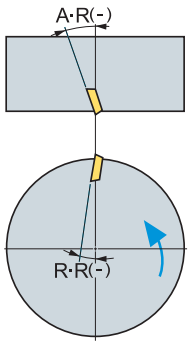
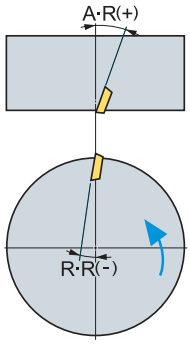
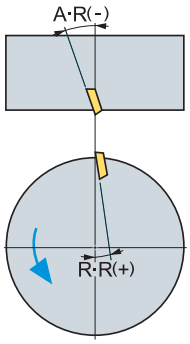
Milling cutter shape and designation



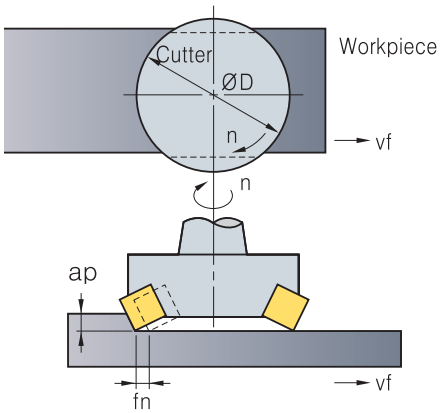
• The terminology and functions of cutting edge angle

No.	Tool failure	Symbol	Function	Effects
1	Axial rake angle	A.R	Chip flow direction	Positive: Excellent cutting, built-up edge prevented
2	Radial rake angle	R.R	Affecting on thrust	Negative: Excellent chip control
3	Approach angle	A.A	Chip thickness, Determines flow direction	(+): Chip thickness become thinner, cutting force could be reduced
4	True rake angle	T.A	Effective rake angle	(+): Better cutting. Preventing adhesion, Weakening cutting edge strength (–): Cutting edge strength increases, easy to adhere
5	Cutting edge inclination angle	I.A	Determines chip flow direction	(+): Good chip flow, cutting force could decreases, Comer edge strength weakens
6	Face angle	F.A	Controlling cutting edge strenght, tool life and chattering	Surface roughness increases as F.A gets close to 0 degree

Features by combination of rake angle

Division	Double positive angle	Double negative angle	Posi - Negative angle	Nega - Positive angle
				
Use	• General machining of steel, cast iron, stainless steel • Machining soft steel that brings about built-up edge easily • Machining material having tendency to poor surface roughness	• Under interrupted cutting condition • Roughing of cast iron and steel	• Machining difficult to cut material • Roughing with deep depth of cut and wide width of cut in steel and cast iron	• Chip flows to center of cutter body
Advantages	• As for tough workpiece material It prevents built-up edge to improve surface roughness • Low cutting load and better machinability	• Strong cutting edge • Roughing of workpiece that has bad surface condition containing sand, mill scale • Double sided inserts can be applied(Economical) • Good chip control	• Good chip flow and machinability. • Suitable for machining of difficult-to-cut material	-
Disadvantages	• Weak cutting edge strength • Only single sided inserts are available (No economical) • Machine and cutter need enough power and rigidity	• Machine and cutter need enough power and rigidity	• Only single sided inserts are available (No economical)	• Since the chips flows toward the center of cutter. Chips scratch on machined surface • Bad chip flow • No economical

Major cutting formulas



• Cutting speed

$$vc = \frac{\pi \cdot D \cdot n}{1000} \text{ (sfm)}$$

- vc: Cutting speed (sfm)
- D: Diameter of tool (inch)
- n: Revolution per minute (min^{-1})
- π: Circular constant (3.14)

• Feed

$$fz = \frac{vf}{z \cdot n} \text{ (ipt)}$$

- fz: Feed per tooth (ipt)
- vf: Feed per minute (ipm)
- n: Revolution per minute (min^{-1})
- z: Number of tooth

• Chip removal amount

$$Q = \frac{Lxvfxap}{1000} \text{ (cm^3/min)}$$

- Q: Chip removal amount (cm^3/min)
- L: Width of cut (inch)
- vf: Table feed (ipm)
- ap: Depth of cut (inch)

• Power requirement

$$P_{kw} = \frac{Q \times kc}{60 \times 102 \times \eta} \quad P_{hp} = \frac{P_{kw}}{0.75} \text{ (hp)}$$

- Pc: Power requirement (kW)
- H: Horse power requirement (hp) (mm/min)
- Q: Chip removal amount (cm^3/min)
- kc: Specific cutting resistance (kgf/mm^3)
- η: Machine efficiency rate (0.7~0.8)

• Machining time

$$T = \frac{60 \times Lt}{vf} \text{ (sec)}$$

- T: Machining time (sec)
- Lt: Total length of table feed (inch) (= Lw+D+2R)
- Lw: The length of workpiece (inch)
- D: The diameter of cutter body (inch)
- vf: Table feed (ipm)
- R: Relief length (inch)

• True rake angle/Cutting edge inclination angle

True rake angle	tan (T) = tan (R) x cos (AA) + tan (A) x sin (C)
Cutting edge inclination angle	tan (I) = tan (A) x cos (AA) - tan (R) x sin (C)

Values of specific cutting resistance

Workpiece	Tensile strength (kg/mm²) and hardness	Specific cutting resistance according to various feed kc(MPa)				
		0.004 (ipt)	0.008 (ipt)	0.012 (ipt)	0.016 (ipt)	0.024 (ipt)
Soft steel	52	220	195	182	170	158
Medium carbon steel	62	198	180	173	160	157
High carbon steel	72	252	220	204	185	174
Tool steel	67	198	180	173	170	160
Tool steel	77	203	180	175	170	158
Chrome manganese steel	77	230	200	188	175	166
Chrome manganese steel	63	275	230	206	180	178
Chrome molybdenum steel	73	254	225	214	200	180
Chrome molybdenum steel	60	218	200	186	180	167
Nickel Chrome molybdenum steel	94	200	180	168	160	150
Nickel Chrome molybdenum steel	HB352	210	190	176	170	153
Cast steel	52	280	250	232	220	204
Hardened cast iron	HRC46	300	270	250	240	220
Meehanite cast iron	36	218	200	175	160	147
Gray cast iron	HB200	175	140	124	105	97
Brass	50	115	95	80	70	63
Light alloy (Al - Mg)	16	58	48	40	35	32
Light alloy (Al - Si)	20	70	60	52	45	39

Chip removal amount (cm3/min) per rated horse power

Workpiece \ Rated horse power		5Hp	10Hp	20Hp	30Hp	40Hp	50Hp
Steel	Soft	32	75	163	295	425	570
	Medium	26	55	127	212	310	425
	hard	18	41	93	163	228	310
Cast iron	Soft	52	116	260	455	670	880
	Medium	32	75	163	295	425	570
	hard	26	55	127	212	310	425
Bronze Brass	Soft	77	163	390	670	980	1,280
	Medium	54	118	275	490	700	910
	hard	26	55	127	245	325	425
Aluminum		90	195	440	780	1,110	1,500

Selection of MILL-MAX diameter (D)

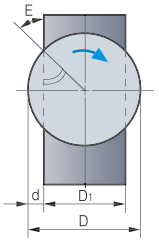
• Selection by machine rigidity

Machine horse power (PS)	10~15	15~20	Over 20
Proper cutter body specification (inch)	Ø3.15~Ø3.94	Ø4.92~Ø6.30	Ø6.30~Ø7.87

• Selection by machine rigidity

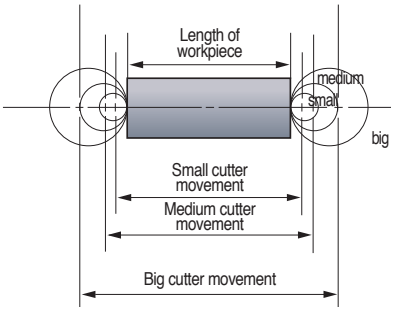
Workpiece	E	δ
Steel	+20°~-10°	3 : 2
Cast iron	Under +50°	5 : 4
Light alloy	Under +40°	5 : 3

D: External diameter of cutter body
D1: Width of workpiece
d: Projected part of cutter body
E: Engage angle
δ: Ratio of cutter body and width of workpiece (D: D1)



• Selection by machining time

The bigger size cutter the longer machining time



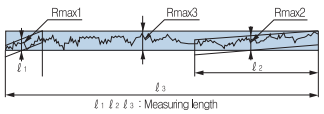
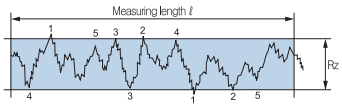
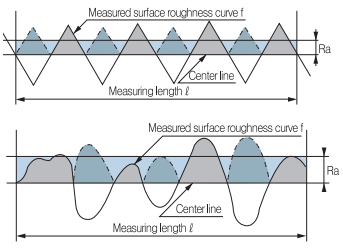
• Selection by machining time

Workpiece	Steel	Cast iron	Light alloy
Number of tooth	Dx (1~1.5)	Dx (1~4)	Dx1+α

ex) D = ø100 ⇒ 4" x(1~1.5) = 4~6

D is the size of cutter body converted into inch size

Classification of surface roughness

Type	Symbol	How to calculate	Measured value
Maximum height	Rmax	• The distance between the top of profile peak line and the bottom of profile valley line on this sampled portion is measured in the longitudinal magnification direction of roughness curve (Expressed by unit: μ) • Exclude extraordinary values (too small or big) that look like grooves or mountains	
+10 point mean roughness	Rz	• Sampled from the roughness curve in the direction of its mean line, the sum of the average value of absolute value of the highest profile peaks and the depths of five deepest profile valleys measured in the vertical magnification is expressed by micro meter (μ)	
Arithmetic mean roughness	Ra	• Sampling only the reference length from the roughness curve in the direction of mean line , taking X-axis in the direction of mean line and Y-axis in the direction of longitudinal magnification of this sampled part and is expressed by micro meter (μ) • Generally, Read measured value by Ra measurer	

Finish mark		Grind Ra0.2	Grind Ra0.4	Grind Ra0.8	Ra1.6	Ra6.3	
Surface roughness	Rmax	0.8s	1.6s	3.2s	6.3s	25s	Unspecified
	Rz	0.8z	1.6z	3.2z	6.3z	25z	
	Ra	0.2a	0.4a	0.8a	1.6a	6.3a	

Trouble shooting for milling

Trouble	Causes	Solutions										
		Cutting conditions				Tool shape					Insert grade	
		Cutting speed	Depth of cut	Feed	Coolant	Rake angle	Relief angle	Approach angle	Chattering at cutting edge	Nose radius	Toughness	Hardness
Flank wear	• Improper insert grade • Improper cutting conditions • Chattering	⬇		⬆			⬆	⬇		⬆		⬆
Crater wear	• Improper cutting conditions • Improper insert grade	⬇	⬇	⬇	●	⬆	⬆			⬇		⬆
Chipping	• Lack of insert toughness • Excessive feed • Excessive cutting load			⬇		⬇	⬇	⬇		⬆	⬆	
Built-up edge	• Improper cutting conditions • Improper cutting edge shape • Improper insert grade	⬆	⬇			⬆				⬇		
Chattering	• Improper cutting conditions • Lack of number of cutting teeth • Improper cutting edge shape • Bad chip flow • Unstable workpiece clamping		⬇	⬇	●	⬆		⬆	⬇	⬇		
Poor surface finish	• Built-up edge • Improper cutting conditions • Chattering • Bad chip flow	⬆	⬇	⬇	●	⬆			⬇	⬆		
Thermal crack	• Improper cutting conditions • Improper insert grade	⬇	⬇	⬇	◉	⬆				⬆	⬆	
Fracture	• Improper insert grade • Excessive cutting load • Bad chip flow • Chattering • Excessive overhang		⬇	⬇	●						⬆	

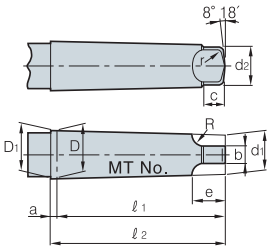
⬆: Increase ⬇: Decrease ●: use ◉: Correct use

General formulas for milling

• Machine efficiency rate (η)

Power transmission mode	Efficiency rate (E)	Reference
Principal axis direct connection driving	0.90	
Belt driving	0.85	Double connection: 0.85 × 0.85 ≒ 0.70
Starting driving	0.75	
Oil pressure driving	0.60~0.90	

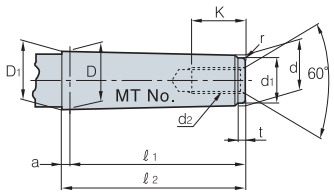
Morse taper (tang type)



(mm)

MT No.	Taper	Taper angle(α)	D	a	D1	d1	ℓ1	ℓ2	d2	b	c	e	R	r
0	1/19.212	1°29′27″	9.045	3.0	9.201	6.104	56.5	59.5	6.0	3.9	6.5	10.5	4	1.0
1	1/20.047	1°25′43″	12.065	3.5	12.240	8.972	62.0	65.5	8.7	5.2	8.5	13.5	5	1.2
2	1/20.020	1°25′50″	17.780	5.0	18.030	14.034	75.0	80.0	13.5	6.3	10.0	16.0	6	1.6
3	1/19.922	1°26′16″	23.825	5.0	24.076	19.107	94.0	99.0	18.5	7.9	13.0	20.0	7	2.0
4	1/19.254	1°29′15″	31.267	6.5	31.605	25.164	117.5	124.0	24.5	11.9	16.0	24.0	8	2.5
5	1/19.002	1°30′26″	44.399	6.5	4.741	36.531	149.5	156.0	35.7	15.9	19.0	29.0	10	3.0
6	1/19.180	1°29′36″	63.348	8.0	63.765	52.399	210.0	218.0	51.0	19.0	27.0	40.0	13	4.0
7	1/19.231	1°29′22″	83.058	10.0	83.578	68.186	286.0	296.0	66.8	28.6	35.0	54.0	19	5.0

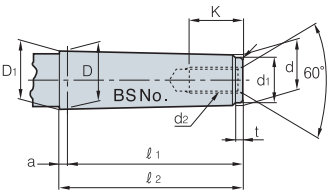
Morse taper (screw type)



(mm)

MT No.	Taper	Taper angle(α)	D	a	D1	d	ℓ1	ℓ2	d1	d2	k	t	r
0	1/19.212	1°29′27″	9.045	3.0	9.201	6.442	50.0	53	6.0	-		4	0.2
1	1/20.047	1°25′43″	12.065	3.5	12.230	9.396	53.5	57	9.0	M6	16	5	0.2
2	1/20.020	1°25′50″	17.780	5.0	18.030	14.583	64.0	69	14.0	M10	24	5	0.2
3	1/19.922	1°26′16″	23.825	5.0	24.076	19.759	81.0	86	19.0	M12	28	7	0.6
4	1/19.254	1°29′15″	31.267	6.5	31.605	25.943	102.5	109	25.0	M16	32	9	1.0
5	1/19.002	1°30′26″	44.399	6.5	4.741	37.584	129.5	136	35.7	M20	40	9	2.5
6	1/19.180	1°29′36″	63.348	8.0	63.765	53.859	182.0	190	51.0	M24	50	12	4.0
7	1/19.231	1°29′22″	83.058	10.0	83.578	70.058	250.0	260	65.0	M33	80	18.5	5.0

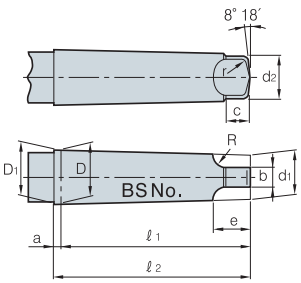
Brown sharp taper (screw type)



(mm)

B&S No.	D	a	D1	d	d1	ℓ1	ℓ2	t	r	d2	K
4	10.221	2.4	10.321	8.890	8.0	31.0	34.2	2	0.2	-	-
5	13.286	2.4	13.386	11.430	10.0	44.4	46.8	3	0.2	-	-
6	15.229	2.4	15.330	12.700	11.0	60.0	62.7	3	0.2	M8(1/4)	20
7	18.424	2.4	18.524	15.240	14.0	76.2	78.6	4	0.2	M10(3/8)	24
8	22.828	3.2	22.962	19.090	17.0	90.5	93.7	4	0.6	M12(1/2)	28
9	27.104	3.2	27.238	22.863	21.0	101.6	104.8	4	0.6	M12(1/2)	28
10	32.749	3.2	32.887	26.534	24.0	144.5	147.7	5	1.0	M16(5/8)	32
11	38.905	3.2	39.039	31.749	29.0	171.4	174.6	5	1.0	M16(5/8)	32
12	45.641	3.2	45.774	38.103	35.0	181.0	184.2	6	2.5	M20(3/4)	40
13	52.654	3.2	52.787	44.451	41.0	196.8	200.0	6	3.0	M20(3/4)	40
14	59.533	3.2	59.666	50.800	47.0	209.6	212.8	7	4.0	M24(1)	40
15	66.408	3.2	66.541	57.150	53.0	222.2	225.4	7	4.0	M24(1)	50
16	73.292	3.2	73.425	63.500	59.0	35.0	238.2	8	5.0	M30(11/8)	60

Morse taper (tang type)

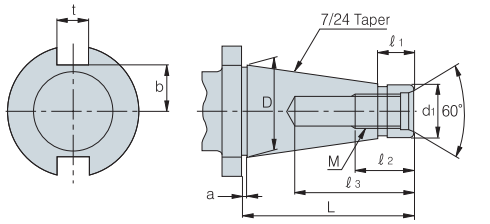


(mm)

B&S No.	D	a	D1	d1	d2	ℓ1	ℓ2	b	c	e	R	r
4	10.221	2.4	10.321	8.458	8.1	42.1	44.5	5.5	8.7	14.4	7.9	1.3
5	13.286	2.4	13.386	10.962	10.7	55.6	58.0	6.3	9.5	16.2	7.9	1.5
6	15.229	2.4	15.330	12.167	11.7	73.0	75.4	7.1	11.1	18.0	7.9	1.5
7	18.424	2.4	18.524	14.675	14.2	89.7	92.1	7.9	11.9	20.3	9.5	1.8
8	22.828	3.2	22.962	18.453.	18.0	104.8	108.0	8.7	12.7	22.0	9.5	2.0
9	27.104	3.2	27.238	22.200	21.8	117.5	120.7	9.5	14.3	25.4	11.1	2.5
10	32.749	3.2	32.887	25.751	25.7	162.7	165.9	11.1	16.7	28.1	11.1	2.8
11	38.905	3.2	39.039	30.985	30.7	189.7	192.9	11.1	16.7	30.0	12.7	3.3
12	45.641	3.2	45.774	37.246	37.1	201.6	204.8	12.7	190	32.5	12.7	3.8
13	52.654	3.2	52.787	43.589	43.4	217.5	220.7	12.7	19.0	35.7	15.9	4.3
14	59.533	3.2	59.666	49.841	49.8	232.6	235.8	14.2	21.4	41.2	19.0	4.8
15	66.408	3.2	66.541	56.186	56.1	245.3	248.5	14.2	21.4	44.4	22.2	5.3
16	73.292	3.2	73.425	62.441	62.2	260.4	263.6	15.8	23.8	50.0	25.4	5.8

M This is metric size. We can also provide in inch type

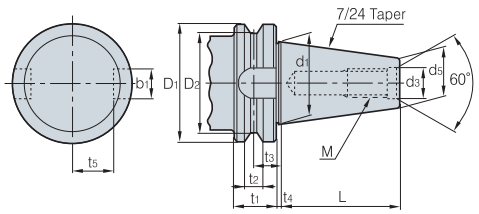
Standard taper of american milling machine



(mm)

NT No.	Dimensions	D	D1	L	ℓ1	M	ℓ2	ℓ3	a	t	b
30	$1\frac{1}{4}$	31.750	$17.40^{-0.29}_{-0.36}$	70	20	UNC $\frac{1''}{2}$	24	50	1.6	15.9	6.0
40	$1\frac{3}{4}$	44.450	$25.32^{-0.30}_{-0.384}$	95	25	UNC $\frac{5''}{8}$	30	60	1.6	15.9	22.5
50	$2\frac{3}{4}$	69.850	$39.60^{-0.31}_{-0.41}$	130	25	UNC $1''$	45	90	3.2	25.4	35.0
60	$4\frac{1}{4}$	107.950	$60.20^{-0.34}_{-0.46}$	210	45	UNC $1\frac{1''}{4}$	56	110	3.2	25.4	60.0

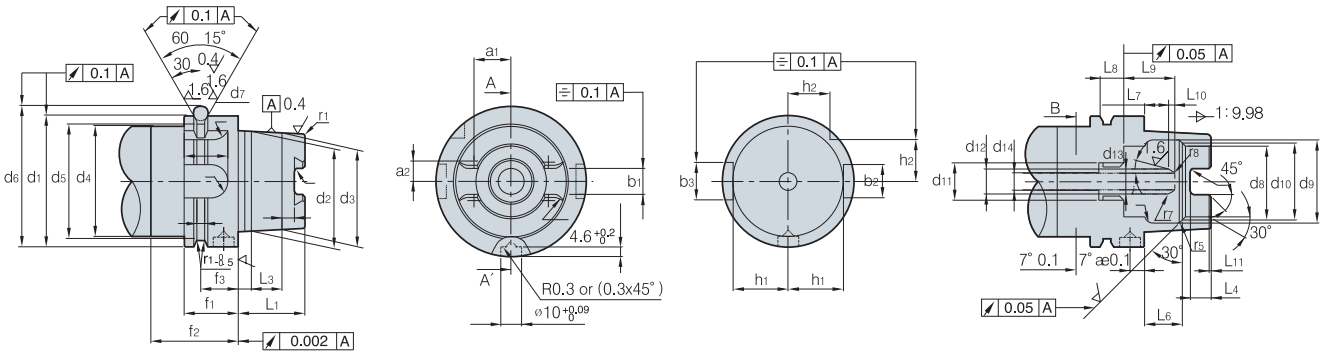
Bottle grip taper



(mm)

BT No.	D1	D2	t1	t2	t3	t4	d1	d3	L	M	b1	t5	d5
35	53	43	22	10	14.6	2	38.1	13	56.5	M12×1.75	16.1	19.6	21.62
40	63	52	25	10	16.6	2	44.45	17	65.4	M16×2	16.1	22.6	25.3
45	85	73	30	12	21.2	3	57.15	21	82.8	M20×25	19.3	29.1	33.1
50	100	85	35	15	23.2	3	69.85	25	101.8	M24×3	25.7	35.4	40.1
60	155	135	45	20	28.2	3	107.95	31	161.8	M30×3.5	25.7	60.1	60.7

HSK shank (DIN 69893)



(mm)

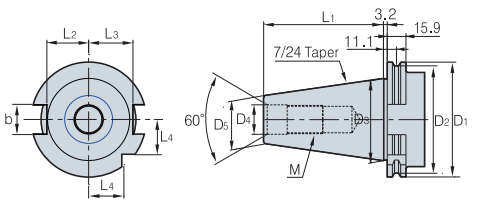
HSK No.	b1	b2	b3	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	d11	d12	d13	d14	a1	a2
50	10.54	12	14	50	38	36.90	42	43	59.30	7	26	32	29	M16X1	10	6.8	6.8	13.997	7.648
63	12.50	16	14	63	48	46.53	53	55	72.30	7	34	40	37	M18X1	12	8.0	8.4	17.862	9.250
100	20.00	20	14	100	75	72,80	85	92	109.75	7	53	63	58	M24X1.5	16	12.0	12.0	27.329	15.000

(mm)

HSK No.	f1	f2	f3	f4	b1	b2	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	r1	r2	r3	r4	r5	r6	r7	r8
50	26	42	18	3.75	2.0	15.5	25	5.0	11.0	7.5	4.5	14.13	10.0	10	23.0	3	1	19	1	1.5	2.38	6	0.5	1.0	2	6
63	26	42	18	3.75	28.5	20.0	32	6.3	14.7	10.0	6.0	18.13	10.0	12	24.5	3	1	21	1.2	1.5	3.00	8	0.6	1.5	3	8
100	29	45	20	3.75	44.0	31.5	50	10.0	24.0	15.0	10.0	28.56	12.5	16	28.0	3	1.5	24	2	2.0	3.00	12	1.0	1.5	3	10

M This is metric size. We can also provide in inch type

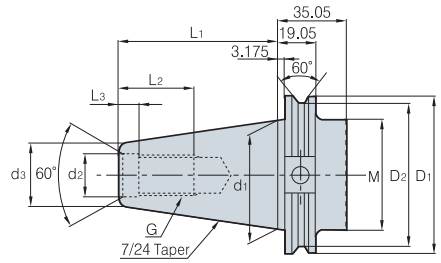
DIN 69871



(mm)

Shank No	D1	D2	D3	D4	D5	L1	L2	L3	L	b	M
30	50.0	44.3	31.75	13	17.8	47.8	16.4	19.0	33.5	16.0	M12×1.75
40	63.5	56.2	44.45	17	24.5	68.4	22.8	25.0	42.5	16.1	M16×2
45	82.5	57.2	57.15	21	33.0	82.7	29.1	31.3	52.5	19.3	M20×2.5
50	97.5	91.2	68.85	25	40.1	101.7	35.5	37.7	61.5	25.7	M24×3

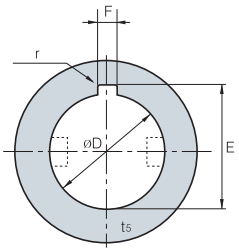
CAT shank



(mm)

Shank No	D1	D2	M	d1	d2	d3	L1	L2	L3	G
CAT40	63.5	56.36	M16×2	44.45	16.28	21.84	68.25	28.45	4.78	5/8-11
CAT45	82.55	75.41	M20×25	57.15	19.46	27.69	82.55	38.1	4.78	3/4-10
CAT50	98.43	91.29	M24×3	69.85	26.19	35.05	101.6	44.45	6.35	1-8

Standard of milling cutter hole (KSB3203)



• Type A

(mm)

Diameter	øDH7	E	F	r
8	$8^{+0.015}_{0}$	$8.9^{+0.25}_{0}$	$2^{+0.16}_{+0.06}$	0.4
10	$10^{+0.015}_{0}$	$11.5^{+0.25}_{0}$	$3^{+0.16}_{+0.06}$	0.4
13	$13^{+0.018}_{0}$	$14.6^{+0.25}_{0}$	$3^{+0.16}_{+0.06}$	0.6
16	$16^{+0.018}_{0}$	$17.7^{+0.25}_{0}$	$4^{+0.19}_{+0.07}$	0.6
19	$19^{+0.021}_{0}$	$21.1^{+0.25}_{0}$	$5^{+0.19}_{+0.07}$	1
22	$22^{+0.021}_{0}$	$24.1^{+0.25}_{0}$	$6^{+0.19}_{+0.07}$	1
27	$27^{+0.021}_{0}$	$29.8^{+0.25}_{0}$	$7^{+0.23}_{+0.08}$	1.2
32	$32^{+0.025}_{0}$	$34.8^{+0.25}_{0}$	$8^{+0.23}_{+0.08}$	1.2
40	$40^{+0.025}_{0}$	$43.5^{+0.3}_{0}$	$10^{+0.23}_{+0.08}$	1.2
50	$50^{+0.025}_{0}$	$53.5^{+0.3}_{0}$	$12^{+0.23}_{+0.095}$	1.6
60	$60^{+0.030}_{0}$	$64.2^{+0.3}_{0}$	$14^{+0.275}_{+0.095}$	1.6
70	$70^{+0.030}_{0}$	$75.0^{+0.3}_{0}$	$16^{+0.275}_{+0.095}$	2
80	$80^{+0.030}_{0}$	$85.5^{+0.3}_{0}$	$18^{+0.275}_{+0.095}$	2
100	$100^{+0.035}_{0}$	$107.0^{+0.3}_{0}$	$24^{+0.32}_{+0.11}$	2.5

• Type B

(mm)

Diameter	øDH7	E	F	r
$\frac{1}{2}$	$12.70^{+0.018}_{0}$	$14.17^{+0.25}_{0}$	$2.38^{+0.31}_{+0.13}$	0.5
$\frac{5}{8}$	$15.875^{+0.018}_{0}$	$17.74^{+0.25}_{0}$	$3.18^{+0.31}_{+0.13}$	0.8
$\frac{3}{4}$	$19.050^{+0.021}_{0}$	$20.89^{+0.25}_{0}$	$3.18^{+0.31}_{+0.13}$	0.8
$\frac{7}{8}$	$22.225^{+0.021}_{0}$	$24.07^{+0.25}_{0}$	$3.18^{+0.31}_{+0.13}$	0.8
1	$25.40^{+0.021}_{0}$	$28.04^{+0.25}_{0}$	$6.35^{+0.31}_{+0.13}$	1.2
$1\frac{1}{4}$	$31.750^{+0.025}_{0}$	$35.18^{+0.25}_{0}$	$7.94^{+0.32}_{+0.14}$	1.6
$1\frac{1}{2}$	$38.10^{+0.025}_{0}$	$42.32^{+0.25}_{0}$	$9.53^{+0.89}_{+0.25}$	1.6
$1\frac{3}{4}$	$44.450^{+0.025}_{0}$	$49.48^{+0.25}_{0}$	$11.11^{+0.89}_{+0.25}$	1.6
2	$50.80^{+0.03}_{0}$	$55.83^{+0.25}_{0}$	$12.7^{+0.89}_{+0.25}$	1.6
$2\frac{1}{2}$	$63.50^{+0.03}_{0}$	$69.42^{+0.25}_{0}$	$15.81^{+0.89}_{+0.25}$	1.6
3	$76.20^{+0.03}_{0}$	$82.93^{+0.25}_{0}$	$19.05^{+0.89}_{+0.25}$	2.4
$3\frac{1}{2}$	$88.90^{+0.035}_{0}$	$98.81^{+0.25}_{0}$	$22.23^{+0.89}_{+0.25}$	2.4
4	$101.60^{+0.035}_{0}$	$111.51^{+0.25}_{0}$	$25.4^{+0.89}_{+0.25}$	2.4
$4\frac{1}{2}$	$114.30^{+0.035}_{0}$	$125.81^{+0.25}_{0}$	$25.58^{+0.89}_{+0.25}$	3.2
5	$127.0^{+0.04}_{0}$	$140.08^{+0.25}_{0}$	$31.75^{+0.89}_{+0.25}$	3.2

M This is metric size. We can also provide in inch type

The Comparison of Grade for Milling

Cermet Milling Grades

ISO		Grade	KORLOY	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite
Milling	P	P20			C15M MP1020		KT530M				MX3020 NX2525	TN60 TN620M	T2500A		CX75	
		P30	CN30	CT530				IC30N	NS740		MX3030 NX4545				CX90	

Milling Grades

* NC- : CVD Grade / PC- : PVD Grade

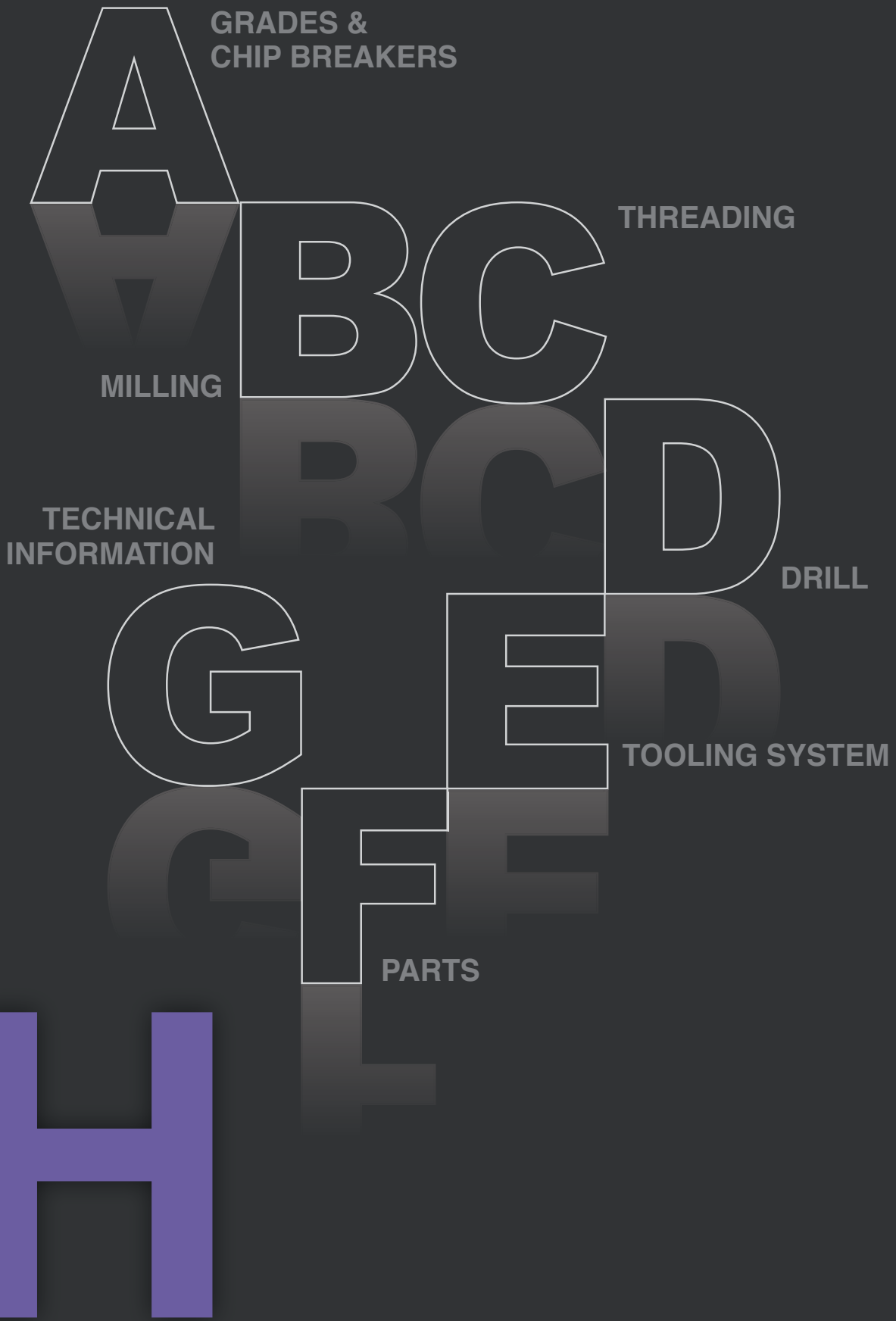
ISO		KORLOY 1st	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite
Milling	P		GC4210			WKP25S	IC5100								
			GC4220	MP1500	KCPM20					FH7020					
		NCM535 NC5330 NCM325	GC4230	MP2500 MS2500	KCPM30	WKP35S WKP35G	IC5400	T3130	TT8525 TT7800	F7030					
		NCM545 NCM335		MM4500	KC927M										
	M	NC5330		MP2500 MS2500				T3130							
		NCM535 NCM545	GC2040	MM4500											
	K			MK1500	KC907M KCK15	WAK15	IC5100	T1115 T1015		MC5020					
		NC5330		MK2000 MS2500	KC914M KCPK30	WKK25 WKP25S			TT7515 TT6800						
		NCM535		MK3000	KC917M	WKP35S WKP35G									

Milling Grades

* NC- : CVD Grade / PC- : PVD Grade

ISO		KORLOY 1st	Sandvik	SECO	WALTER	Kennametal	ISCAR	Tungaloy	Taegutec	Mitsubishi	Kyocera	Sumitomo	Hitachi	Dijet	Valenite
Milling	P	PC2005 PC2505 PC2010 PC2510	GC1010	MH1000	WHH15 WHH15X WXM15	KC505M KC510M KC515M	IC903	AH8015	TT2510 TT5505	MP8010	-	ACZ120	ATH08M JP4105 JP4115 JP4120	DH102 JC5003 JC8003 JC8008	VC935 SV510
		PC2015	-	-	-	-	-	-	TT5515	-	-	-	PN215 PN15M	-	-
		PC3700	P20A	F25M	WKP25S	KC525M KCSM30	IC380 IC810	AH330 AH7025	TT7080	-	PR630 PR730	ACP3000	CY250 JS4045	-	-
		PC5535 PC5300	GC1025 GC1130	MP3000 F32M	WKP35G WSM35S	KC530M KCPK30	IC900 IC808	AH130 AH725	TT9030 TT9080	VP15TF MP6120 MP6130	PR1025 PR1225	ACU2500	JP4120	JC5015 JC5118	-
		PC5400	-	F40M	WSP45S/G	KC735M KCPM40	IC830 IC330	AH140 AH740	TT8020 TT8080	VP30RT	PR1535	-	PTH30E JM4160	JC8050	V1N
	M	PC5300 PC5535	GC1030 GC1130 GC2030	F30M	WKP35G WSM35G	KC525M KC530M	IC380 IC808 IC840 IC882	AH120 AH725	TT9080 TT9030	MP7130 MP7030 VP15TF	PR1225 PR1525	ACM100 ACK300 ACU2500	JP4120 CY250	JC730U JC8015	-
		PC5400 PC9540	GC1040 GC2040	MM4500 MP2050 F40M	WSP45G	KCPM40 KCSM40	IC830 IC330	AH180 AH3135	TT8080 TT8020 TT7800	MP7140 VP30RT	PR1535	ACM200 ACM300	PTH30H JM4160	JC8050	VC936
	S	PC5300 PC5535	S30T GC1030 GC1130	F30M	WSM35G	KC525M KCSM30	IC380 IC330 IC840 IC882	-	TT9080 TT9030 TT3540	MP9120 V15TF	PR1525	ACM100 ACK300	JS1025	-	-
		PC5400 PC9540	S40T GC1040	MS2050 F40M	WSP45G WSM45X	KC725M KCSM40	IC830	AH140 AH4035	TT8080 TT8020 TT9540	MP9130 MP9030 MP9140	PR1535	ACM200 ACM300 ACS2500 ACS3000	PTH30H JM4160	-	-
	K	PC6100	GC1010 GC1020	MH1000	WKK25S/G	KC515M	-	AH110 AH710	TT6030 TT6080	MP8010	PR905 PR1510	ACK3000	ATH10E	JC5003 JC600	-
		PC5535 PC5300	-	MK2050	WSM35S/G	KCK20	IC808	AH120 AH725	TT9080	VP15TF	PR1525 PR1810	ACU2500	CY9020	JC8015 JC5015	VN5
		PC5400	-	MK3000	WSP45S/G	KC524M	IC830	AH180	TT8020 TT8080	VP20RT	PR1535	-	-	JC5080	VC928 SV510

INDEX


A
GRADES &
CHIP BREAKERS
B
C
THREADING
MILLING
D
TECHNICAL
INFORMATION
DRILL
G
E
TOOLING SYSTEM
F
PARTS
H

H2 Index by items
H5 Index by designation

H Index by items

A ~ Z

Actual designation of Milling Cutter	Technical Information	**G9**
Aero Mill	Milling	**B150**
Aero Mill Mini	Milling	**B155**
Aero Mill Plus	Milling	**B152**
Alpha Mill	Milling	**B173**
Alpha Mill-X	Milling	**B162**
Angular head	Tooling System	**E144**
ATM	Tooling System	**E162**
ATM(U) SPARE PART	Tooling System	**E165**
ATU	Tooling System	**E166**
BKA	Tooling System	**E141**
BRE	Milling	**B345**
Cartridge	Part	**F4**
CAT Milling Chuck	Tooling System	**E36**
Center Drill	Drill	**D66**
Cermet Grade	Grades & Chip Breakers	**A15**
Chamfer Tools	Milling	**B349**
Chip breaker	Part	**F4**
Chip Breakers for Drilling	Grades & Chip Breakers	**A26**
Chip Breakers for Milling	Grades & Chip Breakers	**A19**
Chip cover	Part	**F4**
Clamp	Part	**F4**
Clamping Part of Milling Cutter (Oil-hole)	Technical Information	**G11**
Coolant bolt	Part	**F5**
CVD Coated Grades	Grades & Chip Breakers	**A5**
Damping Pro	Tooling System	**E170**
DBC	Tooling System	**E133**
DBCA	Tooling System	**E130**
DCJ	Tooling System	**E46**
DHE	Tooling System	**E9**
DHE/G	Tooling System	**E21**
DHE/S	Tooling System	**E17**
Diamond Coated Grades	Grades & Chip Breakers	**A16**
DINOX MAP	Tooling System	**E4**
DLC Coated Grades	Grades & Chip Breakers	**A17**
Double Mill	Milling	**B60**
Drill Available Insert	Drill	**D9**
DSC	Tooling System	**E30**
DSK	Tooling System	**E77**
DST	Tooling System	**E92**
DTN	Tooling System	**E88**
DZC	Tooling System	**E25**

A ~ Z

ER	Tooling System	**E69**
ER Collet Chuck	Tooling System	**E50**
EXT	Tooling System	**E116**
FBH	Tooling System	**E124**
FBH/B	Tooling System	**E119**
FBH/D	Tooling System	**E126**
FMA	Tooling System	**E104**
FMC	Tooling System	**E107**
FMR P-Positive	Milling	**B243**
Future Mill	Milling	**B205**
Future Mill (FMR)	Milling	**B224**
FZ UNIT	Tooling System	**E143**
GBE	Milling	**B341**
Gear Cutter	Milling	**B404**
Gear Cutter Order Form	Milling	**B412**
Gear Cutter Table	Milling	**B403**
GERC	Tooling System	**E66**
Grade System	Grades & Chip Breakers	**A3**
GSK	Tooling System	**E80**
Hardness Calculating Table	Technical Information	**G8**
HC	Tooling System	**E81**
HFM	Milling	**B289**
HFMD	Milling	**B276**
HQM	Milling	**B268**
HRAG	Tooling System	**E152**
HRMD	Milling	**B296**
HT	Tooling System	**E177**
Indexable HOB	Milling	**B413**
Indexable HOB Cutter Order Form	Milling	**B414**
Indexable Reamer	Drill	**D75**
KAC	Tooling System	**E156**
KAG	Tooling System	**E150**
KAH	Tooling System	**E146**
KHU	Tooling System	**E148**
KING Drill (For through coolant system with a lathe)	Drill	**D12**
KMB	Tooling System	**E137**
KORLOY Cutters	Milling	**B35**
KORLOY Drills	Drill	**D2**
KORLOY Grade Index	Grades & Chip Breakers	**A2**
KORLOY Modular Adaptors	Milling	**B45**
KORLOY Shanks	Milling	**B42**
Laser Mill	Milling	**B333**

A ~ Z

Lever	Part	**F5**
Locator	Part	**F6**
MAH	Tooling System	**E154**
MD	Tooling System	**E110**
Mill Max	Milling	**B47**
Mill Max Plus	Milling	**B48**
Milling Grade selections	Grades & Chip Breakers	**A4**
Milling Insert Code System (ISO)	Milling	**B2**
Milling Inserts	Milling	**B4**
Modular Adaptor	Milling	**B378**
MTA	Tooling System	**E103**
Multi Turn	Drill	**D71**
Nozzle	Part	**F8**
NPM	Tooling System	**E39**
NPU	Tooling System	**E82**
Nut	Part	**F6**
OFH	Tooling System	**E98**
PCD Face Cutter	Milling	**B157**
PCD Insert Grades	Grades & Chip Breakers	**A18**
Pin	Part	**F6**
POSITIONING BLOCK	Tooling System	**E160**
Power Buster	Milling	**B65**
Pro-A Mill	Milling	**B355**
Pro-L Mill	Milling	**B367**
Pro-V Mill	Milling	**B376**
Pro-X Mill	Milling	**B360**
Pro-XL Mill	Milling	**B372**
Pull Stud Bolt	Tooling System	**E176**
PVD Coated Grades	Grades & Chip Breakers	**A6**
RDC	Tooling System	**E117**
Rich Mill RM14	Milling	**B140**
Rich Mill RM16	Milling	**B142**
Rich Mill RM3	Milling	**B78**
Rich Mill RM4	Milling	**B90**
Rich Mill RM6	Milling	**B108**
Rich Mill RM8	Milling	**B116**
Rich Mill RM8-X	Milling	**B135**
Rich Mill RMR	Milling	**B146**
Rich Mill RMT8	Milling	**B127**
Rich Mill Table	Milling	**B69**
RTJW	Tooling System	**E75**
SAH	Tooling System	**E158**

A ~ Z

Screw	Part	**F6**
SDC/P	Tooling System	**E54**
SDC/PL	Tooling System	**E63**
Shim	Part	**F3**
Shim pin	Part	**F7**
SI Unit Conversion Table	Technical Information	**G7**
Side Cutter	Milling	**B387**
SLA	Tooling System	**E99**
SMB	Tooling System	**E135**
SMH	Tooling System	**E139**
Spring	Part	**F8**
Steel, Non-ferrous Metal Symbol List	Technical Information	**G6**
Stop ring	Part	**F8**
Stopper	Part	**F8**
T-Cutter	Milling	**B352**
TCA	Tooling System	**E89**
Technical Inforamation for KING Drill (For through coolant system with a lathe)	Drill	**D4**
Technical Information for Aero Mill	Milling	**B148**
Technical information for Aero Mill Mini	Milling	**B154**
Technical Information for Aero Mill Plus	Milling	**B151**
Technical Information for Alpha Mill	Milling	**B165**
Technical Information for Alpha Mill-X	Milling	**B158**
Technical Information for BRE	Milling	**B344**
Technical information for CAT Milling Chuck	Tooling System	**E35**
Technical Information for Chamfer Tool	Milling	**B347**
Technical Information for Couple Mill	Milling	**B397**
Technical Information for Cube Mill	Milling	**B396**
Technical Information for Damping Pro	Tooling System	**E168**
Technical information for DBCA	Tooling System	**E129**
Technical information for DCJ	Tooling System	**E45**
Technical information for DCL	Tooling System	**E44**
Technical information for DHE	Tooling System	**E8**
Technical information for DHE/G	Tooling System	**E20**
Technical information for DHE/S	Tooling System	**E16**
Technical information for DSC	Tooling System	**E26**
Technical information for DSK	Tooling System	**E76**
Technical information for DST	Tooling System	**E91**
Technical information for DTN	Tooling System	**E87**
Technical information for DZC	Tooling System	**E24**
Technical information for ER Collet Chuck	Tooling System	**E49**
Technical information for ER/L	Tooling System	**E73**
Technical information for FBH/B	Tooling System	**E118**

H Index by items

A ~ Z

Technical information for FBH/D	Tooling System	**E125**
Technical Information for FMR P-Positive	Milling	**B238**
Technical Information for Future Mill	Milling	**B202**
Technical Information for Future Mill (FMR)	Milling	**B217**
Technical Information for GBE	Milling	**B338**
Technical information for GERC	Tooling System	**E65**
Technical information for GSK	Tooling System	**E79**
Technical Information for HFM	Milling	**B286**
Technical Information for HFMD	Milling	**B272**
Technical Information for High feed Cutter	Milling	**B394**
Technical Information for HQM	Milling	**B262**
Technical Information for HRMDouble	Milling	**B291**
Technical Information for Indexable Reamer	Drill	**D72**
Technical Information for KING Drill	Drill	**D3**
Technical Information for KING Drill (For large diameter drilling)	Drill	**D15**
Technical Information for Laser Mill	Milling	**B329**
Technical Information for Multi Turn	Drill	**D69**
Technical information for NPM	Tooling System	**E38**
Technical Information for Power Buster	Milling	**B62**
Technical Information for Pro-A Mill	Milling	**B353**
Technical Information for Pro-L Mill	Milling	**B365**
Technical Information for Pro-V Mill	Milling	**B373**
Technical Information for Pro-X Mill	Milling	**B358**
Technical Information for Pro-XL Mill	Milling	**B371**
Technical Information for Rich Mill	Milling	**B68**
Technical Information for Rich Mill RM14	Milling	**B137**
Technical Information for Rich Mill RM16	Milling	**B141**
Technical Information for Rich Mill RM3	Milling	**B75**
Technical Information for Rich Mill RM4	Milling	**B84**
Technical Information for Rich Mill RM6	Milling	**B105**
Technical Information for Rich Mill RM8	Milling	**B114**
Technical Information for Rich Mill RM8-X	Milling	**B132**
Technical Information for Rich Mill RMR	Milling	**B144**
Technical Information for Rich Mill RMT8	Milling	**B126**
Technical information for RTJW	Tooling System	**E74**
Technical information for SDC/P	Tooling System	**E53**
Technical information for SDC/PL	Tooling System	**E62**
Technical Information for Shave Mill	Milling	**B399**
Technical Information for Shave Mill Ultra	Milling	**B401**
Technical Information for Side Milling Cutters	Milling	**B380**
Technical information for STER PAT.	Tooling System	**E97**
Technical information for THE	Tooling System	**E95**
Technical Information for Thread Milling	Threading	**C2**
Technical Information for TP2P	Milling	**B316**
Technical Information for TP8P	Milling	**B325**
Technical Information for TPDB Plus Drill	Drill	**D34**
Technical Information for TPDB-DS	Drill	**D48**
Technical Information for TPDB-F	Drill	**D59**
Technical Information for TPDB-H	Drill	**D53**
Technical Information for TPDC Plus Drill	Drill	**D17**
Technical Information for Triple Mill	Milling	**B255**
Technical Information for Wind Mill	Milling	**B390**
Technical Information for WPDC	Drill	**D63**
TER	Tooling System	**E94**
THE	Tooling System	**E96**
The Comparison of Grade for Milling	Technical Information	**G19**
Thread Milling Holders	Threading	**C17**
Thread Milling Inserts	Threading	**C12**
Tooling System Index	Tooling System	**E2**
TP2P	Milling	**B319**
TP8P	Milling	**B327**
TPDB Plus Drill	Drill	**D40**
TPDB-DS	Drill	**D50**
TPDB-F	Drill	**D61**
TPDB-H	Drill	**D56**
TPDC Plus Drill	Drill	**D25**
Triple Mill	Milling	**B257**
Turbo Mill	Milling	**B57**
Uncoated Carbide Grades	Grades & Chip Breakers	**A14**
Washer	Part	**F8**
Wind Mill	Milling	**B391**
Workpiece Material Grades	Technical Information	**G2**
WPDC	Drill	**D67**
Wrench	Part	**F8**
Wrench bolt	Part	**F5**

A

APKT-MF	Milling Inserts	B5
APKT-MM	Milling Inserts	B5
APLT	Milling Inserts	B5
APMT-MA	Milling Inserts	B5
APMT-MF	Milling Inserts	B5
APMT-ML	Milling Inserts	B5
APMT-ML	Milling Inserts	B6
APMT-MM	Milling Inserts	B6
APMT-MN	Milling Inserts	B6

B

BAMPR-XAF	Milling Inserts	B7
BAMPR-XAW	Milling Inserts	B7
BAMPR-XAWR	Milling Inserts	B7
BREA	BRE	B345
BSPT	Thread Milling Inserts	C16
BT-ATM	Tooling System (ATM)	E164
BT-BKA	Tooling System (BKA)	E141
BT-DBC	Tooling System (DBC)	E133
BT-DBCA-H	Tooling System (DBCA)	E130
BT-DBCA-S	Tooling System (DBCA)	E131
BT-DHE	Tooling System (DHE)	E11
BT-DHE/S	Tooling System (DHE/S)	E18
BT-DMC	Tooling System (NPM)	E43
BT-DSC	Tooling System (DSC)	E30
BT-DSC/M	Tooling System (DSC)	E30
BT-DSC/S	Tooling System (DSC)	E33
BT-DSK	Tooling System (DSK)	E77
BT-DST	Tooling System (DST)	E92
BT-DTN	Tooling System (DTN)	E88
BT-FBH/B	Tooling System (FBH/B)	E119
BT-FBH/D	Tooling System (FBH/D)	E126
BT-FMA	Tooling System (FMA)	E105
BT-FMA	Tooling System (Damping Pro)	E170
BT-FMC	Tooling System (FMC)	E107
BT-FMC	Tooling System (Damping Pro)	E171
BT-GSK	Tooling System (GSK)	E80
BT-HRAG	Tooling System (HRAG)	E152
BT-KAC	Tooling System (KAC)	E156
BT-KAG	Tooling System (KAG)	E150
BT-KAH	Tooling System (KAH)	E146
BT-KHU	Tooling System (KHU)	E148
BT-KMB	Tooling System (KMB)	E137
BT-MAH	Tooling System (MAH)	E154
BT-NPM	Tooling System (NPM)	E40
BT-NPU	Tooling System (NPU)	E85
BT-OFH	Tooling System (OFH)	E98
BT-SAH	Tooling System (SAH)	E158
BT-SDC/P	Tooling System (SDC/P)	E56
BT-SDC/PL	Tooling System (SDC/PL)	E63
BT-SLA	Tooling System (SLA)	E100
BT-SMB	Tooling System (SMB)	E135
BT-SMH	Tooling System (SMH)	E139

C

CAT-C	Tooling System (CAT Milling Chuck)	E37
CAT-DHE	Tooling System (DHE)	E9
CAT-DHE/S	Tooling System (DHE/S)	E17
CAT-ER	Tooling System (ER Collet Chuck)	E51
CAT-FMA	Tooling System (FMA)	E104
CAT-FMA	Tooling System (Damping Pro)	E170
CAT-SLA	Tooling System (SLA)	E99
CDEW-NAF	Milling Inserts	B7
CDEW-NAW	Milling Inserts	B7
CDEW-XAF	Milling Inserts	B7
CDEW-XAW	Milling Inserts	B7
CDEW-XCF	Milling Inserts	B7
CEA	Chamfer Tools (Back & Front Champer)	B349
CEA	Chamfer Tools (Long chamfer)	B350
CEA	Chamfer Tools (Multi-functional)	B351
Center Drill	Center Drill	D66
CN30	Cermet Grade	A15
CNHQ	Milling Inserts	B7
CPMH	Milling Inserts	B7
CPMT	Milling Inserts	B8

D

DBT-DHE	Tooling System (DHE)	E10
DBT-MD	Tooling System (MD)	E110

H Index by designation

D

DBT-NPM	Tooling System (NPM)	**E39**
DBT-SDC/P	Tooling System (SDC/P)	**E54**
DC Collet	Tooling System (DCJ)	**E46**
DHC Collet	Tooling System (DHC)	**E22**
DHC-(P) Collet	Tooling System (DHC)	**E23**
DHJ Collet	Tooling System (DHC)	**E23**
DJT	Tooling System (DCJ)	**E48**
DP150	PCD Insert Grades	**A18**
DP200	PCD Insert Grades	**A18**
DP90	PCD Insert Grades	**A18**
DSC Collet	Tooling System (DCJ)	**E47**
DZC Collet	Tooling System (DSC)	**E25**

E

EFA4000	Mill Max	**B51**
ENA4000	Mill Max	**B52**
EPNA4000	Mill Max	**B53**
EPNA5000+	Mill Max	**B54**
ER Collet	Tooling System (ER Collet)	**E69**
ER Collet Chuck	Tooling System (ER Collet Chuck)	**E50**
ER/L Collet	Tooling System (ER/L Collet)	**E73**
EXT	Tooling System (EXT)	**E116**

F

FBB Bite	Tooling System (FBH/D)	**E128**
FMACA3000	Future Mill	**B205**
FMACA3000-A	Future Mill	**B207**
FMACA4000	Future Mill	**B206**
FMACA4000-A	Future Mill	**B208**
FMAS4000	Future Mill	**B210**
FMASA3000	Future Mill	**B209**
FMPCA3000	Future Mill	**B211**
FMPCA3000-A	Future Mill	**B213**
FMPCA4000	Future Mill	**B212**
FMPCA4000-A	Future Mill	**B214**
FMPSA3000	Future Mill	**B215**
FMPSA4000	Future Mill	**B216**
FMRCA3000	Future Mill	**B224**
FMRCA3000	FMR P-Positive	**B243**
FMRCA4000	Future Mill	**B225**
FMRCA4000	FMR P-Positive	**B244**
FMRCA5000	Future Mill	**B226**
FMRCA5000	FMR P-Positive	**B245**
FMRCA6000	Future Mill	**B227**
FMRCA6000	FMR P-Positive	**B246**
FMRMA1000	Future Mill	**B234**
FMRMA1500	Future Mill	**B235**
FMRMA2000	Future Mill	**B236**
FMRMA2500	Future Mill	**B236**
FMRMA2500	FMR P-Positive	**B251**
FMRMA3000	Future Mill	**B237**
FMRMA3000	FMR P-Positive	**B252**
FMRMA4000	Future Mill	**B238**
FMRMA4000	FMR P-Positive	**B253**
FMRMA5000	Future Mill	**B238**
FMRMA5000	FMR P-Positive	**B254**
FMRSA1000	Future Mill	**B228**
FMRSA1500	Future Mill	**B228**
FMRSA2000	Future Mill	**B229**
FMRSA2500	Future Mill	**B229**
FMRSA2500	FMR P-Positive	**B247**
FMRSA3000	Future Mill	**B230**
FMRSA3000	FMR P-Positive	**B248**
FMRSA4000	Future Mill	**B231**
FMRSA4000	FMR P-Positive	**B249**
FMRSA5000	Future Mill	**B232**
FMRSA5000	FMR P-Positive	**B250**
FMRSA6000	Future Mill	**B233**
FMRSA6000	FMR P-Positive	**B250**
FZ UNIT	Tooling System (FZ UNIT)	**E143**

G

GBEA	GBE (Single-edge)	**B341**
GBEA	GBE (Multi-edge)	**B342**
GBEMA	GBE	**B343**
Gear Cutter for Finishing	Gear Cutter (1 Step type, External gear)	**B409**
Gear Cutter for Finishing	Gear Cutter (1 step type, internal gear)	**B410**
Gear Cutter for Finishing	Gear Cutter (2 Step type, Internal / External gear)	**B411**
Gear Cutter for Roughing	Gear Cutter (Step type)	**B404**

G

Gear Cutter for Roughing	Gear Cutter (V shape type)	**B405**
Gear Cutter for Semi-finishing	Gear Cutter (High rigid edge type, External gear)	**B406**
Gear Cutter for Semi-finishing	Gear Cutter (High rigid edge type, Internal gear)	**B408**
GERC Collet	Tooling System (GERC Collet)	**E66**

H

H01	Uncoated Carbide Grades	**A14**
H05	Uncoated Carbide Grades	**A14**
HC Collet	Tooling System (HC Collet)	**E82**
HECN	Milling Inserts	**B8**
HFMDCA-LN06	HFMD	**B276**
HFMDCA-LN10	HFMD	**B277**
HFMDMA-LN04	HFMD	**B283**
HFMDMA-LN06	HFMD	**B284**
HFMDMA-LN10	HFMD	**B285**
HFMDSA-LN04	HFMD	**B278**
HFMDSA-LN06	HFMD	**B280**
HFMDSA-LN10	HFMD	**B282**
HFMMA	HFM	**B291**
HFMSA1000	HFM	**B289**
HPEN	Milling Inserts	**B8**
HPEN-WC	Milling Inserts	**B8**
HQMCA-SQ12	HQM	**B268**
HQMCA-SQ14	HQM	**B269**
HQMSA-SQ12	HQM	**B270**
HQMSA-SQ14	HQM	**B271**
HRMCA13	HRM	**B308**
HRMCA15	HRM	**B309**
HRMDCA09	HRMD	**B297**
HRMDCA13	HRMD	**B298**
HRMDCA16	HRMD	**B299**
HRMDMA06	HRMD	**B305**
HRMDMA09	HRMD	**B306**
HRMDMA13	HRMD	**B307**
HRMDSA06	HRMD	**B300**
HRMDSA09	HRMD	**B301**
HRMDSA13	HRMD	**B303**
HRMMA08	HRM	**B313**
HRMMA10	HRM	**B314**
HRMMA13	HRM	**B314**
HRMSA08	HRM	**B310**
HRMSA10	HRM	**B310**
HRMSA13	HRM	**B311**
HRMSA15	HRM	**B312**
HSK-ATM	Tooling System (ATM)	**E164**
HSK-DBC	Tooling System (DBC)	**E134**
HSK-DBCA-H	Tooling System (DBCA)	**E132**
HSK-DBCA-S	Tooling System (DBCA)	**E132**
HSK-DHE	Tooling System (DHE)	**E13**
HSK-DHE/S	Tooling System (DHE/S)	**E19**
HSK-DSC/M	Tooling System (DSC)	**E32**
HSK-DST	Tooling System (DST)	**E92**
HSK-FBH/B	Tooling System (FBH/B)	**E121**
HSK-FBH/D	Tooling System (FBH/D)	**E126**
HSK-FMA	Tooling System (Damping Pro)	**E172**
HSK-FMC	Tooling System (FMC)	**E108**
HSK-FMC	Tooling System (Damping Pro)	**E173**
HSK-GSK	Tooling System (GSK)	**E80**
HSK-KMB	Tooling System (KMB)	**E138**
HSK-MD	Tooling System (MD)	**E114**
HSK-NPM	Tooling System (NPM)	**E41**
HSK-NPU	Tooling System (NPU)	**E85**
HSK-SDC/P	Tooling System (SDC/P)	**E58**
HSK-SDC/PL	Tooling System (SDC/PL)	**E64**
HSK-SLA	Tooling System (SLA)	**E101**
HSK-SMB	Tooling System (SMB)	**E136**
HSK-SMH	Tooling System (SMH)	**E140**
HT	Tooling System (HT)	**E177**

I

Indexable HOB	Indexable HOB	**B413**
IRB	Indexable Reamer (Stuffed Hole)	**D77**
IRT	Indexable Reamer (Throughout Hole)	**D76**
ISO Metric	Thread Milling Inserts	**C12**

K

K2DA	KING Drill (For through coolant system with a lathe)	**D11**
K2DA	KING Drill (For large diameter drilling)	**D16**
K3DA	KING Drill (For through coolant system with a lathe)	**D12**

H Index by designation

K

K3DA	KING Drill (For large diameter drilling)	**D16**
K4DA	KING Drill (For through coolant system with a lathe)	**D13**
K4DA	KING Drill (For large diameter drilling)	**D16**
K5DA	KING Drill (For through coolant system with a lathe)	**D14**
KEL-ANN	Milling Inserts	**B8**
KEL-MF	Milling Inserts	**B8**
KEL-QNN	Milling Inserts	**B8**

L

LBEA-MHD	Laser Mill	**B337**
LBEA031-C	Laser Mill	**B333**
LBEA037-C	Laser Mill	**B333**
LBEA050	Laser Mill	**B334**
LBEA050-C	Laser Mill	**B333**
LBEA062	Laser Mill	**B334**
LBEA062-C	Laser Mill	**B333**
LBEA075	Laser Mill	**B334**
LBEA075-C	Laser Mill	**B333**
LBEA100	Laser Mill	**B334**
LBEA100-C	Laser Mill	**B333**
LBEA125	Laser Mill	**B334**
LBEA125-C	Laser Mill	**B333**
LBH	Milling Inserts	**B8**
LBH-KF	Milling Inserts	**B8**
LBH-KH	Milling Inserts	**B9**
LBS	Milling Inserts	**B9**
LCF	Milling Inserts	**B9**
LDET-MA	Milling Inserts	**B10**
LFH	Milling Inserts	**B9**
LNCS	Milling Inserts	**B10**
LNE	Milling Inserts	**B10**
LNEX-MA	Milling Inserts	**B11**
LNKT-MA	Milling Inserts	**B10**
LNKT-ML	Milling Inserts	**B10**
LNKT-MM	Milling Inserts	**B11**
LNM(E)X-MF	Milling Inserts	**B11**
LNM(E)X-MM	Milling Inserts	**B11**
LNMX-MF	Milling Inserts	**B12**
LNMX-ML	Milling Inserts	**B12**
LNMX-MM	Milling Inserts	**B12**
Long Type	Thread Milling Holders	**C17**
LPEW	Milling Inserts	**B12**
LPMT-MF	Milling Inserts	**B12**
LPMW	Milling Inserts	**B13**
LREA037	Laser Mill	**B336**
LREA037-C	Laser Mill	**B335**
LREA050	Laser Mill	**B336**
LREA050-C	Laser Mill	**B335**
LREA062	Laser Mill	**B336**
LREA062-C	Laser Mill	**B335**
LREA075	Laser Mill	**B336**
LREA075-C	Laser Mill	**B335**
LREA100	Laser Mill	**B336**
LREA100-C	Laser Mill	**B335**
LREA125	Laser Mill	**B336**
LREA125-C	Laser Mill	**B335**
LRH	Milling Inserts	**B9**
LXET-MA	Milling Inserts	**B13**
LXET-ML	Milling Inserts	**B13**

M

MAPDA000HR/L-Z0	Aero Mill Mini	**B155**
MAPDSA000HR/L-Z0	Aero Mill Mini	**B156**
MATA	Modular Adaptor (Steel shank)	**B378**
MATA-C	Modular Adaptor (Carbide shank)	**B379**
Milling Chuck	Tooling System (CAT Milling Chuck)	**E36**
MPMT	Milling Inserts	**B14**
MT	Multi Turn	**D71**

N

NCM535	CVD Coated Grades	**A5**
NCM545	CVD Coated Grades	**A5**
ND3000	Diamond Coated Grades	**A16**
NPT	Thread Milling Inserts	**C16**
NPTF	Thread Milling Inserts	**C16**
NT-FMA	Tooling System (FMA)	**E106**
NT-NPM	Tooling System (NPM)	**E42**

O

OFCN	Milling Inserts	B14
OFCW	Milling Inserts	B14
OFKR-MA	Milling Inserts	B14
OFKR-MF	Milling Inserts	B14
OFKR-MM	Milling Inserts	B14
OFKT-MA	Milling Inserts	B14
OFKT-MF	Milling Inserts	B14
OFKT-MM	Milling Inserts	B15
ONHX-MA	Milling Inserts	B15
ONHX-MF	Milling Inserts	B15
ONHX-ML	Milling Inserts	B15
ONHX-MM	Milling Inserts	B15
ONHX-W	Milling Inserts	B15
ONMX-MF	Milling Inserts	B15
ONMX-MM	Milling Inserts	B15

P

PACA4000	Pro-A Mill	B355
PALCA	Pro-L Mill	B367
PALSA	Pro-L Mill (Single-edge)	B368
PALSA	Pro-L Mill (Multi-edge)	B370
PAMA2000	Pro-A Mill	B357
PASA2000	Pro-A Mill	B356
PASA4000	Pro-A Mill	B356
PAVCA-XD19	Pro-V Mill	B376
PAVSA-XD19	Pro-V Mill	B377
PAXCA5000	Pro-X Mill	B360
PAXCA6000	Pro-X Mill	B361
PAXMA5000	Pro-X Mill	B364
PAXSA5000	Pro-X Mill	B362
PAXSA6000	Pro-X Mill	B363
PBACA5000	Power Buster	B65
PBPCA6000	Power Buster	B67
PBZCA5000	Power Buster	B66
PC2005	PVD Coated Grades	A9
PC2010	PVD Coated Grades	A9
PC2015	PVD Coated Grades	A9
PC2505	PVD Coated Grades	A10
PC2510	PVD Coated Grades	A10
PC3700	PVD Coated Grades	A7
PC5335	PVD Coated Grades	A12
PC5400	PVD Coated Grades	A11
PC5535	PVD Coated Grades	A13
PC6100	PVD Coated Grades	A6
PC9540	PVD Coated Grades	A8
PCD Face Cutter	PCD Face Cutter	B157
PD1005	DLC Coated Grades	A17
PD1010	DLC Coated Grades	A17
PESA2000	Turbo Mill	B59
PESA3000	Turbo Mill	B59
PESA4000	Turbo Mill	B59
PFA4000	Mill Max	B55
PNEJ	Milling Inserts	B16
PNEJ-C	Milling Inserts	B16
PPNA000	Mill Max	B56
Pull Stud Bolt	Tooling System (Pull Stud Bolt)	E176
PXLA	Pro-XL Mill	B372

Q

QCGT	Multi Functional insert (Multi-Turn)	D71
QCMT	Multi Functional insert (Multi-Turn)	D71

R

RDC	Tooling System (RDC)	E117
RDCT-MA	Milling Inserts	B16
RDHW	Milling Inserts	B16
RDKT-MF	Milling Inserts	B17
RDKT-ML	Milling Inserts	B17
RDKT-MM	Milling Inserts	B17
RDKW	Milling Inserts	B17
REKR-MM	Milling Inserts	B17
RI	Drill Insert (Indexable Reamer)	D75
RM14XCA-XN06	Rich Mill RM14	B140
RM16ACA6000	Rich Mill RM16	B142
RM16ACA8000	Rich Mill RM16	B143
RM3PCA3000	Rich Mill RM3	B78
RM3PCA4000	Rich Mill RM3	B79
RM3PCA5000	Rich Mill RM3	B80
RM3PMA3000	Rich Mill RM3	B83

R

RM3PMA4000	Rich Mill RM3	B83
RM3PSA3000	Rich Mill RM3	B81
RM3PSA4000	Rich Mill RM3	B82
RM4PCA3000	Rich Mill RM4	B90
RM4PCA4000	Rich Mill RM4	B91
RM4PFCBA3000	Rich Mill RM4	B97
RM4PFCBA4000	Rich Mill RM4	B98
RM4PFCPA3000	Rich Mill RM4	B101
RM4PFCPA4000	Rich Mill RM4	B102
RM4PHCBA3000	Rich Mill RM4	B99
RM4PHCBA4000	Rich Mill RM4	B100
RM4PHCPA3000	Rich Mill RM4	B103
RM4PHCPA4000	Rich Mill RM4	B104
RM4PMA3000	Rich Mill RM4	B94
RM4PSA3000	Rich Mill RM4	B92
RM4PSA4000	Rich Mill RM4	B93
RM4ZCA3000	Rich Mill RM4	B95
RM4ZCA4000	Rich Mill RM4	B95
RM4ZMA3000	Rich Mill RM4	B96
RM4ZSA3000	Rich Mill RM4	B96
RM6PCA-WN04	Rich Mill RM6	B108
RM6PCA-WN08	Rich Mill RM6	B109
RM6PMA-WN04	Rich Mill RM6	B112
RM6PMA-WN08	Rich Mill RM6	B113
RM6PSA-WN04	Rich Mill RM6	B110
RM6PSA-WN08	Rich Mill RM6	B111
RM8ACA4000	Rich Mill RM8	B116
RM8ACA5000	Rich Mill RM8	B118
RM8ECA4000	Rich Mill RM8	B120
RM8ECA5000	Rich Mill RM8	B122
RM8QCA4000	Rich Mill RM8	B124
RMH8ACA4000	Rich Mill RM8	B117
RMH8ACA5000	Rich Mill RM8	B119
RMH8ECA4000	Rich Mill RM8	B121
RMH8ECA5000	Rich Mill RM8	B123
RMH8QCA4000	Rich Mill RM8	B125
RMRCA-RN12	Rich Mill RMR	B146
RMRSA-RN12	Rich Mill RMR	B147
RMT8AA4000	Rich Mill RMT8	B127
RMT8AA5000	Rich Mill RMT8	B128
RMT8EA4000	Rich Mill RMT8	B129
RMT8EA5000	Rich Mill RMT8	B130
RMT8QA4000	Rich Mill RMT8	B131
RMX8ACA-SA14	Rich Mill RM8-X	B136
RNMX-ML	Milling Inserts	B17
RNMX-MM	Milling Inserts	B17
RPCT-MA	Milling Inserts	B17
RPET-ML	Milling Inserts	B18
RPMT-MF	Milling Inserts	B18
RPMT-MM	Milling Inserts	B18
RPMW	Milling Inserts	B18
RTJW	Tooling System (RTJW)	E75

S

S-DTN	Tooling System (DTN)	E88
S-FBH	Tooling System (FBH)	E124
S-FBH/B	Tooling System (FBH/B)	E123
S-SDC	Tooling System (SDC/P)	E60
S-SDC/S	Tooling System (SDC/P)	E61
SAGX-ML	Milling Inserts	B18
SAGX-MM	Milling Inserts	B18
SDCN	Milling Inserts	B19
SDET-MA	Milling Inserts	B19
SDET-MF	Milling Inserts	B19
SDET-MM	Milling Inserts	B19
SDKN-CM	Milling Inserts	B19
SDKN-MU	Milling Inserts	B20
SDKN-SU	Milling Inserts	B20
SDKR-MX	Milling Inserts	B20
SDMT-MM	Milling Inserts	B20
SDXT-MA	Milling Inserts	B20
SDXT-MF	Milling Inserts	B20
SDXT-MM	Milling Inserts	B20
SECA	Milling Inserts	B20
SECN	Milling Inserts	B21
SEET-MA	Milling Inserts	B21
SEET-MF	Milling Inserts	B21
SEET-MM	Milling Inserts	B21
SEEW	Milling Inserts	B21
SEEW-W	Milling Inserts	B21
SEKN-SU	Milling Inserts	B21

S

SEKR-MX	Milling Inserts	B22
SEMN	Milling Inserts	B22
SEXT-MF	Milling Inserts	B22
SEXT-MM	Milling Inserts	B22
SEXT-MR	Milling Inserts	B22
SFCN	Milling Inserts	B22
SK-DHE	Tooling System (DHE)	E15
SK-DHE/G	Tooling System (DHE/G)	E21
SK-DSC/M	Tooling System (DSC)	E32
SK-DST	Tooling System (DST)	E93
SK-DTN	Tooling System (DTN)	E89
SK-FBH/B	Tooling System (FBH/B)	E122
SK-FBH/D	Tooling System (FBH/D)	E127
SK-FMC	Tooling System (FMC)	E109
SK-FMC	Tooling System (Damping Pro)	E174
SK-GSK	Tooling System (GSK)	E81
SK-MD	Tooling System (MD)	E115
SK-MTA	Tooling System (MTA)	E103
SK-NPM	Tooling System (NPM)	E42
SK-NPU	Tooling System (NPU)	E86
SK-SDC/P	Tooling System (SDC/P)	E59
SK-SLA	Tooling System (SLA)	E102
SNC(M)F-MF	Milling Inserts	B22
SNC(M)F-MM	Milling Inserts	B23
SNCN	Milling Inserts	B23
SNEF	Milling Inserts	B23
SNEU-MF	Milling Inserts	B23
SNEU-TBW	Milling Inserts	B24
SNEU-WMF	Milling Inserts	B24
SNEW	Milling Inserts	B24
SNEW-NAF	Milling Inserts	B24
SNEW-XAF	Milling Inserts	B24
SNEX	Milling Inserts	B24
SNEX-CU1	Milling Inserts	B24
SNEX-MA	Milling Inserts	B24
SNEX-ML	Milling Inserts	B24
SNEX-W	Milling Inserts	B26
SNGX-MA	Milling Inserts	B24
SNHT-WX	Milling Inserts	B25
SNKN	Milling Inserts	B25
SNM(E)X-MF	Milling Inserts	B25
SNM(E)X-MM	Milling Inserts	B25
SNMX-MM	Milling Inserts	B18
SOKX-ML	Milling Inserts	B26
SOKX-MM	Milling Inserts	B26
SPBA	Side Cutter	B388
SPCN	Milling Inserts	B26
Special PCD Order Sheet	PCD Face Cutter	B157
SPEN-WC	Milling Inserts	B27
SPET-ND	Drill Available Insert	D9
SPEX	Milling Inserts	B27
SPFN	Milling Inserts	B27
SPKN-MU	Milling Inserts	B27
SPKN-SU	Milling Inserts	B27
SPKR-MX	Milling Inserts	B27
SPMN	Milling Inserts	B27
SPMT	Milling Inserts	B27
SPMT-KC	Milling Inserts	B27
SPMT-LD	Drill Available Insert	D9
SPMT-MM	Milling Inserts	B28
SPMT-PD	Drill Available Insert	D9
SPPA	Side Cutter	B387
SPSA	Side Cutter	B389
SQMT-MF	Milling Inserts	B28
SQMT-ML	Milling Inserts	B28
SQMT-MM	Milling Inserts	B28
SQMW	Milling Inserts	B28
ST-DSC/M	Tooling System (DSC)	E34
ST-DSC/S	Tooling System (DSC)	E34
ST-OFH	Tooling System (OFH)	E98
Standard Type	Thread Milling Holders	C17

T

Taper Type	Thread Milling Holders	C17
TC Collet	Tooling System (DCJ)	E48
TCA Tap Adapter	Tooling System (TCA)	E90
TEC(E)N	Milling Inserts	B28
TEEN	Milling Inserts	B28
TEH	Tooling System (TEH)	E96
TER Collet	Tooling System (TER Collet)	E94
TFCN	Milling Inserts	B29

T

TFEA	T-Cutter	**B352**
THEA	Tank Mill	**B315**
TNKT-ML	Milling Inserts	**B29**
TNKT-MM	Milling Inserts	**B29**
TNMX-NM	Milling Inserts	**B29**
TP2PCA-LN08	TP2P	**B319**
TP2PCA-LN14	TP2P	**B320**
TP2PCA-LN17	TP2P	**B321**
TP2PSA-LN08	TP2P	**B322**
TP2PSA-LN14	TP2P	**B323**
TP2PSA-LN17	TP2P	**B324**
TP8PCA-SO14	TP8P	**B327**
TP8PSA-SO14	TP8P	**B328**
TPCN	Milling Inserts	**B29**
TPD	Drill insert (TPDC Plus Drill)	**D25**
TPD	Drill insert (TPDB Plus Drill)	**D40**
TPD	Drill insert (TPDB-DS)	**D51**
TPD	Drill insert (TPDB-H)	**D56**
TPD	Drill insert (TPDB-F)	**D61**
TPDB-DS(3D)	TPDB-DS	**D52**
TPDB-DS(5D)	TPDB-DS	**D52**
TPDB-DS(8D)	TPDB-DS	**D52**
TPDB-F(1.5D)	TPDB-F	**D62**
TPDB-H(3D)	TPDB-H	**D57**
TPDB-H(4D)	TPDB-H	**D57**
TPDB-H(5D)	TPDB-H	**D58**
TPDB-H(8D)	TPDB-H	**D58**
TPDBA(10D)	TPDB Plus Drill	**D46**
TPDBA(12D)	TPDB Plus Drill	**D47**
TPDBA(3D)	TPDB Plus Drill	**D43**
TPDBA(5D)	TPDB Plus Drill	**D44**
TPDBA(8D)	TPDB Plus Drill	**D45**
TPDCA(1.5D)	TPDC Plus Drill	**D31**
TPDCA(10D)	TPDC Plus Drill	**D33**
TPDCA(12D)	TPDC Plus Drill	**D33**
TPDCA(3D)	TPDC Plus Drill	**D31**
TPDCA(5D)	TPDC Plus Drill	**D32**
TPDCA(8D)	TPDC Plus Drill	**D32**
TPDXA(3D)	TPDC Plus Drill	**D26**
TPDXA(5D)	TPDC Plus Drill	**D26**
TPDXA(8D)	TPDC Plus Drill	**D26**
TPKN-MU	Milling Inserts	**B30**
TPKN-SU	Milling Inserts	**B30**
TPKR-MX	Milling Inserts	**B30**
TPMCA-TN16	Triple Mill	**B258**
TPMCA-TN20	Triple Mill	**B259**
TPMSA-TN11	Triple Mill	**B260**
TPMSA-TN16	Triple Mill	**B261**
TWX-KC	Milling Inserts	**B30**

U

UNJ(Unified Constant Thread)	Thread Milling Inserts	**C14**

V

VCKT-MA	Milling Inserts	**B30**
VDKT-MA	Milling Inserts	**B30**

W

WDKT-MH	Milling Inserts	**B30**
WFSBA	Wind Mill (Boss type)	**B392**
WFSPA	Wind Mill (Plane type)	**B393**
Whitworth(BSW, BSF, BSP, BSB)	Thread Milling Inserts	**C15**
WNGX-MA	Milling Inserts	**B31**
WNGX-ML	Milling Inserts	**B31**
WNGX-MM	Milling Inserts	**B31**
WNMX-MF	Milling Inserts	**B31**
WNMX-ML	Milling Inserts	**B31**
WNMX-MM	Milling Inserts	**B31**
WPDCA(5D)	WPDC (Standard type)	**D67**
WPDCA(5D)	WPDC (Single insert cartridge type)	**D68**
WPDCA(5D)	WPDC (Dual insert cartridge type)	**D68**
WPDCA(6.5D)	WPDC (Standard type)	**D67**
WPDCA(6.5D)	WPDC (Single insert cartridge type)	**D68**
WPDCA(6.5D)	WPDC (Dual insert cartridge type)	**D68**
WPDCA(8D)	WPDC (Standard type)	**D67**
WPDCA(8D)	WPDC (Single insert cartridge type)	**D68**
WPDCA(8D)	WPDC (Dual insert cartridge type)	**D68**

X

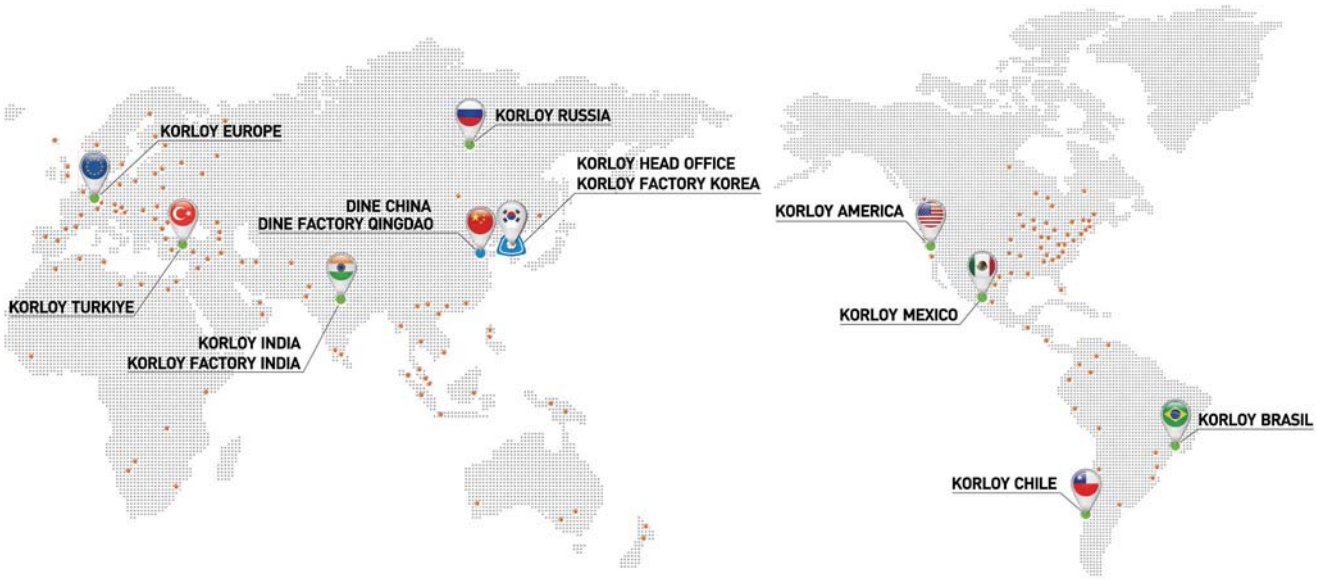
XCET-KC	Milling Inserts	**B32**
XDET-MA	Milling Inserts	**B32**
XEKT-MA	Milling Inserts	**B32**
XEKT-ML	Milling Inserts	**B32**
XNCT-MA	Milling Inserts	**B32**
XNKT-ML	Milling Inserts	**B33**
XNKT-MM	Milling Inserts	**B33**
XNMX-ML	Milling Inserts	**B33**
XNMX-ML	Milling Inserts	**B33**
XNMX-MM	Milling Inserts	**B33**
XNMX-MM	Milling Inserts	**B33**
XOET-ND	Drill Available Insert	**D10**
XOMT-LD	Drill Available Insert	**D9**
XOMT-PD	Drill Available Insert	**D9**
XOMT-RD	Drill Available Insert	**D10**

Z

ZDMT-R-MM	Milling Inserts	**B33**
ZPET-MM	Milling Inserts	**B34**
ZPMT-MM	Milling Inserts	**B34**
ZPMT-R-MM	Milling Inserts	**B34**
ZPMT-R-MR	Milling Inserts	**B34**

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